

CLINICAL DIET MANUAL

A Handbook for Medical Nutrition Therapy

18th Edition

For

Physicians

Registered Dietitians

Nurses

Dietary Technicians

Dietary Managers

Hospital Food Service Directors

Food Service Supervisors

Outpatient Clinics

Home Healthcare

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NOTE TO ALL USERS OF THIS MANUAL: The information and diets included in this manual are intended only as a general guide for all nutrition counselors. Appropriate information should be gathered from the patient/client and the health care team so that training and information can be individualized for the patient/client and complies with the written diet orders.

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Clinical Diet Manual Approval

This Clinical Diet Manual will become the standard for Food and Nutrition Services Departmental procedure and will supersede all previous Diet Manuals upon approval. Physicians should note that therapeutic diet orders will be complied with according to the standards established in the Clinical Diet Manual unless otherwise specified by Physician's order.

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Calorie Controlled Diet
Enteral and Parenteral Nutrition
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Modification in Sodium Diet
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General Information and Procedures

Purpose of Manual

This manual has been prepared as a general guide for the planning, ordering and preparation of diets in order to simplify dietary management and instruction of the patient in the hospital and at home. It establishes a uniform program for Food and Nutrition Services throughout the hospital or healthcare facility. All dietary guidelines remain flexible, allowing physician and clinical dietitian freedom to modify diets to fit individual patient needs.

Scope

All standard diets in the manual have been established within the framework of the most recent Dietary Reference Intakes (DRI) and Calcium and Vitamin D (2011) recommended by the Food and Nutrition Board, Institute of Medicine, National Academies and are modified to meet the increased nutritional requirements of diseases and injury.

Evaluation of the nutritional status of the person has become a major consideration in many illnesses. The assessment of the nutritional status of the person by the clinical dietitian includes obtaining clinical information, dietary history, and reviewing available biochemical data. Once the diagnostic nutritional assessment is done, the information should be used in developing the nutritional care plan for the person.

The nutritional adequacy of the diets is compared with the Dietary Reference Intakes for the referenced man 23-50 years of age, in the case of diets for adults and as compared to designated age groups in the case of children's diets. The limited nutrients are identified in each diet plan so that supplementation may be prescribed as the physician sees fit. Information includes:

- Indications for Use
- General Description of Diet
- Nutritional Adequacy
- Foods Allowed
- Foods to Avoid
- Sample Daily Meal Plan

 Prescribing and Ordering Diets – Refer to hospital /facility policy and procedures.

Nourishments

Between meals, nourishments are provided for diets requiring them as supplements and are indicated under “General Description of Diet.” Any nourishment for diets other than those specifically stated should be ordered by the physician for the patient. The registered dietitian may give supplements without a written physician’s order within the scope of practice and dietary prescription.

Nutrition Education

Nutrition education will be given to patients according to hospital/facility policy and procedures.

Diet Additions, Changes or Deletions

It is desirable that diet additions, changes, and deletions be made in ample time to expedite that diet order and the service of the patient’s tray. **Please refer to Food and Nutrition Services department policy and procedure.**

Regular Diet

Indication

Used to maintain or restore the nutritional status of patients with minor illnesses and injuries. Patients with massive injuries, such as burns, fractures or extensive surgery may need additional protein and calorie support. If additional calories and protein are necessary, milk, milk products, protein foods, or oral nutritional supplements are given between meals.

Description

This diet is given to all patients who do not require any dietary restrictions and provides generous amounts of all nutrients.

Nutritional Adequacy

This diet is adequate in the specified nutrients from the Dietary Reference Intakes: Recommended Dietary Allowances of the National Academy of Sciences. It provides approximately 2,352 calories, 130 grams protein.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
1/2 c. Orange juice	4 oz. Roast beef/au jus	6 oz. Vegetable soup
1/2 c. Oatmeal	1/2 c. Mashed potatoes	4 oz. Baked chicken
1 Poached egg (3 x week)	1/2 c. Glazed carrots	1/2 c. Rice pilaf
1 Bran muffin	1 c. Tossed green salad	1/2 c. Green beans
1 tsp. Margarine	with 1 tbsp. dressing	1 Hot whole wheat roll
1 c. Low fat milk	Fresh grapes	1 tsp. Margarine
Jelly	1 sl. Whole wheat bread	1 c. Low fat milk
Salt, pepper, sugar	1 tsp. Margarine	1 sl. Apple pie
Coffee or Tea	Salt, pepper, sugar	Salt, pepper, sugar
	Iced tea	Coffee or Tea

High Protein, High Calorie Diet

Indication

This diet is used when increased amounts of protein and calories are needed such as with protein-calorie malnutrition and to prevent weight loss and tissue wasting under conditions when protein and calorie requirements are greatly increased by protein turnover, protein catabolism and negative nitrogen balance. This diet may be used to prepare a malnourished patient for surgery. Examples of conditions which may increase protein and calorie requirements include: critical illness, severe burns, severe infection, long bone fracture, post-operative recovery, AIDS and cancer.

Description

This diet is based on the regular diet supplemented with additional servings of high protein foods such as milk and eggs. Commercial oral nutritional supplements may also be used to provide added protein, calories and nutrients.

This diet should provide at least 1.2 to 1.5 grams of protein per kilogram of ideal body weight as compared to a regular diet which should provide 0.8 grams of protein per kilogram body weight. It should provide approximately 3,500-4,000 calories daily. Providing adequate energy and protein can minimize loss of lean tissue. However, after approximately 700 calories are consumed, maximum protein sparing is achieved. In some instances, six small feedings may be better accepted than three large meals.

In 1993, the FDA adopted the Protein Digestibility Corrected Amino Acid Score (PDCAAS) to evaluate the quality of dietary protein. The PDCAAS is a chemical scoring pattern which estimates the concentration of the most limiting, digestibility-corrected, amino acid in a standard test protein. The foods with the highest PDCAAS values are: milk protein, egg, soy, beef and peas. However, it remains important to consume many kinds of protein throughout the day as the amino acid profiles complement each other.

For assessing individual energy needs, please refer to Section T.

Nutritional Adequacy

This diet is adequate in all specified nutrients from the Dietary Reference Intakes: Recommended Dietary Allowances.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice ½ c. Cream of wheat 2 Eggs, scrambled 2 sl. Toast 2 tsp. Margarine 1 tbsp. Jam 1 c. Whole milk 2 tsp. Sugar Salt, pepper Coffee or Tea	3 oz. Roast beef/au jus 1/2 c. Buttered mashed potatoes 1/2 c. Buttered green beans 1/2 c. Molded apricot gelatin salad 1 sl. Whole wheat bread 1 sl. Chocolate cake 1 tsp. Margarine 1/2 tbsp. Jam 1 c. Whole milk 1 tsp. Sugar Iced Tea	3 oz. Baked chicken ½ c. Rice pilaf ½ c. Buttered carrots 1 c. Tossed green salad with French dressing ½ c. Sliced peaches 1 Dinner roll 1 tsp. Margarine 1 c. Whole milk ½ tbsp. Jam 1 tsp. Sugar Coffee or Tea
Mid-Morning	Mid-Afternoon	Evening
4 oz. Egg custard ½ c. Apple juice	Sandwich: 2 sl. Whole wheat bread 2 oz. Sliced turkey 2 tsp. Mayonnaise 8 oz. 7-Up	2 Tbsp. Peanut butter 6 Saltine crackers 1 c. Whole milk

Sample daily menu plan provides approximately 3,500 calories and 160 g protein

Vegetarian Diets

Indication

This diet is used when animal products are to be avoided. Lacto-ovo vegetarian diets avoid meat, poultry and fish but include dairy products and eggs. Vegan diets avoid all animal products entirely. Common reasons for choosing a vegetarian diet include health considerations, concern for the environment and animal welfare. Vegetarians also cite economic reasons, ethical considerations, world hunger issues and religious beliefs as their reasons for following their chosen eating pattern.

Description

Vegetarian diets may vary considerably from person to person. Some vegetarian diets only exclude meat and poultry. Some diets exclude fish, dairy products and eggs as well. Some vegan diets even exclude honey. The lacto-ovo vegetarian eating pattern is based on grains, vegetables, fruits, legumes, seeds, nuts, dairy products, and eggs but excludes meat, fish, and fowl. The strict vegetarian pattern has the additional exclusion of eggs, dairy and other animal products. Even within these patterns, considerable variation may exist in the extent to which animal products are avoided. An interview can be useful to determine which foods each individual chooses to exclude from their vegetarian diet. Vegetarian diets offer a number of advantages, including lower levels of saturated fat, cholesterol, animal protein and higher levels of fiber, magnesium, boron, folate, antioxidants such as vitamins C and E, carotenoids, and phytochemicals. Some vegans may have lower intakes of protein, vitamin B-12, iron, vitamin D, calcium, zinc, and occasionally riboflavin than recommended resulting in some nutrient deficiencies.

Nutrition Considerations for Vegetarians

Protein

Plants can meet protein requirements when a variety of plant foods are consumed and energy needs are met. Research indicates that an assortment of plant foods eaten over the course of a day can provide all essential amino acids and ensure adequate nitrogen retention and use in healthy adults. Protein has many important functions in the body and is essential for growth and muscle maintenance. Combining different protein sources in the same meal is not necessary. Sources of protein for vegetarians include beans, nuts, nut butters, legumes, peas and soy products (tofu, tempeh, veggie burgers). Dairy products and eggs are also good protein sources for lacto-ovo-vegetarians. The quality of plant proteins varies, based on the protein digestibility-corrected amino acid score which is the standard method for determining protein quality. Isolated soy protein can meet protein needs as effectively as animal protein, whereas wheat protein eaten alone, for example may be 50% less usable than animal protein.

Iron

Plant foods contain only nonheme iron, which is more sensitive than heme iron to both inhibitors and enhancers of iron absorption. Inhibitors of nonheme iron absorption include calcium, zinc, oxalic acid in chard and spinach, teas, including some herb teas, coffee, cocoa, some spices, and phytic acids in grain fibers. Vitamin C and other organic acids found in fruits and vegetables can enhance iron absorption and can help to reduce effects of phytate. Recommended iron intakes for vegetarians are 1.8 times those of nonvegetarians because of lower bioavailability of iron from a vegetarian diet. Iron sources for vegetarians include iron-fortified breakfast cereals, spinach, broccoli, bran, enriched breads, kidney beans, black-eyed peas, lentils, turnip greens, molasses, whole wheat breads, peas and some dried fruits (dried apricots, prunes, raisins).

n-3 Fatty Acids

Generally vegetarian diets are rich in n-6 fatty acids (especially linoleic acid) however these diets can be low in n-3 fatty acids. Most studies show that vegetarians, and particularly vegans, have lower blood levels of EPA and DHA than nonvegetarians. The Adequate Intake (AI) recommends intakes of 1.6 and 1.1 grams of α -linolenic acid per day for men and women respectively. It is recommended that vegetarians include good sources of α -linolenic acid in their diet. These would include foods like flaxseeds, walnuts, soybean oil and canola oil.

Zinc

Is necessary for many biochemical reactions and also helps the immune system function properly. According to 2015-2020 RDA, 3 to 11mg per day of Zinc is needed throughout life span.

Phytates, which are present in whole-grain breads, cereals, legumes, and other foods, bind zinc and inhibit absorption. Thus, the bioavailability of zinc from grains and plant foods is lower than that from animal foods, although many whole grains and plants foods are still good sources of zinc.

Zinc**Amount per serving in mg.****Soy foods**

Soybeans, cooked ½ c.	1.0
Soybeans, dry roasted ½ c.	2.1
Soymilk, ½ c.	0.3
Soymilk, fortified, ½ c.	0.5-1.0
Tempeh, ½ c.	0.9
Tofu, firm ½ c.	1.0

Legumes

Adzuki beans	2.0
Baked beans, canned, vegetarian	1.8
Black beans	1.0
Chickpeas, garbanzo beans	1.3
Great northern beans	0.8
Kidney beans	0.9
Lima beans	0.9
Lentils	1.2
Navy beans	2.3

Nuts, peanuts, seeds and their butter

Almonds, ¼ c.	1.2
Cashews, ¼ c.	1.9
Peanut butter, 2 tbsp.	0.9
Peanuts, dry roast, ¼ c.	1.2
Pumpkin and squash seeds, dried, ¼ c.	2.6
Sesame tahini, 2 tbsp.	1.4
Sunflower seeds, toasted, ¼ c.	1.8

Breads, cereals and grains

Barley, pearled, cooked ½ c.	0.6
Cereal, ready-to-eat, fortified, 1 oz.	0.7-1.5
Quinoa, cooked, ½ c.	0.8
Wheat germ, 2 tbsp.	1.8
Whole wheat bread, 1 slice	0.5

Vegetables (cooked, ½ cup)

Mushrooms	0.7
Peas	1.0

Dairy foods and eggs

Cow's milk, ½ c.	0.5
Cheddar cheese, ¾ oz.	0.7
Egg, large, 1	0.5
Yogurt, ½ c.	0.8-1.1

Calcium

Calcium is present in many plant foods and fortified foods. Low-oxalate greens (bok choy, broccoli, Chinese/Napa cabbage, collards, kale, okra, turnip greens) provide calcium with high bioavailability (49% to 61%), in comparison with calcium-set tofu, fortified fruit juices, and cow's milk (bioavailability in the range of 31% to 32%) and with fortified soymilk, sesame seeds, almonds, and red and white beans (bioavailability of 21% to 24%). Figs and soy foods such as cooked soybeans, soy nuts, and tempeh provide additional calcium. Calcium fortified foods include fruit juices, tomato juice and breakfast cereals. Diets high in sulfur-containing amino acids may increase losses of calcium from bone (eggs, meat, fish, poultry, dairy products, nuts and many grains).

Calcium	<u>Amount per serving in mg.</u>
Soyfoods	
Cultured soy yogurt, fortified, ½ c. _____	367
Soybeans, cooked, ½ c. _____	88
Soybeans, dry roasted, (soy nuts) ¼ c. _____	60
Soybeans, green, ½ c. _____	50
Soymilk, fortified, ½ c. _____	225
Tofu, firm, calcium-set ½ c. _____	170
Tempeh, ½ c. _____	92
Nuts, seeds and their butters	
Almonds, 1oz. _____	80
Almond butter, 2 tbsp. _____	86
Sesame tahini, 2 tbsp. _____	128
Breads, cereals and grains	
Cereal, ready-to-eat, fortified ½ c. _____	55-315
Fruits	
Figs, dried, 5 _____	137
Orange, 1 large _____	74
Orange juice, calcium fortified, ½ c. _____	175
Vegetables (cooked, 1 c.)	
Bok choy _____	158
Broccoli _____	60
Collard greens _____	357
Kale _____	179
Fennel, raw _____	115
Mustard greens _____	152
Okra _____	135
Turnip greens _____	249
Other foods	
Blackstrap, molasses, 2 Tbsp. _____	400
Dairy products	
Cow's milk, ½ c. _____	137-158
Cheddar cheese, ¾ c. _____	159
Yogurt, plain, 6oz. _____	260

Vitamin D

Vitamin D is a hormone synthesized by sunlight on skin. Vitamin D status depends on sunlight exposure and intake of vitamin D fortified foods or supplements which provide vitamin D orally. Foods that are fortified with vitamin D include cow, almond, soy and rice milk, some breakfast cereals and margarines. Vitamin D occurs naturally in very few foods. If sun exposure and intake of fortified foods are insufficient, vitamin D supplements are recommended. Vitamin D-2 and vitamin D-3 are used in supplements to fortify foods. In 2015-2020 RDA recommended a DRI of 600 IU/day, for males and females ages 71+ years the recommended DRI is 800 IU/day.

Vitamin D	<u>Amount per serving μg^*</u>
Cereals, ready-to-eat, fortified, 1 oz. _____	0.5-1.0
Egg yolk, large 1 _____	0.6
Cow's milk, fortified, $\frac{1}{2}$ c. _____	1.2-1.3
Soy milk or other nondairy milk, fortified, $\frac{1}{2}$ c. _____	0.5-1.5
Tempeh, $\frac{1}{2}$ c. _____	0.9
Tofu, firm $\frac{1}{2}$ c. _____	1.0
Veggie "meats" fortified, 1 oz. _____	1.2-2.3

*1 μg of vitamin D is equivalent to 40 IU

Riboflavin

Some studies have shown vegans to have lower intakes of riboflavin, compared with nonvegetarians; however, clinical riboflavin deficiency has not been observed. Foods that provide about 1 mg of riboflavin per serving are asparagus, bananas, beans, broccoli, figs, kale, lentils, peas, sesame tahini, sweet potatoes, tofu, tempeh, wheat germ, and enriched bread.

Iodine

Vegans may be at risk of iodine deficiency as fish are a primary source of this trace mineral. Inclusion of foods such as seaweed, soybeans, cruciferous vegetables, sweet potatoes and iodized salt can provide adequate iodine to a vegan diet.

Vitamin B-12

Vitamin B-12 is naturally found in animal products. Vegetarian diets are typically high in folic acid which can mask the hematological symptoms of vitamin B-12 deficiency. Sources of vitamin B-12 that are not derived from animals include B-12 fortified foods or supplements. Unless fortified, no plant food contains significant amounts of active vitamin B-12. Lacto-ovo-vegetarians can get adequate vitamin B-12 from dairy foods and eggs if these foods are consumed regularly.

Healthy Vegetarian Eating Pattern (2015-2020 Dietary Guidelines for Americans):

Calorie Level of Pattern^a	1,400	1,600	1,800	2,000	2,200	2,400
Food Group^b						
Vegetables	1½ c-eq	2 c-eq	2½ c-eq	2½ c-eq	3 c-eq	3 c-eq
Dark-green vegetables (c-eq/wk)	1	1½	1½	1½	2	2
Red and orange vegetables (c-eq/wk)	3	4	5½	5½	6	6
Legumes (beans and peas) (c-eq/wk) ^d	½	1	1½	1½	2	2
Starchy vegetables (c-eq/wk)	3½	4	5	5	6	6
Other vegetables (c-eq/wk)	2½	3½	4	4	5	5
Fruits	1½ c-eq	1½ c-eq	1½ c-eq	2 c-eq	2 c-eq	2 c-eq
Grains	5 oz-eq	5½ oz-eq	6½ oz-eq	6½ oz-eq	7½ oz-eq	8½ oz-eq
Whole grains ^e (oz-eq/day)	2½	3	3½	3½	4	4½
Refined grains (oz-eq/day)	2½	2½	3	3	3½	4
Dairy	2.5 c-eq	3 c-eq	3 c-eq	3 c-eq	3 c-eq	3 c-eq
Protein Foods	2 oz-eq	2½ oz-eq	3 oz-eq	3½ oz-eq	3½ oz-eq	4 oz-eq
Eggs (oz-eq/wk)	3	3	3	3	3	3
Legumes (beans and peas) (oz-eq/wk) ^d	4	4	6	6	6	8
Soy products (oz-eq/wk)	4	6	6	8	8	9
Nuts and seeds (oz-eq/wk)	3	5	6	7	7	8
Oils	17 g	22 g	24 g	27 g	29 g	31 g
Limit on Calories for Other Uses, calories (% of calories)^{f,g}	190 (14%)	180 (11%)	190 (11%)	290 (15%)	330 (15%)	390 (16%)

SAMPLE DAILY MENU PLAN**Lacto-ovo Vegetarian or Lacto Vegetarian**

Breakfast	Lunch	Dinner
½ c. Orange juice	6 oz. Vegetable lasagna	1 c. Low-fat Cottage cheese stuffed in tomato
1 Poached egg	2 sl. Garlic toast	½ c. Three bean salad
1 c. Oatmeal with	4 oz. Green salad with	2 Whole grain dinner rolls
1 tbsp. wheat germ	dressing	½ c. Fruited gelatin
1 sl. Whole grain toast	1 Fresh apple	1 c. Low-fat milk
1 tbsp. Margarine	1 c. Low-fat milk	
1 tbsp. Raisins		

Sample meal plan provides approximately: 106 gm protein, 275 gm carbohydrate, 61 gm fat, 2,077 calories

SAMPLE DAILY MENU PLAN**Strict vegetarian**

Breakfast	Lunch	Dinner
½ c. Orange juice	1 c. Lima beans or Black bean chili	1 c. Soy beans or Bean tostada
1 c. Oatmeal with	1 c. 7 grain rice	2 Cornbread muffins
2 tbsp. Wheat germ	1 c. Buttered broccoli	1 tsp. Margarine
1 sl Whole grain toast	4 oz. Green salad with	½ c. Carrot raisin salad
1 tsp. Margarine	dressing	1 Peach
8 oz. Fortified soy milk	1 c. Fruit	8 oz. Fortified soy milk
	1 tsp. Margarine	
Snack		
2 sl. Whole grain bread		
1 Tbsp. Peanut butter		

Sample meal plan provides approximately: 94 gm protein, 314 gm carbohydrate, 78 gm fat, 2,272 calories

Pregnancy and Lactation Diet

✚ Nutritional Recommendations for Pregnancy

1. Recommended weight gain for women of ideal pre-pregnancy weight is 25-35 pounds. Recommended weight gain for women with a low pre-pregnancy weight is 28-40 pounds, 15-25 pounds for overweight women and 11-20 pounds for obese women. To achieve desired weight gain, an addition of 300 calories per day over normal calorie needs is recommended.
2. Supplements of 30 mgs ferrous iron are recommended during the second and third trimester of pregnancy to meet increased iron demands.
3. Calcium, vitamin D, zinc, magnesium, vitamin B₆ and folate status needs to be addressed on an individual basis.
 - Calcium requirements during pregnancy are increased to 1300 mg daily for ≤ 18 yr and 1000 mg/d for 19-50 yr.
 - Vitamin D – 600 IU/d.
 - Zinc – 12 mg for ≤ 18 yr and 11 mg for 19-50 yr.
 - Magnesium – 400 mg/d for ≤ 18 yr, 350 mg/d for 19-30 yr and 360 mg/d for 31-50 yr.
 - Vitamin B₆ 1.9 mg/d for all ages
 - Folate – 600 μ g/d from fortified food or supplement, and for Vegans 2 mcg/d of Vitamin B-12.
 - Daily intake of 400 mcg Folic Acid in the 4 weeks prior to conception is recommended as well.
4. Protein requirements are 71 g/d for 14-51 yr and approximately 30 g/d over normal requirements.
5. Use of iodized salt is recommended to insure adequate iodine intake.
6. Avoid routine restriction of salt intake.
7. Avoid weight reduction regimens during pregnancy.
8. Avoid alcohol ingestion.

✚ Lactation

1. To meet extra nutritional demands for milk production, an additional 500 calories per day over normal calorie needs is recommended. During lactation the mother typically loses 1 to 2 lb. per month, and the loss of the extra body fat is usually complete by the time the infant is 6 months of age. Adequate fluid intake, rest and family support are essential for successful lactation.
2. Protein requirements are increased approximately 20 gm per day over normal.
3. Calcium requirements are 1,300 mg daily ≤ 18 years and 1,000 mg /day ≥ 19 years, the RDA for iron is 9-10mg/d

Hyperemesis Diet

Indication

This diet provides nutrition for the pregnant woman who is experiencing persistent nausea and vomiting while helping to alleviate the nausea and vomiting commonly known as “morning sickness.”

Description

Generally, the diet should be reduced in fat, increased in carbohydrates, and low in fluid content. Small, frequent meals are also recommended.

Nutrition Adequacy

This diet may not be adequate in all nutrients to meet the Dietary Reference Intakes for pregnancy. It is intended to be used only as a temporary diet for symptom relief.

Recommendations

1. Prior to rising from bed in the morning, eat saltines, a handful of dry cereal, or a piece of dry toast or bread.
2. Consume small, frequent meals and avoid long periods of time without food.
3. Drink fluids between meals rather than with meals. Fluids should be sipped slowly.
4. Try small amounts of 100% fruit juice or carbonated beverages when nausea develops between meals, ginger may be helpful as well.
5. Avoid greasy and fried foods.
6. Avoid highly seasoned foods.
7. Avoid any specific food causing nausea and/or vomiting.
8. As tolerance for food increases, fats and fluids may be gradually added and time between meals increased until 3-4 meals/day pattern is reestablished.

Sample Menu

Before Rising

1 or 2 plain Crackers

Breakfast

1 slice Toast with jelly
1 Soft cooked egg
½ cup Cream of wheat
½ Banana

10:00 AM

2 Graham crackers
1 Orange

Lunch

2 oz. Lean chicken, fish or meat – baked or broiled
½ cup Steamed rice
½ cup Green beans
Dinner roll with jelly

2 PM Snack

½ cup Low fat cottage cheese
2 Saltines
½ cup Fruit cocktail

Dinner

3 oz. Lean chicken, fish or meat – baked or broiled
½ cup Boiled potatoes
½ cup Carrots
1 slice Angel food cake

HS Snack

1 oz. Cheese
2 Saltines
1 Small apple

Note: Six to eight cups of fluid per day should be sipped between meals throughout the day.

Geriatric Nutrition

Description

This guide is designed to provide information and assistance to persons who may require dietary changes due to the aging process. Individuality is the key to any special dietary considerations when prescribing and /or implementing meal plans.

Nutrition Adequacy

This diet is adequate in the specified nutrients from the Dietary Reference Intakes (DRI) of the National Academy of Sciences. It provides approximately 2,400 calories, 90-110 grams protein.

Dietary Guidelines

<u>Nutrients</u>	<u>Recommendations</u>
Calories	51 - 75 years, reduce the usual calorie intake by 10%; over 75 years reduce the usual caloric intake by 20-25%
Protein	10-35% of total dietary calories or 0.8 gm/kg of ideal body weight. 56 g/d for men and 46 g/d for women.
Carbohydrates	45-65% of total dietary calories, added sugar <10% Kcal, increase or maintain intake of complex carbohydrates. ~300 g/d for 2,000 calories or ~150 g/d for 1,200 calories.
Fat	20-35% or less of total dietary calories with 10% of total calories from polyunsaturated or monounsaturated fatty acids, <10% Kcal from saturated fat.
Cholesterol	< 300mg
Trans Fat	<0.5 g
Riboflavin	1.3 mg/d for men and 1.1 mg/d for women.
Niacin	16 mg/d for men and 14 mg/d for women.
Thiamin	1.2 mg/d for men and 1.1 mg/d for women.
Vitamin A	900 mg/d for men and 700 mg/d for women.
Vitamin B₆	1.7 mg/d for men and 1.5 mg/d for women.
Vitamin B₁₂	2.4 mcg/d for men and women.
Vitamin C	90 mg/d for men and 75 mg/d for women.
Vitamin D	600 IU for men and women 51-70 y; 600 IU for men and women > 70 y. Over 70 y – 800 IU
Vitamin E	15 mg/d for men and women.

<u>Nutrients</u>	<u>Recommendations</u>
Vitamin K	120 mg/d for men and 90 mg/d for women
Calcium	1000 mg/d for men and 1200mgd for women
Sodium	2300 mg per day for both men and women
Potassium	4700 mg/d for men and women
Phosphorus	700 mg/d for men and women
Folate	400 mc μ g/d for men and women.
Iron	8 mg/d for men and women.
Magnesium	420 mg/d for men and 320 mg/d for women.
Manganese	2.3 mg/d for men and 1.8 mg/d for women.
Zinc	11 mg/d for men and 8 mg/d for women.
Total Fiber	30 grams/day for men and 25 grams/day for women.
Water	Minimum of 1500 ml per day for all persons (first 20 kg) then 15 ml per kg over 20 kg to prevent dehydration and constipation.

Special Dietary Considerations

Problems	Comment
Ill-fitting dentures or dental disease	For an individual who is unable to manage whole pieces of foods (i.e. meats); foods should be chopped, ground or pureed.
Constipation	Sufficient fiber and fluids are necessary. Encourage intake of raw and/or cooked vegetables, raw and/or canned fruits, whole grain breads and cereals. Encourage physical activity as tolerated. Sufficient fluids are generally provided (i.e. 30 ml/kg body weight) unless otherwise contraindicated.
Diminished appetite	Due to decreased sensation of smell, taste and sight, foods should be well seasoned and attractively served. Four to six smaller meals are more acceptable.
Osteoporosis	Many elderly find that milk and milk products are less tolerated due to lactose intolerance. Other milk products can be used such as yogurt, cheese, pudding, custard, etc. Emphasize intake of calcium-rich foods such as dark green leafy vegetables and hard cheeses to reduce the risk of osteoporosis. Lactaid may be used to aid in the digestion of fresh milk. Lactose reduced milk (Lacaid milk) is available in many markets.
Immobility, hearing impairment	Immobility can result in constipation, obesity, memory loss, poor appetite, decubitus ulcers and inability to shop for food. Effective communication skills are important when giving a diet instruction or taking diet history. Try to give instruction in the presence of a family member or friend particularly if there is any question regarding communication.
Decreased iron intake, decreased tolerance to fat	Intake of iron-rich foods in combination with foods high in vitamin C is encouraged. Avoid fried foods and decrease the amounts of fats added to foods.
Low levels of other vitamins and minerals (i.e. vitamin A, ascorbic acid, pyridoxine and zinc)	Intake of nutritionally adequate meals is encouraged with special consideration to protein and vitamin C-rich foods. High protein beverages and vitamin/mineral supplements may be needed to provide adequate nutrition.
Modified diets	Ethnic, cultural, religious, social and economic preferences should be considered when working out a meal plan to meet the nutritional requirements.

Nutrition-Focused Physical Signs of Malnutrition

Signs	Possible Causes or Possible Nutrient Deficiency
Hair Easy pluck ability, thinness, dull, lack of natural shine, loss of curl. De-pigmentation-lightening of normal hair tint	Protein-energy deficiency, zinc deficiency.
Eyes Night blindness; Bitot's spots (shiny gray spots on conjunctiva) Pale conjunctivae Inflammation or redness and fissures of eyelid corners/margins	Vitamin A Iron, folate or B ₁₂ anemia Niacin deficiency, B ₆ deficiency
Nose/Face Diffuse pigmentation Moon face Scaling around the nostrils Pallor	Protein/calorie deficiency Protein/calorie deficiency B ₂ , Niacin, B ₆ deficiency Iron, folacin, B ₁₂ and vitamin C
Lips/Mouth/Tongues/Gums Cheilosis – dry, swollen, or ulcerated lips Glossitis – inflammation of the tongue	B ₆ , B ₂ , niacin, iron (severe deficiency) Iron, zinc, folate, B ₂ , B ₆ , niacin, B ₁₂
Bleeding, spongy gums Gingivitis Diminished taste – hypogeusia Angular stomatitis –lesions in corners of mouth Tongue is smooth or slick	Vitamin C Vitamin A, niacin, B ₂ deficiency Zinc deficiency B ₂ , niacin, iron, B ₆ Niacin, folate, B ₂ , iron, B ₁₂
Teeth Caries – tooth decay Mottled teeth – whitish opaque to severe brown discoloration Loose or missing teeth	Vitamin C deficiency Fluoride excess General poor nutrition, aging, trauma, periodontal disease
Neck Enlarged thyroid (goiter)	Iodine deficiency
Nails Koilonychia – thin, concave nails with raised edges (spoon shape) Dull nails	Iron deficiency Protein deficiency

Nutrition-Focused Physical Signs of Malnutrition

Signs	Possible Causes or Possible Nutrient Deficiency
Gastrointestinal Anorexia, Diarrhea	Vitamin B ₁₂ deficiency
Abdomen Distended, hard to touch Enlarged liver	Gas, bloating Protein deficiency
Muscular System Fat/muscle wasting, prominent skeleton Weakness	Protein-energy deficiencies Phosphorus or potassium deficiencies
Muscle Pain Muscle twitching	Biotin deficiency Magnesium or pyridoxine excess or deficiency
Skeletal Muscular System Fat/muscle wasting on extremities, torso, shoulders, temples and cheeks Bowed legs Swollen, painful joints Demineralization of bone	Protein-energy deficiencies Vitamin D deficiency Vitamin C deficiency Calcium, phosphorus, vitamin D deficiencies
Nervous System Motor weakness Mental confusion Peripheral neuropathy, dementia	Thiamine deficiency Protein Thiamine, niacin, B ₁₂ , pyridoxine deficiencies
Heart Cardiac enlargement Pitting edema – bilateral	Protein deficiency Protein (albumin <2.5–3.0 g/dl), thiamine, vitamin C deficiencies
Skin Dry, scaly	EFA deficiency

Nutrition and Alcoholism

Indication

Alcoholism is a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often progressive and fatal. It is characterized by continuous or periodic impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking, most notably denial. Alcohol causes premature death through over dose, organic complications involving brain, liver, heart and many other organs, and by contributing to suicide, homicide, motor vehicle crashes, and other traumatic events.¹

Effects of Alcoholism and Alcohol Abuse:

Because alcohol has toxic as well as sedative effects, prolonged periods of excess drinking can lead to:

- Digestive –system disorders such as ulcers, inflammation of the pancreas, gastritis and cirrhosis of the liver.
- Serious problems from physical and nutritional neglect, such as anemia.
- Central and peripheral nervous systems damage, including blackouts, hallucinations, tremors, alcohol withdrawal syndrome, delirium and death.
- Damage to unborn children (from even moderate drinking), including birth defects, mental retardation/ learning problems and fetal alcohol syndrome.
- Psychological and interpersonal problems, including impaired thinking and judgment, changes in mood and behavior, marital problems, child abuse, impaired social relationships, scholastic problems, job problems, legal problems and financial problems.^{2 3 4}

Treatment in the United States

For many patients, detoxification-with or without pharmacotherapy-is the first step of treatment. The major behavioral approaches currently used in treatment include cognitive-behavioral therapy, motivational enhancement therapy, and Alcoholics Anonymous (AA) or related 12-step programs. Clinical studies, including the Project MATCH trial, have compared the effectiveness of these approaches. Overall, that study detected no significant differences among the three treatments in patient outcomes, although certain treatment methodologies may be most appropriate for patients with certain characteristics. Pharmacotherapy with aversive or anti-craving medications may supplement behavioral treatment approaches. Brief interventions that are delivered by

¹ The American Society of Addiction Medicine, National Council on Alcoholism and Drug Dependence, 4/26/90.

² Office of Applied Studies, Substance Abuse and Mental Health Services Administration. “Results from the 2001 National Household Survey on Drug Abuse: volume 1. summary of national Findings.”, 2002

³ Adventist Health Care: www.adventisthealthcare.com reviewed 1/13/03.

⁴ Brown SA, Tapert SF, Granholm E. Delis DC (2000). Neurocognitive Functioning of Adolescents: Effects of Protracted Alcohol Use. *Alcoholism: Clinical and Experimental Research*. 24 (2): 164-171.

primary health care providers also have been shown to reduce drinking levels, particularly in nondependent drinkers.⁵

Medications to treat alcoholism

Advances in neurobiology support the development of medications to treat alcoholism by modifying the activity of specific chemical messengers in the brain. Acamprosate (Campral) is approved to decrease the intensity of craving after a person has stopped drinking. Naltrexone has been shown to decrease the positive feedback loop from alcohol consumption in addition to reducing craving by blocking opioid receptors in the brain. Additional second line medications include: disulfiram, topiramate, gabapentin, baclofen, nalmefene, SSRIs and ondansetron.

Alcohol flush reaction: Antabuse is a medication sometimes used to interfere with alcohol metabolism and therefore decrease the likelihood of alcohol use by chronic alcoholics. A small number of people (approximately 50% of Asians and many American Indians) experience the alcohol-flush reaction. The reaction is the result of a genetic mutation in which the liver is unable to manufacture sufficient aldehyde dehydrogenase for it to rapidly metabolize the acetaldehyde formed from the action of alcohol dehydrogenase on alcohol. The symptoms are facial flushing, heart palpitations, dizziness and nausea as the blood levels of acetaldehyde climb to 20 times the normal levels. The effects of disulfiram (Antabuse) cause a similar reaction and are the result of interfering with the breakdown of acetaldehyde. Symptoms described are found among those who drink alcohol while taking Antabuse.

⁵ Fuller, Richard K MD and Hiller Sturmhofel, Susanne Ph.D., Alcoholism Treatment in the United States. Alcohol Research and Health (1999) Vol 23, No 2,p 76.

Medical and Psychological Effects of Alcoholism

Malnutrition

Several factors contribute to the malnutrition that is common in chronic alcoholics with liver disease.

1. Alcohol replaces food in the diet of moderate and heavy drinkers, displacing the intake of adequate calories and nutrients. Though alcohol yields 7.1 kcal/gram when it is consumed in large amounts, it is not utilized efficiently as a fuel source. (Mezey, 1991)
2. In the alcoholic, impaired digestion and absorption is related to pancreatic insufficiency as well as deficiency of brush border enzymes such as lactase. In particular, malabsorption of thiamin, vitamin b12, folic acid, D-xylose, zinc and amino acids has been found.
3. Metabolism is altered and micronutrients affected include folate, thiamin, pyridoxine, vitamin A, vitamin D, zinc and selenium. Wernicke-Korsakoff syndrome from thiamin deficiency is common and is related to deranged metabolism. Magnesium and phosphorus is often deficient as well. (Shronts and Fish, 1993)

Dyslipidemia

Dyslipidemia is prevalent with alcohol abuse. Nutrition intervention is recommended with disordered differential cholesterol levels and high triglycerides.

Liver disease

Alcoholic liver damage is primarily caused by alcohol, however poor nutrition may increase the risk of liver damage as well. Appropriate nutrition therapy is warranted in treatment.

Hangover symptoms and dehydration

Malaise, headache, tremors and nausea are symptoms of an alcohol "hangover." The symptoms are usually most severe many hours after drinking when little alcohol is left in the body. Aspirin, caffeine and Alka Seltzer can irritate the stomach lining to the point of making the individual feel worse. Water is lost in response to alcohol consumption. Alcohol depresses the center in the hypothalamus that controls release of water conserving hormones (antidiuretic hormone). Urine volume increases due to increased fluid intake and lack of the hormone that tells the body to keep the water, resulting in dehydration (Hanson and Venturelli, 1998). Appropriate hydration is included in nutrition therapy.

Sleep apnea

Alcohol depresses the central nervous system and interferes with the normal sleep cycle. The cumulative effects in the chronic user can be quite disruptive. Individuals consuming even moderate amounts of alcohol prior to sleep may experience twice as many apnea episodes as when they do not drink. Individuals with sleep apnea stop

breathing and then catch a large breath. Due to the sedative effect of alcohol the individual might not take the large breath and die.

Irritation of the esophagus and stomach

When stomach alcohol level rises to high levels, the stomach will excrete higher levels of mucous and will also close the pyloric valve between the stomach and small intestine. These actions serve to slow down the absorption of alcohol and allow time for metabolizing the alcohol already in the blood stream. Nausea and possibly vomiting occur as a result of these changes. The contents of the stomach include hydrochloric acid, possibly food and alcohol. The lining of the esophagus was not designed to handle this, resulting in irritation. Esophageal varices may result as the blood vessels surrounding the esophagus rupture from the resulting trauma. Internal bleeding resulting from such an event may be fatal due to the fact that no one is aware that it is occurring until death occurs (Avis, 1999). Some of the vomitus may be aspirated into the trachea and the lungs, causing pneumonia.

Poly drug use

Mixing alcohol and other psychoactive substances modifies the body's reaction. Intensification of the drug or alcohol experience is a common occurrence.

- 50-60% of persons using marijuana also use alcohol.
- 30-60% of those who abuse cocaine also have an alcohol abuse disorder.
- Approximately 1/3 of those admitted to the emergency room for methamphetamine overdose had also consumed a large amount of alcohol.
- Alcohol enhances the properties of depressants that are desired by the user.
- Alcohol decreases the amount of expensive and hard to get drugs that are needed to get the desired effect.
- Alcohol can be used to diminish the unpleasant side effect of other drugs or to ease the withdrawal symptoms. (Hanson and Venturelli, 1998).

Loss of inhibition

After 1 or 2 drinks the individual experiences disinhibition. This is probably due to the reaction of alcohol with neurotransmitters, especially serotonin. Alcohol interferes with cortical nerve function. The cerebral cortex is the part of the brain where abstract thinking and speech occur and it is the part of the brain where voluntary behavior is planned. While under the influence, the person might engage in behaviors that would be unthinkable under normal conditions. Between 40-50 % of those who commit homicide used alcohol prior to the act. Persons with developmental disability or acquired brain injury are especially at risk for these effects.

Unconsciousness and death

The amount of alcohol in the blood to bring about unconsciousness is a little less than the level needed to bring about death. About 1% of drinkers who reach a blood alcohol level of 0.35 will die without medical treatment. At or above that level is thought to interfere with the respiratory control center of the brain stem.

Alcohol and Nutrition

Nutrition is a process that serves two purposes: to provide energy and to maintain body structure and function. Food supplies energy and provides the building blocks needed to replace worn or damaged cells and the nutritional components needed for body function. Alcoholics often eat poorly, limiting their supply of essential nutrients and affecting both energy supply and structure maintenance. Furthermore, alcohol interferes with the nutritional process by affecting digestion, storage, utilization, and excretion of nutrients (1).

Impairment of Nutrient Digestion and Utilization

Once ingested, food must be digested (broken down into small components) so it is available for energy and maintenance of body structure and function. Digestion begins in the mouth and continues in the stomach and intestines, with help from the pancreas. The nutrients from digested food are absorbed from the intestines into the blood and carried to the liver. The liver prepares nutrients either for immediate use or for storage and future use.

Alcohol inhibits the breakdown of nutrients into usable molecules by decreasing secretion of digestive enzymes from the pancreas (2). Alcohol impairs nutrient absorption by damaging the cells lining the stomach and intestines and disabling transport of some nutrients into the blood (3). In addition, nutritional deficiencies themselves may lead to further absorption problems. For example, folate deficiency alters the cells lining the small intestine, which in turn impairs absorption of water and nutrients including glucose, sodium, and additional folate (3).

Even if nutrients are digested and absorbed, alcohol can prevent them from being fully utilized by altering their transport, storage, and excretion (4). Decreased liver stores of vitamins such as vitamin A (5), and increased excretion of nutrients such as fat, indicate impaired utilization of nutrients by alcoholics (3).

Alcohol and Energy Supply

The three basic nutritional components found in food - carbohydrates, proteins, and fats - are used as energy after being converted to simpler products. Some alcoholics ingest as much as 50 percent of their total daily calories from alcohol, often neglecting important foods (3, 6).

Even when food intake is adequate, alcohol can impair the mechanisms by which the body controls blood glucose levels, resulting in either increased or decreased blood glucose (glucose is the body's principal sugar) (7). In non-diabetic alcoholics, increased blood sugar, or hyperglycemia--caused by impaired insulin secretion--is usually temporary and without consequence. Decreased blood sugar, or hypoglycemia, can cause serious injury even if this condition is short lived. Hypoglycemia can occur when a fasting or malnourished person consumes alcohol. When there is no food to supply energy, stored sugar is depleted, and the products of alcohol metabolism inhibit the formation of glucose from other compounds such as amino acids (7). As a result,

alcohol causes the brain and other body tissue to be deprived of glucose needed for energy and function.

Although alcohol is an energy source, how the body processes and uses the energy from alcohol is more complex than can be explained by a simple calorie conversion value (8). For example, alcohol provides an average of 20 percent of the calories in the diet of the upper third of drinking Americans, and we might expect many drinkers who consume such amounts to be obese. Instead, national data indicate that, despite higher caloric intake, drinkers are no more obese than nondrinkers (9, 10). Also, when alcohol is substituted for carbohydrates, calorie for calorie, subjects tend to lose weight, indicating that they derive less energy from alcohol than from food (summarized in 8).

The mechanisms accounting for the apparent inefficiency in converting alcohol to energy are complex and incompletely understood (11), but several mechanisms have been proposed. For example, chronic drinking triggers an inefficient system of alcohol metabolism, the microsomal ethanol-oxidizing system (MEOS) (1). Much of the energy from MEOS-driven alcohol metabolism is lost as heat rather than used to supply the body with energy.

Alcohol and the Maintenance of Cell Structure and Function

Structure

Because cells are made mostly of protein, an adequate protein diet is important for maintaining cell structure, especially if cells are being damaged. Research indicates that alcohol affects protein nutrition by causing impaired digestion of proteins to amino acids, impaired processing of amino acids by the small intestine and liver, impaired synthesis of proteins from amino acids, and impaired protein secretion by the liver (3).

Function

Nutrients are essential for proper body function; proteins, vitamins, and minerals provide the tools that the body needs to perform properly. Alcohol can disrupt body function by causing nutrient deficiencies and by usurping the machinery needed to metabolize nutrients.

Vitamins

Vitamins are essential to maintaining growth and normal metabolism because they regulate many physiological processes. Chronic heavy drinking is associated with deficiencies in many vitamins because of decreased food ingestion and, in some cases, impaired absorption, metabolism, and utilization (1, 12). For example, alcohol inhibits fat absorption and thereby impairs absorption of the vitamins A, E, and D that are normally absorbed along with dietary fats (12, 13). Vitamin A deficiency can be associated with night blindness, and vitamin D deficiency is associated with softening of the bones (6). Vitamins A, C, D, E, K, and the B vitamins, such as Vitamin B1, B12, folic acid, also deficient in some alcoholics, are all involved in wound healing and cell maintenance (14). In particular, because vitamin K is necessary for blood clotting, deficiencies of that

vitamin can cause delayed clotting and result in excess bleeding. Deficiencies of other vitamins involved in brain function can cause severe neurological damage.

Minerals

Deficiencies of minerals such as calcium, magnesium, iron, and zinc are common in alcoholics, although alcohol itself does not seem to affect the absorption of these minerals (15). Rather, deficiencies seem to occur secondary to other alcohol-related problems: decreased calcium absorption due to fat malabsorption; magnesium deficiency due to decreased intake, increased urinary excretion, vomiting, and diarrhea (16); iron deficiency related to gastrointestinal bleeding (3, 15); and zinc malabsorption or losses related to potassium and other nutrient deficiencies (17). Mineral deficiencies can cause a variety of medical consequences from calcium-related bone disease to zinc-related night blindness and skin lesions.

Alcohol, Malnutrition, and Medical Complications

Liver Disease

Although alcoholic liver damage is caused primarily by alcohol itself, poor nutrition may increase the risk of alcohol-related liver damage. For example, nutrients normally found in the liver, such as carotenoids, which are the major sources of vitamin A, and vitamin E compounds, are known to be affected by alcohol consumption (18, 19). Decreases in such nutrients may play some role in alcohol-related liver damage.

Pancreatitis

Research suggests that malnutrition may increase the risk of developing alcoholic pancreatitis (20, 21), but some research performed outside the United States links pancreatitis more closely with overeating (21). Preliminary research suggests that alcohol's damaging effect on the pancreas may be exacerbated by a protein-deficient diet (22).

Brain

Nutritional deficiencies can have severe and permanent effects on brain function. Specifically, thiamine deficiencies, often seen in alcoholics, can cause severe neurological problems such as impaired movement and memory loss seen in Wernicke/Korsakoff syndrome (23).

Pregnancy

Alcohol has direct toxic effects on fetal development, causing alcohol-related birth defects, including fetal alcohol syndrome. Alcohol itself is toxic to the fetus, but accompanying nutritional deficiency can affect fetal development, perhaps compounding the risk of developmental damage (24, 25).

The nutritional needs during pregnancy are 10 to 30 percent greater than normal; food intake can increase by as much as 140 percent to cover the needs of both mother and fetus (24). Not only can nutritional deficiencies of an alcoholic mother adversely affect the nutrition of the fetus, but alcohol itself can also restrict nutrition flow to the fetus (24, 25).

Nutritional Status of Alcoholics

Techniques for assessing nutritional status include taking body measurements such as weight, height, mass, and skin fold thickness to estimate fat reserves, and performing blood analysis to provide measurements of circulating proteins, vitamins, and minerals. These techniques tend to be imprecise, and for many nutrients, there is no clear "cut-off" point that would allow an accurate definition of deficiency (4). As such, assessing the nutritional status of alcoholics is hindered by the limitations of the techniques. Dietary status may provide inferential information about the risk of developing nutritional deficiencies. Dietary status is assessed by taking patients' dietary histories and evaluating the amount and types of food they are eating.

A threshold dose above which alcohol begins to have detrimental effects on nutrition is difficult to determine. In general, moderate drinkers (two drinks or less per day) seem to be at little risk for nutritional deficiencies. Various medical disorders begin to appear at greater levels.

Research indicates that the majority of even the heaviest drinkers have few detectable nutritional deficiencies but that many alcoholics who are hospitalized for medical complications of alcoholism do experience severe malnutrition (1, 12). Because alcoholics tend to eat poorly - often eating less than the amounts of food necessary to provide sufficient carbohydrates, protein, fat, vitamins A and C, the B vitamins, and minerals such as calcium and iron (6,9,26) - a major concern is that alcohol's effects on the digestion of food and utilization of nutrients may shift a mildly malnourished person toward severe malnutrition.

Nutrition and Alcoholic Liver Disease (ALD)

It is obvious that nutrition plays some part in ALD given the prevalence of malnutrition, especially of the protein-energy type. The malnutrition usually is associated with disease seen in hospitalized patients and correlates with the severity of ALD. The primary, established therapy for ALD consists of abstinence from alcohol. Good nutrition improves nitrogen balance, may improve liver tests, and may decrease hepatic fat accumulation. It has been suggested that sufficient nutritional repletion coupled with other treatment modalities may be effective in reducing complications associated with ALD - particularly infection. The degree to which a patient is malnourished is often directly related to the development of encephalopathy, ascites and hepatorenal syndrome. Increased caloric intake increases survival. Optimal nutrition requires adequate protein calories, vitamins and minerals.

Nutrition intervention: A comprehensive nutritional assessment by a registered dietitian is recommended as many alcohol abusers are malnourished. The nutrition

care plan will be developed with the patient/client that will best meet their nutritional needs.

Stages of Nutritional Change

Stage 1, Early Recovery –Tasks to be accomplished in this stage are emotional and cognitive processing of the fact that alcoholism and drug abuse are destroying his/her life. (Gorski and Miller, 1982). Many clients spend up to a year in Stage 1 Recovery. Appropriate changes in nutritional intake during this period revolve primarily around insuring food intake at regular intervals and encouraging use of a wider variety of foods than when the individual was drinking.

Stage 2: Middle Recovery (Aftercare)-For most clients, Stage 2 occurs after the client has made a commitment to long-term treatment and the lifestyle changes essential to maintaining sobriety. The client must face issues honestly and openly and decide on appropriate changes to support the recovery process. At this stage of recovery, the client might begin to question the types of foods needed and is more open to learning about and implementing dietary changes which enhance health and assist in recovery. For most clients consumption of foods from the recommended food groups is the primary goal of nutritional therapy. For highly motivated clients, experimentation with new food patterns will be possible. Clients interested in taking care of the problems resulting from poor nutrition will read and explore the use of nutritional supplements and herbs. The nutritionist role is to assure safe and adequate nutritional intakes of food and supplements.

Stage 3: Late Recovery-As the client becomes more comfortable with the new lifestyle essential to staying alcohol and drug free, assessment of life problems that occurred as a result of alcohol and drug abuse becomes possible. Sobriety has become a way of life and modification of fat and sugar intake, appropriate weight control measures and addressing the nutritional health problems resulting from alcohol and drug use are most likely to occur at this point of recovery.

Maintenance: Recovery from substance abuse is a life-long process resulting in continued increase in knowledge and making appropriate changes in lifestyle. (Gorski and Miller, 1982). As recovery becomes more stable and the body changes with growing older, appropriate nutritional changes are necessary.

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Clear Liquid Diet

Indication

Used as a transition from NPO to a liquid or solid diet. This diet is used for the pre and post surgical patient, for gastrointestinal diagnostic procedures and prior to bowel surgery. This diet is safe for people with diabetes.

Description

This diet consists of foods that are clear and liquid or become liquid at room temperature. It contains minimal residue and can be easily digested and absorbed. It includes the following foods only: clear broth, gelatins, smooth fruit ices, popsicles, sugar, clear juices (apple, cranberry and grape), fruit flavored drinks, coffee, tea or coffee substitute. Carbonated beverages are optional. The diet should contain high protein, clear liquid oral nutritional supplement if it is used longer than three (3) days.

Nutrition Adequacy

This diet is inadequate in most nutrients and should be used for only short periods of time. If patient is to be maintained on diet for three or more days, protein, calorie and multi-vitamin mineral supplementation may be indicated.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
1 c. Apple juice	1 c. Cranberry juice	1 c. Grape juice
6 oz. Clear beef broth	6 oz. Clear chicken broth	6 oz. Clear beef broth
4 oz. Orange gelatin	4 oz. Whipped cherry gelatin	4 oz. Lemon gelatin
2 tsp. Sugar	2 tsp. Sugar	2 tsp. Sugar
Tea or coffee	Tea or coffee	Tea or coffee

If patient is on this diet for more than three (3) days, an oral nutritional supplement can be incorporated to provide additional protein and calories.

Post-Operative Diet

Indication

Used as a transition from NPO to a solid diet for the surgical patient to minimize post-operative nausea and vomiting. Diet can be advanced if tolerating without abdominal pain or discomfort.

Description

This diet consists of foods that are bland and easy to tolerate. It contains minimal residue and can be easily digested and absorbed. It includes the following foods: vegetable broth, apple juice, saltines or oyster crackers, low-fat fruit yogurt, Italian ice, white rice, mashed potatoes, popsicles, gatorade, applesauce, banana, cranberry juice, peppermint candies and herbal or mint tea.

Nutritional Adequacy

This diet is inadequate in some nutrients and should be used for only short periods of time. If patient is to be maintained on diet for three or more days, multi-vitamin mineral supplementation may be indicated.

SAMPLE DAILY MEAL PLAN

Breakfast	Lunch	Dinner
Low fat fruit yogurt or banana Italian ice 4 oz. Apple juice Oyster crackers x 2 Herbal or mint tea	6 oz. Vegetable broth Italian ice or popsicle White rice Saltine crackers x 2 Herbal or mint tea	Mashed potatoes Applesauce Cranberry juice or Gatorade Oyster crackers x 2 Herbal or mint tea

Full Liquid/Blenderized Diet

Indication

This diet provides foods in a liquid form for patients unable to chew or swallow solid foods. The consistency of foods is appropriate for patients having difficulty chewing from oral or esophageal surgery. The diet may be used over an extended period of time if fortified with high protein, high calorie fluids or supplements.

Description

The full liquid/blenderized diet consists of foods which are liquid at room temperature and desserts made from milk and eggs. Foods allowed are: clear liquids, plus thickened liquids that include milk, pudding, custard, ice cream, cooked cereal, cream/strained soup and fruit juices. The full liquid/diet consists of foods which pass easily through a straw or syringe. Solid foods are blenderized, thinned and strained. High calorie liquid supplements are given between meals as needed.

Nutritional Adequacy

This diet is adequate in all nutrients and provides approximately 3,111 calories and 199 gm of protein. Diet may require calorie/protein supplementation due to decreased dietary intake.

Food Group	Foods Allowed	Foods to Avoid
Beverage	Milk, all milk drinks, milkshakes, malts, eggnogs, hot chocolate, cocoa, coffee, coffee substitutes, tea, carbonated beverages, instant breakfast, water.	Any other.
Cereal	Thinned strained hot cooked cereals.	Any other.
Dessert	Plain ice cream, sherbet, pudding, yogurt thinned with milk or cream, liquid gelatins.	Any other – yogurt containing fruit pieces and seeds.
Fat	Butter, cream or margarine in strained hot cooked cereals.	Any other.
Fruit	All fruit juices, strained, pureed, thinned with fruit juice, milk or cream.	Any other.
Meat, Egg or Cheese	Thinned strained pureed meats, eggs (pasteurized) in beverages, custard thinned with milk	Any other

Food Group	Foods Allowed	Foods to Avoid
Soup	Broth, strained cream soups, blenderized strained regular soup	Any other
Sweets	Sugar, honey, syrup	Any other
Vegetables	Thinned strained or pureed vegetables, vegetable juices	Any other
Miscellaneous	Spices and flavorings in moderation	Any other

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
1 c. Orange juice ½ c. Cream of wheat blended with 2 tsp. Margarine and ½ c. Hot milk, strained 1 c. Egnog 2 tsp. Sugar Coffee or tea Creamer Salt	6 oz. Cream soup blended with 1/3 c. nonfat milk 3 oz. Pureed meat blended with broth or cream soup ½ c. Mashed potatoes with hot milk and margarine ½ c. Pureed vegetable blended with margarine and broth 4 oz. Custard thinned with milk 1 c. Milk Salt	4 oz. Pureed meat blended with broth or cream soup ½ c. Pureed vegetable blended with hot milk and margarine ½ c. Pureed fruit with fruit nectar 1 c. Yogurt blended with milk Salt
Mid-Morning	Mid-Afternoon	Evening
Milkshake with ½ c. Ice cream 1/3 c. non-fat milk powder, vanilla	1 c. Ice cream and 12 oz. carbonated beverage blended, or 1 c. cream soup	1 c. Sherbet or ice cream blended with 12 oz. carbonated beverage

Suggestions to increase calorie and other nutritive value of diet:

1. Eat frequently. Plan to include a morning, mid-afternoon, and evening snack.
2. Supplements may be added, such as milk, nonfat milk powder, to shakes and cream soups; or use commercial supplements (see Section F).

Tonsillectomy and Adenoidectomy (T&A) Diet

Indication

This diet is used for patients following tonsillectomy and adenoidectomy.

Description

First Day – (Stage I)

Foods allowed: all kinds of cold liquids: plain gelatin, apple juice, grape juice, fruit nectars, iced tea, carbonated beverages, smooth fruit ices, popsicles; ice cream and milk are optional. Red colored gelatin and beverages are usually omitted.

Second Day – (Stage II)

May add: cooked cereals, eggs, custards, soft potatoes, lukewarm cream soups, ice cream, fruit nectars, pureed meat and pureed vegetables, all cold or at room temperature.

Nutritional Adequacy

Diet is inadequate in all nutrients and is usually ordered for only one or two days following surgery. It is low in iron, thiamin, ascorbic acid and folic acid.

SAMPLE DAILY MENU PLAN (Stage I)

Breakfast	Lunch	Dinner
1 c. Apple juice	1 c. Pear nectar	1 c. Peach nectar
4 oz. Orange gelatin	4 oz. Whipped lime gelatin	4 oz. Lemon fruit ice
Popsicles	Popsicles	Popsicles
Iced tea	Iced tea	Iced tea
2 tsp. Sugar	2 tsp. Sugar	2 tsp. Sugar

SAMPLE DAILY MENU PLAN (Stage II)

Breakfast	Lunch	Dinner
4 oz. Pear nectar	4 oz. Peach nectar	4 oz. Apple juice
6 oz. Cream of wheat	Strained cream soup	1 Omelet
4 oz. Orange gelatin	½ c. Thinned mashed	1 c. Mashed potatoes
½ oz. Cream	potatoes	4 oz. Custard
Iced tea	6 oz. Mixed gelatin parfait	½ c. Plain Ice cream
	Milkshake	Iced tea
	Ice tea	

Mechanical Soft/Soft Chopped Diet

Indication

This diet is used for patients who have difficulty chewing or swallowing and for patients recovering from oral surgery. The modification in consistency is to help prevent malnutrition, choking and aspiration.

Description

The Mechanical Soft diet consists of foods which are soft in texture and moist to minimize the amount of chewing necessary for the ingestion of food and ease of swallowing. This diet is based on the regular diet and includes foods which are chopped, ground, or pureed according to the individual patient's needs. Tough meats, nuts and seeds, raw fruits and vegetables, citrus fruits and juices are omitted when the diet is ordered for oral surgery or lesions

Nutrition Adequacy

This diet is nutritionally adequate. When citrus fruits and juices are omitted, vitamin C content, as well as folic acid is low. It provides approximately 2,205 calories and 114 gm. protein.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice	½ c. Apple juice	6 oz. Cream of Tomato soup
½ c. Oatmeal	4 oz. Ground beef with gravy	4 oz. Chopped roast chicken with gravy
1 Scrambled egg	½ c. Mashed sweet potatoes	½ c. Mashed potatoes with gravy
1 sl. Toast as tolerated	½ c. Chopped green beans	½ c. Chopped spinach
1 tsp. Margarine	4 oz. Molded orange gelatin with bananas	4 oz. Tapioca pudding
1 tsp. Jelly	4 oz. Custard	1 sl. Bread as tolerated
1 c. Milk	1 sl. Bread as tolerated	1 tsp. Margarine
2 tsp. Sugar	1 tsp. Margarine	1 tsp. Sugar
Salt and pepper	1 tsp. Sugar	Salt and pepper
Coffee or tea	Salt and pepper	Coffee or tea
	Coffee or tea	

Pureed Diet

Indication

This diet is composed of regular foods that are blenderized or have a natural pudding like texture, such as ice cream, jello, mashed potatoes and baby food. It may be used as either a temporary or long-term diet.

Description

The Pureed diet is designed to minimize the amount of chewing required and to increase the ease of swallowing food.

Nutrition Adequacy

This diet may require nutrition supplements due to possible decreased dietary intake. The diet provides approximately 3,021 calories, 153 gm. Protein. High caloric supplements should be offered to patients with poor intake or patients experiencing undesirable weight loss.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice ½ c. Applesauce 1 Scrambled egg 1 tsp. Margarine 1 c. Milk 2 tsp. Sugar Salt and pepper Coffee or tea Creamer	½ c. Apple juice 6 oz. Strained cream of chicken soup 4 oz. Pureed beef ½ c. Mashed potatoes with gravy ½ c. Pureed peas ½ c. Pureed bananas 1 tsp. Margarine 1 tsp. Sugar Salt and pepper Coffee or tea Creamer	½ c. Grape juice 4 oz. Pureed chicken ½ c. Mashed potatoes ½ c. Pureed green beans ½ c. Pureed peaches 4 oz. Ice cream 1 tsp. Margarine 1 c. Milk 1 tsp. Sugar Salt and pepper Coffee or tea Creamer
Mid-Morning	Mid-Afternoon	Evening
1 c. Chocolate milk	1 c. Eggnog (no raw egg)	1 c. Vanilla milkshake

Nutritional Management for Patients with Dysphagia

General Principles

Dysphagia or difficulty swallowing can be caused by any lack of coordination in the complex act of swallowing and result in aspiration. The ability to swallow is a complex process that involves moving foods and liquids from the mouth to the stomach in an efficient manner. Dysphagia may be characterized by a variety of symptoms such as feeling of “choking,” coughing frequently during or after meals or drinking liquids, excessive drooling and/or aspiration of liquids, hiding food under tongue or pocketing food in cheeks, eating that takes more effort or a longer time, feeling of fullness, or unexplained weight loss. Patients have varying degrees of difficulty with certain food textures: solid foods and liquid. It is preferable to individualize the meal plan to the patient rather than generate a list of acceptable and non-acceptable foods. If aspiration is suspected, a swallow study should be performed to determine what foods and liquids the patient can safely consume. This diet is designed to minimize swallowing problems in order to ensure adequate intake of food and fluids.

Nutrition Adequacy

This diet meets the nutrition standards of the Dietary Reference Intakes but not all people have the same nutritional needs. It is important to recognize individual needs in order to develop a nutritionally sound diet for each person. Patients unable to tolerate liquids may need to have thickened liquids or artificial nutrition and hydration through other means (i.e. nasogastric, gastrostomy, jejunal tube or intravenous).

Diet Order Terminology

Textures: Mechanically altered foods are offered for the patient with chewing and/or swallowing problems. Chopped or ground textures are considered mechanical soft, whereas soft pudding consistency is considered pureed. The dysphagia textures are specifically for the patient with swallowing problems. The dysphagia textures are similar to the standard pureed and mechanical soft foods; however, there are specific and important food exclusions. The dysphagia mechanical texture may prevent patients who cannot tolerate the standard mechanical soft from having to eat a pureed texture.

The textures are standardized to three levels:

- **Dysphagia Blenderized or Dysphagia I:** Blenderized or pureed food that has a moist, pudding-like consistency without pulp or small food particles. It provides a nutritionally adequate, easily swallowed diet with a minimum amount of chewing. This diet level may be the same as pureed.
- **Dysphagia Mechanical or Dysphagia II:** Consists of moist, soft-textured and simple-to-chew foods that form easily into a cohesive bolus. All foods in dysphagia blenderized diets are acceptable at this level. It is intended to provide a transition from a “blenderized” to an easy-to-chew diet that is nutritionally balanced. Examples of foods include: moistened ground meats, vegetables cooked to a soft mashable texture, soft cooked or canned fruits and mashed bananas. This diet excludes breads, dry cereals, baked potatoes, fried potatoes, hash browns, peanut butter and hard cheese. Absolutely no seeds, nuts, coconut, dried fruits or vegetables with hulls not allowed. These are important food exclusions, which distinguish a Dysphagia Mechanical from a mechanical soft diet. This texture may prevent patients who cannot tolerate mechanical soft textures from having to eat a pureed diet.
- **Dysphagia Advanced or Dysphagia III:** Consists of a regular texture with the exception of hard, chunky food items. All meats must be soft and in bite-size pieces. All foods in the blenderized and mechanical textures are acceptable at this level. This texture is for patients with chewing difficulties that hamper their ability to eat hard, crunchy or excessively chewy foods.

SAMPLE DAILY MEAL PLAN
Dysphagia Blenderized or Dysphagia I

Breakfast	Lunch	Dinner
4 oz. Orange juice	3 oz. Puree roast beef	6 oz. Puree mushroom soup
8 oz. Cream of wheat	1 oz. Gravy	3 oz. Puree tuna filling on
2 oz. Scrambled eggs	4 oz. Whipped/buttered	two slices of bread
8 oz. Milk	potatoes	4 oz. Whipped jello salad
	4 oz. Puree green beans	2 Sugar cookies soaked
	4 oz. Puree peaches	8 oz. Milk
	8 oz. Milk	

SAMPLE DAILY MEAL PLAN
Dysphagia Mechanical or Dysphagia II

Breakfast	Lunch	Dinner
4 oz. Orange juice	3 oz. Moistened ground	6 oz. Mushroom soup
8 oz. Cream of wheat	roast beef	3 oz. scoop Tuna filling on
2 oz. scoop Scrambled	1 oz. Gravy	2 sl. of fine wheat bread
eggs	4 oz. Mashed potatoes	4 oz. Whipped jello salad
8 oz. Milk	4 oz. Soft canned green	2 Sugar cookies soaked
	beans	8 oz. Milk
	4 oz. Canned peaches	
	8 oz. Milk	

SAMPLE DAILY MEAL PLAN
Dysphagia Advanced or Dysphagia III

Breakfast	Lunch	Dinner
4 oz. Orange juice	3 oz. Chopped roast beef	6 oz. Puree mushroom soup
8 oz. Cream of wheat	1 oz. Gravy	3 oz. scoop Tuna filling on
2 oz. scoop Scrambled	4 oz. Mashed potato	two slices wheat bread
eggs	/margarine	4 oz. Jello with pears
1 slice Wheat bread	4 oz. Chopped green	2 Sugar cookies
1 tsp. Margarine	beans	8 oz. Milk
8 oz. Milk	4 oz. Canned peaches	
	8 oz. Milk	

Liquid Consistencies

There are four liquid consistencies: thin, nectar, honey, spoon thick or pudding consistency. The speech pathologist will recommend one of these consistencies for a patient who has swallowing problems. The liquids are listed here by category followed by examples.

Thin: low viscosity liquids; these include clear liquids, milks and supplements. No thickeners needed.

Apple juice	Milk
Cranberry juice	Chocolate milk
Orange juice	Coffee, Tea, Decaf
Grape juice	Water
Broth	Carbonated beverages
Nutritional supplements	Liquor, Wine, and Beer

Nectar Thick: medium viscosity liquids; consists of nectars, vegetable juices, and thin milkshakes. Other liquids can be used if thickened.

Nectar juices	Buttermilk
Tomato juice	Thin milkshake, Thin eggnog
Prune juice	Blenderized soup
Most oral nutritional supplements (Ensure, Boost)	

Honey Thick: honey consistency, which is thicker than Nectar but not as thick as Spoon Thick. Any liquid can be brought to this consistency by using a commercial thickener. Follow directions on the package.

Spoon or Pudding Thick: high viscosity liquids, too thick for a straw and “plopable” at room temperature; a pudding consistency.

Thick juices with pureed fruit added	Frozen shakes or extra thick
Custard	Thick Shakes
Whipped Jello with topping	Yogurt
Any liquid thickened to Spoon or Pudding Thick with a commercial thickener.	

Hints for Using Thickeners

- Always follow the directions, adding a little at a time.
- If thickening more than one serving, use a blender.
- Sprinkle thickener over surface, blend and add more if needed.
- For single servings use a wire whip, stirring constantly.
- It works well in cold or hot liquids
- Do not serve liquids with clumps of thickener. If it is clumping, you probably used too much thickener.

Commercial Thickeners

Instant food thickeners for use in health care have increased the ability to serve thin liquids to dysphasic patients. There are several commercial thickeners in most drug stores or online. The main ingredients in these products are modified cornstarch and maltodextrin and are readily metabolized. They allow the availability of free water absorption where 98% of the liquid is directly absorbed for hydration. These types are recommended for thickening liquids. It is important to read labels because some thickeners are made with vegetable gums, such as Xanthan gum, guar gum, pectin, etc., as the primary thickening agent. Vegetable gums easily disperse in liquid but bind to water as they move through the digestive tract and do not allow the body to utilize the liquid, resulting in dehydration. This is a serious problem for the dysphagia patient and the products with vegetable gum should be used with caution.

Guidelines for Preparing Dysphagia Textures

1. Foods or liquids should be appropriate temperature, i.e. hot or cold, as the patient sometimes loses the ability to sense temperature
2. Foods need to be well seasoned, flavorful and have distinct aromas. These qualities make the meal more acceptable to the patient than bland, low sodium foods.
3. Prepare moistened foods that hold together in the mouth such as ground meat with gravy, casseroles, creamed potatoes, fish with sauce and pudding-type desserts.
4. Foods that are easy to chew are more acceptable. Don't serve potato skins, peas, corn, seeds or nuts because they are difficult to swallow.
5. Avoid sticky foods like dry mashed potatoes. Always add margarine or gravy. Fresh white bread may become doughy in the mouth.
6. It is important to increase the calories for dysphagia patients, so puree with milk, gravies or sauces instead of water. Add milk powder to hot cereals for added calories and protein, gravies or sauces to meats and vegetables but do not add too much liquid to foods. Offer in-between meal feedings if the patient has poor appetite. This will promote weight gain and improve nutritional intake.
7. To stimulate an appetite, garnish meals with sauces, seasonings, or fruits to make the meals look more appealing.

Feeding a Patient

Positioning:

- Feet flat on the floor.
- Hips and knees at a 90° angle.
- Head tipped slightly forward.
- Shoulders back.
- Table height at waist – for the independent eater.
- Elbows supported on chair or table surface.
- Seated within 12 inches of the plate.
- Body should be free from restraint to enable bending forward.

After positioning the patient:

1. Determine which utensil the person prefers, a fork or a spoon.
2. Most people use a teaspoon. A plastic-coated spoon will cause less irritation to the mouth when wiping the lips.
3. Never add extra seasoning to food unless requested by the patient.
4. Use a coated baby spoon if the person refuses to open his/her mouth or opens it only slightly.
5. Tell the person what the food item is so he/she can anticipate the flavor, texture and temperature.
6. Give smaller bites and allow them to chew and swallow before giving them another bite.
7. In order to avoid creating a potential aspiration which will create overflow into the airway, excess amounts of food at one time is to be avoided. Follow special instructions from a speech therapist to help patient swallow safely.
8. Offer liquids after a few bites; their mouths are often dry and this will help with swallowing.
9. Be sure to allow enough time for a patient to finish a meal.

Two very important points to keep in mind at meal time:

1. Patient should not be lethargic at meal time.
2. Patient should remain in an upright position during or one hour after eating to aid digestion and eliminate regurgitation.

Special Devices:

Use of special utensils or feeding dishes may be recommended, i.e. built up handle spoons, forks, sectioned dishes for easier access.

International Dysphagia Guidelines

New International dysphagia diet guidelines have gained recognition as a more definitive program for modifications of consistency for patients diagnosed with dysphagia. The new definitions and guidelines have been established by the International Dysphagia diet Standardization Institute. The following is a summary of the new guidelines. For the complete policy and procedure visit www.iddsi.org

If adopted for the healthcare facility the complete procedure should become part of the policy and procedures for dysphagia diets and would require adoption by the medical staff and training for food and nutrition staff for implementation.

Food Texture Requirements

A check mark ✓ indicates a characteristic that is acceptable and may be included. A X indicates a food characteristic that is not acceptable and must be avoided for foods in each level.

Description/Characteristics	Liquidized/ Moderately thick	Pureed/ Extremely Thick	Minced & moist	Soft & bite- sized
No skin, no crust even after cooking, heating or standing	✓	✓	✓	✓
No separation of thin (watery) liquid	✓	✓	✓	✓
Will hold its shape on a plate, fork or spoon	X	✓	✓	✓
Soft grainy texture quality	X	✓	✓	✓
Visible lumps	X	X	✓	✓
Can contain soft, smooth, rounded, moist, small (2-4 mm) lumps if tender throughout	X	X	✓	✓
Can contain soft, moist large (8-15 mm) lumps if tender throughout	X	X	X	✓

Food Texture Restrictions

A check mark ✓ indicates a characteristic that is acceptable and may be included. A X indicates a food characteristic that is not acceptable and must be avoided for foods in each level.

Description/Characteristics	Liquidized/ Moderately thick	Pureed/ Extremel y thick	Minced & Moist	Soft & bite-sized	Regular
Mixed thin-thick textures (e.g. soup with pieces of food, cereal with milk; bubble tea)	X	X	X	X	✓
Hard or dry food (e.g. nuts, raw carrot, apple, crackling, hard crusty rolls)	X	X	X	X	✓
Fibrous or tough (e.g. steak, pineapple)	X	X	X	X	✓
Chewy (e.g. lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits)	X	X	X	X	✓
Crispy (e.g. crackling, crisp bacon, cornflakes)	X	X	X	X	✓
Crunchy (e.g. raw carrot, raw apple, popcorn)	X	X	X	X	✓
Sharp or spiky (e.g. corn ships)	X	X	X	X	✓
Crumbly bits (e.g. crumbly dry cakes or biscuits)	X	X	X	✓	✓
Pips, seeds, pith (e.g. apple seeds, orange pith)	X	X	X	X	✓
Skins or outer shells (e.g. peas, grapes)	X	X	X	X	✓
Husks (e.g. psyllium, bran)	X	X	X	X	✓
Skin (e.g. chicken skin, salmon skin)	X	X	X	X	✓
Bone or gristle (e.g. chicken bones, fish bones)	X	X	X	X	✓
Round, long shaped foods (e.g. sausage, grapes)	X	X	X	X	✓
Sticky or Gummy foods (e.g. nut butter, overcooked oatmeal, edible gelatin; konjac containing jelly, sticky rice cakes)	X	X	X	X	✓
Stringy foods (e.g. beans, rhubarb)	X	X	X	X	✓
Hard pieces, skins or crusts formed during cooking or heating	X	X	X	X	✓
'Floppy' textures (e.g. lettuce, cucumber, baby spinach leaves)	X	X	X	X	✓
'Juicy' food where the juice separates from the solid in the mouth (e.g. watermelon)	X	X	X	X	✓

Pediatric Nutrition

Acceptable macronutrient distribution ranges as a percent of energy intake for carbohydrates, fat and protein:

- Carbohydrates---45% to 65% of total calories
- Fat---30% to 40% of energy for 1 year, 30% to 35% for 2 to 3 years and 25% to 35% of energy for 4 to 18 years¹
- Protein---10% to 20% for young children and 10% to 30% for older children

Added sugars should not exceed 25% of total calories (to ensure sufficient intake of essential micronutrients). This is a maximum suggested intake and not the amount recommended for achieving a healthful diet. The American Heart Association recommends children limit sugar intake to 3-4 teaspoons per day.

Consumption of saturated fat, trans-fatty acids, and cholesterol should be as low as possible while maintaining a nutritionally adequate diet.

Adequate intake of total fiber:

- Children 1 to 3 years: 19 g total fiber/day
- Children 4 to 8 years: 25 g/day
- Boys 9 to 13 years: 31 g/day
- Girls 9 to 13 years: 26 g/day

Determination of Kcal and Protein Requirements for Normal Weight Children

Age (years)	Average Energy Allowance (kcal/kg)	Protein Requirement (g/kg)
0 – 0.5	110	2.2
0.5-1	100-110	1.6
1-3	100	1.2
4-6	90	1.1
7-10	70	1.0
11-14 (boys)	55	1.0
11-14 (girls)	47	1.0
15-18 (boys)	45	0.9
15-18 (girls)	40	0.8

¹. Kleinman, R. ed. Pediatric Nutrition Handbook. American Academy of Pediatrics. 2009: p. 157.

To determine daily caloric or protein requirements:

Based on Ideal Body Weight (Note: this method should be used for children who are <3rd percentile or >85th percentile weight: height or BMI:age)

- + Note age of child.
- + Accurately measure recumbent length (0-36 months) or standing height (2-18 years).
- + Use child's height to determine Ideal Body Weight in kilograms using Growth Chart in Section T.
- + Multiply the calories (or the grams of protein) for that age by kilograms Ideal Body Weight.

Based on actual weight (Note: this method should only be used for children whose weight-for-height or BMI-for-age fall > 3rd percentile or <85th percentile).

To determine daily fluid requirements:

<u>Body Weight (kg)</u>	<u>Estimated Fluid Requirement (ml)/day</u>
-------------------------	---

- | | |
|---|--|
| <ul style="list-style-type: none"> • 1-10kg • 11-20kg • >20kg | <ul style="list-style-type: none"> 100mL/kg 1,000mL + 50mL for each kg over 10 1,500mL + 20mL for each kg over 20 |
|---|--|

Example: If a child's actual weight is 31 kg, estimate fluid requirements as follows:

$$1500\text{ml} + 20 \times (31-20 \text{ kg}) = 1720 \text{ mL/day}$$

Infant (0 - 12 Months)

Indication

For healthy infants under one year of age.

Description

This diet is designed to allow the infant to be well nourished during the rapid rate of growth in the first year. By feeding appropriately, both the nutritional and developmental needs of the infant will be met. Breast feeding and breast milk should be prioritized and supported. If breast feeding or breast milk is not available or adequate to meet needs, iron fortified infant formulas should be used. Iron fortified infant formula is given by Nursing Service as ordered by the physician unless the infant is breast fed. Strained cereals are iron fortified.

Nutritional Adequacy

When the infant is fed according to the following guidelines, reasonable growth and development is expected. Specifically, the infant should continue to grow along his/her growth curve trajectory.

Recommended Feeding Guide

- Breast milk or formula should be used for the first year of life.
- Solid foods may be introduced between four to six months, when the infant shows signs of readiness: consuming more than 32-34 oz. formula per day, watching others eat with interest, smacking lips, opening mouth, able to sit up with support, brings hand to mouth, diminishing tongue thrust.
- Strained or pureed foods of thin consistency are added gradually one at a time every three to five days, starting with a small amount of the new food.
- Solid foods are to be offered from a spoon rather than added to the feeding bottle to encourage the infant to develop chewing skills. A small spoon should be used. Cereal should never be added to the bottle.
- Serve commercial baby foods from a plate or bowl rather than from the jar to prevent food contamination²
- Introduction of solids is best accomplished at home in a supportive environment. Unless hospitalization is prolonged, it is preferable to maintain the home feeding routines during the hospital stay.
- Feeding is individual and can be adjusted to each child's needs and developmental level.
- Milks other than infant formula (cow, goat, rice, soy, and almond) are not appropriate before 1 year of age (Academy of Nutrition & Dietetics, "Foods Not Recommended" Pediatric Nutrition Care Manual, 2012).

² American Academy of Pediatrics. Parenting Corner: Starting Solid Foods. www.aap.org/publiced/BR_Solids.htm

- Honey should never be given before 1 year of age.

Vitamin and Mineral Supplementation

Breast Fed Infants:

- At least 400IU Vitamin D from birth as a liquid multivitamin drop³.
- Iron supplementation or iron fortified cereal after four months of age.
- Fluoride supplementation after 6 months of age, depending on local water supplies. Usually recommended if water contains less than 0.3 parts per million of fluoride. This is available by prescription only.

Formula Fed Infants:

- At least 400 IU Vitamin D if consuming less than 960 ml Vitamin D fortified infant formula
- Iron supplementation if a low iron formula is used.
- Fluoride supplementation after six months of age, depending on local water supplies and form of commercial formula used (liquid concentrate, ready-to-feed, or powder).

The following guidelines are for infants during the first 12 months⁴

Age	Breast Milk / Formula	Solid Foods
0 to 4 Months	Breast milk/iron fortified infant formula (18 oz. to 32 oz. a day) To make adjustment for paraplegics, subtract: 5-10% from calculated ideal body weight To make adjustment for quadriplegic, subtract: 10-15% from calculated ideal body weight 2-4 oz. per feeding, 8-12 feedings per day, Vitamin D supplementation for the breast fed baby (at least 400 IU/day). If low birth weight or if mother does not eat meat, fish or dairy products, supplemental iron may be recommended for the breast fed premature infant.	None
4 to 6 Months	Breast milk/iron fortified infant formula (30 oz. to 32 oz. per day) 6-8 oz. per feeding 4-6 feedings per day.	Single grain iron fortified infant cereal (2-4 tbsp. a day), mixed with breast milk or formula.
6-8 Months	Breast milk/iron fortified infant formula (24 oz. to 31 oz. a day)	Teething foods: teething biscuits, zwieback.

³Greer, F; et al. Prevention of Rickets and Vitamin D Deficiency in Infants, Children and Adolescents. American Academy of Pediatrics National Committee on Nutrition. October 13, 2008.
www.aap.org/pressroom/nce/nce08vitamind.htm

⁴ Infant Feeding Schedule, Child Nutrition Center, Children’s Hospital Los Angeles,
http://www.childrenshospitala.org/site/c.ipINKTOAJsG/b.4919371/k.51BC/Infant_Feeding_Schedule.htm

	6-8 oz. per feeding 3 – 5 feedings per day.	Strained meat or beans: (1 to 2 tbsp. 1-2 servings/d), iron fortified cereal (2-4 tbsp. 2 servings/d), strained or junior fruits or vegetables (2 -3 tbsp. 1-2 servings/d). Finger foods, dry cereals, banana, 1 cracker, egg yolk (1 tbsp.).
Age	Breast Milk / Formula	Solid Foods
8 to 12 Months	Breast milk/iron fortified infant formula (gradually decrease to 16-24 oz./ day by 12 months). 6-8 oz. per feeding 3-4 feedings per day	Different textures and flavors of fruits, vegetables, protein foods, breads and cereals. Cheese (1/2 oz.) or Yogurt (1/2 c) Ground meats well cooked and finely crumbled (3-4 tbsp.) or beans (1/4 c) 2 times/day. Iron fortified cereal (2-4 tbsp.), bread (1/2 slice) crackers (2), or pasta (3-4 tbsp.) 2 times/day. Soft cooked vegetables or fresh chopped, soft fruit, cooked or canned fruits (3-4 tbsp.) 2-3 times/day. 100%fruit juice, diluted (3oz/day) given in a cup, not a bottle.

Note: To help prevent choking hot dogs needs to be cut length-wise and width-wise, grapes needs to be peeled and cut into halves or quarters, peanut butter and other nut butters need to be thinly spread and vegetables should be cooked and cut into small pieces. Take caution with dried fruit, raw vegetables and chunks or meat or cheese. The following foods should be avoided in children under 5 years old: nuts, seeds, popcorn, hard or sticky candy, lollipops and chewing gum. Egg whites and fish should also be avoided during the first year of life due to increased risk of allergies.

Toddler and Preschool 1 to 4 Years

Indication

This diet is composed of foods to meet the Dietary Reference Intakes for the various ages with no dietary modifications.

Description

- Diet is regular, but foods that may cause choking must be avoided. These include whole hot dogs (unless sliced into small pieces), cherry tomatoes, nuts, popcorn, and hard candies. Small foods that may be accidentally inhaled such as grapes and raisins should not be introduced until feeding skills are well established. Hard fruits and vegetables such as apples and raw carrots may be cut into thin slices for older children with good chewing skills.
- Avoid heavily spiced, salted, buttered or sweetened foods to allow the child to experience the natural taste of foods.
- Portion sizes, texture and consistency are adjusted for age, individual appetites and preferences. As a general serving size guideline, offer one tablespoon of each food per year of age. (i.e. 3 tbsp. for 3 years).
- Reduced fat milk should not be introduced until the child's second birthday.
- Whole cow's milk may be introduced after first birthday, reduced fat cow's milk after second birthday.
- To avoid allergies, delay the following until after one year: orange juice, oranges, egg white, nuts (also a choke food).

Nutritional Adequacy

The suggested servings are designed to meet the Dietary Reference Intakes of all nutrients, except calories in older toddlers, when the daily intake is provided from a variety of foods.

SAMPLE DAILY MEAL PLAN

Breakfast	Lunch	Dinner
1/2 c. Sliced strawberries	1/2 Peanut butter and jelly sandwich on whole grain bread	1 Baked chicken drumstick
1 Scrambled egg	1/2 Apple cut in thin slices	1/4 c. Mashed potatoes
1/2 Slice whole grain toast	1/2 c. Milk	1/4 c. Green peas
1/2 c. Milk	Oatmeal cookie 1 oz.	1/2 c. Milk
	1/4 c. Thinly sliced carrots	1/2 Banana, sliced
 Mid-Morning	 Mid-Afternoon	 Evening
1/4 c. Applesauce	1/2 c. Milk	1/2 c. Chocolate Ice Cream
2 Saltine crackers	2 Graham crackers	

This sample meal plan provides approximately 1,193 kcal, 64 g protein

School Age Diet 5 to 11 Years

Indication

For children ages 5-11 years, with no dietary modifications.

Description

Diet is same as regular diet. Portion sizes are adjusted according to age of child.

Nutritional Adequacy

This diet is nutritionally adequate if vitamin D fortified milk is used. This diet provides approximately 1,700 – 2,000 calories and 80-110 gms of protein. It meets all the specified nutrients from the Dietary Reference Intakes.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Sliced strawberries 1 Scrambled egg 1 Strip bacon 1 Muffin (1 oz) 1 tsp. Margarine 1 c. Milk 1% or nonfat	Peanut butter and jelly sandwich (with 2 tbsp. peanut butter) on 2 slices of whole grain bread 1 Whole apple 1 Oatmeal cookie (1 oz.) 1 c. Milk 1% or nonfat	2-3 oz. Baked chicken ½ c. Mashed potatoes ½ c. Green peas ½ c. Tossed green salad with 1 tbsp. ranch dressing 1 Dinner roll 1 tsp. Margarine 1 c. 1% or Non-Fat Milk 1 Svg. Fresh fruit
Mid-Morning	Mid-Afternoon	Evening
½ Banana	½ c. Milk 1% or nonfat 3 Graham crackers	15 Grapes

Fruit juice should be limited to 3 to 4 ounces per day⁵

This sample meal plan provides 2,000 kcal and 96 grams protein.

⁵American Academy of Pediatrics. Parenting Corner: How do I know if my child is getting enough. http://www.aap.org/publiced/BR_NutritionABC.htm

Adolescent Diet 12-18 Years

Indication

For healthy adolescents, 12-18 years with no dietary modifications.

Description

Diet is same as regular diet with increased portions of milk and high calcium foods and additional calories to meet rapid growth requirements and physical maturation as well as increased needs in hospital.

Nutritional Adequacy

The suggested servings are designed to meet the Dietary Reference Intakes of all nutrients. Sample meal plans provide 2780 calories and 146 gms. protein.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice ½ c. Cream of wheat 1 Scrambled egg 1 sl. Whole grain toast 2 tsp. Margarine 1c. Fat Free milk 2 tsp. Sugar	3 oz. Roast beef au jus ½ c. Mashed potatoes ½ c. Green beans 1 sl. Whole grain bread Carrot /Celery Sticks 1 sl. Chocolate cake 1 tsp. Margarine 1 c. Fat Free milk	3 oz. Baked chicken ½ c. Rice pilaf ½ c. Carrots Tossed green salad with French dressing ½ c. Sliced peaches 1 Whole grain dinner roll 1 c. Fat Free milk 1 tsp. Margarine
Mid-Morning	Mid-Afternoon	Evening
4 oz. Fresh fruit 1 oz. String cheese 6 Whole grain crackers	Sandwich: 2 sl. Whole grain bread 2 oz. Turkey 2 tsp. Mayonnaise	2 Tbsp. Peanut butter 6 Whole grain crackers 1 c. Fat-free yogurt

Limit 100% juice to 4 to 6 oz. per day.

This sample meal plan provides approximately 2,780 Kcal, 146 grams Protein

BRAT Diet

Indication

Used for pediatric or adult patients to recover from diarrhea.

Description

This diet consists of **B**ananas, **R**ice, **A**pplesauce and **T**oast which are bland foods that are binding and low fiber to promote the digestive process. The diet contains potassium for repletion after diarrhea. For children who are actively vomiting, contact a physician to see if an electrolyte beverage is appropriate. The BRAT diet is intended for a brief period of time after diarrhea. The BRAT diet avoids dairy products, high fat and high sugar foods which may exacerbate diarrhea.

Nutritional Adequacy

This diet is inadequate in most nutrients and should be used for up to one day following an episode of diarrhea. The American Academy of Pediatrics recommends that children resume eating a regular diet within 24 hours of getting sick.

BRAT Diet

Food Group	Foods Allowed	Foods to Avoid
Soup	Broth (not part of diet but may be tolerated and is a source of electrolytes)	Any other.
Vegetables	None	Any vegetable or vegetable juice, including tomato juice.
Fruits	Bananas, applesauce	Any other fruit or fruit juice.
Desserts	none	Any other.
Cereals	Cooked white rice, toast	Any other.
Beverages	Caffeine-free herb tea (may be tolerated when warm rather than hot), sports drinks and water. Oral electrolyte solution if indicated by physician. Plenty of fluids to avoid dehydration.	Carbonated beverages unless non-caffeinated and allowed to go "flat". Beverages containing caffeine, such as regular coffee or tea. Lemonade, milk or milk drinks. Juices.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
Banana 1c. Cooked white rice and/or toast ½ c. Applesauce	½ c. Applesauce 1 c. Cooked white rice and/or slice of toast Banana	½ c. Applesauce 1 c. Cooked white rice and/or slice of toast Banana

Nutrition and the Developmentally Disabled

General

The patient who is developmentally disabled or is experiencing delayed development may need special consideration in planning for optimal nutrition in the hospital setting or upon discharge. Conditions or syndromes that would be considered in this category are Cerebral Palsy, Cleft Palate, Down's Syndrome, Epilepsy, Myelomeningocele (Spina Bifida), Prader-Willi Syndrome and others. There may be increased or decreased nutrient requirements due to altered basal metabolic rate (BMR), growth potential, medications ordered or central nervous system damage. Children with delayed development may be experiencing retarded growth and therefore, using standard nutrient requirements for age or ideal body weight may be inappropriate. The long-term use of anticonvulsants, stimulants, laxatives, cathartics and antibiotics may indicate the need for evaluation of nutrient drug interactions.

A careful assessment of weight for height is essential, with referral to a registered dietitian for patients <15th or >85th percentile. Specialized growth charts are available for children who have syndromes such as Down's, Prader-Willi and Noonan's Syndromes. Alternatively, Cerebral Palsy and Spina Bifida are not syndromes therefore the standard CDC growth charts are to be used. It is important to assess the home diet and individualize a meal plan for each patient, taking into account the developmental level rather than the chronological age, potential for further growth and development and any specific physical problems affecting intake. Patients with developmental delays are more likely to need mechanically altered food modifications. The use of blenderized and commercial formulas is common. These patients are also more likely to fall at the extremes of the growth chart, and serial growth measurements are essential to managing their care. Adjustments for paraplegia and quadriplegia are made when determining recommended weight range.

General Principles of Nutritional Therapy

1. Adjust caloric and nutrient levels considering height-age (defined as age when height plotted at 50th percentile) and activity level.
2. Feeding evaluation by a qualified professional is necessary. That may include the dietitian, speech pathologist, occupational therapist, physical therapist as well as physician.
3. Adaptive feeding equipment as necessary.
4. Good oral and dental hygiene.

5. Multi-vitamin and mineral supplement equal to or less than 100% of the DRI for the developmental stage with long-term hospitalization, especially if intake is erratic.
6. Adjust texture and frequency of meals to individual patient needs.
7. Limit calorie intake for patients with excessive weight gain: 14/kcal/cm* in moderate cases. Calorie limitations from 7-11 kcal/cm may be necessary in cases of severe weight gain. The exact level will depend on the individual assessment.

***Note: 1 inch=2.5 cm**

Nutritional Therapy for Special Needs

1. Consider use of commercial supplements such as Pediasure, Nutren Jr. or Peptamen Jr. to provide complete nutritional needs that cannot be met through foods. Regular clear liquid oral nutritional supplements are not recommended for use in children under 10 years old.
2. Limit fats and simple carbohydrate for patients with reduced energy needs and ensure adequate protein for height-age.
3. Consider gastrostomy and jejunostomy tubes for long-term nutritional therapy in severely compromised children who cannot or will not eat an adequate diet by mouth. An adequate diet is one that will support growth along desired growth curve.
4. Folic Acid, Vitamin D and Calcium supplementation is recommended when children are on long-term (>6 months) corticosteroid therapy.

Ketogenic Diet

Indication

This diet is used to induce and maintain ketosis to control certain types of epileptic seizures. This diet has been used as an alternative therapy or adjunct therapy to antiepileptic drugs in children with intractable seizures.

Description

The ketogenic diet is high in fat and low in carbohydrate while providing adequate protein. The ketogenic diet is carefully planned to provide adequate nutrition for growth and development while maintaining a state of ketosis. The ketogenic diet should be implemented gradually to build tolerance and to minimize the incidence of nausea, vomiting and diarrhea. Today, there are different versions of the ketogenic diet: the classic or cream ketogenic diet, the modified ketogenic diet and the medium chain triglyceride (MCT) oil diet.

The name ketogenic means that it produces ketones in the body (keto=ketone, genic=producing). Ketones are formed when the body uses fat as the source of energy. Usually the body uses carbohydrates (such as sugar, bread, pasta) for fuel, but because the ketogenic diet is very low in carbohydrates, fats become the primary fuel instead. Fats are metabolized in the liver to form fatty acids and ketones. Ketones can be detected in the urine, blood, and breath. With a high fat, low carbohydrate diet, ketones build up in the blood stream inducing a state of ketosis which is thought to decrease the incidence of seizures. The diet may also be beneficial due to the low glycemic levels of the diet.

Patients may be hospitalized for the initiation as medical supervision is required. Foods need to be weighed on a gram scale, laboratory values evaluated and side-effects monitored. All medicines need to be evaluated for carbohydrate content and then incorporated into the diet plan. Toothpastes as well may contain carbohydrate and a low or carbohydrate-free toothpaste should be used. Calorie-free and caffeine-free beverages are used to meet fluid needs.

A physician or dietitian calculates a diet prescription for each patient to determine calories per kilogram, total calories per day, grams of protein per kilogram, total grams of protein per day and the ratio of dietary units to determine grams of fat, protein and carbohydrates per day and meal. An online ketocalculator may be used to calculate the diet prescription. The ratio of fat to carbohydrate plus protein can range from 2:1 to 4:1.

MCT Oil Diet

The use of MCT Oil (MCT-Medium Chain Triglycerides) for inducing ketosis allows for more carbohydrate and protein which makes the diet more palatable and easier to implement. The diabetes exchange list and household measures are used instead of the ketogenic exchange list and the gram scale. A dietary source of essential fatty acids must be included in this diet to avoid essential fatty acid deficiency as MCT oils do not contain essential fatty acids.

Calculations

1. Carbohydrates – 18% of total kilocalories.
2. Protein – 10% of total kilocalories.
3. Dietary fat – 12% of total kilocalories (should include a source of linoleic acid such as safflower or corn oil).
4. MCT Oil – 60% of total kilocalories.

Example: For a 5 year old, 18 kg child given 90 kcal/kg for a 1,620 kcal diet:

1. Carbohydrate = $1620 \times 18\% = 292$ kcal ($292 \text{ kcal} \div 4 \text{ kcal/g} = 73$ g carbohydrate)
2. Protein = $1,620 \times 10\% = 162$ kcal ($162 \text{ kcal} \div 4 \text{ kcal/g} = 41$ g protein)
3. Dietary fat = $1,620 \times 12\% = 194$ kcal ($194 \text{ kcal} \div 9 \text{ kcal/g} = 22$ g fat)
4. MCT Oil = $1,620 \times 60\% = 972$ kcal ($972 \text{ kcal} \div 7.7 \text{ kcal/mL} = 126$ mL MCT Oil)
 $97 \text{ mL} \div 15 \text{ mL/tbsp} =$ approximately 7 tbsp)

MCT Oil Nutrient Facts

Cal/g	8.3/g or 7.7/mL
Protein (% Cal)	-
Fat (% Cal)	100 (MCT oil)
Carbohydrate (% Cal)	-
Water (g/100 mL)	0
Kosher	Yes
Gluten-free	Yes
Lactose-free	Yes
Medicare Part B category	V

Feeding guidelines: MCT Oil should be introduced slowly to prevent abdominal pain, diarrhea, and vomiting. These side effects noted in some patients may be related to the rapid hydrolysis of MCT and the resulting elevated concentrations of the free fatty acids in the stomach and small intestine. This hyperosmolar effect can cause a large influx of fluid and also can be irritating to the bowel.

One third of each of the feedings is given on the first day, two thirds of each feeding is given on day 2, and the full feeding is given thereafter. Because the diet may induce hypoglycemia in some children, blood glucose levels need to be monitored when the diet is first started.

MCT Oil may be given as MCT milk (skim milk blended with MCT Oil allowance) or used in cooking. When taken in drink form, it should be sipped slowly to avoid gastrointestinal upset.

Nutrition Adequacy

The Ketogenic diet is inadequate in B-complex vitamins, trace minerals, calcium, vitamin D, iron, and zinc. Supplements should be provided in a sugar-free form.

SAMPLE DAILY MEAL PLAN

(5-year old, 18 kg child MCT supplement diet)

Breakfast	Lunch	Dinner
3 oz. MCT milk=nonfat milk blended with 35 mL MCT Oil (2tbsp)	Broth with green beans (¼ cup) (½ vegetable exchange)	1 oz. Baked chicken without skin (meat exchange)
1 Hard-cooked egg (meat exchange)	3 Saltines (½ bread exchange)	¼ c. Mashed potatoes (½ bread exchange)
1 sl Wheat toast (bread exchange)	.5 oz Cheddar cheese (meat exchange)	¼ c. Carrots (½ vegetable exchange)
1 tsp Diet jelly	1 sm. Tangerine (fruit exchange)	8 sm Grapes (fruit exchange)
½ tsp Margarine (½ fat exchange)	3 oz. MCT milk= nonfat milk blended with 35 mL MCT Oil)	½ tsp Margarine (½ fat exchange)
		3 oz. MCT milk=nonfat milk blended with 35 mL MCT Oil)

This meal plan provides approximately 1444 Kcal, 28 gm protein, 118 gm dietary fat, 67.5 gm carbohydrate.

Food Group	Foods Allowed	Foods Not Allowed
Fruits and Vegetables	Fresh or canned without added sugars, avocado, 2 lettuce leaves	Banana, potato, corn and peas.
Fat	Heavy whipping cream butter, margarine, oils, and cheeses.	Ice-cream, pudding, sherbet, gelatin made with sugar.
Protein	All meats, fish and poultry. Eggs, cottage cheese, bacon, hot dogs, sausage, tofu, peanut butter.	
Carbohydrate	Sugar free gelatin.	All candies, chewing gum and cough drops. Breads, cakes, cookies, muffins, waffles and all other similar baked goods.
Condiments	Mayonnaise, sour cream, pepper, spices, salt, 3 ripe small olives, 1 walnut, 2 pecans, 3 hazelnuts or 3 macadamia nuts.	Catsup, honey, jam, jelly, marmalade, molasses, maple syrup, sugar.
Fluids	Commercial beverages made with liquid Splenda or liquid saccharine. Water, herbal tea, calorie-free, caffeine-free drinks.	Packets of sweeteners, sodas and sugar sweetened drinks.

Pediatrics Overweight & Obese

Indication

For children and adolescents whose BMI for Age are greater than the 85th percentile using the CDC Growth Charts.

Description

This diet is designed to promote either weight maintenance or weight loss among children & adolescents who meet the indication.

- Children less than 2 years of age are plotted using the Weight for Length growth curve. Values greater than the 95th percentile are categorized as overweight
- Overweight classification for children older than 2 years and adolescents occurs when the BMI for age plots between the 85th and 94th percentile
- Obese classification for children older than 2 years and adolescents occurs when the BMI for age plots greater than the 95th percentile⁶

Calculation for BMI:

- Body weight in kg divided by height in meters divided by height in meters
 - Kg/m^2
- Body weight in pounds divided by height in inches divided by height in inches multiplied by 703
 - $\text{lb/inches}^2 \times 703$

The intervention goal will depend on the patient's age and BMI category

- Children who are less than 2 years of age and overweight will not need specific weight goals. At this time, parental education on prevention of overweight and obesity is recommended. There will be no diet modifications beyond intake within the RDA.
- Children 2 to 5 years of age:
 - If overweight without health risk, then weight *velocity* maintenance
 - If overweight with health risks, then weight maintenance or slowed weight gain
 - If obese, then weight maintenance
 - If obese and BMI-for-Age is greater than 21kg/m², then gradual weight loss up to 1 pound per month

⁶ Sarah E. Barlow and the Expert Committee 2007;120;S164-S192 *Pediatrics*

- Children 6 to 11 years of age:
 - If overweight with no health risks, then weight *velocity* maintenance
 - If overweight with health risks, then weight maintenance
 - If obese, then gradual weight loss of 1 pound per month
 - If obese and BMI-for-Age is greater than 99th percentile, then weight loss up to 2 pounds per week
- Adolescents 12 to 18 years of age:
 - If overweight with no health risks, then weight *velocity* maintenance; after linear growth is complete then weight maintenance
 - If overweight with health risks, then weigh maintenance or gradual weight loss
 - If obese, then weight loss up to 2 pounds per week
 - If obese and BMI-for-Age is greater than 99th percentile, then weight loss up to 2 pounds per week

Determination of Energy Needs⁷

- Use BMI-for-age at 50th percentile to determine “desirable” body weight may be used for children whose BMI-for-age is less than the 99th percentile
- Use BMI-for-age at 97th percentile to determine “desirable” body weight may be used for children whose BMI-for-age is greater than the 99th percentile

TEE in Overweight Boys Ages 3 Through 18 Years (Weight Maintenance)

- $TEE = 114 - (50.9 \times \text{age [y]}) + PA \times (19.5 \times \text{weight [kg]}) + 1161.4 \times \text{height [m]}$

Where PA is the physical activity coefficient:

- PA = 1.00 if PAL is estimated to be $\geq 1.0 < 1.4$ (sedentary)
- PA = 1.12 if PAL is estimated to be $\geq 1.4 < 1.6$ (low active)
- PA = 1.24 if PAL is estimated to be $\geq 1.6 < 1.9$ (active)
- PA = 1.45 if PAL is estimated to be $\geq 1.9 < 2.5$ (very active)

TEE in Overweight Girls Ages 3 Through 18 Years (Weight Maintenance)

- $TEE = 389 - (41.2 \times \text{age [y]}) + PA \times (15.0 \times \text{weight [kg]}) + 701.6 \times \text{height [m]}$

Where PA is the physical activity coefficient:

- PA = 1.00 if PAL is estimated to be $\geq 1.0 < 1.4$ (sedentary)
- PA = 1.18 if PAL is estimated to be $\geq 1.4 < 1.6$ (low active)
- PA = 1.35 if PAL is estimated to be $\geq 1.6 < 1.9$ (active)

⁷ 2009 ADA Evidence Analysis Library. Printed on: 04/29/09 - from:
http://www.adaevidencelibrary.com/topic.cfm?format_tables=0&cat=3060

- PA = 1.60 if PAL is estimated to be $\geq 1.9 < 2.5$ (very active)

BEE for overweight and obese boys (Weight Loss):

- BEE (kcal/d) = $420 - (33.5 \times \text{age (y)}) + 418.9 \times \text{height (m)} + 16.7 \times \text{weight (kg)}$

BEE for overweight and obese girls (Weight Loss):

- BEE (kcal/d) = $516 - (26.8 \times \text{age [y]}) + 347 \text{ height (m)} + 12.4 \times \text{weight (kg)}$

Nutritional Adequacy

When the child or adolescent is fed according to the following guidelines, reasonable linear growth and development is expected while weight is maintained, weight gain velocity is decreased or weight is lost.

Diet Modifications

- Sugar-free beverages only
- Structured meals and snacks: breakfast, lunch, dinner + 1-2 snacks only and meets estimated macro-nutrient needs
- Limit to only one main entrée per meal
- Provision of at least 5, age appropriate servings of fruits and vegetables
- Energy restricted diet for children 6 to 12 years old who are obese⁸
 - Balanced macro-nutrient diet that provides 900-1200 kcals/d
 - 45-65% Carbohydrate per day
 - 10-35% Protein per day
 - 20-35% Fat per day
- Energy restricted diet for Adolescents who are obese⁹
 - Balanced macro-nutrient diet that provides no fewer than 1200 kcals/d
 - 45-65% Carbohydrate per day
 - 10-35% Protein per day
 - 20-35% Fat per day

Additional Considerations

- Children diagnosed with Type 2 Diabetes Mellitus who are on insulin therapy will need to follow the diet modifications as determined by his/her medical clinician
- Children diagnosed with Prader Willi, Down Syndrome or myelomeningocele will have decreased energy needs compared to typical children. Diet modifications are made accordingly to prevent excessive weight gain while promoting linear growth.¹⁰

⁸ © 2009 ADA Evidence Analysis Library. Printed on: 04/29/09 - from: http://www.adaevidencelibrary.com/template.cfm?format_tables=0&template=guide_summary&key=128

⁹ © 2009 ADA Evidence Analysis Library. Printed on: 04/29/09 - from: http://www.adaevidencelibrary.com/template.cfm?format_tables=0&template=guide_summary&key=128

¹⁰ Kleinman, R. ed. Pediatric Nutrition Handbook. American Academy of Pediatrics. 2009: p. 546.

**Recommended Food Intake According to www.Myplate.gov
with Average Size of Servings at Different Age Levels**

Food Group	2-3 years	4-7 years	8-12 years	Teen years	Food Sources of the Nutrients
<p>GRAINS - Eat 6 ounces everyday</p> <p>Make half your grains whole Breads, cereals, rice, pasta</p>	3 ounce Equivalents	4-5 ounce Equivalents	5-6 ounce Equivalents	Girl- 6 ounce equivalent Boy-10 ounce equivalents	Dietary fiber, B vitamins (thiamin, riboflavin, niacin, folate), Iron, Magnesium and selenium
<p>VEGETABLES—Eat 2 ½ cups everyday</p> <p>Vary your veggies</p> <p>Dark, orange vegetables, dry beans and peas, starchy vegetables (sweet potatoes, white potatoes)</p>	1 cup	1 ½ cups	Girls - 2.5cups Boys – 3 cups	Girl – 2 ½ cups Boys – 3 ½ cups	Potassium, dietary fiber, folate (folic acid), vitamin A, vitamin E, vitamin C.
<p>FRUITS – Eat 1 ½ cups</p> <p>Go easy on juice and make sure it is 100%</p> <p>Citrus fruits, melons, berries, other fruit varieties</p>	1 ½ cups	1 ½ cups	1 ½ cups	2.5 cups	Potassium, folic acid, magnesium and fiber, Citrus fruits, melons, and berries are especially good sources of vitamin C. Yellow fruits are rich of vitamin A
<p>MILK – 3 cups</p> <p>Get your calcium rich foods Milk, Cheese, Yogurt, Other calcium sources (fortified foods, tofu, sardines, dry beans, turnip or mustard greens)</p>	2 cups	2.5cups	3 cups Choose your milk, yogurt or cheese low in fat or fat-free	3 cups Choose your milk, yogurt, or cheese low in fat or fat free	Good sources of calcium, protein, riboflavin, vitamin B12, thiamin, if fortified with vitamin D.
<p>MEAT & BEANS – 5 oz every day</p> <p>Eat lean or <u>lowfat</u> meat, chicken turkey and fish. Ask for it to be broiled, baked or grilled.</p> <p><u>Meats</u>, Fish, Poultry, Eggs, Dry beans and peas, Nuts and seeds</p>	2 ounce equivalents	3-4 ounce equivalents	5 ounce equivalents	Girl-6 ounce equivalents Boy-7 ounce equivalents	Good sources of protein, niacin, vitamins B6 and B12, iron, phosphorus and zinc.
<p>FATS AND OILS</p> <p>Choose canola, olive fat, no trans fat</p>	Use sparingly	4 tsp	5 tsp	6-8 tsp	Major sources of vitamin E
Caloric Needs	1300	1500	1900	Girls – 2000 Boys 2800	

Dietary Management of Diabetes Mellitus

✚ Classification of Diabetes

- Type 1 diabetes results from autoimmune pancreatic β -cell destruction causing deficient insulin secretion.
- Type 2 diabetes results from a progressive insulin secretory defect in combination with insulin resistance.
- Other specific types of diabetes: due to other causes, e.g., genetic defects in β -cell function, genetic defects in insulin action, diseases of the exocrine pancreas (such as cystic fibrosis) and drug or chemical induced (such as in the treatment of AIDS or after organ transplantation).
- Gestational diabetes mellitus (GDM): diagnosed during pregnancy.
- Diagnostic criteria for diabetes: fasting glucose $>126\text{mg/dl}$, two-hour glucose during OGTT (oral glucose tolerance test) $>200\text{mg/dl}$, HbA1c $>6.5\%$ and a random glucose of $>200\text{mg/dl}$ with symptoms.

✚ Classification of Pre-diabetes

This is a state intermediate between diabetes and normoglycemic

- IGT (impaired glucose tolerance) as determined by a two-hour OGTT resulting in $140 - 199\text{ mg/dl}$ plasma glucose.
- IFG (impaired fasting glucose) is a state where the fasting blood sugar is between $100\text{ mg/dl} - 125\text{ mg/dl}$.
- HbA1c between $5.7 - 6.4\%$

✚ Goals of Medical Nutrition Therapy for Diabetes

To promote and support healthy eating habits to improve overall health and for: blood pressure $<140/80\text{ mm/hg}$, triglycerides $<150\text{mg/dl}$, LDL cholesterol $<100\text{mg/dl}$, HDL cholesterol $>40\text{mg/dl}$ for males, $>50\text{mg/dl}$ for females and A1C goal is $<7\%$. Achieve and maintain body weight goals. Delay or prevent complications of diabetes.

Medical nutrition therapy (MNT) is an integral part of diabetes management and is included in self-management programs to prevent, treat and reduce the complications associated with diabetes.

Terms to be Familiar With:

Macronutrient: found in large amounts in the foods we consume and provide a source of energy. There are four types of macronutrients or calorie sources.

1. **Carbohydrates** – types of carbohydrates are sugars, starches, fibers, sugar alcohols and dextrins. Carbohydrates contain 4 calories per gram. Sugar alcohols

have 2 calories per gram and insoluble fiber is not completely absorbed or digested.

- a. Sources of carbohydrates are fruit, grains/starchy foods, milk/yogurt, sweets, and vegetables.
- b. Carbohydrates have the largest influence on blood sugar levels as compared to other types of calories (proteins or fats). The amount of glucose (one particular type of sugar) will predict the blood sugar elevation from that food.
- c. The diet prescription can have 40-50% of the total calories from carbohydrates. Exception: Athletic individuals may require 55-60% to meet higher energy needs.
 - i. Insulin and medications may need to be adjusted to allow the individual to meet needs and maintain normal glycemic levels.
 - ii. Dividing total carbohydrates into smaller meals is helpful.
 - iii. Monitoring blood sugar can help to fine-tune the amount tolerated. A blood test one hour after the first bite of the meal (postprandial) can demonstrate if a patient can handle the amount of carbohydrate at that meal. If the patient takes insulin or an oral anti-diabetic medication, it would be preferable to check at 2 hours postprandial. Adjustments are made by negotiating with the patient and keeping their goals in mind. Some individuals will enjoy snacking, while others do not. We respect preferences and do everything possible to find a suitable compromise.

2. **Fats (lipids)** – energy rich triglycerides are lipids that contain fatty acids and are categorized according to the number of hydrogen bonds they contain. These are polyunsaturated, monounsaturated and saturated fats. When eaten, they can be used as energy, to make substances in the body, or stored for later use. Fats contain 9 calories per gram. When carbohydrates are in short supply, fats are released and a portion (called glycerol) can be used to make sugar. Cholesterol is a different type of lipid that is used to make bile acids, vitamin D, hormones and provide structure to our cell walls. The diabetic diet is designed with heart healthy principles in mind and follows recommendations of the American Heart Association.

- a. The percent of calories in the diet from fat is 20-30%.
- b. Saturated fat <10%, if cholesterol lowering is desired - the goal is <7%.
- c. Dietary cholesterol is 200-300 mg. Use the upper limit for those without a history of elevated cholesterol levels or taking cholesterol lowering medication.
- d. Individuals with triglycerides >1000 need to restrict all sources of fat as low as feasible <20%.
- e. Patients with mildly elevated triglycerides benefit from 30-40% calories from fat, with monosaturated types strongly emphasized.

3. **Protein** – nitrogen containing sources of energy that can be used to make proteins and enzymes in the body and can be used to build sugar when carbohydrates are in short supply. It contains 4 calories per gram. Good sources are foods of animal origin such as fowl, beef, pork, fish, eggs, low-fat cheese, cottage cheese,

milk/yogurt, and vegetarian sources of soybeans, tofu and soy products. It is also found in lesser quality and quantity in legumes, grains and vegetables.

4. **Alcohol** – a product of carbohydrates that has been fermented by microorganisms and changed in structure. It contains 7 calories per gram.
 - a. Alcohol may cause fluctuations in blood sugar. If the beverage contributes a large amount of carbohydrates (liqueur, mixed drinks, dark beer), it may lead to hyperglycemia (high blood sugar). If consumed on an empty stomach, it can cause hypoglycemia (low blood sugar) that can persist 8-12 hours following the consumption of the beverage. Low blood sugar episodes are most likely to occur in diabetics using insulin or insulin secretagogues. It is advised to drink in moderation if one chooses to drink.
 - b. An alcoholic beverage consists of: 5 oz. wine, 12 oz. beer or 1.5 oz. spirits.
 - c. No food is omitted at the meal to allow for alcoholic beverages. When alcohol is consumed on a daily basis, the meal plan will be adjusted to incorporate the calories from alcohol.

Nutrition Therapy for Type 1 and Type 2 Diabetes

The American Diabetes Association states that there is no one meal plan or eating pattern that is effective for all people with diabetes. Nutrition therapy should be individualized for each person based on health status, cultural practices, health literacy, access to resources and willingness to change. Appropriate management of diabetes mellitus is evaluated by monitoring response to diet/exercise/insulin/medication using daily self-monitoring blood glucose (SMBG), periodic A1C and adjusting the treatment plan as needed.

It is recommended that people with type 1 diabetes utilize an intensive flexible insulin therapy education program using carbohydrate counting meal planning. For people on a fixed insulin regimen, consistent carbohydrate meals coordinated by timing and portions may be beneficial.

Advanced Insulin Management: Using Insulin-to-Carb Ratios and Correction Factors

A nutrition resource for living well with diabetes

There may be a benefit from using insulin-to-carbohydrate ratio and a blood glucose correction factor to determine meal-time insulin dose. Learning to adjust the insulin dose to the amount of food consumed provides flexibility with eating. It also requires a good understand of medicines and carbohydrate or “carb” counting.

What is An Insulin-to-Carb Ratio?

An insulin-to-carb ratio helps you dose how much rapid-acting insulin you need to “cover” the carbohydrate you will eat at a meal or snack. For example, some people might take 1.5 units for every carb choice (Note: 1 carb “choice” = 15 grams carbohydrate), or others might take 1 unit for every 10 grams of carb. Your health care provider or registered dietitian - who may also be a certified diabetic educator (CDE) - can help you choose a starting ratio; however, it may take experimentation before you find the correct insulin-to-carb ratio for you. Records of what you ate, the estimated amount of carbohydrate in your meal, how much insulin you took, and what your blood glucose was before and two hours after you ate will help you decide if the ratio is correct, or if it should be adjusted. Different people have different insulin-to-carb ratios. Additionally, insulin-to-carbs may change over the course of your lifetime or even throughout the day. Some people have one ratio for breakfast and different ratio for lunch and dinner.

What is An Insulin Correction Factor?

The insulin correction factor (sometimes called an insulin sensitivity factor) is used to calculate the amount of insulin you need to bring your glucose into target range. This adjusts or corrects a blood glucose level that may be higher or lower than desired before a meal. The correction dose is added to, or subtracted from, the pre-meal insulin dose.

Your health care provider will help you determine your insulin correction factor as you begin working with this.

Advanced Insulin Management**Your Current Insulin Plan**

Long-acting:	Rapid -acting or short-acting:	Total units of insulin
Dose a.m. _____ p.m. _____	Dose B _____ L _____ D _____ Other _____	Per day _____

Putting it all together**Step 1: Calculate an insulin dose for food:**

1. Add up the grams of carbohydrate in foods you will eat.
2. Divide the total grams of carb by your insulin-to-carb ratio.

$$\frac{\text{Total Grams of Carbohydrate to be eaten}}{\text{Insulin-to Carb Ratio}}$$

Example:

Let's say you plan to eat 45 grams of carbohydrate and your insulin-to-carb ratio is 1 unit of insulin for every 15 grams of carbohydrate eaten. To figure out how much insulin to give, divide 45 by 15.

$$\frac{45 \text{ Grams of Carbohydrate}}{15}$$

= 3 units of insulin is needed for this amount of carbohydrate

Step 2: How to use your correction factor to reach your target blood glucose

1. Subtract your target blood glucose from your current blood glucose.
2. Divide the difference by your correction factor.

$$\frac{\text{Current Blood Glucose} - \text{Target Blood Glucose}}{\text{Correction Factor}} = \text{Correction Dose}$$

Example:

You check your pre-meal blood glucose and it is 190 mg/dl, and your target blood glucose is 120 mg/dl. Your insulin correction factor is 35.

$$\frac{190 \text{ mg/dl} - 120 \text{ mg/dl}}{35} = 2 \text{ units of insulin will bring blood glucose of } 190 \text{ mg/dl down to } 120 \text{ mg/dl.}$$

Step 3: Add the insulin needed for carbs to the insulin to correct high blood glucose for your total dose:

Example from steps 1 and 2:

$$\begin{array}{l} 3 \text{ units for food (carbs)} \\ + 2 \text{ units to correct high blood glucose} \end{array}$$

Total Dose = 5 units

Your new insulin plan:

1. Insulin-to carb ratio: You will need 1 unit of rapid-acting or short-acting insulin for each _____ grams of carb.
2. Blood glucose correction factor (insulin to correct high blood glucose):
1 unit of rapid-acting or shorting acting insulin for each _____ =points (mg/dl) your blood glucose level is over target of _____ mg/dl
3. You pre-meal target blood glucose:
_____ mg/dl

Avoid causing low blood glucose! Most people correct their blood glucose only before meals, not between meals. Follow the advice of your healthcare provider or registered dietitian regarding when to correct your blood glucose.

Advanced Insulin Management: Calculation Worksheet

Step 1: Calculate an insulin dose for food:

1. Add up the grams of carbohydrate in the foods you will eat.
2. Divide by your insulin-to-carb ratio

$$\frac{\text{Total Grams of Carbohydrate to be Eaten}}{\text{Insulin-to-Carb Ratio}}$$

Practice:

Let's say you plan to eat 60 grams of carbohydrate and your insulin-to-carb ratio is 1 unit of insulin for every _____ grams of carbohydrate eaten. To figure out how much insulin to give, divide 60 by _____.

$$\frac{60 \text{ Grams of Carbohydrate to be Eaten}}{\text{_____}} = \text{_____ Units of Insulin For Food (carbs)}$$

Step 2: How to use your correction factor to reach your target blood glucose:

1. Subtract your target blood glucose from your current blood glucose.
2. Divide the difference by your correction factor.

$$\frac{\text{Current Blood Glucose} - \text{Target Blood Glucose}}{\text{Correction Factor}} = \text{Correction Dose}$$

Practice;

You check your blood glucose and it is 250 mg/dl, and you know your target blood glucose is _____ mg/dl. Your insulin correction factor is _____.

$$\frac{250 \text{ mg/dl} - \text{_____ mg/dl}}{\text{_____}}$$

= _____ units of insulin will bring blood glucose of 250 mg/dl down to your target blood glucose of _____.

Step 3: Add the insulin needed for carbs to the insulin to correct high blood glucose for your total dose:

Practice:

Example from steps 1 and 2:

- _____ Units for food (carbs)
- _____ Units to correct high blood glucose

Total Dose = _____ Units

Work with your health care provider or a registered dietitian to help you fill in this worksheet. Your correction factor can change over time.

Blood Glucose Range	Units of Insulin to Correct the BG
	1
	2
	3
	4
	5

Carbohydrate Controlled Diets with 0 Servings of Milk (20% PRO, 30% FAT, 50% CHO)

Kcals	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	3000
Starch	7	7	7	7	8	8.5	9	10	10	11	12	12	13	13	14	14	15	15	16
Protein	5	5	6	7	7	7	7	7	8	9	8.5	9	9	10	10	11	11	12	12
Vegetable	3	3	3	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	5
Fruit	2	2	2	3	3	3	4	4	4	4	4	5	4	5.5	5	6	6	6	6
Milk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fat	3	4	4	4	5	5	6	6	6	6	7	7	8	8	9	9	9	10	10
CHO (gm)	150	150	150	170	185	192.5	210	230	230	245	260	275	275	297.5	305	320	335	335	355
Pro (gm)	62	62	69	78	71	82.5	82	87	94	104	103.5	107	110	117	120	127	130	137	142
Fat (gm)	32	41	42	52	52	52	61	61	62	63	71.5	72	81	82	91	92	92	102	102
Calc (kcal)	1136	1217	1254	1379	1532	1568	1717	1817	1854	1963	2098	2176	2269	2396	2519	2616	2688	2806	2906

Carbohydrate Controlled Diets with 1 Serving of Milk (20% PRO, 30% FAT, 50% CHO)

Kcals	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	3000
Starch	5	6	6	7	8	8	9	10	10	10	11	11	12	13	13	15	14	15	15
Protein	4	5	5	5	6	6	6	6	7	8	8	8	8	8	8	8	9	9	11
Vegetable	2	3	4	4	3	4	3	4	3	4	4	4	4	3	3	4	4	4	4
Fruit	3	2	3	3	3	3	3	3	4	4	4	5	5	5	6	5	6	7	8
Milk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fat	3	3	4	4	4	5	6	6	6	7	7	8	8	8	9	9	10	10	10
CHO (gm)	142	147	167	182	192	197	207	227	237	242	257	272	285	297	312	332	332	362	377
Pro (gm)	55	67	69	72	80	82	83	88	93	102	105	105	108	109	109	117	121	124	138
Fat (gm)	31	32	41	41	42	51	60	60	61	71	71	80	80	80	89	89	99	99	101
Calc (kcal)	1067	1144	1313	1385	1466	1575	1700	1800	1869	2015	2087	2228	2292	2344	2485	2597	2703	2835	2969

Carbohydrate Controlled Diets with 2 Servings of Milk (20% PRO, 30% FAT, 50% CHO)

Kcals	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	3000
Starch	4	5	5	6	7	7	8	8	9	9	10	10	11	12	12	13	14	14	15
Protein	4	5	4	5	5	5	6	6	7	7	8	8	8	8	9	9	9	9	9
veg	2	4	3	3	3	4	3	3	3	3	3	4	4	4	4	4	4	4	4
Fruit	3	2	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7
Milk	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Fat	3	3	4	4	4	5	6	6	6	7	7	7	8	8	9	9	10	10	11
CHO	139	144	159	174	189	194	204	219	234	234	249	269	270	299	299	329	344	359	374
Pro (gm)	60	72	65	75	78	80	88	88	98	98	108	110	113	116	123	126	129	129	132
Fat (gm)	31	44	40	41	41	50	60	60	61	70	71	71	80	80	90	90	90	99	108
Calc (kcal)	1075	1260	1256	1365	1437	1546	1708	1768	1877	1958	2067	2155	2252	2380	2498	2630	2702	2843	2996

Exchange Lists for Meal Planning

All foods are allowed in the diabetic diet. The exchange system is a way to clearly define the portion size of a particular food. Each list contains foods similar in calories and macronutrients so that they may be substituted or “exchanged” for any other item in that same list-provided the serving size selected corresponds to that noted on the list.

When designing a diet, it is best to distribute carbohydrate containing foods evenly throughout the day. Each meal would ideally have the same number of grams of carbohydrates: i.e. 45g at breakfast, lunch and dinner. If a patient is taking medications or insulin, there is more room to individualize. These individuals should strive for a usual ± 1 serving of a carbohydrate food (15g CHO): for example, when 45g is the average or usual allowed, it can be eaten as 30g breakfast, 45g lunch, and 60g dinner. This is to say that their goal is $45g \pm 15g$.

Guide for Calculating a Diabetic Meal Plan Using Exchange List System

The exchange lists and composition of each are as follows:

List Exchange	Carbohydrate (grams)	Protein (grams)	Fat (grams)	Calories
Carbohydrate Group				
Starch	15	3	Trace	80
Fruit	15	-	-	60
Milk Group				
Skim	12	8	0-3	90
Low-fat	12	8	5	120
Whole	12	8	8	150
Other Carbohydrates	15	Varies	Varies	Varies
Vegetables	5	2	-	25
Meat & Meat Substitute Group				
Very Lean	0	7	0-1	35
Lean	0	7	3	55
Medium Fat	0	7	5	75
High Fat	0	7	8	100
Fat Group	0	0	5	45

The exchange lists provide the patient with a lot of food choices (foods from the basic food groups, foods with added sugars, free foods, combination foods and fast foods).

For exchange list refer to section D.

Sample Menus:

Name Sample Total Calories 1200
 Carbohydrate (grams) 144 Protein (grams) 72 Fat (grams) 44

Total Number Exchanges per Day

Starch 5
 Protein 5
 Vegetable 4
 Fruit 2
 Milk 2
 Fat 3

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>1</u>	Starch	<u>2 sl reduced calorie/light Oroweat wheat bread</u>	<u> </u>	Starch	<u> </u>
<u>1</u>	Protein	<u>Poached or hardboiled egg</u>	<u> </u>	Protein	<u> </u>
<u>1</u>	Fruit	<u>½ grapefruit</u>	<u> </u>	Fruit	<u> </u>
<u>1</u>	Milk	<u>8 oz milk or ½ c. evaporated skim in coffee</u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 tsp margarine</u>	<u> </u>	Fat	<u> </u>

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>1</u>	Starch	<u>½ c corn</u>	<u> </u>	Starch	<u> </u>
<u>2</u>	Protein	<u>2 oz halibut or roughy, broil</u>	<u> </u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>1 c. cooked spinach</u>	<u> </u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>1 cup cubed cantaloupe</u>	<u> </u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 tsp margarine</u>	<u> </u>	Fat	<u> </u>

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>2/3 c wild rice w/ onion and garlic, low sod broth</u>	<u>1</u>	Starch	<u>4 Ak Mak crackers</u>
<u>2</u>	Protein	<u>2 oz skinless chicken, broil</u>	<u>0</u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c. ea. green beans, chopped tomatoes</u>	<u>0</u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>1 fresh pear</u>	<u>0</u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u>1</u>	Milk	<u>6-oz non-fat yogurt</u>
<u>1</u>	Fat	<u>6 chopped almonds in rice</u>	<u>0</u>	Fat	<u> </u>

Name Sample Total Calories 1300
 Carbohydrate (grams) 167 Protein (grams) 69 Fat (grams) 41

Total Number Exchanges per Day

Starch 6
 Protein 5
 Vegetable 4
 Fruit 3
 Milk 1
 Fat 4

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>1</u>	Starch	<u>½ c steel cut oats or old fashioned</u>	<u> </u>	Starch	<u> </u>
<u>1</u>	Protein	<u>¼ c. low fat cottage cheese</u>	<u> </u>	Protein	<u> </u>
<u>1</u>	Fruit	<u>½ c. fresh pineapple</u>	<u> </u>	Fruit	<u> </u>
<u>1</u>	Milk	<u>8 oz 1% milk</u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>10 peanuts sprinkled on c.c.</u>	<u> </u>	Fat	<u> </u>

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>Corn tortilla, ½ c. pinto beans</u>	<u> </u>	Starch	<u> </u>
<u>2</u>	Protein	<u>2 oz fish w/ ¼ c. salsa</u>	<u> </u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>1 c. shredded cabbage, ¼ c tomatoes, ¼ c. grated carrot or banana squash</u>	<u> </u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>15 grapes</u>	<u> </u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1/8 avocado</u>	<u> </u>	Fat	<u> </u>

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>½ cup peas, 1- 3 oz potato</u>	<u>1</u>	Starch	<u>Waffle, spray marg</u>
<u>2</u>	Protein	<u>2 oz roast</u>	<u>0</u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c. carrot, small salad</u>	<u>0</u>	Vegetable	<u> </u>
<u>0</u>	Fruit	<u> </u>	<u>1</u>	Fruit	<u>½ cup applesauce</u>
<u>0</u>	Milk	<u> </u>	<u>0</u>	Milk	<u> </u>
<u>1</u>	Fat	<u>2 Tbs red. fat sour cream</u>	<u>1</u>	Fat	<u>In the waffle</u>

Section D: Dietary Management of Diabetes Mellitus

Name Sample Total Calories 1400
 Carbohydrate (grams) 182 Protein (grams) 72 Fat (grams) 42

Total Number Exchanges per Day

Starch 7
 Protein 5
 Vegetable 4
 Fruit 3
 Milk 1
 Fat 4

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>1</u>	Starch	<u>½ c shredded wheat</u>	<u> </u>	Starch	<u> </u>
<u>1</u>	Protein	<u>¼ c. egg substitute</u>	<u> </u>	Protein	<u> </u>
<u>1</u>	Fruit	<u>¾ c. blueberries</u>	<u> </u>	Fruit	<u> </u>
<u>1</u>	Milk	<u>8 oz low-fat milk</u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 tsp marg to prepare egg</u>	<u> </u>	Fat	<u> </u>

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>1 cup pasta</u>	<u> </u>	Starch	<u> </u>
<u>2</u>	Protein	<u>1 oz ground beef, 1 Tbs parm cheese</u>	<u> </u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c tomato sauce, ½ c. broc</u>	<u> </u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>1 med apple</u>	<u> </u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>2 tsp peanut butter</u>	<u> </u>	Fat	<u> </u>

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>3</u>	Starch	<u>Oroweat hamburger bun</u>	<u>1</u>	Starch	<u>2 slices reduced calorie bread</u>
<u>2</u>	Protein	<u>2 oz vegetarian patty</u>	<u>0</u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c. green peppers, lettuce, mush + ½ c tomatoes</u>	<u>0</u>	Vegetable	<u> </u>
<u>0</u>	Fruit	<u> </u>	<u>1</u>	Fruit	<u>1/2 banana or Tbsp jam</u>
<u>0</u>	Milk	<u> </u>	<u>0</u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 Tbsp. reduced fat Ranch</u>	<u>1</u>	Fat	<u>2 tsp peanut butter</u>

Name Sample Total Calories 1500
 Carbohydrate (grams) 192 Protein (grams) 80 Fat (grams) 50

Total Number Exchanges per Day

Starch 8
 Protein 6
 Vegetable 4
 Fruit 3
 Milk 1
 Fat 4

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
1	Starch	2 sl reduced calorie Oroweat wheat bread		Starch	
1	Protein	2 slices 2% process cheese		Protein	
1	Fruit	½ grapefruit		Fruit	
1	Milk	6 oz non-fat yogurt		Milk	
1	Fat	1 tsp margarine		Fat	

Lunch			PM Snack		
# Serv		Example	# Serv		Example
2.5	Starch	3/4 c. lima beans, ½ c corn		Starch	
2	Protein	2 oz halibut or roughy, broil		Protein	
2	Vegetable	1 c. cooked spinach		Vegetable	
1	Fruit	1 cup cantaloupe		Fruit	
0	Milk			Milk	
1	Fat	2 tsp. tartar sauce		Fat	

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
3	Starch	1 c brown rice made with low sodium broth	1.5	Starch	6 Ak Mak crackers
3	Protein	3 oz skinless chicken, broil	0	Protein	
2	Vegetable	½ c. ea. green beans, crookneck squash	0	Vegetable	
0	Fruit		1	Fruit	2 plums
0	Milk		0	Milk	
1	Fat	6 chopped almonds in rice	1	Fat	2 Tbsp red. fat cream Cheese

Section D: Dietary Management of Diabetes Mellitus

Name Sample Total Calories 1600
 Carbohydrate (grams) 197 Protein (grams) 82 Fat (grams) 53

Total Number Exchanges per Day

Starch 8
 Protein 6
 Vegetable 4
 Fruit 3
 Milk 1
 Fat 5

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>1c cooked cream of wheat</u>	<u> </u>	Starch	<u> </u>
<u>1</u>	Protein	<u>1 egg</u>	<u> </u>	Protein	<u> </u>
<u>1</u>	Fruit	<u>2 Tbsp. raisins</u>	<u> </u>	Fruit	<u> </u>
<u>1</u>	Milk	<u>½ c. evap skim in coffee</u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>4 pecans</u>	<u> </u>	Fat	<u> </u>

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>Corn tortilla, ½ c. blk. Beans</u>	<u> </u>	Starch	<u> </u>
<u>2</u>	Protein	<u>1 cup tofu</u>	<u> </u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>¼ cup salsa, 1 cup shredded banana squash, carrot, cabbage</u>	<u> </u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>15 grapes</u>	<u> </u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u> </u>	Milk	<u> </u>
<u>2</u>	Fat	<u>4 tbsp avocado</u>	<u> </u>	Fat	<u> </u>

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>3</u>	Starch	<u>½ cup peas, 1- 6 oz potato</u>	<u>1</u>	Starch	<u>Waffle, spray marg</u>
<u>3</u>	Protein	<u>3 oz roast</u>	<u>0</u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c. carrot, small salad</u>	<u>0</u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>½ cup applesauce</u>	<u>0</u>	Fruit	<u>2 tsp sugar free jam</u>
<u>0</u>	Milk	<u> </u>	<u>0</u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 tsp marg or 1Tbs reduced fat sour cream</u>	<u>1</u>	Fat	<u>In the waffle</u>

Name Sample Total Calories 1700
 Carbohydrate (grams) 204 Protein (grams) 88 Fat (grams) 63

Total Number Exchanges per Day

Starch 8
 Protein 6
 Vegetable 3
 Fruit 3
 Milk 2
 Fat 5

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>1 whole grain English muffin</u>	<u> </u>	Starch	<u> </u>
<u>1</u>	Protein	<u>¼ c. egg substitute</u>	<u> </u>	Protein	<u> </u>
<u>1</u>	Fruit	<u>1 cup papaya</u>	<u> </u>	Fruit	<u> </u>
<u>1</u>	Milk	<u>8 oz low-fat milk</u>	<u> </u>	Milk	<u> </u>
<u>1</u>	Fat	<u>1 tsp marg to prepare egg</u>	<u> </u>	Fat	<u> </u>

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	<u>2 cups spaghetti squash</u>	<u>0</u>	Starch	<u> </u>
<u>2</u>	Protein	<u>1/3 c. scallops, 2 Tbs parm</u>	<u>0</u>	Protein	<u> </u>
<u>1</u>	Vegetable	<u>½ c. broccoli</u>	<u>0</u>	Vegetable	<u> </u>
<u>1</u>	Fruit	<u>2 small plums</u>	<u>0</u>	Fruit	<u> </u>
<u>0</u>	Milk	<u> </u>	<u>1</u>	Milk	<u>6 oz low-fat yogurt</u>
<u>1.5</u>	Fat	<u>1 1/2 Tbsp. pesto sauce</u>	<u>0</u>	Fat	<u> </u>

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>3</u>	Starch	<u>1 ½ Whole wheat pita</u>	<u>1 ½</u>	Starch	<u>2 slices reduced calorie bread</u>
<u>3</u>	Protein	<u>3 oz chicken strips</u>	<u>0</u>	Protein	<u> </u>
<u>2</u>	Vegetable	<u>½ c. green peppers, lettuce, mush + ½ c tomatoes</u>	<u>0</u>	Vegetable	<u> </u>
<u>0</u>	Fruit	<u> </u>	<u>1</u>	Fruit	<u>1/2 banana</u>
<u>0</u>	Milk	<u> </u>	<u>0</u>	Milk	<u> </u>
<u>1.5</u>	Fat	<u>1 Tbs oil and vinegar, 1 Tbs red fat sour cream</u>	<u>1</u>	Fat	<u>2 tsp peanut butter</u>

Section D: Dietary Management of Diabetes Mellitus

Name	<u>Sample</u>	Total Calories	<u>1800</u>
Carbohydrate (grams)	<u>227</u>	Protein (grams)	<u>88</u>
		Fat (grams)	<u>61</u>
% Carbohydrate	<u>50</u>	% Protein	<u>20</u>
		% Fat	<u>30</u>

Total Number Exchanges per Day

Starch	<u>10</u>
Protein	<u>6</u>
Vegetable	<u>4</u>
Fruit	<u>3</u>
Milk	<u>1</u>
Fat	<u>6</u>

<u>Breakfast</u>			<u>AM Snack</u>		
# Serv		Example	# Serv		Example
2	Starch	2/3c. grape nuts		Starch	
1	Protein	1 vegetarian sausage patty		Protein	
1	Fruit	3 prunes		Fruit	
1	Milk	8 oz low-fat		Milk	
1	Fat	1 Tbsp. nuts		Fat	

<u>Lunch</u>			<u>PM Snack</u>		
# Serv		Example	# Serv		Example
3	Starch	6 oz potato, (beans)	2	Starch	6 cups light popcorn
2	Protein	1/2 cup black beans, 1 oz low-fat cheese	0	Protein	
2	Vegetable	1/4 c salsa, scallions, tomato (free) 1 c broccoli	0	Vegetable	
1	Fruit	1 cup grapes	0	Fruit	
0	Milk		0	Milk	
2	Fat	2 Tbs. sr cream, 1 tsp Benecol	1	Fat	Already in popcorn

<u>Dinner</u>			<u>Evening Snack</u>		
# Serv		Example	# Serv		Example
3	Starch	2 med. reduced-fat biscuits		Starch	
3	Protein	3 oz pork loin		Protein	
2	Vegetable	1 cup brussel sprouts		Vegetable	
1	Fruit	Baked apple		Fruit	
0	Milk			Milk	
2	Fat	2 pats margarine		Fat	
	<u>Free</u>	<u>diet soda or tea</u>			

Name	<u>Sample</u>	Total Calories	<u>1900</u>
Carbohydrate (grams)	<u>237</u>	Protein (grams)	<u>96</u>
Fat (grams)	<u>65</u>	% Carbohydrate	<u>50</u>
% Protein	<u>20</u>	% Fat	<u>30</u>

Total Number Exchanges per Day

Starch	<u>10</u>
Protein	<u>7</u>
Vegetable	<u>3</u>
Fruit	<u>3</u>
Milk	<u>1</u>
Fat	<u>6</u>

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
3	Starch	¾ c. low-fat granola	0	Starch	
1	Protein	3 sardines (in oil)	0	Protein	
0	Fruit		1	Fruit	2 tangerines
1	Milk	8 oz, low-fat	0	Milk	
1	Fat	In sardines	0	Fat	

Lunch			PM Snack		
# Serv		Example	# Serv		Example
2	Starch	5 reduced-fat Triscuits	2	Starch	6 cups light popcorn
2	Protein	2 cups lentil or split pea soup	1	Protein	¼ cup cashews
1	Vegetable	Carrot and celery in soup	0	Vegetable	
1	Fruit	1 cup cherries	0	Fruit	
0	Milk		0	Milk	
2	Fat	2 Tbsp. peanuts soup to garnish	1	Fat	Already in nuts

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
3	Starch	3 bread sticks		Starch	
3	Protein	3 oz crab/shrimp, steamed		Protein	
2	Vegetable	1 cup asparagus		Vegetable	
1	Fruit	Omit due to cocktail sauce		Fruit	
0	Milk			Milk	
2	Fat	2 tsp olive oil		Fat	
		¼ cup cocktail sauce			

Section D: Dietary Management of Diabetes Mellitus

Name	Sample	Total Calories	2000
Carbohydrate (grams)	254	97	Fat (grams) 66
% Carbohydrate	50	% Protein 20	% Fat 30

Total Number Exchanges per Day

Starch	10
Protein	7
Vegetable	4
Fruit	4
Milk	2
Fat	5

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
2	Starch	1 whole wheat bagel	0	Starch	
1	Protein	1 oz lox	0	Protein	
1	Fruit	Orange slices	1	Fruit	2 tangerines
1	Milk	8 oz low-fat	0	Milk	
1	Fat	2Tbsp. red. fat cream cheese	0	Fat	

Lunch			PM Snack		
# Serv		Example	# Serv		Example
3	Starch	2 ½ slices bread	1	Starch	2 Rye Krisp crackers
2	Protein	2 oz tofu cutlet/steak	1	Protein	1 hardboiled egg
2	Vegetable	1 cup fresh sprouts Sliced tomatoes	0	Vegetable	
1	Fruit	1 persimmon	0	Fruit	
0	Milk		0	Milk	
1	Fat	2 tbsp of a medium avocado	1	Fat	1 Tbsp light mayo

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
3	Starch	1 1/2 cup polenta	1	Starch	¼ cup grapenuts
3	Protein	3 oz lean pork		Protein	
2	Vegetable	1 cup mixed vegetables		Vegetable	
1	Fruit	1 cup whole strawberries		Fruit	
0	Milk		1	Milk	6 oz low-fat yogurt
2	Fat	2 tsp olive oil in preparation		Fat	
		<u>Seasoning, sparkling water</u>			

Name	Sample	Total Calories	2100
Carbohydrate (grams)	252	Protein (grams)	110
Fat (grams)		Fat (grams)	71
% Carbohydrate	50	% Protein	20
		% Fat	30

Total Number Exchanges per Day

Starch	11
Protein	9
Vegetable	3
Fruit	4
Milk	1
Fat	6

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
2	Starch	1 ½ cups Kashi Go Lean cereal	2	Starch	2 ounces low-fat Kettle Chips
1	Protein	1 vegetarian sausage patty	0	Protein	
1	Fruit	1 cup cubed cantaloupe	0	Fruit	
1	Milk	8 oz low-fat	0	Milk	
1	Fat	1 Tbsp. nuts	1	Fat	In the chips

Lunch			PM Snack		
# Serv		Example	# Serv		Example
2	Starch	(1) 6 oz sweet potato	2	Starch	6 pieces melba toast
3	Protein	3 oz sliced turkey	½	Protein	2 Laughing Cow light cheese wedges
1	Vegetable	½ cup cooked sliced carrots	0	Vegetable	Sliced cucumber
1.5	Fruit	¾ cup light ice cream	0	Fruit	
0	Milk		0	Milk	
2	Fat	2 tsp. margarine	0	Fat	

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
3	Starch	3 oz potato, 1 wedge cornbread		Starch	
4	Protein	Frittata: ½ cup egg sub, 2 oz Canadian bacon		Protein	
1	Vegetable	1 cup chopped tomato, onion		Vegetable	
1.5	Fruit	1 ½ cup grapes		Fruit	
0	Milk			Milk	
2	Fat	12 olives, chopped		Fat	

Section D: Dietary Management of Diabetes Mellitus

Name Sample Total Calories 2200

Carbohydrate (grams) 269 Protein (grams) 120 Fat (grams) 74

% Carbohydrate 50 % Protein 20 % Fat 30

Total Number Exchanges per Day

Starch 11
 Protein 9
 Vegetable 4
 Fruit 4
 Milk 2
 Fat 6

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
<u>2</u>	Starch	(1) 6" diameter whole grain pancake	<u>0</u>	Starch	
<u>2</u>	Protein	½ cup cottage cheese	<u>0</u>	Protein	
<u>1</u>	Fruit	½ cup sliced strawberries	<u>1</u>	Fruit	1 medium peach
<u>1</u>	Milk	8 oz low-fat	<u>0</u>	Milk	
<u>1</u>	Fat	1 tsp margarine	<u>0</u>	Fat	

Lunch			PM Snack		
# Serv		Example	# Serv		Example
<u>3</u>	Starch	1 12" tortilla, ½ cup beans	<u>2</u>	Starch	1 energy bar
<u>2</u>	Protein	1oz shredded low-fat cheese	<u>1</u>	Protein	Included
<u>2</u>	Vegetable	2 c Raw cabbage, salsa, jicama	<u>0</u>	Vegetable	
<u>1</u>	Fruit	½ mango	<u>0</u>	Fruit	
<u>0</u>	Milk		<u>0</u>	Milk	
<u>2</u>	Fat	2-3 Tbsp. guacamole	<u>1</u>	Fat	Included

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
<u>3</u>	Starch	1 cup croutons, ½ cup peas	<u>1</u>	Starch	3 graham crackers
<u>4</u>	Protein	Broiled fish (4 oz)		Protein	
<u>2</u>	Vegetable	2 cups salad greens		Vegetable	
<u>1</u>	Fruit	Raisins in salad		Fruit	
<u>0</u>	Milk		<u>1</u>	Milk	½ cup pudding
<u>2</u>	Fat	1 Tbsp vinaigrette salad dressing		Fat	
		Lemon juice			

Name	Sample	Total Calories	2400
Carbohydrate (grams)	299	Protein (grams)	120
Fat (grams)	83	% Carbohydrate	50
% Protein	20	% Fat	30

Total Number Exchanges per Day

Starch	12
Protein	8
Vegetable	4
Fruit	5
Milk	2
Fat	8

Breakfast			AM Snack		
# Serv		Example	# Serv		Example
3	Starch	1 cup Raisin Bran	0	Starch	
1	Protein	1 oz. Canadian bacon	1	Protein	1/3 cup trail mix
1	Fruit	1/2 c. canned pears	1	Fruit	In mix
1/2	Milk	1/2 c. Skim milk	1	Milk	6 oz yogurt (top w/ mix)
1	Fat	1 Tsp margarine	1	Fat	In mix

Lunch			PM Snack		
# Serv		Example	# Serv		Example
3	Starch	1/3 cup rice in soup, 2 slices whole wheat bread	2	Starch	Nature Valley granola bar
2	Protein	2 oz turkey or lean ham	0	Protein	
2	Vegetable	2 cups vegetable soup	0	Vegetable	
2	Fruit	1 small apple, 1 c grapes	0	Fruit	
0	Milk		0	Milk	
1	Fat	1 tsp margarine, 8 lg olives	1	Fat	In bars

Dinner			Evening Snack		
# Serv		Example	# Serv		Example
3	Starch	2 rolls, 1/2 cup yams	1	Starch	1 slice bread
3	Protein	3 oz seafood or fish	1	Protein	1 oz roast beef
2	Vegetable	1 cup mushrooms, tomatoes	0	Vegetable	
1	Fruit	1/2 lrg. Pear	0	Fruit	
0	Milk		1/2	Milk	4 oz skim milk
2	Fat	1 Tbsp vinaigrette salad dressing, 1 tsp. margarine	1	Fat	1 Tbsp light mayo

Section D: Dietary Management of Diabetes Mellitus

Name	Sample	Total Calories	3400
Carbohydrate (grams)	425	Protein (grams)	170
Fat (grams)			113
% Carbohydrate	50	% Protein	20
		% Fat	30

Total Number Exchanges per Day

Starch	16
Protein	12
Vegetable	7
Fruit	8
Milk	3
Fat	11

Breakfast			AM Snack		
# Serv	Example		# Serv	Example	
3	1 ½ Whole wheat bagel	Starch	1	3 graham crackers	Starch
2	2 oz lox	Protein	1	1/3 cup trail mix	Protein
2	1 c fruit cup	Fruit	1	In mix	Fruit
1	8 oz nonfat milk	Milk	1	6 oz non-fat yogurt	Milk
1	2 Tbsp.red. fat cream cheese	Fat	1	In mix	Fat

Lunch			PM Snack		
# Serv	Example		# Serv	Example	
4	2 slices bread , 2/3 c brown rice	Starch	2	Nature Valley granola bars	Starch
4	4 oz tofu cutlet steak	Protein	0		Protein
3	1 ½ cup green salad 1 cup steamed vegetables	Vegetable	0		Vegetable
2	2 cup grapes	Fruit	1	1 small apple	Fruit
0		Milk	0		Milk
3	3 tsp. margarine	Fat	1	In bars	Fat

Dinner			Evening Snack		
# Serv	Example		# Serv	Example	
5	1 cup pasta, 2 dinner rolls (1/3 cup pasta =15gm)	Starch	2	2 slices whole grain bread	Starch
4	4 oz herb chicken breast	Protein	1	½ cup tuna	Protein
2	2 cups Midori blend vegetables	Vegetable	0	Celery, onion	Vegetable
2	2 cup melon cubes	Fruit	0		Fruit
0		Milk	1	8 oz skim milk	Milk
3	3 tsp marg.	Fat	2	1 sl. avocado, 1 tbsp mayo	Fat

Diet Pattern Modification

TO INCREASE PROTEIN	SUBSTITUTE	ACTUAL CHANGE IN DIET
Add 1 protein serving	Remove 1 fruit serving	+7g pro, -15g CHO, +0-3g fat
Add 1 protein serving	Remove 2 fat servings	+ 7g pro, -7g fat
Add 1 protein serving	Remove 1 starch serving	+ 4g pro, -15g CHO , +2g fat
Add 3 vegetable servings	Remove 1 fruit serving	+ 6g pro
Add 2 vegetable servings	Remove 1 fat servings	+ 4g pro, +10g CHO, -5g fat
Add 1 starch serving	Remove 1 fruit serving	+ 3g pro, + 0-1g fat
Add 1 milk serving	Remove 1 fruit serving	+ 8g pro, -3g CHO, +0-3g fat
Add 1 milk serving	Remove 1 starch serving	+ 5g pro, -3g CHO, +0-2g fat
Add 1 milk serving	Remove 2 fat servings	+ 8g pro, -7-10g fat, +12g CHO

TO DECREASE PROTEIN: Go in the reverse direction which will reverse the changes in diet. For example, for the first choice you would decrease 1 protein serving and increase the fruit by 1 to change the diet: -7g pro, +15g CHO, and -3g fat.

to INCREASE FAT	SUBSTITUTE	ACTUAL CHANGE IN DIET
Add 2 fat servings	Remove 1 starch serving	-3g pro, -15g CHO, +9g fat
Add 2 fat servings	Remove 1 fruit serving	-15g CHO, +10g fat
Add 2 fat servings	Remove 1 protein serving	-7g pro, +7g fat
Add 2 fat servings	Remove 1 milk serving	-8g pro, -12g CHO, +7-10g fat

TO DECREASE FAT: Go in the reverse direction which will reverse the changes in diet.

to INCREASE CARBS	SUBSTITUTE	ACTUAL CHANGE IN DIET
Add 1 starch serving	Remove 1 protein serving	-4g pro, +15g CHO, -2g fat
Add 1 starch serving	Remove 2 fat servings	+3g pro, +15g CHO, -9g fat
Add 1 fruit serving	Remove 1 vegetable, 1 fat serving	-2g pro, +10g CHO, -5g fat
Add 1 fruit serving	Remove 2 fat servings	+15g CHO, -10g fat
Add 1 fruit serving	Remove 1 protein serving	-7g pro, +15g CHO, -3g fat
Add 1 milk serving	Remove 2 fat servings	+8g pro, +12g CHO, -7-10g fat
Add 1 milk serving	Remove 1 protein serving	+1g pro, +12g CHO
Add 15 grams of "other carbohydrate" serving		+15g CHO adds calories and carbohydrates to plan. Protein and fat calories will vary.

TO DECREASE CARBS: Go in the reverse direction which will reverse the changes in diet.

Consistent Carbohydrate Meal Planning

For the acute care facility, the diet is designed to provide 1500-2000 calories and the recommended daily allowance or dietary reference intake as determined by the USDA for the population served. The distribution of calories is 50% carbohydrate (CHO), 20% protein, 30% fat. Snacks are added based on the individual's needs. To increase calories, increase portion sizes at meal time and/or frequency and size of snacks. In depth education should be deferred to an outpatient setting when the patient will be more focused and better able to process the information.

Providing adequate nutrition is of primary importance in a long-term care facility, which makes it appropriate to serve residents with diabetes unrestricted or regular menus, with consistent levels of carbohydrates at meals and snacks. This can help to reduce the risk for malnutrition. It may be preferred to adjust medications rather than restricting food choices. If desserts are served, they are in small portions. For younger individuals, a high calorie level is needed and lower fat content preferred. For older individuals, a higher fat content may be allowed to increase satisfaction and encourage adequate calories.

Free foods from “*The Exchange Lists for Meal Planning*” are permitted as previously described. If the food or beverage eaten is more than 5g CHO or 20 calories, it must be counted, when an individual is on basal/bolus insulin therapy.

It is commonly and erroneously believed that diabetics must avoid all forms of sugar. Most people with diabetes can eat foods containing sugar as long as the total amount of carbohydrate at that meal or snack is at their personal allowance/limit. Research studies have shown that meals containing sugar do not elevate the blood sugar more than meals containing no sugar, provided they have equivalent amounts of carbohydrates. It is not prudent to eat a diet high in added sugars, as this would automatically displace foods of higher nutritional quality.

Carbohydrate Counting

Carbohydrates are digested into glucose thereby raising blood glucose levels. Thus, eating meals with fewer carbohydrates raise the blood sugar less than from meals rich in carbohydrates. Most of the carbohydrates we eat come from starchy vegetables, milk, fruit and juices, sugars and grains.

By counting grams of carbohydrate, meal to meal blood sugar control can be achieved by balancing carbohydrate intake with insulin. This system can increase compliance and adherence as it is less restrictive than following a specified exchange meal plan. The individual must be aware that total calories eaten will affect their weight, so portion sizes of fats and meat are not unrestricted, just de-emphasized.

The individual must be able to recognize food and beverage sources of carbohydrates to count them. Additionally, many options can be utilized to count such as exchange lists, computer software programs, and smart phone applications.

Most women will need about 3-4 carbohydrate choices per meal (45-60 grams) and most men will need about 4-5 carbohydrate choices per meal (60-75 grams). A carbohydrate serving equals 15 grams of carbohydrate.

The distribution of calories in a carbohydrate controlled diet are 50% CHO, 20% protein, 30% fat. This is divided among 3 meals and 1 HS snack. Carbohydrate servings per meal should be individualized according to individual assessment or estimated calorie needs. The meals are designed in a way as to keep the amount of CHO in the diet (from all sources) consistent from day to day.

Carbohydrate Counting Made Easy

Breakfast: ____ grams Lunch: ____ grams Dinner: ____ grams Snack: ____ grams

GUIDE TO CARBOHYDRATES**Breads and Starches**1 slice bread; ½ English muffin; 1 small potato; 1/3 cup cooked pasta; 15 grams
½ cup hot cereal/grits; ½ cup peas, corn; 1 cup winter squash

1/3 cup cooked rice; ½ cup beans 15 grams

Fruits1 cup melon or berries; 1 small piece fruit; ½ banana; ½ cup fruit juices; 15 grams
2 Tbsp raisins; ½ cup canned fruit; 1/3 cup fruit blend juiced**Milk and Dairy**8 oz milk (nonfat, 1%, 2%, whole, buttermilk); 12 grams
8 oz unsweetened yogurt (nonfat, lowfat),**Vegetables**

½ cup carrots, greens, broccoli, tomato, bell pepper, onion 5 grams

Meats and other proteins1 oz. beef, pork, lamb, chicken, turkey, fish, 1 egg 0 grams
¼ cup cottage cheese; 1 oz low-fat cheese; ½ cup tofu**Fats**

Any fats such as oil, butter, mayonnaise, margarine 0 grams

Free Foods to include as often as desired in small amounts

(Low in carbohydrates and calories)

Cabbage, celery, cucumbers, green onions, radishes, zucchini, mushrooms, Romaine
or other lettuce, spinachCoffee/tea, diet, calorie free drinks, sugar-free gums, mustard, sugar free gelatin,
bouillon** without fat

Spices/ herbs, lemon or lime juice/ wedges, vinegar, hot sauces, soy sauce**

(** High in sodium)

Simplified Exchanges for Carbohydrate Counting**Each Serving Provides 15 gram Carbohydrate****Starch Group**

- Bagel 1 oz or ¼ bagel
- Beans ½ cup cooked dried or canned beans
- Bread 1 oz or 1 slice
- Grain ½ cup cooked cereal
- Pasta 1/3 cup cooked
- Rice 1/3 cup cooked brown or white
- Snack food ¾ ounce pretzels, 5 saltine type crackers, 15-20 (¾ oz) chips (fat free or baked)
- Starchy vegetables ½ cup cooked
- Tortilla, 1 - corn or flour 6" across

Fruit Group

- Size of a baseball or tennis ball
- ½ cup chopped or pureed
- 1 cup large chunks, such as melon, papaya or berries
- 4 oz juice; 1/3 cup cranberry, grape and fruit juice blends
- ½ large fruit (typical of supermarket)
- 2 tbsp. raisins/craisins
- ¼ cup dried fruit (large pieces) such as apple, pear, and peach

Milk Group

- 8 oz milk or buttermilk (reduced fat varieties are preferred)
- 6 oz yogurt (plain or with sugar substitute, reduced fat varieties are preferred)
- 1/3 cup dried milk

Vegetable Group

- 1 ½ cup cooked or chopped non-starchy vegetables
- 3 cups raw non-starchy vegetables
- * These are not counted in amounts eaten less than specified above

Other Sources (this is an incomplete listing)

- Cake, 1 unfrosted cupcake
- A 2"X2" square of a unfrosted cookie bar
- Cookies, 2 small
- Ice cream ½ cup no sugar added
- Jams, jellies, syrups, sugar 1 tbsp.

Note: All food labels should be checked for carbohydrate content and the portion size adjusted to avoid exceeding the carbohydrate goal/limit for that eating occasion.

Carbohydrate Goals

Breakfast	
Morning Snack	
Lunch	
Afternoon Snack	
Dinner	
Bedtime Snack	
Total for the Day	

Label Reading

Nutrition Facts	
Serving Size ½ cup (114g)	
Servings Per Container 4	
Amount per Serving	
Calories 90	Calories from Fat 30
% Daily Value*	
Total Fat 3 g	6%
Saturated Fat 0g	0%
Cholesterol 0 mg	0%
Sodium 300 gm	13%
Total Carbohydrate 13 g	14%
Dietary Fiber 6 g	12%
Sugars 3 g	
Protein 3 g	

Serving Size

Is your serving the same size as the one on the label? If you eat double the serving size listed, you need to double the carbohydrate and calorie values. If you eat one-half the serving size shown here, cut the carbohydrate and calorie values in half.

Total Carbohydrates

Read the nutrition label to find out how many total carbohydrates you will get in a serving size of the product.

To evaluate a label for carbohydrate content: Examine a label from a food you would like to consume. Turn the package to find the Nutrient Facts.

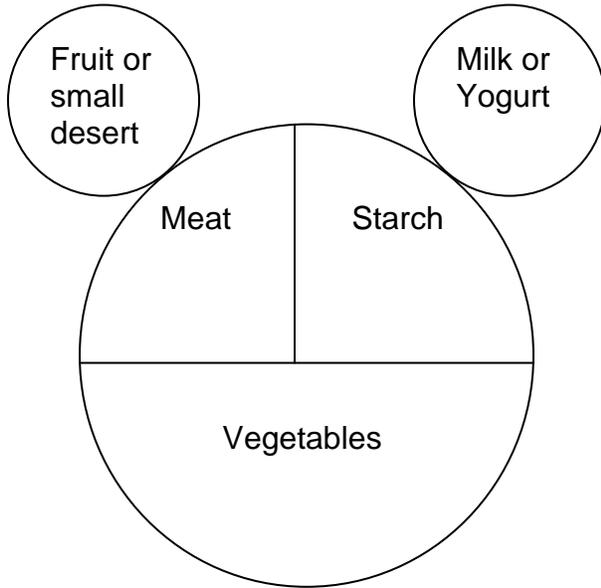
1. Locate the serving size at the top of the label. Serving Size _____
2. Locate the total carbohydrates (gm) in bold Total CHO _____ -
3. Locate the dietary fiber (poorly absorbed) Fiber _____ =
 Fiber correction rule: If a product has 5 grams or more fiber you can deduct the fiber from total grams carbohydrate. If a product has 5 grams or less fiber, you cannot correct the total grams carbohydrate.
4. Subtract step 3 from step 2 to get usable carbohydrate Usable CHO _____ ÷15=
5. Divide the effective carbohydrate by 15 to get the carbohydrate servings for the suggested serving size. Number CHO servings_____
6. Round off to the nearest whole or half serving (15 or 7 grams).
7. Increase or decrease the amount eaten to fit into meal plan.

For Example, using the label above:

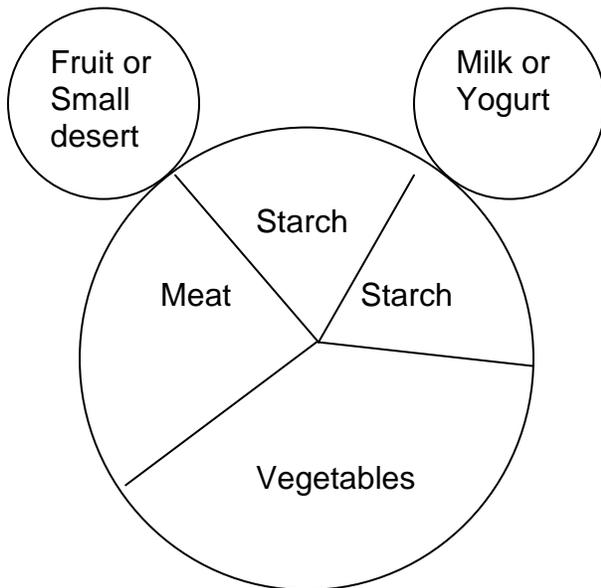
1. Serving size ½ cup
- 2., 3, 4, 5, 6. Total CHO 13g – Fiber 6 g = Usable CHO 7 ÷15 = Number CHO servings .47. Round to .5 or ½ CHO serving
7. Eat ½ cup for ½ CHO serving. Eat 1 cup or ½ x 2 for 1 CHO choice. Eat 3 x ½ cup for 1 ½ CHO choices.

Plate Method for Meal Planning:

This meal planning method is simple and can be used with low-literacy individuals. It can also be useful for those who do not wish to learn exchanges or those who find exchanges too complex. The principles of low-fat meals still apply. The individual will divide their plate into imaginary sections and fill them as suggested below.



45 grams
Carbohydrate
Note: Currently count green vegetables.
This would be considered a total 50 gm carbohydrate
9 1/2 inch diameter plate



60 grams
Carbohydrate
With vegetable 65 gm carbohydrate
9 1/2 inch diameter

Management for Pre-gestational and Gestational Diabetes Mellitus

Gestational diabetes mellitus (GDM) is defined by the American Diabetes Association (ADA) as high blood glucose levels during pregnancy (screening takes place between weeks 24-28 with at least one risk factor). The classification is either overt diabetes or GDM.

Signs and symptoms of GDM are large weight gain, hypoglycemia, diabetic keto-acidosis, pregnancy-induced hypertension, and anxiety.

GDM is associated with macrosomia, preeclampsia, cesarean section and poor maternal-fetal outcomes. Offspring are at increased risk of developing obesity, glucose intolerance and diabetes in late adolescence and young adulthood.

The outlook for pregnant women with diabetes has improved dramatically over the past several years. Proactive healthcare providers now advise women with pre-existing diabetes to obtain preconception education which includes tighter levels of blood glucose control to reduce the risk of congenital malformations and spontaneous abortions. They are also ordering high risk individuals to be screened earlier in their pregnancy (prior to weeks 24-28). This approach to intensified management and education of (GDM) and pregestational diabetes has produced similar complication/malformation rates to that of pregnancies not complicated by diabetes.

All women with GDM should receive nutritional counseling. The state of California has adopted a program called "Sweet Success" that establishes slightly more stringent goals and management techniques. The nutrition prescription should consider maternal weight/height and include a healthy diet that will also meet the needs of good pregnancy outcomes for both baby and mother. Meal plans should be designed and altered throughout the pregnancy to meet maternal blood glucose and weight gain goals.

Gestational diabetes may disappear after delivery when the hormones of pregnancy normalize. However, some women may continue to have elevated blood glucose as they may have been previously undiagnosed type 2 diabetes. For this reason, it is recommended that they continue to monitor blood glucose after delivery until the doctor deems it no longer necessary. A woman with GDM is at an increased risk for developing GDM in subsequent pregnancies.

She should undergo OGTT (oral glucose tolerance test) as early in the pregnancy as possible and it should be repeated at intervals to detect glucose impairment when it first appears. She should also be reclassified 6-8 weeks post-partum, using OGTT. She is also at risk for developing type 2 within 15-20 years (40-60%). Thus, it is prudent for women having experienced GDM to achieve/maintain healthy body weight, engage in

regular physical activity and to enjoy a diet consistent with the ADA guidelines for type 2 (moderate carbohydrate, spread throughout the day) to delay the progression to type 2 diabetes. She should receive an annual blood glucose test for early detection.

Breastfeeding is recommended, as it is for the general population. Mothers with type 1 diabetes may experience hypoglycemia after breastfeeding and so are encouraged to replace carbohydrates and monitor blood sugar levels more frequently.

If the woman has GDM she will need to restrict the carbohydrates and add fat emphasizing monounsaturated and/or protein to make up the balance of required calories. **A minimum of 150-200 g of CHO (or 40% CHO) is usually required.** To prevent hypoglycemia and starvation ketosis between meals or overnight. Use extreme caution and monitor urine for ketones if advising a woman to reduce CHO below the established safe limits noted.

Dietary Guidelines during Pregnancy

Calories	Provide an additional 300 kilocalories (kcal) daily from 13-40 weeks gestation for the additional energy needs (2 nd and 3 rd trimesters).
Protein	Provides 20-25% of total energy kcals.
Carbohydrate	For GDM: 40-45%; For women with preexisting diabetes: 40-50%.
Fat	30-40% kcals; Emphasize monounsaturated types.
Artificial Sweeteners	May use foods and beverages containing artificial sweeteners in moderation (2 or fewer per day). FDA approved substitutes are: saccharin, aspartame, acesulfame K, sucralose, and neotame. Label reading is required to determine if these foods also contain carbohydrates.
Fiber	20-35 g, the same amount that is recommended for the general public.
Sodium	Guidelines are the same as for the general public 2300mg/day, ≤ 1500 mg/day with hypertension, ≤1500 mg/day with hypertension and nephropathy.
Alcohol	Abstain from consuming alcohol.
Caffeine	Limit to 1-2 cups of caffeinated beverages per day.
Micronutrient Supplements	Folic acid: 600 mcg/day of dietary folate equivalents (DFE) Iron: 27 mg elemental iron/day 2 nd and 3 rd trimester, or 60-120 mg/day if laboratory evidence of anemia add 15 mg zinc and 2 mg copper if prescribing more than 30 mg iron/day. Calcium: 600 mg elemental calcium if dietary intake is < 600 mg per day for vegans, add 400 IU vitamin D, 2.0 mg vitamin B ₁₂ . Avoid excessive supplementation, especially with vitamins A and D.

Calculating the Diet for Pregnancy

1. Use the pre-pregnancy weight in this equation rather than current weight.
2. Find her Ideal Body Weight (IBW): 100 lbs. for the first 5 feet of stature, with an additional 5 lbs. for each inch above 5 feet. Example: 5'5" IBW =125 lbs.
3. Determine how close she was to IBW at conception. Take her pre-pregnancy weight and divide it by IBW to get the % of IBW.
If she was < 90%, she was underweight
If she was between 90-110% IBW she was a healthy weight
If she was >110% she was overweight
If she was ≥130% or greater she was obese.
4. If she was significantly overweight (125% IBW) use the adjusted body weight (ABW) to calculate her calories to avoid overfeeding and excessive weight gain.
ABW: [(Actual (pre-pregnancy) weight-IBW÷4) + IBW].
5. Next, calculate her estimated calories needs.
6. The diet should combine weight gain goals with glycemic control to achieve healthy outcomes for both the mother and baby and is adjusted whenever necessary. The typical diet may include 30-35 kcal/kg, 20-25% total calories as protein (1.3-2.0g/kg), 30-40% calories as fat, and the remaining 40-50% calories as carbohydrates (CHO).

Weight Status	BMI (kg/m ²)	Recommended Total Weight Gain		
Underweight	< 19.8	28-40 lbs.	40-50 lbs.	50-60 lbs.
Normal Weight	19.8-24.9	25-35 lbs.	35-45 lbs.	45-55 lbs.
Overweight	≥ 25.0-29.0	15-25 lbs.	25-35 lbs.	35-45 lbs.
Obese	> 29.0	≥ 15 lbs.	25-35 lbs.	35-45 lbs.
		One Fetus	Twins	Triplets

BMI = weight (kg) ÷ height (m)² x 100

Designing the Meal Plan**Sources: Sweet Success and ADA Guidelines**

Frequency of eating: Both women with preexisting diabetes and GDM will benefit from 3 meals and 3 or more snacks during the day to prevent hypoglycemia and to limit the post meal blood glucose response. Avoid long periods of fasting. Small, frequent meals help to minimize heartburn, nausea, postprandial blood glucose levels and ketones.

Distribution of Carbohydrate: The ideal amount of carbohydrate is unknown, but carbohydrate is the primary nutrient affecting postprandial blood glucose levels. The meal plan should be consistent in CHO, limited to 40-45% (GDM) or 40-50% for pregestational patients and spread evenly throughout the day.

Carbohydrate Sources: Consider the glycemic load/index of foods to help the woman to choose foods that will be digested slower, and cause a more gradual blood sugar rise. Foods of concern would be liquids such as juice and regular sodas, and foods that are highly processed such as ready to eat cereals, enriched wheat flour crackers and breads, instant potatoes, rice, sweeteners and sweets such as cakes, cookies and pies.

Encourage whole grain crackers, such as Wasa®, Triscuit®, RyeKrisp®, etc. or flourless bread (i.e Food for Life), polenta, grits, bulgur wheat, barley, wild rice, kasha, quinoa, peas, dried cooked beans and bean soups, fresh fruit, low-fat & dairy products. During pregnancy, the woman is intolerant of carbohydrate, but still requires it. This can make it difficult to balance optimal blood sugar and a nutritious diet. Limiting the total amount of carbohydrate at each eating occasion is important. The first meal of the day tends to coincide with a period of extreme intolerance to carbohydrate and may be limited to 15-20 grams of CHO. The woman with insulin may use carbohydrate counting for an increased degree of flexibility, but attention is still on frequent, small meals and encouraging a balanced diet. Her individualized ratios will need to be evaluated and revised throughout the pregnancy as hormonal levels affect the insulin sensitivity.

Protein: Does not contribute significantly to postprandial blood glucose elevations and may help to satisfy hunger.

Breakfast: Carbohydrate load (total grams CHO consumed) 15-30 grams. Fruit juices, fruit, milk, ready to eat or instant cereals, bagels and rice porridge are usually excluded from the breakfast meal. Fruit or milk is added at other meals/snacks.

Snacks: Both fruit *and* milk at the same snack may lead to hyperglycemia. Have her choose one or the other. Snacks should be scheduled 2-3 hours after meals. The bedtime snack should include 15-30 grams CHO and a minimum of 7 grams of protein to be eaten no longer than 10 hours from breakfast the following day. A woman with GDM may require a larger bedtime snack than just mentioned.

Monitoring: SMBG is used to determine the response to diet. For those taking insulin, pre and post meal measures help to modify the diet/insulin routine. Postprandial (post meal) tests are timed after the woman takes her first bite of food. Initial testing is recommended 4 times per day for GDM (pre-prandial and before bedtime) and can be reduced when she achieves target blood sugars and A1C is in goal range (<1% higher than normal). Testing for intensively managed type 1 or 2 can include postprandial readings to control blood sugars, increasing the frequency to 7 or more times per day. Those using insulin to carbohydrate ratios will need to check pre and postprandial to adjust ratios and doses.

Exercise: If a woman was previously sedentary, pregnancy is not the time to introduce *strenuous* activity into her lifestyle. Many doctors encourage light activity, such as walking, unless the woman is confined to bed rest. A woman who was previously active should continue to include similar activity during her pregnancy, although she should avoid becoming dehydrated, overheated or allow a pulse in excess of 150 beats per minute.

GESTATIONAL DIABETES MEAL PLANNING GRID**CHO: 40%, Pro: 25%, Fat: 35%**

Kcal:	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
Starch	6	6	6	7	7.5	8	8.5	9	9.5
Protein	8	9	10	10.5	11	12	12.5	13	14
Veg	3	3	3	3	3	3	3	4	4
Fruit	2	2.5	3	3	3	3	3	3	3
Milk	3	3	3	3	3	3	3	3	3
Fat	5.5	6	6	6	6.5	6.5	7	7	7.5
CHO(g)	171	179	187	201	208	223	230	242	249
Pro (g)	104	111	118	125	130	137	143	150	157
Fat (g)	66	72	75	78	82	86	90	92	98
Kcal:	1,699	1,808	1,895	2,006	2,090	2,210	2,302	2,396	2,506

CHO: 45%, Pro: 25%, Fat: 30%

Kcal:	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
Starch	6	7	7.5	8.5	9	10	10.5	10.5	11
Protein	8	8.5	9	9.5	10	11	11.5	12	13
Veg	4	4	4	4	4	4	4	4	4
Fruit	3	3	3	3	3	3	3	4	4
Milk	3	3	3	3	3	3	3	3	3
Fat	4	4	4	4	4.5	4	5	5	5
CHO(g)	191	206	213	227	234	251	258	274	281
Pro (g)	106	112	118	124	129	139	144	148	156
Fat (g)	58	62	64	66	71	72	79	81	84
Kcal:	1,710	1,830	1,900	1,998	2,091	2,208	2,319	2,417	2,504

CHO: 45%, Pro: 20%, Fat: 35%

Kcal:	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
Starch	6	7	7.5	8	9	10	10.5	11	11
Protein	5	5	6	6	6.5	7	7	8	8.5
Veg	4	4	4	4	4	4	4	4	4
Fruit	3	3	3	3.5	3	3	3	3	4
Milk	3	3	3	3	3	3	3	3	3
Fat	7	8	8	8.5	9	9	9	10	10
CHO(g)	191	206	213	227	235	251	258	266	281
Pro (g)	85	88	97	98	105	111	113	121	125
Fat (g)	65	71	75	78	83	85	91	94	96
Kcal:	1,689	1,815	1,915	2,002	2,107	2,213	2,303	2,394	2,488

See ADA exchange lists for meal planning

Note: Protein based on lean choices, 3g fat; Milk based on 3g fat

Sample Meal: 2,000 Kcals- 40% CHO, 25% PRO, 35% FAT

6:30 am Breakfast

1 slice whole grain bread (1 starch)
2 tablespoons peanut butter (1 protein, 1 fat)
Or 1 hardboiled egg (1 protein)

8:30 am Morning Snack

1 carton low-fat yogurt, artificially sweetened (1 milk)
5 Triscuits (1 starch, 1 fat)
1oz lean luncheon meat (1 protein)

10:30 am Morning Snack

1 small apple (1 fruit)
1 ounce low-fat cheese (1 protein)

12:30 pm Lunch

½ large pear (1 fruit)
1 cup spaghetti noodles (3 starches)
2 tablespoons pesto (2 fats)
2 ounces scallops (2 protein)
½ cup cooked zucchini (1 veg)

3:30 pm Afternoon Snack

1 cup watermelon cubes (1 fruit)
1 ounce low-fat string cheese (1 protein)

6:00 pm Dinner

1 cup salad greens (1 veg)
 ½ Roma tomato (1 veg)
 1 tablespoon sunflower seeds (1 fat)
 2 tablespoons low-fat salad dressing (1 fat)
4 ounces grilled chicken (4 protein)
1 cup wild rice (3 starch)
1 glass milk (1 milk)

9:30 pm Bedtime Snack

1 glass milk (1 milk)
½ cup cooked oatmeal (1 starch)

Blood Sugar Goals	Pregestational	GDM
	Sweet Success	
Fasting whole blood glucose (mg/dl)	60-90	≤95
1-h postprandial whole blood glucose (mg/dl)	<100-120	≤140
2-h postprandial whole blood glucose (mg/dl)	<110	≤120
2 am to 6 am (mg/dl)	60-120	
Fasting plasma blood glucose (mg/dl)	65-100	≤105
1-h postprandial plasma blood glucose (mg/dl)	110-135	≤155
2-h postprandial plasma blood glucose (mg/dl)	<120	≤130
2 am to 6 am (mg/dl)	65-135	

If the woman is unable to stay within these glycemic guidelines using medical nutrition therapy (diet as prescribed by the RD), insulin therapy is recommended.

Preconception

As mentioned earlier in this section, prior to conception a woman with type 1 or 2 should begin planning early—at least 3-6 months prior to conception. She will want to reduce excess weight to a healthy weight. If weight is already healthy, it is important to develop a meal plan that meets the guidelines for diabetes early on so that only minor adjustments are made during the first trimester. Major changes in the first trimester might disrupt the glycemic control that is necessary to ensure safe outcomes for both mother and infant. The type 1 or 2 woman contemplating pregnancy can be assessed by a registered dietitian and given guidance for designing a diet that meets the guidelines in this chapter.

Glycemic Index

The Glycemic Index (GI) is a number that predicts how a particular food affects the blood sugar. It is determined in a laboratory setting by feeding a specified amount of carbohydrate containing food to a person and measuring the blood sugar rise. Carbohydrates that break down and are digested quickly are said to have a high GI. They cause a fast and tall blood glucose peak. On the other hand, carbohydrates that break down slowly tend to release glucose more gradually and gently. These would be classified as low GI foods, because they cause a lower blood glucose rise that is sustained over a greater period.

How a particular food will affect one individual can vary based on a number of factors: the blood sugar level of the individual at the meal (affects the rate of digestion), the fat content, the fiber content, the glucose content, the particle size, how well the food is cooked and processed. Even the total time it takes to eat a meal can affect the GI. **A GI above 70 is high; between 56-69 moderate; less than 55 makes it low.**

The American Diabetes Association prefers the emphasis to be on controlling the *total* amount of carbohydrate ingested as a first priority in nutrition therapy for people with diabetes as the evidence for using glycemic index in meal planning is not consistent. When you are unable to attain good blood sugar readings after meals despite limiting the carbohydrates, instruction based on the glycemic index may help. It can be more complicated to follow than counting carbohydrates alone. However, anyone can remember to emphasize healthy foods such as unrefined grains, cooked dried beans, fruits, vegetables, low-fat dairy to easily lower the GI. Additionally, avoiding sweeteners, processed cereals and adding heart healthy fats can blunt the blood sugar peak. Using vinegar or other acidic condiments can also reduce the GI of a meal/food.

When considering a GI diet, individuals must be aware that any carbohydrate in the presence of protein and fat will change the overall effect of blood glucose levels. A low glycemic index diet may be more effective for individuals with insulin resistance and when there is an indication for a weight management diet.

Because the amount of carbohydrate in a food is an important predictor of its influence, the glycemic load (GL) is now being used by many authorities. It combines the amount of carbohydrate and the GI of the food. GI/GL lists can be found on the internet or research articles.

$$\sqrt{\text{Glycemic load} = \text{GI} \times (\text{gm CHO per serving}) \div 100}$$

When you want to eat a food that falls in the high GI or GL list, reduce the amount eaten, or enjoy along with foods that have a low GI/GL to lower the overall effect at a meal. Aim for a low to moderate glycemic load. **A glycemic load from 1-10 is low; 11-19, medium; greater than 20, high.**

Glycemic Table for Common Foods

Glycemic index: Low from 1-55; Medium from 56-60, High above 70. The reference or comparison is 100, the value assigned to glucose.

	Low Glycemic Index	Medium Glycemic Index	High Glycemic Index
Low Glycemic Load	All-bran cereal (8.42) Apples (6.38) Carrots (3.47) Chana dal (3.8) Chick peas (8.26) Grapes (8.46) Kidney beans (7.28) Nopal (0.7) Oranges (5.42) Peaches (3.42) Peanuts (1.14) Pears (4.38) Pinto beans (0.39) Red lentils (5.26) Strawberries (1.40) Sweet corn (9.54)	Beets (5.63) Cantaloupe (4.65) Pineapple (7.59) Sucrose (table sugar) (7.68)	Popcorn (8.72) Watermelon (4.72) Whole wheat flour bread (9.71)
Med. Glycemic Load	Apple juice (11.50) Bananas (12.52) Buckwheat (16.54) Fettucine (18.40) Navy beans (12.28) Orange juice (12.50) Parboiled rice (17.47) Pearlied barley (11.25) Sourdough wheat bread (15.54)	Life cereal (16.66) New potatoes (12.57) Wild rice (18.57)	Cheerios (15.74) Shredded wheat (15.75) White wheat flour bread (11.70)
High Glycemic Load	Linguine (23.52) Macaroni (23.47) Spaghetti (20.42)	Couscous (23.65) Sweet potatoes (27.61) White rice (23.64)	Baked Russet potatoes (26.85) Cornflakes (21.81)

Substituting Low GI Foods for High GI Foods

Choose (Low GI)	Instead of (High GI)
<p>Bread: Flourless (Food for Life®, Vogel®), pumpernickel or those with a high proportion of whole grains. Bulgur wheat used as a salad or stuffing. Rice: Basmati, Wild or parboiled Mung bean noodles Unprocessed cereals: steel cut or old fashioned oatmeal, muesli, grits, All Bran®, Bran Buds®, Just Right®, Bran Chex®</p>	<p>Bread, whole wheat or white flour Rice: sticky, Jasmine, short grain white or brown Processed breakfast cereal: Instant oatmeal, cream of wheat, Corn Flakes®, Cheerios®, Kix®, Puffed wheat or rice, Rice Krispies®, Corn Pops®, etc.</p>
<p>Pasta: cook al dente Legumes: lentils, split peas, garbanzo beans, peas, soybeans, lima beans, etc. Barley Kasha, buckwheat Baked beans Corn hominy</p>	<p>Russet potatoes, instant potatoes Udon noodles</p>
<p>Fruits: apples, apricots, berries, cherries, green bananas or plantains, oranges, peaches, pears, plums, prunes</p>	<p>Tropical fruits: bananas (ripe), dates, dried figs, pineapple, raisins</p>
<p>Cakes and Muffins made with oats, whole grains and fruit</p>	<p>Cakes and Muffins made with enriched wheat flour (white), scones</p>
<p>Milk Yogurt Soymilk Pudding</p>	<p>Soft Drinks Sorbet</p>
<p>Popcorn Nuts: Peanuts, cashews, almonds, walnuts, pecans, hazelnuts, etc. Seeds: Pumpkin, sunflower, sesame, etc.</p>	<p>Pretzels Saltines Oyster crackers Rice cakes or crackers</p>

Try to emphasize the foods in the left-hand column. You can still enjoy small amounts of those on the right when combined with better choices to balance the overall effect.

CALORIE-CONTROLLED EXCHANGE LISTS FOR MEAL PLANNING

Exchange lists are foods listed together because they are alike. Each serving of a food has about the same amount of carbohydrate, protein, fat and calories as the other foods on that list. That is why any food on a list can be "exchanged" or traded for any other food on the same list. For example, you can trade the slice of bread you might eat for breakfast for one-half cup of cooked cereal. Each of these foods equal one starch choice. Foods are listed with their serving sizes, which are usually measured after cooking. Check Nutrition Facts on the Food Label.

STARCH LIST

One starch exchange equals 15 grams carbohydrate, 3 grams protein, 0-1 grams fat and 80 calories

Bread

Bagel, 4 oz	1/4 (1 oz)
Bread, reduced-calorie	.2 slices (1 1/2 oz)
Bread, white, whole-wheat, pumpernickel, rye	1 slice (1 oz)
Bread, sticks, crisp, 4 in. x 1/2 in.	.4 (2/3 oz)
English muffin	1/2
Hot dog or hamburger bun	1/2 (1 oz)
Naan, 8x2 inch	1/4
Pancake, 4 inch across, 1/4 inch thick	.1
Pita, 6 in. across	1/2
Roll, plain, small	.1 (1 oz)
Raisin bread, unfrosted	1 slice (1 oz)
Tortilla, corn/flour, 6 in. across	.1
Tortilla, flour, 10 in. across	1/3
Waffle, 4 in. square or across, reduced-fat	.1

Cereals and Grains

Bran cereals	1/2 cup
Bulgur	1/2 cup
Cereals, cooked	1/2 cup
Cereals, unsweetened, ready-to-eat	3/4 cup
Cornmeal (dry)	.3 Tbsp
Couscous	1/3 cup
Flour (dry)	.3 Tbsp
Granola, low-fat	1/4 cup
Grape-Nuts®	1/4 cup
Grits	1/2 cup
Kasha	1/2 cup
Millet	1/3 cup
Muesli	1/4 cup
Oats	1/2 cup
Pasta	1/3 cup
Puffed cereal	1 1/2 cup
Rice, white or brown	1/3 cup
Shredded Wheat®	1/2 cup
Sugar-frosted cereal	1/2 cup
Wheat germ	.3 Tbsp

Dried Beans, Peas, and Lentils

(Count as 1 starch exchange, plus 1 very lean meat exchange)

Beans and peas (garbanzo, pinto, kidney, white, split, black-eyed)	1/2 cup
Lima beans	2/3 cup
Lentils	1/2 cup
Miso 	.3 Tbsp

Starchy Vegetables

Baked beans	1/3 cup
Corn	1/2 cup
Corn on cob, large	1/2 cob (5 oz)
Mixed vegetables with corn, peas or pasta	.1 cup
Peas, green	1/2 cup
Plantain	1/2 cup
Potato, boiled	1/2 cup or 1/2 medium (3 oz)
Potato, baked with skin	1/4 large (3 oz)
Potato, mashed	1/2 cup
Squash, winter (acorn, butternut, pumpkin)	1 cup
Yam, sweet potato, plain	1/2 cup

Crackers and Snacks

Animal crackers	.8
Graham crackers, 2 1/2 in. square	.3
Matzoh	3/4 oz
Melba toast	4 slices
Oyster crackers	.24
Popcorn (popped, no fat added, or low-fat microwave)	.3 cups
Pretzels	3/4 oz
Rice cakes, 4 in. across	.2
Saltine-type crackers	.6
Snack chips, fat-free or baked (tortilla, potato)	15-20 (3/4 oz)
Whole-wheat crackers, no fat added	.2-5 (3/4 oz)

Starchy Foods Prepared With Fat (Count as 1 starch exchange, plus 1 fat exchange)

Biscuit, 2 1/2 in. across	1
Chow mein noodles	1/2 cup
Corn bread, 2 in. cube	.1 (2 oz)
Crackers, round butter type	.6
CROUTONS	1 cup
French-fried potatoes (oven baked, see also fast food list)	1 cup (2 oz)
Granola	1/4 cup
Hummus	1/3 cup
Muffin, 5 oz	1/5 (1 oz)
Popcorn, microwaved	3 cups
Sandwich crackers, cheese or peanut butter filling	.3
Snack chips (potato, tortilla)	9-13 (3/4 oz)
Stuffing, bread (prepared)	1/3 cup
Taco shell, 6 in. across	.2
Waffle, 4 in. square or across	1
Whole-wheat crackers, fat added	4-6 (1 oz)

 = 400 mg or more of sodium per serving.

MEAT AND MEAT SUBSTITUTES LIST**Very Lean Meat and Substitutes List**

One very lean meat exchange equals 0 grams carbohydrate, 7 grams of protein, 0-1 grams of fat and 35 calories

Poultry: Chicken or turkey (white meat, no skin), Cornish hen (no skin)	1 oz
Fish: Fresh or frozen cod, flounder, haddock, halibut, trout, lox, tuna fresh or canned in water	1 oz
Shellfish: Clams, crab, lobster, scallops, shrimp, imitation shellfish	1 oz
Game: Duck or pheasant (no skin), venison, buffalo, ostrich	1 oz
Cheese with 1 gram or less fat per ounce:	
fat free or low-fat cottage cheese	1/4 cup
Fat-free cheese	1 oz
Other: Processed sandwich meats with 1 gram or less fat per ounce, such as deli thin, shaved meats, chipped beef  , turkey ham	
Egg whites	2
Egg substitutes, plain	1/4 cup
Hot dogs with 1 gram or less fat per ounce 	1 oz
Kidney (high in cholesterol)	1 oz
Sausage with 1 gram or less fat per ounce	1 oz
Count as one very lean meat and one starch exchange.	
Beans, peas, lentils (cooked)	1/2 cup

Lean Meat and Substitutes List

One lean meat exchange equals 0 grams carbohydrate, 7 grams of protein, 3 grams of fat and 55 calories.

Beef: USDA Select or Choice grades of lean beef trimmed of fat, such as round, sirloin and flank steak; tenderloin; roast (rib, chuck, rump); steak (T-bone, porterhouse, cubed), ground round	1 oz
Pork: Lean pork, such as fresh ham; canned, cured or boiled ham; Canadian bacon  ; tenderloin, center loin chop	1 oz
Lamb: Roast, chop, leg	1 oz
Veal: Lean chop, roast	1 oz
Poultry: Chicken, turkey (dark meat, no skin), chicken white meat (with skin), domestic duck or goose (well drained of fat, no skin)	1 oz
Fish:	
Herring (uncreamed or smoked)	1 oz
Oysters	6 medium
Salmon (fresh or canned), catfish	1 oz
Sardines (canned)	2 medium
Tuna (canned, in oil, drained)	1 oz
Game: Goose (no skin), rabbit	1 oz
Cheeses:	
4.5% fat cottage cheese	1/4 cup
Grated Parmesan	2 Tbsp
Cheeses with 3 grams or less fat per ounce	1 oz
Other:	
Hot dogs with 3 grams or less fat per ounce 	1 1/2 oz
Processed sandwich meat with 3 grams of fat or less per ounce, such as turkey pastrami or kielbasa	1 oz
Liver, heart (high in cholesterol)	1 oz

Medium-fat Meat and Substitutes List

One medium-fat meat exchange equals 0 grams carbohydrate, 7 grams of protein, 5 grams of fat and 75 calories.

Beef: Most beef products fall into this category (ground beef, meatloaf, corned beef, short ribs, Prime grades of meat trimmed of fat, such as prime rib)	1 oz
Pork: Top loin, chop, Boston butt, cutlet	1 oz
Lamb: Rib roast, ground	1 oz
Veal: Cutlet (ground or cubed, unbreaded)	1 oz
Poultry: Chicken (dark meat with skin), ground turkey or ground chicken, fried chicken (with skin)	1 oz
Fish: Any fried fish product	1 oz
Cheese: With 5 grams or less fat per ounce	
Feta	1 oz
Mozzarella	1 oz
Ricotta	1/4 cup (2 oz)
Other:	
Egg (high in cholesterol, limit to 3 per week)	1
Sausage with 5 grams or less fat per ounce	1 oz
Soy milk	1 cup
Tempeh	1/4 cup
Tofu	4 oz or 1/2 cup

High-fat Meat and Substitutes List

One high-fat meat exchange equals 0 grams carbohydrate, 7 grams of protein, 8 grams of fat, and 100 calories.

Pork: Spareribs, ground pork, pork sausage	1 oz
Cheese: All regular cheeses, such as American  , cheddar, Monterey Jack, Swiss	1 oz
Other: Processed sandwich meats with 8 grams or less fat per ounce, such as bologna, pimento loaf, salami	
Sausage, such as bratwurst, Italian knockwurst, Polish, smoked	1 oz
Hot dog (turkey or chicken) 	1 (10/lb)
Bacon	3 slices (20 slices/lb)
Peanut Butter (contains unsaturated fat)	1 Tbsp

Count as one high-fat meat plus one fat exchange
Hot dog (beef, pork, or combination) 

*Weigh meats after cooking, removing bones and fat.

 = 400 mg or more sodium per exchange.

FRUIT LIST

One fruit exchange equals 15 grams of carbohydrate and 60 calories. The weight includes skin, core, seeds, and rind.

Fruit

Apple, unpeeled, small	1 (4 oz)
Applesauce, unsweetened	1/2 cup
Apples, dried	4 rings
Apricots, fresh	4 whole (5 1/2 oz)
Apricots, dried	8 halves
Apricots, canned	1/2 cup
Banana, small	1 (4 oz)
Blackberries	3/4 cup
Blueberries	3/4 cup
Cantaloupe, small	1/3 melon (11 oz) or 1 cup cubes
Cherries, sweet, fresh	12 (3 oz)
Cherries, sweet, canned	1/2 cup
Dates	3
Figs, fresh	1 1/2 large or 2 medium (3 1/2 oz)
Figs, dried	1 1/2
Fruit cocktail	1/2 cup
Grapefruit, large	1/2 (11 oz)
Grapefruit sections, canned	3/4 cup
Grapes, small	17 (3 oz)
Honeydew melon	1 slice (10 oz) or 1 cup cubes
Kiwi	1 (3 1/2 oz)
Mandarin oranges, canned	3/4 cup
Mango, small	1/2 fruit (5 1/2 oz) or 1/2 cup

Nectarine, small	1 (5 oz)
Orange, small	1 (6 1/2 oz)
Papaya	1/2 fruit (8 oz) or 1 cup cubes
Peach, medium, fresh	1 (4 oz.)
Peaches, canned	1/2 cup
Pear, large, fresh	1/2 (4 oz)
Pears, canned	1/2 cup
Pineapple, fresh	3/4 cup
Pineapple, canned	1/2 cup
Plums, small	2 (5 oz)
Plums, canned	1/2 cup
Prunes, dried (prunes)	3
Raisins	2 Tbsp
Raspberries	1 cup
Strawberries	1 1/4 cup whole berries
Tangerines, small	2 (8 oz)
Watermelon	1 slice (13 1/2 oz.) or 1 1/4 cup cubes

Fruit Juice, Unsweetened

Apple juice/cider	1/2 cup
Cranberry juice cocktail	1/3 cup
Cranberry juice cocktail, reduced calorie	1 cup
Fruit juice blends, 100% juice	1/3 cup
Grape juice	1/3 cup
Grapefruit juice	1/2 cup
Orange juice	1/2 cup
Pineapple juice	1/2 cup
Prune juice	1/3 cup

NON-STARCHY VEGETABLE LIST

One vegetable exchange equals 5 grams of carbohydrate, 2 grams of protein, 0 grams fat and 25 calories. One exchange is 1/2 cup cooked vegetables or vegetable juice or 1 cup raw vegetables.

Artichoke
 Artichoke hearts
 Asparagus
 Beans (green, wax, Italian)
 Bean sprouts
 Beets
 Broccoli
 Brussels sprouts
 Cabbage
 Carrots
 Cauliflower
 Celery
 Cucumber
 Eggplant
 Green Onions or scallions
 Greens (collard, kale, mustard, turnip)
 Kohlrabi

Leeks
 Mixed vegetables (without corn, peas or pasta)
 Mushrooms
 Okra
 Onions
 Pea pods
 Peppers (all varieties)
 Radishes
 Salad greens (endive, escarole, lettuce, romaine, spinach)
 Sauerkraut 
 Spinach
 Summer squash
 Tomato
 Tomatoes, canned
 Tomato sauce 
 Tomato/vegetable juice 
 Turnips
 Water chestnuts
 Watercress
 Zucchini

 = 400 mg. or more sodium per exchange.

MILK LIST

One milk exchange equals 12 grams of carbohydrate and 8 grams of protein. (Fat and Calories vary - see lists that follow)

Fat-Free and Low-Fat Milk

(0-3 grams fat per serving) (90 calories)

Fat-free milk	1 cup
1/2 % milk	1 cup
1% milk	1 cup
Buttermilk, low-fat or fat-free	1 cup
Evaporated fat-free milk	1/2 cup
Fat-free dry milk	1/3 cup dry
Soy milk, low-fat or fat-free	1 cup

Yogurt, fat-free, flavored, nonnutritive sweetener and fructose	2/3 cup (6 oz)
Yogurt, plain fat-free	2/3 cup (6 oz)

Reduced-Fat (5 grams fat per serving) (120 calories)

2% milk	1 cup
Soy milk	1 cup
Sweet acidophilus milk	1 cup
Yogurt, plain low-fat	3/4 cup

Whole Milk (8 grams fat per serving) 150 calories

Whole milk	1 cup
Evaporated whole milk	1/2 cup
Goat's milk	1 cup
Kefir	1 cup
Yogurt, plain (made from whole milk)	3/4 cup

FAT LIST

One fat exchange equals 5 grams of fat and 45 calories.

Monounsaturated Fats List

Avocado, medium	2 Tbsp (1 oz)
Oil (canola, olive, peanut)	1 tsp
Olives: ripe (black)	8 large
green, stuffed	10 large
Nuts	
almonds, cashews	6 nuts
mixed (50% peanuts)	6 nuts
peanuts	10 nuts
pecans	4 halves
Peanut butter, smooth or crunchy	1/2 Tbsp
Sesame seeds	1 Tbsp
Tahini or Sesame paste	2 tsp

Polyunsaturated Fats List

Margarine: stick, tub, or squeeze	1 tsp
lower-fat (30% to 50% vegetable oil)	1 Tbsp
Mayonnaise: regular	1 tsp
reduced-fat	1 Tbsp
Nuts, walnuts, English	4 halves
Oil (corn, safflower, soybean)	1 tsp

Salad dressing: regular	1 Tbsp
reduced-fat	2 Tbsp
Miracle Whip Salad Dressing® regular	2 tsp
reduced-fat	1 Tbsp
Seeds: pumpkin, sunflower	1 Tbsp

Saturated Fats lists*

Bacon, cooked	1 slice (20 slices/lb)
Bacon, grease	1 tsp
Butter: stick	1 tsp
whipped	2 tsp
reduced-fat	1 Tbsp
Chitterlings, boiled	2 Tbsp (1/2 oz)
Coconut, sweetened, shredded	2 Tbsp
Coconut milk	1 Tbsp
Cream, half and half	2 Tbsp
Cream cheese regular	1 Tbsp (1/2 oz)
reduced-fat	1 1/2 Tbsp (3/4 oz)
Fatback or salt pork, see below	
Shortening or lard	1 tsp
Sour cream: regular	2 Tbsp
reduced-fat	3 Tbsp

* Use a piece 1 inch x 1 inch x 1/4 inch if you plan to eat the fatback cooked with vegetables. Use a piece 2 inch x 1 inch x 1/2 inch when eating only the vegetables with the fatback removed.

FAST FOODS*

Food	Serving Size	Exchange Per Serving
Burritos with beef	1 (5-7 oz)	3 carbohydrates, 1 medium-fat meats 1 fat
Chicken nuggets	.6	1 carbohydrate, 2 medium-fat meats, 1 fat
Chicken breast and wing, breaded and fried	1 each	1 carbohydrate, 4 medium-fat meats, 2 fats
Chicken sandwich grilled	1	2 carbohydrate, 3 very lean meats
Chicken wings, hot	6 (5 oz)	1 carbohydrates, 3 medium-fat meats, 4 fats
Fish sandwich/tartar sauce	1	3 carbohydrates, 1 medium-fat meat, 3 fats
French fries	1 medium serving (5 oz)	4 carbohydrates, 4 fats
Hamburger, regular	1	2 carbohydrates, 2 medium-fats meats
Hamburger, large	1	2 carbohydrates, 3 medium-fats meats, 1 fat
Hot dog with bun	1	1 carbohydrate, 1 high-fat meat, 1 fat
Individual pan pizza	1	5 carbohydrates, 3 medium-fat meats, 3 fats
Pizza, cheese, thin crust	1/4 12 inch (about 6 oz)	2 1/2 carbohydrates, 2 medium-fat meats
Pizza, meat, thin crust	1/4 12 inch (about 6 oz)	2 1/2 carbohydrates, 2 medium-fat meats, 2 fats
Soft-serve cone	1 small (5 oz)	2 1/2 carbohydrates, 1 fat
Submarine sandwich	1 sub (6 in)	3 carbohydrates, 1 vegetable, 2 medium-fat meats, 1 fat
Submarine sandwich (less than 6 grams of fat)	1 sub (6 in)	2 1/2 carbohydrates, 2 lean meats
Taco, hard shell or soft	1 (3-3 1/2 oz)	1 carbohydrate, 1 medium-fat meat, 1 fat

* Ask at your fast-food restaurant for nutrition information about your favorite fast foods.

 = 400 mg or more of sodium per serving.

SWEETS, DESSERTS, AND OTHER CARBOHYDRATES LIST

You can substitute food choices from this list for a starch, fruit, or milk choice on your meal plan. Some choices will also count as one or more fat choices.

One exchange equals 15 grams carbohydrate, or 1 starch or 1 fruit or 1 milk

Food	Serving Size	Exchange Per Serving
Angel food cake, unfrosted	1/12th cake (about 2 oz)	.2 carbohydrates
Brownie, small, unfrosted	.2 in. square (about 1 oz)	.1 carbohydrate, 1 fat
Cake, unfrosted	.2 in. square (about 1 oz)	.1 carbohydrate, 1 fat
Cake, frosted	.2 in. square (about 2 oz)	.2 carbohydrates, 1 fat
Cookie or sandwich cookie with creme filling	.2 small (about 2/3 oz)	.1 carbohydrate, 1 fat
Cookies, sugar-free	3 small or 1 large (3/4-1 oz)	.1 carbohydrate, 1-2 fats
Cranberry sauce, jellied	1/4 cup	.1 1/2 carbohydrates
Cupcake, frosted	1 small (about 2 oz)	.2 carbohydrates, 1 fat
Doughnut, plain cake	(1 medium) (1 1/2 oz)	1 1/2 carbohydrates, 2 fats
Doughnut, glazed	3 3/4 in. across (2 oz)	.2 carbohydrates, 2 fats
Energy, sport or breakfast bar	1 bar (1 1/3 oz)	1 1/2 carbohydrates, 0-1 fat
Energy, sport or breakfast bar	1 bar (2 oz)	.2 carbohydrates, 1 fat
Fruit cobbler	1/2 cup (3 1/2 oz)	.3 carbohydrates, 1 fat
Fruit juice bars, frozen, 100% juice	1 bar (3 oz)	.1 carbohydrate
Fruit snacks, chewy (pureed fruit concentrate)	1 roll (3/4 oz)	.1 carbohydrate
Fruit spreads, 100% fruit	1 1/2 Tbsp	.1 carbohydrate
Gelatin, regular	1/2 cup	.1 carbohydrate
Gingersnaps	.3	.1 carbohydrate
Granola bar or snack bar, reg. or low fat	1 bar (1 oz)	1 1/2 carbohydrates
Honey	1 Tbsp	.1 carbohydrate
Ice Cream	1/2 cup	.1 carbohydrate, 2 fats
Ice Cream, light	1/2 cup	.1 carbohydrate, 1 fat
Ice cream, low-fat	1/2 cup	1 1/2 carbohydrates
Ice cream, fat-free, no sugar added	1/2 cup	.1 carbohydrate
Jam or jelly, regular	1 Tbsp	.1 carbohydrate
Milk, chocolate, whole	1 cup	.2 carbohydrates, 1 fat
Pie, fruit, 2 crusts	1/6 of 8" pie (commercially prepared)	.3 carbohydrates, 2 fats
Pie, pumpkin or custard	1/8 of 8" pie (commercially prepared)	.2 carbohydrates, 2 fats
Pudding, regular (made with reduced-fat milk)	1/2 cup	.2 carbohydrates
Pudding, sugar-free/fat-free (made with fat-free milk)	1/2 cup	.1 carbohydrate
Reduced-calorie meal replacement (shake)	1 can (10-11 oz)	1 1/2 carbohydrates, 0-1 fat
Rice milk, low-fat or fat-free, plain	1 cup	.1 carbohydrate
Rice milk, low-fat flavored	1 cup	1 1/2 carbohydrates
Salad dressing, fat-free	1/4 cup	.1 carbohydrate
Sherbet, sorbet	1/2 cup	.2 carbohydrates
Spaghetti sauce or pasta sauce, canned	1/2 cup	.1 carbohydrate, 1 fat
Sports drinks	8 oz (1 cup)	.1 carbohydrate
Sugar	1 Tbsp	.1 carbohydrate
Sweet roll or Danish	1 (2 1/2 oz)	.2 1/2 carbohydrates, 2 fats
Syrup, light	2 Tbsp	.1 carbohydrate
Syrup, regular	1 Tbsp	.1 carbohydrate
Syrup, regular	1/4 cup	.4 carbohydrates
Vanilla wafers	.5	.1 carbohydrate, 1 fat
Yogurt, frozen	1/2 cup	.1 carbohydrate, 0-1 fat
Yogurt, frozen, fat-free	1/3 cup	.1 carbohydrate
Yogurt, low-fat with fruit	1 cup	.3 carbohydrates, 0-1 fat

 = 400 mg or more sodium per exchange.

The following chart shows the amount of nutrients in one serving from each list.

Groups/Lists	Carbohydrate (grams)	Protein (grams)	Fat (grams)	Calories
Carbohydrate Group				
Starch	15	3	0-1	80
Fruit	15			60
Milk				
Fat-free, low-fat	12	8	0-3	90
Reduced-fat	12	8	5	120
Whole	12	8	8	150
Other carbohydrates	15	varies	varies	varies
Nonstarchy vegetables	5	2		25
Meat and Meat Substitutes Group				
Very lean		7	0-1	35
Lean		7	3	55
Medium-fat		7	5	75
High-fat		7	8	100
Fat Group			5	45

FREE FOODS LIST

A free food is any food or drink that contains less than 20 calories or less than 5 grams of carbohydrate per serving. Foods with a serving size listed should be limited to three servings per day. Be sure to spread them out throughout the day. If you eat all three servings at one time, it could affect your blood glucose level.

Fat-free Or Reduced-fat Foods

Cream cheese, fat-free	1 Tbsp (1/2 oz)
Creamers, nondairy, liquid	1 Tbsp
Creamers, non-dairy, powdered	2 tsp
Mayonnaise, fat-free	1 Tbsp
Mayonnaise, reduced-fat	1 tsp
Margarine spread, fat-free	4 Tbsp
Margarine spread, reduced-fat	1 tsp
Miracle Whip®, fat-free	1 Tbsp
Miracle Whip®, reduced-fat	1 tsp
Nonstick cooking spray	
Salad dressing, fat-free or low-fat	1 Tbsp
Salad dressing, fat-free, Italian	2 Tbsp
Sour cream, fat-free, reduced-fat	1 Tbsp
Whipped topping, regular	1 Tbsp
Whipped topping, light or fat-free	2 Tbsp

Sugar-free Or Low-sugar Foods

Candy, hard, sugar-free	1 candy
Gelatin dessert, sugar-free	
Gelatin, unflavored	
Gum, sugar-free	
Jam or jelly, low-sugar, light	2 tsp
Syrup, sugar-free	2 Tbsp
†Sugar substitutes, alternatives, or replacements that are approved by the food and Drug Administration (FDA) are safe to use.	
Common brand names include:	
Equal® (aspartame)	Sweet-10® (saccharin) Splenda® (sucralose)
Sprinkle Sweet® (saccharin)	Sugar Twin® (saccharin)
Sweet One® (acesulfame K)	Sweet 'n Low® (saccharin)

Drinks

Bouillon, broth, consommé	
Bouillon or broth, low-sodium	
Club soda, Carbonated or mineral water	
Cocoa powder, unsweetened	1 Tbsp
Coffee	
Diet soft drinks, sugar-free	
Drink mixes, sugar-free	
Tea	
Tonic water, sugar-free	

Condiments

Catsup, Horseradish, Mustard, Lemon juice, Lime juice	1 Tbsp
Pickle relish	1 Tbsp
Pickles, dill	1 1/2 medium
Pickles, sweet (bread and butter)	2 slices
Pickles, sweet (gherkin)	3/4 oz
Salsa	1/4 cup
Soy sauce, regular or light	1 Tbsp
Taco sauce	1 Tbsp
Vinegar	
Yogurt	2 Tbsp

Seasonings

Be careful with seasonings that contain sodium or are salts, such as garlic or celery salt and lemon pepper.

Flavoring extracts	Spices
Garlic	Tabasco® or hot pepper sauce
Herbs, fresh or dried	Wine, used in cooking
Pimento	Worcestershire sauce

COMBINATION FOODS LIST

Many of the foods we eat are mixed together in various combinations. This is a list of exchanges for some typical combination foods. This list will help you fit these foods into your meal plan.

FOOD	Serving Size	Exchange Per Serving
Entrees		
Tuna noodle casserole, lasagna, spaghetti with meatballs, chili with beans, macaroni and cheese	1 cup (8 oz)	2 carbohydrates, 2 medium-fat meats
Chow mein (without noodles or rice)	2 cups (16 oz)	1 carbohydrate, 2 lean meats
Tuna or chicken salad	1/2 cup (3 1/2 oz)	1/2 carbohydrate, 2 lean meats, 1 fat
Frozen entrees and meals		
Dinner-type meal	generally 14-17 oz	3 carbohydrates, 3 medium-fat meats, 3 fats
Meatless burger, soy based	3 oz	1/2 carbohydrate, 2 lean meats
Meatless burger, vegetable and starch based	3 oz	1 carbohydrate, 1 lean meat
Pizza, cheese thin crust	1/4 of 12 inch (6 oz)	2 carbohydrates, 2 medium-fat meats, 1 fat
Pizza, meat thin crust	1/4 of 12 inch (6 oz)	2 carbohydrates, 2 medium-fat meats, 2 fats
Pot pie	1 (7 oz)	2 1/2 carbohydrates, 1 medium-fat meat, 3 fats
Entree or meal with less than 340 calories	about 8-11 oz	2-3 carbohydrates, 1-2 lean meats
Soups		
Bean	1 cup	1 carbohydrate, 1 very lean meat
Cream (made with water)	1 cup (8 oz)	1 carbohydrate, 1 fat
Instant	6 oz prepared	1 carbohydrate
Instant with beans/lentils	8 oz prepared	2 1/2 carbohydrates, 1 very lean meat
Split pea (made with water)	1/2 cup (4 oz)	1 carbohydrate
Tomato (made with water)	1 cup (8 oz)	1 carbohydrate
Veg. beef, chicken noodle or other broth-type	1 cup (8 oz)	1 carbohydrate

 = 400 mg or more of sodium per choice.

Food Exchange Lists in Spanish

La Dieta Diabetica

Starch List – Lista de Almidones

Un intercambio de almidon equivale a: 15 gramos de carbohidrato, 3 gramos de proteina, 0-1 gramos de grasa, y 80 calorias.

Bread - Panes

Bagel, 4 oz	Bágel, 4 oz	¼ (1 oz)
Bread sticks, crisp, 4"x1/2 "	Palitos de pan crujiente 4"x1/2"	4 (2/3 oz)
English Muffin	"English Muffin"	½
Hot dog or hamburger bun	Pan (bollo) para hamburguesa o "hot dogs"	½ (de oz)
Raisin bread, unfrosted	Pan con Pasa, sin baño de azúcar/sin glaseado	1 rebanada (1 oz)
Bread, white, whole wheat, /pumpernickel, rye	Pan, blanco, integral, de centeno	1 rebanada (1 oz)
Bread, reduced calories	Pan, calorías-reducidas	2 rebanadas (1 ½ oz)
Pancake	Panqueque, 4 pulgadas diámetro ¼ pulgada de grosor	1
Pita, 6 inch across	Pita, 6 pulgadas diametro	½
Roll, Plain small	Rollo, llano, pequeño	1 (1 oz)
Tortilla, flour, 6" across	Tortilla, harina, 6 pulgadas diámetro	1
Tortilla, flour, 10" across	Tortilla, harina, 10 pulgadas diámetro	1/3
Tortilla, corn, 6 " across	Tortilla, maíz, 6 pulgadas diámetro	1
Waffle, 4" square or across, reduced-fat	Waffle, cuadrado o redondo de 4 pulgadas, reducido en grasa	1

Cereals and Grains – Cereales y Granos

Rice, white or brown	Arroz, blanco o castaño	1/3 taza
Bran cereals	Cereales de salvado	½ taza
Bulgur	Bulgur (trigo triturado)	½ taza
Sugar frosted cereals	Cereales azucarado	½ taza
Cereals, unsweetened-ready to eat	Cereales sin azúcar, "listos para comer"	¾ taza
Cereals, uncooked	Cereales cocinados	½ taza
Couscous	Couscous/cuscús	1/3 taza
Wheat germ	German de trigo	3 cdas
Granola, low-fat	Granola, baja en grasa	¼ taza
Grape-Nuts	Grape-Nuts	¼ taza
Grits	Grits (sémola de maíz)	½ taza
Cornmeal (dry)	Harina de maíz (seca)	3 cdas
Flour (dry)	Harina de trigo (seca)	3 cdas
Pasta	Pastas/Fideos	1/3 taza
Kasha	Kasha (trigo sarraceno)	½ taza
Muesli	Muesli	¼ tazao
Millett	Millett (mijo)	½ taza

Starchy Vegetables – Verduras/Vegetables con Almidon

Green peas, chitterings	Arvejas/verdes/chícharos/guisantes	½ taza
Squash, winter (corn, butternut)	Calabaza, de invierno (bellota, "butternut", zapallo, "acorn squash")	1 taza
Yam, sweet potato, plain	Camote, papa dulce sin aderezo	½ taza
Corn	Choclo/Maíz/Elote	½ taza
Corn on cob, large	Mazorca de choclo/elote, grande	½ mazorca (5 oz)
Potato, baked with skin	Papa al horno con la piel	¼ de una grande
Potato, boiled	Papa, hervida	½ taza o ½ mediana
Potato, mashed	Papa, pure de	½ taza
Plantain	Plátano verde para cocinar	½ taza
Baked Beans	Frijoles/Habichuelas al horno	1/3 taza
Mixed vegetables with corn, peas or pastas	Verduras mezcladas, con maíz, arevejas/guisantes, o pastas	1 taza
Yucca	Yuca	¼ taza

Beans, Peas and Lentils

Chicharos/Guisantes/Porotos/Frijoles, Arvejas y Lentegas

(Equivalen a 1 intercambio de almidón, más 1 intercambio de proteína con contenido muy bajo de grasa)

Lima beans	Habas verdes	2/3 taza
Lentils	Lentejas, grandules	½ taza
Miso	Miso	3 Cda
Beans and peas (garbanzo, pinto, kidney, white split, black-eyed)	Frijoles judías, chícharos/ porotos/ habichuelas y arvejas	½ taza

Crackers and Snacks – Galletas y Bocadoillos

Animal crackers	Galletita de animals	8
Graham cracker	Galletas "graham" (cuadrado de 2 ½ pulgadas)	3
Matzoh	Matzoh	¾ oz
Melba toast	Melba toast	4 rebanadas
Oyster crackers	Galletas "oyster crackers"	24
Popcorn (popped, no fat added or low-fat microwave)	Cabritas/palomitas de maíz, sin grasa añadida, o bajas en grasa para cocer en microondas	3 tazas
Pretzels	Pretzels	¾ oz
Rice cakes, 4" across	Queques de arroz ("rice cakes"), 4 pulgadas de diámetro	2
Saltine-type crackers	Galletas tipo "saltines"	6
Snack chips, fat-free or baked (tortilla, potato)	"Potato chips" o "tortilla chips", sin grasa	15-20 (3/4 oz)
Whole-wheat crackers, no fat added	Galletas de harina integral, sin grasa añadida	2-5 (3/4 oz)

Starchy Foods Prepared with Fat**Alimentos que Contienen Almidon y Preparados con Grasa**

(equivalent a 1 intercambio de almidón, más 1 intercambio de grasa)

Biscuit 2 ½ " across	Bizcochito, 2 ½ " pulgadas de diametro	1
Crackers, round butter type	Crackers, redondas tipo mantequilla	6
Croutons	Cuadritos de pan tostado	1 taza
Chow mein noodles	Fideos "chow mein"	½ taza
Crackers, whole wheat, fat added	Galletas de trigo entero con grasa añadida	4-7 (1 oz)
Granola	Granola	¼ taza
Hummus	Hummus	1/3 taza
Muffin 5 oz	Pan dulce, 5 oz	1/5 (1 oz)
Popcorn, microwaved	Cabritas/Palmitas de choco/maíz, cocidas al microonda	3 tazas
French-fried potatoes	Pepitas fritas	1 taza (2 oz)
Stuffing bread (prepared)	Relleno de pan para aves (ya preparado)	1/3 taza
Sandwich, crackers, cheese or peanut butter	Sandwich galletas, rellenas con queso o con mantequilla de maní	3
Snack chips	Snack chips (papas, tortilla)	9-13 (3/4 oz)
Taco shell	Tortilla tostada 6 pulgadas de diámetro	2
Waffle, 4" square	Waffle, un cuadrado de 4 pulgadas o de diámetro	1

Fruit List – Frutas

Un intercambio de fruta equivale a: 15 grams de carbohidrato y 60 calorías.

Fruit Juice, Unsweetened – Jugo de Fruta, sin azúcar

Apple juice/cider	Jugo de manzana/sidra	½ taza
Cranberry juice cocktail	Jugo de "Cranberry"/arádano tipo cocktail	1/3 taza
Cranberry juice cocktail, reduced-calorie	Jugo de "Cranberry", tipo cocktail, reducido en calorías	1 taza
Fruit juice blends, 100 % juice	Jugos de fruta, mezcla de (100% jugo puro)	1/3 taza
Grape juice	Jugo de uvas	1/3 taza
Grapefruit juice	Jugo de pomelo/toronja	½ taza
Orange juice	Jugo de naranja	½ taza
Pineapple juice	Jugo de piña, maracuyá	½ taza
Prune juice	Jugo de ciruelas	1/3 taza
Guava, pear, apricot juice	Jugo de guayaba, pera, albaricoque	½ taza

Fruit List – Frutas

Un intercambio de fruta equivale a: 15 grams de carbohidrato y 60 calorías.

Banana, small	Banana, pequeña	1 (4 oz)
Blueberries	Arándanos	¾ taza
Cherries, sweet, fresh	Cerezas, dulces, frescas	12 (3 oz)
Cherries, sweet, canned	Cerezas, dulces, enlatadas	½ taza
Plums, small	Ciruelas, pequeña	2 (5 oz)
Plums, canned	Ciruelas, enlatadas	½ taza
Prunes	Ciruelas secas	3
Apricots, canned	Albaricoque/Damascos/enlatados	½ taza
Apricots, fresh	Albaricoque/damascos, frescos	4 enteros (5 ½ oz)
Dates	Dátiles	3
Nectarine, small	Durazno pelada, pequeño	1 (5 oz)
Peach, medium fresh	Durazno, mediano, fresco	1 (4 oz)
Peaches, canned	Durazno, enlatados	½ taza
Strawberries	Frutillas	1 ¼ taza de frutillas enteras
Raspberries	Frambuesa	1 taza
Fruit cocktail	Fruta "cocktail"	½ taza
Figs, fresh	Higos, frescos	1 ½ grande o 2 medianos
Figs, dried	Higos, secos	1 ½
Kiwi	Kiwi	1 (3 ½ oz)
Mango, small	Mango, pequeño	½ fruta (5 ½ oz or ½ c)
Apple, unpeeled, small	Manzana, sin pelar, pequeña	1 (4 oz)
Applesauce, unsweetened	Manzanas, salsa de (sin azúcar)	½ taza
Apples, dried	Manzanas, secas	4 aeros
Cantaloupe	Melón, pequeño	1/3 melon o 1 taza cubos
Honeydew	Melón	1 slice o 1 taza cubos
Blackberries	Moras	¾ taza
Orange	Naranja, pequeña	1 (6 ½ oz)
Mandarin oranges, canned	Naranjas Mandarina enlatadas	¾ taza
Papaya	Papaya	½ fruta o 1 taza
Raisins	Pasas	2 Cda
Pear, large, fresh	Pera, grande, fresca	½ (4 oz)
Pears, canned	Peras, enlatadas	½ taza
Pineapple, fresh	Piña, fresca	¾ taza
Pineapple, canned	Piña, enlatadas	½ taza
Grapefruit, large	Pomelo/Toronja, grande	½ (11 oz)
Grapefruit sections, canned	Pomelo/Toronja, secciones de	¾ taza
Watermelon	Sandia	1 slice o 1 ¼ taza cubos
Tangerines	Tangerines, pequeña	2 (8 oz)
Grapes, small	Uvas, pequeña	17 (3 oz)

Nonstarchy Vegetable List – Lista de Verduras/Vegetales sin Almidón

Un intercambio de verdura (1/2 taza cocida o 1 taza cruda) es equivalente a 5 gramos de carbohidrato, 2 gramos de proteína, 0 gramos de gras, y 25 calorías.

Artichoke	Alcachofa
Artichoke hearts	Alcachofa, corazones de
Asparagus	Espárragos
Pea pods	Arvejas, vainas de (pea pods")
Beans (green, wax, Italian)	Habichuelas (verdes, wax, Italiano)
Bean sprouts	Poroto germinado (brote)
Beets	Beterragas/remolachas
Broccoli	Brócoli
Cabbage	Repollitos de Bruselas
Carrots	Zanahorias
Cauliflower	Coliflor
Celery	Apio
Cucumber	Pepino
Eggplant	Berenjena
Green onions or scallions	Cebollitas verdes o cebollín
Greens (collard, kale, mustard, turnip)	Verduras de hoja verde
Kohlrabi	Colinabo
Leeks	Puerros
Mixed vegetables (without corn, peas or pasta)	Verduras mezcladas
Mushrooms	Callampas/hongos
Okra	Quingombó, calalú
Onions	Cebollas
Peppers (all varieties)	Pimentones verdes y rojos
Radishes	Rábanos
Salad greens (endive, escarole, lettuce, romaine, spinach)	Verduras para ensalada
Sauerkraut	Chucrut
Spinach	Espinaca
Summer squash	Calabaza de verano
Tomato	Tomate/jitomate
Tomatoes, canned	Tomate, enlatado
Tomato sauce	Tomate, salsa de
Tomato/vegetable juice	Jugo de tomate/verdure
Turnips	Nabos
Water chestnuts	Castaña de agua
Watercress	Berro
Zucchini	Zapallito italiano
	Repollo/col
	Callampas/hongos
	Chayote/mirliton

Milk List – Lista de Leche

Un intercambio de leche es equivalente a: 12 grams de carbohidrato y 8 gramos de proteína

Fat-Free and Low-Fat milk – Leche Sin Grasa y Baja en Grasas (0-3 gramos de grasa por ración)

Fat-Free milk	Leche descremada (sin grasa)	1 taza
½ % milk	Leche con ½ % de grasa	1 taza
1% milk	Leche con 1% de grasa	1 taza
“Buttermilk, low-fat or fat free	Buttermilk, baja en grasa o sin grasa	1 taza
Evaporated fat-free milk	Leche evaporada sin grasa	½ taza
Fat-free dry milk	Leche en polvo sin grasa	1/3 taza
Soy milk low-fat or fat free	Leche de soya, baja en grasa o sin grasa	1 taza
Yogurt, fat free; flavored, sweetened with nonnutritive sweetener	Yogur, sin grasa, con sabor, endulzado con edulcorante artificial no nutritivo y fructose	2/3 taza (6 oz)
Yogurt, plain fat-free	Yogur, sin sabor sin grasa	2/3 taza (6 oz)

Reduced-Fat – Grasa Reducida (5 gramos de grasa por ración)

2% milk	Leche, 2%	1 taza
Soy milk	Leche de soya	1 taza
Sweet acidophilus milk	Leche (dulce) con acidofilos	1 taza
Yogurt, plain low-fat	Yogur, sin sabor bajo en grasa	6 oz

Whole milk – Leche Entera (8 gramos de grasa por porción)

Whole milk	Leche entera	1 taza
Evaporated whole milk	Leche entera evaporada	½ taza
Goat's milk	Leche de cabra	1 taza
Kefir	Kefir	1 taza
Yogurt, plain (made from whole milk)	Yogur, sin sabor (hecho de leche entera)	8 oz

Meat and Meat Substitutes List – Lista de Carnes Y Sustitutos de Carnes

Very Lean Meat and Substitutes List – Lista de Carne y Sustitutos de Carne con muy Bajo Contenido de Grasa (0 gramos de carbohidrato, 7 gramos de proteína, 0-1 gramos de grasa, y 35 calorías)

Poultry: chicken or turkey (white meat, no skin), Cornish hen	Aves: Pollo o pavo (carne blanca, sin piel) gallina "Cornish:	1 oz
Fish: fresh, or frozen cod, flounder, haddock, halibut, trout, lox; tuna fresh or canned in water	Pescado: Bacalao, Platija, abadejo, halibut, y trucha frescos o congelados, lox. Atún fresco o enlatada en agua	1 oz
Game: Duck or pheasant (no skin), venison, buffalo, ostrich	Animales de caza: Pato o faisán (sin piel), venado, buffalo, avestruz	1 oz
Shellfish: Clams, crab, lobster, scallops, shrimp, imitation shellfish	Mariscos: Almejas, jaibas, langosta, ostiones, camarones, imitación de marisco	1 oz
Cheese with 1 gram of fat or less per ounce: Low-fat cottage cheese Fat-free cheese	Queso con 1 gramo de grasa o menos por oz: Requesón sin grasa o bajo en grasa Queso sin grasa	¼ taza 1 oz
Other: Processed sandwich meats with 1 gram of fat or less per ounce, such as deli thin, shaved meats, chipped beef, turkey ham Egg whites Egg substitutes, plain Hot dogs with 1 gram of fat or less per ounce Kidney (high in cholesterol) Sausage with 1 gram of fat or less per ounce	Otros: Carnes procesadas para sandwich con 1 gramo de grasa o menos por oz. por ejemplo carnes en rebanadas finas, jamón de pavo Claras de huevo Sustitutos de huevo, sin sabor Hot dogs con 1 gramo de grasa o menos por oz Riñón (alto en colesterol) Salchicha con 1 gramo de grasa o menos por oz	1 oz 2 ¼ taza 1 oz 1 oz 1 oz
Count the following as one very lean meat and one starch: Beans, peas, lentils (cooked)	Los siguientes alimentos cuentan como una carne con muy bajo contenido de grasa más un intercambio de almidón. Frijoles/porotos, arvejas/guisantes, lentejas (cocidas)	½ taza

Lean Meat and Substitutes List – Lista de Carne y Sustitutos de Carne con Bajo

Contenido de Grasa – 0 gramos de carbohidrato, 7 gramos de proteína, 3 gramos de grasa, y 55 calorías

Game: Goose (no skin) rabbit	Animal de caza: Ganso (sin piel), conejo	
Beef: lean beef trimmed of fat, such as round, sirloin, and flank steak; tenderloin; roast, steak; ground round	Res: tales como bistecs de “round”, “sirloin”, “flank”, “tenderloin”, carne para asar, bistec, carne molida de “round”	1 oz
Poultry: Chicken, turkey (dark meat, no skin) chicken (white meat with skin), domestic duck or goose (well-drained fat, no skin)	Aves: Pollo o pavo (carne oscura, sin piel), pollo (carne blanca con piel), pato o ganso doméstico (con la grasa bien escurrida sin piel)	1 oz
Lamb: Roast, chop, or leg	Cordero: Asado, chuleta o pierna	1 oz
Fish: (Herring (uncreamed or smoked) Oysters Salmon (fresh or canned) catfish Sardines (canned) Tuna (canned in oil or drained)	Pescado Arenque (sin crema o ahumado) Ostras/ostiones Salmón (fresco o enlatado), siluro/bagre (catfish) Sardinias (enlatadas) Atún (enlatado en aceite, escurrido)	1 oz 6 mediana 2 mediana 1 oz 1 oz 2 mediana 1 oz
Pork: Lean pork, such as fresh ham; canned, cured, or boiled ham; Canadian bacon; tenderloin, center loin chop	Chancho (cerdo): Chancho bajo en grasa, como el jamón fresco; jamón enlatado, curado, o cocido; Tocino Tipo “Canadian”; “Tenderloin”, chuleta de lomo	1 oz
Veal: Lean chop, roast	Ternera: chuleta baja en grasa por oz	1 oz
Cheese: 4.5% fat cottage cheese Grated Parmesan Cheeses with 3 grams of fat or less per ounce	Queso: Requesón con 4.5% de grasa Parmesano rallado Quesos con 3 gramos de grasa o menos por oz	¼ taza 2 Tbsp. 1 oz
Other: Hot Dog with 3 grams of fat or less per ounce Processed sandwich meat with 3 grams of fat or less per ounce such as turkey, pastrami or kielbasa Liver, heart (high in cholesterol)	Otros: “Hot Dogs” con 3 gramos o menos de grasa por oz Carne procesadas para sandwich con 3 gramos o menos de grasa por oz, tal como: pavo o pastrami o kielbasa Higado, corazón (alto en colesterol)	1½ oz 1 oz 1 oz

Medium Fat Meat and Substitutes List – Lista de Carne y Sustitutos de Carne con Moderado Contenido de Grasa

0 gramos de carbohidrato, 7 gramos de proteína, 5 gramos de grasa, y 75 calorías

Beef: ground beef, meatloaf, corned beef, short ribs, Prime Rib	Res: Carne molida, pastel de carne, res conservado en sal y azúcar, costillas, tal como el “prime rib”	1 oz
Poultry: Chicken (dark meat with skin) ground turkey or chicken, fried chicken	Aves: Pollo (carne oscura, con piel), pavo molido o pollo molido; polo frito (con piel)	1 oz
Fish: Any fried fish product	Pescado: Cualquier producto de pescado, frito	1 oz
Lamb: rib roast, ground	Cordero: Costillar, molido	1 oz
Pork: Top loin, chop, Boston butt, cutlet	Chanco: Lomo, chuleta, croqueta	1 oz
Veal: Cutlet (ground or cubed, unbreaded)	Ternera: Croqueta (molida o en cubos, sin apanar)	1 oz
Cheese: with 5 grams or less fat per ounce: Feta, Mozzarella	Queso: con 5 gramos o menos de grasa por oz: Feta, Mozzarella Ricotta	1 oz ¼ taza (2 oz)
Other: Egg (3 per week) Sausage with 5 grams of fat or less per oz Tempeh Tofu	Otros: Huevo (3 por semana) Chorizo o salchicha con 5 gramos de grasa o menos por oz Tempeh Tofu	1 oz ¼ taza 4 oz o ½ taza

High Fat Meat and Substitutes List – Lista de Carne y Sustitutos de Carne con Alto**Contenido de Grasa – 0 gramos de carbohidrato, 7 gramos de proteína, 8 gramos de grasa, y 100 calorías.**

Pork: Spareribs, ground pork, pork sausage	Chanco: Costillas, chancho molido, salchicha	1 oz
Cheese: All regular cheeses such as American, cheddar, Monterey Jack, Swiss	Queso: Todos los quesos regulares, tal como el Americano, Monterey Jack, suizo	1 oz
Other: Processed sandwich meats with 8 grams of fat or less per ounce, such as bologna, pimento loaf, salami.	Otros: Carnes procesadas para sandwich con 8 gramos de grasa o menos por oz, tal como la bologna, pimento loaf, salami.	1 oz
Sausage, such as bratwurst, Italian knockwurst.	Salchicha, como bratwurst, Italian knockwurst	1 oz
Polish, smoked	“Polish”, ahumada	1 oz
Hog dog (turkey or chicken)	Hot dog (pavo o pollo)	1 (10 lb)
Bacon	Tocino	3 rebanandas
Peanut butter (contains unsaturated fat)	Mantequilla de maní (contiene grasa insaturada)	1 Cda
Count the following items as 1 high fat meat plus 1 fat exchange:	Los productos siguientes cuentan como 1 carne con alto contenido de (gras más 1 intercambio de grasa:	
Hot dog (beef, pork or combination)	Hot dog (res, chancho, o combinación)	1 (10/lb)

Fat List – Lista de Grasas

5 gramos de grasa y 45 calorías.

Monounsaturated Fats List – Lista de Grasas Monounsaturada

Avocado, medium	Aguacate/palta, mediana	2 Cda (1 oz)
Oil (canola, olive, peanut)	Aceite (canola, oliva, maní)	1 Cda
Olives: ripe (black)	Aceitunas: negras (maduras)	8 grandes
Green, stuffed	rellenas, verdes	10 grandes
Nuts: almonds, cashews	Nueces: almendras, anacardo (cashew)	6 nueces
mixed (50% peanuts)	Nueces mezcladas (50% maní)	6 nueces
peanuts	maní	10 nueces
pecans	pacanas	4 mitades
Peanut butter, smooth, or crunchy	Mantequilla de maní, cremosa o crujiente	½ Cda
Sesame seeds	Semillas de sésamo/ajonjolí	1 Cda
Tahini or sesame paste	Pasta Tahini o de sésamo/ajonjolí	2 Cda

Polyunsaturated Fats List – Lista de Grasas Poliinsaturadas

Margarine: stick, tube or squeeze lower-fat spread (30% to 50% vegetable oil)	Margarina: barra, de envase, o líquida En pasta suave baja en grasa (30% to 50% aceite vegetal)	1 Cda 1 Cda
Mayonnaise: regular	Mayonesa: regular	1 Cda
reduced-fat	grasa reducida	1 Cda
Nuts: walnuts, English	Nueces: de nogal, inglesas	4 mitades
Oil: (corn, safflower, soybean)	Aceite (maiz, girasol, poroto soya)	1 Cda
Salad dressing: regular	Aderezo: regular	1 Cda
reduced-fat	grasa reducida	2 Cda
Miracle Whip Salad Dressing	Miracle Whip Aderezo	
regular	regular	2 Cda
reduced-fat	grasa reducida	1 Cda
Seeds: Pumpkin, sunflower	Semillas: calabaza (zapallo), girasol	1 Cda

Saturated Fats List – Lista de Grasas Saturadas

Bacon, cooked	Tocino, cocido	1 slice 20 slices/lb
Bacon, grease	Tocino, grasa de	1 Cda
Butter, stick	Mantequilla: barra	1 Cda
whipped	batida	2 Cda
reduced-fat	grasa reducida	1 Cda
Chitterlings, boiled	Chitterlings, cocidos en agua	2 Cda (½ oz)
Coconut, sweetened, shredded	Coco, endulzado, rallado	2 Cda
Coconut milk	Coco, leche de	1 Cda
Cream, half and half	Cream, "half y half"	2 Cda
Cream cheese:	Crema agria:	
regular	regular	2 Cda
reduced-fat	grasa reducida	3 Cda
Shortening or lard	Manteca vegetal o animal	1 Cda
Sour cream: regular	Queso crema: regular	1 Cda (½ oz)
reduced -fat	grasa reducida	1 ½ Cda (¾ oz)

Sweets, Desserts, and Other Carbohydrates List – Lista de Dulces, Postres y Otros Carbohidratos Un intercambio es equivalente a 15 gramos de carbohidrato, o 1 almidón, o 1 fruta, o 1 leche.

Food	Comida	Porción	Intercambios por porción
Angel food cake, unfrosted	Pastel de Ángel, sin glaseado	1 ½ pastel (casi 2 oz)	2 carbohidratos
Brownie, small unfrosted	“Brownie”, pequeño, sin glaseado	Cuadrado de 2 pulgadas	1 carbohidrato, 1 grasa
Cake, unfrosted	Pastel, sin glaseado	Cuadrado de 2 pulgadas	1 carbohidrato, 1 grasa
Cake, frosted	Pastel, glaseado	Cuadrado de pulgadas	2 carbohidratos, 1 grasa
Cookie or sandwich cookie with crème filling	Galleta o galleta con relleno de crema	2 pequeña (casi 2/3 oz)	1 carbohidrato, 1 grasa
Cookies, sugar-free	Galletas sin azúcar	3 pequeña o 1 grande	1 carbohidrato, 1-2 grasas
Gingersnaps	Galletas delgadas de jengibre	3	1 carbohidrato
Cranberry sauce, jellied	Salsa de arándanos, en jalea	1/4 taza	1 ½ carbohidratos
Cupcake, frosted	Pastelito, glaseado	1 pequeño (casi 2 oz)	2 carbohidratos, 1 grasa
Doughnut, plain cake	Donut, de pastel llano	1 mediano (1½ oz)	1 ½ carbohidratos, 2 grasas
Doughnut, glazed	Donut glaseado	3 ¾ pulgadas diámetro (2 oz)	2 carbohidratos, 2 grasas
Energy, sport or breakfast bar	Barras de energía o desayuno	1 bar (2 oz)	2 carbohidratos, 1 grasa
Energy, sport of breakfast bar	Barras de energía o desayuno	1 bar (1 1/3 oz)	1 ½ carbohidratos, 0-1 grasa
Fruit cobbler	Fruta, tarta de	½ taza (3 ½ oz)	3 carbohidratos, 1 grasa
Fruit juice bars, frozen 100% juice	Barras de jugo de fruta, congelada, 100% jugo	1 barra (3 oz)	1 carbohidrato
Fruit spreads, 100% fruit	Fruta para untar 100% fruta	1 ½ Cda	1 carbohidrato
Fruit snacks, chewy (pureed fruit concentrate)	Fruta “snacks”, masticable (pure de pulpa de fruta)	1 rollo (3/4 oz)	1 carbohidrato
Gelatin, regular	Gelatina, regular	½ taza	1 carbohidrato
Granola or sanck bar, regular or low fat	Grannola o barra regular o baja en grasa	1 barra (1 oz)	1 ½ carbohidratos
Honey	Miel	1 Cda	1 carbohidrato
Ice cream	Helado	½ taza	1 carbohidrato, 2 grasas
Ice cream, light	Heloda, liviano	½ taza	1 carbohidrato, 1 grasa
Ice cream, fat-free, no sugar added	Helado, sin grasa, no azúcar añadida	½ taza	1 carbohidrato
Jam or jelly, regular	Mermelada o jalea, regular	1 Cda	1 carbohidrato

Sweets, Desserts, and Other Carbohydrates List – Lista de Dulces, Postres y Otros Carbohidratos

Food	Comida	Porción	Intercambios por porción
Milk, chocolate, whole	Leche, chocolate, entera	1 taza	1 carbohidrato
Pie, fruit, 2 crusts	Pastel "pie" fruta, 2 capas	1/6 de 8 pulgadas de pastel preparado comercialmente	3 carbohidratos, 2 grasas
Pie, pumpkin or custard	Pastel "pie" zapallo/calabaza o natillas ("custard")	1/8 de 8 pulgadas de pastel preparado comercialmente	2 carbohidrato, 2 grasas
Pudding, regular (made with reduced-fat milk)	Pudin, regular (hecho con leche de grasa reducida)	½ taza	2 carbohidratos
Pudding, sugar-free or sugar-free and fat-free (made with fat-free)	Pudin, sin azúcar o sin azúcar y sin grasa	½ taza	1 carbohidrato
Reduced-calorie meal replacement (shake)	Alimento bajo en calorías para reemplazar una comida (bebida)	1 lata (10-11 oz)	1 ½ carbohidratos, 0-1 grasas
Rice milk, low-fat or fat-free plain	Arroz con leche, bajo en grasa o sin grasa, sin sabor	1 taza	1 carbohidrato
Rice milk, low-fat flavored	Arroz con leche, bajo en grasa, con sabor	1 taza	1 1/2 carbohidratos
Salad dressing, fat free	Aderezo, sin grasa	¼ taza	1 carbohidrato
Sherbet, sorbet	Sherbet, sorbet	½ taza	2 carbohidratos
Spaghetti sauce or pasta sauce, canned	Salsa para spageti o pasta, enlatada	½ taza	1 carbohidrato, 1 grasa
Sports drinks	Bebidas de Deporte	8 oz (1 taza)	1 carbohidrato
Sugar	Azúcar	1 Cda	1 carbohidrato
Sweet roll or Danish	Pan dulce o "Danish"	1 (2 ½ oz)	2 ½ carbohidratos, 2 grasas
Syrup, light	Jarabe/almíbar, liviano	2 Cda	1 carbohidrato
Syrup, regular	Jarabe/almíbar, regular	1 Cda	1 carbohidrato
Syrup, regular	Jarabe/almíbar, regular	¼ taza	4 carbohidratos
Vanilla Wafers	Wafers/obleas, barquillo de vainilla	5	1 carbohidrato, 1 grasa
Yogurt, frozen	Yogur, congelado	½ taza	1 carbohidrato, 0-1 grasa
Yogurt, frozen, fat-free	Yogur, congelado, sin grasa	1/3 taza	1 carbohidrato
Yogurt, lowfat with fruit	Yogur, bajo en grasa	1 taza	3 carbohidrato, 0-1 grasa con fruta

Combination Foods List – Lista de Combinación de Comidas

Food	Comida	Porción	Intercambios por Porción
Entrees	Platos principales		
Tuna noodle casserole, lasagna, spaghetti with meatballs, chili with beans, macaroni and cheese	Guiso de atún con fideos lasaña, spaghetti con albondigas, chili con porotos/frijoles/habichuelas/macarrón con queso	1 taza	2 carbohidratos, 2 carnes con moderado contenido de grasa
Chow mein (without noodles or rice)	Chow mein (sin fideos o arroz)	2 tazas (16 oz)	1 carbohidrato, 2 carnes con bajo contenido de grasa
Tuna or chicken salad	Atún o pollo, ensalada	½ taza (3 ½ oz)	½ carbohidrato, 2 carnes con bajo contenido de grasa, 1 grasa
Frozen entrees & meals	Comidas congeladas		
Dinner-type meal	Dinner type meal	Generalmente de 14-17 oz	3 carbohidratos, 3 carnes con contenido moderado de grasa, 3 grasas
Meatless burger, soy based	Burger sin carne, base a soya	3 oz	½ carbohidrato, 2 carnes con bajo contenido de grasa
Meatless burger, vegetable and starch based	Burger sin carne, base a verdura y almidón	3 oz	1 carbohidrato, 1 carne con bajo contenido de grasa
Pizza, cheese thin crust	Pizza, Queso, corteza delgada	¼ de 12 pulgadas (6 oz)	2 carbohidratos, 2 carnes con contenido moderado de grasa
Pizza, meat topping, thin crust	Pizza, con carne, corteza delgada	¼ de 12 pulgadas (6 oz)	2 carbohidratos, 2 carnes con contenido moderado de grasa, 1 ½ grasas
Pot pie	Pastel "pot pie"	1 (7 oz)	2 ½ carbohidratos, 1 carne con contenido moderado de grasa, 3 grasas
Entrée or meal with less than 340 calories	Entrada o comida con menos de 340 calorías	1 (7 oz)	2 ½ carbohidratos, 1 carne con contenido bajo de grasa
Soups	Sopas		
Bean	Poroto/Fijol/Judías/Habichuelas	1 taza	1 carbohidrato, 1 carne con muy bajo contenido de grasa
Cream (made with water)	Crema (hecha con agua)	1 taza (8 oz)	1 carbohidrato, 1 grasa
Instant	Instántanea	6 oz preparada	1 carbohidrato
Tomato (made with water)	Tomate (hecha con agua)	1 taza (8 oz)	1 carbohidrato

Combination Foods List – Lista de Combinación de Comidas

Food	Comida	Porción	Intercambios por Porción
Instant with beans/lentils	Instántanea con porotos/frijoles/lentejas	8 oz preparada	2 ½ carbohidratos, 1 carne con muy bajo contenido de grasa
Split pea (made with water)	Arvejas/Chícharos/Guisantes (hecha con agua)	½ taza (4 oz)	1 carbohidrato
Vegetable beef, chicken noodle or other broth-type	Verdura y carne, pollo con fideos, o cualquier otro tipo de caldo	1 taza (8 oz)	1 carbohidrato

Fast Foods List – Comidas Rápidas

Food	Comida	Porción	Intercambios por Porción
Burrito with beef	Burrito con carne	1 (5-7 oz)	3 carbohidratos, 1 carne con contenido moderado de gras, 1 grasa
Chicken nuggets	Pollo “nuggets”	6	1 carbohidrato, 2 carnes con contenido moderado de grasa, 1 grasa
Chicken breast and wing, breaded and fried	Pollo, pechuga y ala empanizado y frito	1 cada uno	1 carbohidrato, 4 carnes con contenido moderado de grasa, 2 grasas
Chicken sandwich, grilled	Pollo, sandwich, a la parrilla	1	2 carbohidratos, 3 carnes con muy bajo contenido de grasa
Chicken wings, hot	Pollo, alas, picante	6 (5 oz)	1 carbohidrato, 3 carnes con contenido moderado de grasa, 4 grasas
Fish sandwich/tartar sauce	Pescado, sandwich/salsa tártara	1	3 carbohidratos, 1 carne con contenido moderado de grasa, 3 grasas
French fries	Papas fritas	1 porción mediana (5 oz)	4 carbohidratos, 4 grasas
Hamburger, regular	Hamburguesa, regular	1	2 carbohidratos, 2 carnes con contenido moderado de grasa
Hamburger, large	Hamburguesa, grande	1	2 carbohidratos, 3 carnes con contenido moderado de grasa, 1 grasa
Hot dog with bun	Hot dog con rollo/pan	1	1 carbohidrato, 1 carne con alto contenido de grasa, 1 grasa
Individual pan pizza	Pan pizza para 1 persona	1	5 carbohidratos, 3 carnes con contenido moderado de grasa, 3 grasas

Fast Foods List – Comidas Rápidas

Food	Comida	Porción	Intercambios por Porción
Pizza, cheese, thin crust	Pizza, queso, corteza delgada	¼ mediana (12 pulgadas Redondo) casi 6 oz	2 ½ carbohidratos, 2 carnes con contenido moderado de grasa, 1 ½ grasas
Pizza meat thin crust	Pizza, carne, corteza delgada	¼ mediana (12 pulgadas Redondo) casi 6 oz	2 ½ carbohidratos, 2 carnes con contenido moderado de grasa, 2 grasas
Soft-serve cone	Helado suave en cono	1 pequeño (5 oz)	2 ½ carbohidratos, 1 grasa
Submarine sandwich	Submarine sandwich emparedado	1 sub (6 pulgadas)	3 ½ carbohidratos, 2 carnes con contenido moderado de grasa, 1 grasa
Submarine sandwich (less than 6 gm fats)	Submarine sandwich emparedado (menos de 6 gm grasa)	1 sub (6 pulgadas)	3 carbohidratos, 2 carnes con muy bajo contenido de grasa
Taco, hard or soft shell	Taco, tortilla suave o tostada	1 (3- 3 ½ oz)	1 carbohidrato, 1 caren con contenido moderado de grasa carne, 1 grasa

Pregunte en su restaurante de comida rápida (“fast food”) por la información nutricional de sus comidas rápidas favoritas o visite la “red” (Internet).

Free Foods List – Lista de Comidas sin Restricción

Una comida o bebida sin restricción es una que contiene menos de 20 calorías y menos de o igual a 5 gramos de carbohidrato por porción. Las comidas en esta lista que tienen porciones indicadas deben ser limitadas a tres (3) porciones al día, y debe asegurarse de distribuir las durante el día. Si se come las tres porciones al mismo tiempo le pueden elevar el azúcar en la sangre. Las comidas en esta lista que no tienen una porción especificada las puede comer sin limitaciones.

<i>Fat-Free or Reduced Fat Foods</i>	<i>Comidas sin Grasa o con la Grasa Reducida</i>	
Cream cheese, fat-free	Queso crema, sin grasa	1 Cda
Creamers, nondairy, liquid	Crema artificiales líquida	1 Cda
Creamers, nondairy, powdered	Crema, artificiales en polvo	2 Ctda
Mayonnaise, fat-free	Mayonesa, sin grasa	1 Cda
Mayonnaise, reduced-fat	Mayonesa, grasa reducida	1 Ctda
Margarine, spread, fat-free	Margarina para untar, sin grasa	4 Cda
Margarine spread, reduced fat	Margarina para untar, grasa reducida	1 Ctda
Miracle Whip, fat free	Miracle Whip, sin grasa	1 Cda
Miracle Whip, reduced fat	Miracle Whip, grasa reducida	1 Ctda
Nonstick cooking pan	Atomizador de aceite	
Salad dressing, fat-free or low fat	Aderezo, sin grasa o bajo en grasa	1 Cda
Salad dressing, fat-free, Italian	Aderezo, sin grasa, Italiano	2 Cda
Sour cream, fat free, red. fat	Crema agria, sin grasa o con grasa reducido	1 Cda
Whipping Topping, regular	Crema batida, artificial regular	1 Cda
Whipping Topping, light or fat free	Crema batida artificial, grasa reducida o sin grasa	2 Cda

Free Foods List – Lista de Comidas sin Restricción

Sugar Free Foods	Comidas sin Azúcar	
Candy, hard, sugar-free	Caramelos duros, sin azúcar	1 caramelo
Gelatin dessert, sugar-free	Gelatina sin azúcar	
Gelatin, unflavored	Gelatina, sin sabor	
Gum, sugar-free	Chicle/goma de mascar, sin azúcar	
Jam or Jelly, light	Jalea o mermelada, baja en azúcar	2 Cda
Sugar substitutes	Sustitutos de azúcar	
Syrup, sugar-free	Jarabe, sin azúcar	2 Cda
Drinks	Bebidas	
Bouillon, broth, consomme	Consomé, caldo	
Bouillon or broth, low-sodium	Consomé caldo, bajo en sal	
Carbonated or mineral water	Agua mineral o agua gaseosa	
Club soda	Club soda	
Cocoa powder, unsweetened	Cocoa/chocolate en polvo, sin azúcar	1 Cda
Coffee	Café	
Diet soft drinks, sugar free	Refrescos de dieta sin azúcar	
Drink mixes, sugar-free	Mezclas para bebidas, sin azúcar	
Tea	Té	
Tonic water, sugar-free	Agua quina, in azúcar	
Condiments	Condimentos	
Catsup	Catsup	1 Cda
Horseradish	Rábano picante	
Lemon juice	Jugo de limón	
Lime juice	Jugo de lima	
Mustard	Mostaza	
Pickle relish	Rábano encurtido	
Pickle, dill	Pepinillos agrios	1 ½ mediana
Pickles, sweet	Rábano dulce	2 rebanada
Salsa	Salsa	¼ taza
Soy sauce, regular or light	Salsa de soya, regular o liviano	1 Tbsp
Taco sauce	Salsa para tacos	1 Cda
Vinegar	Vinagre	
Yogurt	Yogur	2 Cda
Seasonings	Aliños	
Flavoring extracts	Extractos de sabores	
Garlic	Ajo	
Herbs, fresh or dried	Hierbas, frescas o secas	
Pimento	Pimentón	
Spices	Espicias	
Tabasco or hot pepper sauce	Tabasco o salsa picante	
Wine, used in cooking	Vinos para cocinar	
Worcestershire sauce	Salsa Worcestershire	

Sugar substitutes approved by the FDA are safe to use. Los sustitutos de azúcar, alternativas, o reemplazamientos que han sido aprobados por el FDA se pueden consumir sin riesgo.

Equal (aspartame)

Sugar Twin (sacarina)

Sweet-10 (sacarina)

Splenda (sucralose)

Sweet N Low (sacarina)

Sprinkle Sweet (sacarina)

Sweet Un (acesulfame K)

Low Calorie Diets

Indication

These diets are used when weight reduction/weight control is desired.

Description

These diets are designed to promote a steady weight loss by reducing daily caloric intake. They contain foods which provide maximum nutrition in a minimum number of calories, for example increase nutrient dense foods.

Successful weight reduction programs depend on the following:

- A readiness to lose weight
- A positive attitude about losing weight (motivation)
- A willingness to change eating habits (behavior modification)
- A knowledge of basic nutrition and calorie levels of food
- A good exercise program

The above points must be considered in addition to the diet when planning a weight reduction regimen. For information on determining ideal body weights and calorie requirements for adults, refer to Nutrition References in Section T.

Nutritional Adequacy

Diets below 1,200 calories may be deficient in some nutrients and vitamin/mineral and are usually not recommended. Diets above 1,200 calories are nutritionally adequate when planned to include the recommended servings from eatright.org.

Weight Control Program

A registered dietitian is the recommended health counselor for nutritional assessment and meal planning goals. It's never wise to follow fad diets, limit variety of foods or try to lose weight too fast. The following tips will be helpful:

- Motivation and attitude – keeping the right frame of mind, setting realistic short term and long-term goals.
- Thinking ahead to roadblocks along the way, dealing with your problems
- Controlling calories – It is necessary to take in fewer calories than you burn up.
- Focusing on variety, nutrient density, and amount of food you eat
- Limiting calories from added sugars and saturated fats and reduce sodium intake. Food preparation should be examined to cut back on the ingredients that add unnecessary calories; i.e., fried foods, gravies, sugar, etc.
- Drinking lots of water. Limit alcohol and other high calorie drinks, and shift to healthier beverage choices
- Following a healthy eating pattern across the lifespan, keeping your weight off is a lifetime commitment
- An exercise program may be an important component to your weight control. Ask your doctor or health professional for a physical activity plan that's just right for you.

Behavior Modification

✚ **Behavior modification is the key to weight loss. In general:**

- Never skip meals and avoid over-hunger. Meal skipping usually leads to eating binges often at night.
- Mindful eating: make eating a pure and conscious experience; i.e., don't do anything else but eat & pay attention to your food; relax and enjoy conversation and music.
- Wait at least 15 minutes before eating if you feel like eating. Hunger pangs or the impulses to eat even when you are not hungry, last only for about 10 to 15 minutes, and they may go away if you delay eating. This will teach you to be in control of your desire for food. Try drinking a cup of water.
- Engage in some kind of activity which is incompatible with eating such as calming yourself through meditation, starting a new hobby, gardening or taking a walk in order to take your mind off eating. Activity often lessens the urge to eat.
- When the urge to eat persists, drink some hot tea or bouillon as these help satisfy the need to "fill" your stomach.
- Avoid using food as a reward or treat.
- Learn the difference between physical hunger and psychological hunger.

At The Grocery Store

- Create and stick to a shopping list to avoid buying unnecessary and often high calorie foods.
- Do not shop when you are hungry. Shopping on an empty stomach leads to overbuying. Buy only the quantity you need.
- "Shop the Wall", shop the perimeter of the grocery store for mostly fresh and minimally processed foods.
- Don't purchase snack foods. Avoid snacking between meals, except with small amount of fresh fruits or vegetables, if necessary.
- Avoid buying high fat, sugary foods. If you want ice cream, buy a small cone not a half gallon.

At Home

- Only eat in one designated place for all meals including your bedtime snack. Make this designated place as attractive as possible. Eat with others whenever possible. Do not eat in front of the television, computer or in your bedroom.
- Do not keep food in the living or bedroom. Keep food in the kitchen only.
- Rearrange the refrigerator by placing the food you are least likely to nibble in the front of the refrigerator, and those you are likely to eat behind, hidden and tightly covered, and in opaque containers. Do not keep tempting foods on tables and countertops. Don't purchase prepared foods or processed snacks.
- Clean up the kitchen, turn off the light after your meal, and stay out of the kitchen.

At Meal Time

- Plan meals ahead of time to avoid last minute decisions or relying on prepared/processed foods when you are hungry.
- Use smaller dishes at mealtimes to satisfy your psychological need to see a full plate.
- Pay attention to what's on your plate that you are going to eat.
- Eat, chew slowly and thoroughly. Lay down your eating utensils after each bite of food – this will help you eat more slowly and so eat less. It takes about 20 minutes for the message to travel from your stomach to your brain to tell that you are full.
- Save food for leftovers. The “clean plate syndrome” is not recommended.
- Put away leftovers immediately after you have finished eating to avoid the temptation to finish them. Freeze them for soups or stews if you don't like waste.

Support from Your Family and Friends

- Tell your family and friends that you are trying to lose weight and why and enlist their support.
- Tell them not to offer you food. If you want it, you'll ask.
- Tell them not to give you food as a gift or reward.
- Do not talk about food; don't torture yourself.

Dining-out

- Avoid “all-you-can-eat” restaurants. It's too easy to give in to “getting your money's worth.”
- Check on the menu on line, decide ahead of time what you will order and how much you will eat before going to the restaurant. Order only what you will eat.
- Choose restaurants where you can choose healthier menu items with reasonable portion sizes.
- Ask wait staff to put half of the food in a take-home container before serving the rest of food at your table
- Eat slowly and enjoy every bite of your meal.

Exercise Program

Begin some type of exercise program. Exercise will not only speed up your weight loss by burning up calories, but will help you in the following ways:

- When you drastically cut back on your calorie intake, your body adjusts and begins to burn calories slower. Regular exercise will help prevent that from happening.
- Regular exercise will firm up muscles and help you to lose inches.
- Regular exercise will cause more of your weight loss to come from fat and not lean muscle tissue.
- Regular exercise will help you control your appetite.
- Regular exercise helps relieve stress and will help you to feel physically better.
- Regular exercise helps you feel better about yourself.

The following tips will be helpful when ordering from a menu:

	DOs	DON'T
Appetizers	Do share an appetizer with others in your group. Do order vegetable soup or fresh fruit.	Don't order an appetizer all to yourself if you plan to eat a full meal. Don't order heavy soups, sweetened fruits or meat, cocktails or cheese options.
Meat / Fish/ Poultry	Do order roasted, baked, grilled or broiled.	Don't order fried, breaded or meats with gravy.
Eggs	Do order soft or hard cooked, poached or baked eggs.	Don't order fried or scrambled eggs with cheese.
Potatoes/starches	Do order baked, boiled or steamed potatoes, brown rice or whole grain noodles.	Don't order home fried, French fried, hash browned, creamed, au gratin, or escalloped potatoes, buttered noodles or fried white rice.
Vegetables	Do order stewed, steamed, grilled, sautéed, boiled or raw vegetables.	Don't order creamed, escalloped, au gratin or fried vegetables.
Salads	Do order vegetable salads with vinegar based dressings.	Don't order salad mixtures with creamy dressings, cheeses and croutons.
Desserts	Do plan ahead if you want a dessert and share one whenever possible.	Don't order a dessert when you are already full from your meal.
Breads	Do order plain breads and use butter or olive oil sparingly.	Don't fill up on bread before your meal arrives. Don't order sweet rolls, coffee cake or sweetened breads.
Beverages	Do order black coffee, unsweetened tea, club soda, sparkling or still water.	Don't order chocolate milk, milkshakes, smoothies or soft drinks. Limit alcohol.

SAMPLE GUIDE: MEAL PATTERNS

From Calorie Levels 1200 and up (using Lean Meat)

Food Exchange	1200 Calories	1500 Calories	1800 Calories	2000 Calories
Breakfast				
Starch/Bread	1	2	3	4
Meat	1	1	1	1
Fruit	1	1	1	1
Milk, non-fat	1	1	1	1
Fat	1	1	2	2
Lunch				
Starch/Bread	2	2	3	4
Meat	1	2	2	3
Fruit	1	1	1	1
Vegetable	2	2	2	2
Milk, non-fat	0	0	0	0
Fat	1	2	2	2
Dinner				
Starch/Bread	2	3	4	4
Meat	2	3	3	3
Fruit	1	1	1	2
Vegetable	2	2	3	3
Milk, non-fat	1	1	1	1
Fat	2	2	2	2
Total number of exchanges				
Starch/Bread	5	7	10	12
Meat	4	6	6	7
Fruit	3	3	3	4
Vegetable	4	4	5	5
Milk, non-fat	2	2	2	2
Fat	4	5	6	6
Calories				
	1,212	1,466	1,800	1,960
Carbohydrate (gm)				
	164	194	244	274
Protein (gm)				
	67	87	98	108
Fat (gm)				
	32	38	48	51
% Kcal from fat				
	24%	23%	24%	22%

SAMPLE MENU FOR 1,200 CALORIE DIET

Breakfast	Lunch	Dinner
½ c. Orange juice 1 sl. Dry toast ¼ c. Cottage cheese or 1 Poached egg 1 tsp. Margarine Diet jelly 1 c. Nonfat milk Coffee or unsweetened tea Salt or pepper Sugar substitute	Tossed green salad with diet dressing 1 oz. Baked fish 1/3 c. Rice ½ c. Green beans 1 sl. Bread 1 tsp. Margarine 1 Small apple ½ c. Nonfat milk Coffee or unsweetened tea Salt or pepper Sugar substitute	Tossed green salad with diet dressing 2 oz. Chicken breast 1 Small baked potato 1 c. Broccoli 1 Dinner roll 1 tsp. Margarine 1 ¼ c. Watermelon cubes ½ c. Nonfat milk Coffee or unsweetened tea Salt and pepper Sugar substitute.

Weight Management

Your heart and mind will be healthier if you reach and maintain a healthy weight, and don't go up and down the scale like a yo-yo. If you've been able to lose weight, taken the extra strain off your mind and body, good for you and be proud of your success! Keeping extra weight off can be as challenging as losing it. Many things will tempt you to go back to your old habits. It takes commitment to stick to your new, healthy lifestyle. Yet when you do, you may notice that you have greater self-control with food, feel stronger, have better eating habits and fewer mood swings and are in better overall shape!

What if I go back to old habits?

A lapse is a small mistake or return to old habits. This can happen when you have a bad day and overeat or skip exercise.

A relapse is when you go back to old habits for several days or weeks.

- Remember that having a lapse or relapse is not failing. You can get back on track.
- Think about whether you feel hunger or just urges
- When you feel an urge, set a timer for 15 minutes and wait, or do something else before eating. This will teach you to be in control of your desire for food. Don't eat between meals. Avoid snacking.
- Try to use other ways to respond to life's stresses besides eating. Take a brisk walk, start a new hobby or calm yourself through meditation.

How can I stay at a healthy weight?

- Eating some high calorie and high fat foods in smaller amounts & less often. Eating smarter, not dieting.
- Use a shopping list, don't shop when you are hungry. Avoid lanes with processed foods and high calorie snacks. Always keep fresh, healthy, low calorie and low fat foods around.
- Plan your meals ahead of time: warm up the saved leftover meals vs. eating out.
- What to choose if you're going to a party or eat out: avoid buffet meals, choose food wisely and control your portion size.
- When you are hungry (physically) between meals try drinking a glass of water and stay out of the kitchen. Distract your mind on doing something else vs. eating.
- When you really crave a high calorie food, eat a small amount and go back to your healthy eating habits next.
- Find an exercise partner & stay physically active. Don't give up on your exercise plan.
- Weigh yourself daily to stay on track. Weigh in the morning before breakfast and with minimal clothing.

Enteral Nutrition Support

Indication

Enteral nutrition support is indicated for patients unable to eat safely orally or oral nutrient intake is insufficient to meet nutrient needs to maintain weight. Patients must be able to digest and absorb nutrients via a functional gastrointestinal tract.

Contraindications to Enteral Nutrition Support:

- Nonfunctioning gastrointestinal tract due to:
 - Severe short-bowel syndrome (<100cm small bowel remaining)
 - Mechanical obstruction of GI tract
 - Severe malabsorption of enteral formulas
 - Intractable vomiting/diarrhea refractory to medical management
 - Paralytic ileus
 - Distal high-output fistula
 - Severe GI bleed
 - Inability to gain GI access
 - Duration anticipated to be <5-7 days for malnourished adult or 7-9 days for well-nourished adult
 - Aggressive intervention not warranted or desired
- Harm may exceed benefit for an incompetent patient with end-stage illness, minimal level of consciousness, and lack of advance directives; whose anticipated benefits may be uncertain or short-term; whose anticipated harm or suffering may be significant or is likely against the patients' best interests.

Advantages of Enteral Nutrition Support

Enteral nutrition support is considered to be the preferred method of nutrition support for the following reasons:

1. It maintains functional integrity of the gastrointestinal tract and gut barrier functions while helping to maintain normal gallbladder function.
2. It is nutritionally more complete and balanced and nutrients are metabolized and utilized more effectively via enteral route due to first-pass metabolism.
3. It bypasses potential problems associated with parenteral feedings such as catheter sepsis, overfeeding & hyperglycemia.
4. It offers an economic advantage to both the health care facility and the patient.

Possible Causes of Enteral Nutrition Complications

Complications may be classified as follows:

1. Mechanical
2. Gastrointestinal
3. Infectious
4. Metabolic

Possible Causes of Enteral Nutrition Complications Table

	Complications	Possible Cause	Prevention or Therapy
Mechanical	Elevated gastric residual volume (GRV)	Delayed gastric emptying	Check gastric residuals according to hospital policy; if residuals cannot be checked due to collapse of tube from external suction or small bowel FN, monitor abdominal girth. Hold EN for GRV checks of >50 ml unless other signs of intolerance are present. Use continuous tube feeding administration: ambulate if allowed; add prokinetic agent.
		Head of bed not elevated at least 30° during & 30 minutes after feeding	Maintain head of bed at least 30° during feeding and 30 minutes after intermittent/bolus EN in order for gravity to help with gastric emptying.
	Nasogastric tube (NGT) irritations	Prolonged use of large-bore tubes. Pressure of NGT.	Use soft, small-bore (<10F) feeding tubes Consider gastrostomy, gastrostomy-jejuna or jejunostomy tube feeding.
	Skin irritation and excoriation at ostomy site	Leakage of gastric or intestinal secretions from stoma site	Use appropriate enterostomal therapy. Ensure ostomy catheter anchored via retention device to avoid dislodgement
	Tube displacement	Coughing	Consider use of feeding tube bridle, modified nasal cannula, naso-tube clip.
		Vomiting	Replace tube and/or verify tube placement via abdominal x-ray prior to initiating feedings
		Peristalsis of gastrostomy tube into lower bowel	Ensure ostomy catheter anchored via retention device to avoid dislodgement
	Obstruction of feeding tube lumen	Inadequate irrigation of feeding tube.	Maintain patency by flushing feeding tube with minimum of 60cc water every 8 hr. for continuous feeding and 60cc. after intermittent/bolus feeding.
		Insoluble compound formation due to drug-nutrient interaction or altered stability of TF formula	Use liquid elixirs when possible. Consult pharmacist regarding crushed or diluted medications due to potential altered pharmacologic effect after mechanical manipulation.
		Precipitation of caseinates in tube feeding formula caused by lowered pH from solutions injected into feeding tube such as fruit juices or carbonated beverages.	For de-clogging feeding tube, inject 30cc distilled water.

	Complication	Possible Cause	Prevention or Therapy
Gastrointestinal	Nausea and Vomiting	Patient position	Patient should be positioned on the right side to facilitate passage of the gastric contents through the pylorus; maintain head of bed at least 30°.
		Rapid Infusion	Decrease the rate to the level tolerated previously, then advance gradually over 4 to 12 hours or as tolerated.
		Delayed gastric emptying	Stop feeding for 1 to 2 hours and check residuals; rule out gastroparesis or ileus; consider prokinetic agent; increase ambulation; switch to continuous feeding if using intermittent or bolus feeds.
		Specific nutrient intolerance	Changing to low-fat; low-fiber or peptide-based formula, or passing the feeding tube further into the small bowel.
		GI tract obstruction	Stop feeding, determine etiology, treat and restart feeding as able.
		Air entering in feeding; R/O obstruction	Encourage ambulation, if able
	Constipation	Dehydration	Assess fluid status; supplement fluid with free flush water; account for additional fluid loss resulting from fever, fistula, or diarrhea; monitor I & O, weight.
		Decreased fiber	Consider fiber-containing feedings increase ambulation
		Dysmotility or GI tract obstruction	Rule out dysmotility related to a medical issue before using fiber containing formula or prokinetic agent.
	Diarrhea	Bolus feeding, volume overload & rapid administration	Address medication, infectious and antibiotic related diarrhea before changing tube feeding formula Change to continuous feeding, return to the last tolerated level and monitor tolerance. Check stool cultures, try a peptide based or isotonic formula
		Hyperosmolar formula	Start full strength, hypertonic formula at ¼ the goal rate... If not tolerated, change to an isotonic formula. Never dilute any tube feeding formula

	Complication	Possible Cause	Prevention or Therapy
Gastrointestinal	Diarrhea	Bacteria contamination of feeding formula	Use closed TF system whenever possible. Monitor hang time according to policy and procedure. Obtain stool samples for Clostridium Difficile, toxin and culture; if negative consider adding soluble fiber and Lactobacillus. Acidophilus
		Malabsorption	Change to partially hydrolyzed, peptide-based or low fat formula
		Protein-energy malnutrition. Hypoalbuminemia	Use isotonic formulas whenever possible; initiate tube feeding at a slow infusion rate (20-25 mL/hr) and gradually advance rate 10-25 cc/hr every 8 hrs as tolerated until reaching goal.
		Medication	Antibiotics, antacids, potassium or sorbitol containing medicine may cause diarrhea.
Infectious	Aspiration pneumonia	Displacement of feeding tube; migration of nasoenteric feeding tube into esophagus; Improper tube placement	Verify placement, by chest X-ray, prior to initiating tube feeding; withdraw displaced tube and reinsert; administer where the head of bed is elevated to a minimum of 30° during and 30 minutes after feeding
		Gastro esophageal reflux; diminished gag reflex; Regurgitation of gastric contents (often concurrent with delayed gastric emptying)	When possible, feed through duodenal or jejunal route; monitor gastric residuals every 4-8 hr; assess potential pulmonary aspiration; provide excellent oral care.
	Poor personal hygiene	Insufficient hand washing before formula preparation and tube feeding administration	Wash hands thoroughly before preparation and handling of enteral formulas as well as TF delivery systems
	Unsanitary equipment	Inadequate sanitized equipment used for tube feeding preparation Contamination of formula during preparation	Thoroughly wash, rinse, and sanitize equipment as well as area used for formula preparation. Use commercially sterile formulas when possible; use clean technique during formula preparation.

	Complication	Possible Cause	Prevention or Therapy
Infectious	Cross contamination Improper handling of formula and EN delivery system	Prolonged use of same tube feeding delivery system or dilute tube feeding Use of tube feeding container and tubing without rinsing between feeding periods (residue remaining within delivery set may contaminate new formula) Addition of fresh formula to existing formula in feeding container Contamination of formula and tube feeding delivery set and formulas in open tube feeding systems	Change tube feeding administration container and tubing (excluding feeding tube) every 24 hrs Never dilute any tube feeding formula. Flush tube feeding administration container and tubing with water after every feeding period. Use clean technique when handling tube feeding formula and delivery system. Add new formula to feeding container only after existing formula administered and delivery system rinsed with water. Use closed tube feeding system whenever possible
	Unsafe formula holding temperature	Prolonged hang time of formula at room temperature	Limit formula hang time to no more than 24 hr (closed system) and 8 hr (open system with commercial products)
Metabolic	Glucose intolerance	Refeeding syndrome Diabetes mellitus, sepsis, catabolism, trauma, or other disease states or condition Insulin resistance Glucocorticoid excess carbohydrate	Correct serum glucose before initiation of EN Monitor serum glucose per policy. Treat underlying disease. Maintain appropriate intravascular volume and hydration Provide oral hypoglycemic agent or insulin therapy, as needed to maintain serum glucose as low as possible within normal limits Consider formula for DM or formula with fiber

	Complication	Possible Cause	Prevention or Therapy
Metabolic	Hypertonic dehydration	Inadequate fluid intake or excessive fluid loss; Concentrated formula administered to a patient who cannot express thirst	Monitor daily fluid I & O Monitor daily weight Weight change >0.2 kg per day reflects decrease or increase of extracellular fluid (ECF) volume, Monitor serum electrolytes, serum osmolality, urine specific gravity, blood urea nitrogen (BUN), creatinine (Cr) daily (BUN-Cr ratio is usually 10:1 in patient with normal hydration status) Assess fluid status; estimate fluid loss (mild loss, 3% body weight decrease; moderate loss, 6% body weight decrease; severe loss, 10% body weight decrease); replace fluid loss in addition to maintenance fluid needs enterally or parenterally Provide extra flush water or intravenous (IV) fluid as indicated.
	Over hydration	Excessive fluid intake; Rapid refeeding; Catabolism of lean body mass with potassium loss; Cardiac, hepatic, or renal insufficiency	Monitor I & O Assess fluid status daily Monitor body weight daily Weight change >0.2 kg/day reflects decrease or increase of ECF volume Elevated aldosterone levels with sodium retention Consider use of more concentrated formula Diuretic therapy
	Refeeding syndrome Defined as: the metabolic and physiologic consequences of depletion, repletion, compartmental shifts, and interrelationships of phosphorus, potassium, magnesium, glucose metabolism, vitamin deficiency and fluid resuscitation	Overfeeding: The shift from stored body fat to carbohydrate as the primary fuel source when energy is provided following a period of relative or actual starvation	Understand the syndrome Recognize individuals at risk (those with anorexia nervosa, classic kwashiorkor or marasmus, chronic malnutrition, chronic alcoholism, morbid obesity with massive weight loss, prolonged fasting, prolonged IV hydration, significant stress and depletion, or who are NPO 7-10 days) Correct electrolyte abnormalities (via oral, enteral or parenteral route) before initiating nutrition support Administer volume and energy slowly Monitor pulse rate, intake and output, and electrolyte levels closely Provide appropriate vitamin supplementation Avoid overfeeding

Initiating Enteral Nutrition Support

All patients receiving enteral nutrition will receive an initial nutritional assessment by a Registered Dietitian. Patients will also receive periodic reassessments throughout the hospital stay, per protocol. For enteral nutrition ordering check the hospital policy and procedure and formulary.

When ordering Enteral Nutrition Support:

1. Specify enteral access device to be used and site.
2. Use patient identifier.
3. Specify name of formula and rate at which feeding should be initiated.
Typically continuous feedings are started at 25-50mL/hr. Rate can be advanced every 4-24 hours by $\frac{1}{4}$ of the goal rate, based on tolerance.
Specify the amount of water to be flushed to meet estimated fluid needs. (See below)
4. Specify how feeding is to be delivered, e.g. continuous drip or intermittent (bolus not recommended via jejunal tube) and hours of duration whether 24 hours, 22 hours or nocturnal feeds.
5. Elevate head of bed at least 30° during administration of tube feedings.
6. Specify that weights be taken at least every other day and recorded.
7. Minimal amount of 60ml water flush every 4 hours during a continuous feed and after each bolus feed, and medicine administration, will help prevent clogging of feeding tube.
8. Monitor daily hydration, check recorded I&O of each nursing shift.
9. Monitor blood glucose of tube feeding patients and recommend better blood sugar control if indicated.
10. Monitor nutritional status by appropriate parameters. Monitor electrolytes frequently, initially and periodically when stable. Recommended hang times for sterile liquid products in open feedings systems is 8 hours, 24 hours for a closed system and 4 hours for reconstituted powdered formula.

Home Enteral Nutrition

If an anticipated change of tube feeding formula is in order for home use, plan to gradually shift the patient to the new formula and allow time for home training as needed. Send the patient with the most economical formula as possible.

A Registered Dietitian can work with the patient/family to aid in home training and to offer helpful suggestions. Though tube feedings and their delivery systems are less complicated and expensive than parenteral nutrition solutions and delivery systems; they still require the same quality of care.

Calculating Water Requirements for Patients Receiving Tube Feeding

Water requirements for individuals are adjusted based on each patient's clinical condition and age. Established standards for adults are 25 to 35 ml/kg body weight/day, or 1500 ml for the first 20 kg + 20ml/kg over 20 kg. Particular attention to fluid intake is recommended for patient receiving high protein formula or fiber containing formulas.

Parenteral Nutrition Support

Definitions

Parenteral Nutrition (PN) – provides essential nutrients via the intravenous route.

Central Parenteral Nutrition (CPN) – when parenteral nutrition is infused into a central vein usually the superior vena cava to dilute the hypertonic solution to reduce complications. CPN is preferred when nutrition support is expected to be needed for more than one week.

Peripheral Parenteral Nutrition (PPN) – when parenteral nutrition is infused into a peripheral vein usually of the hand or forearm at lower concentrations. Large volumes are often needed to meet nutrient needs and duration of nutrition support should be less than two weeks.

Total Nutrient Admixture (TNA) – parenteral nutrition formulation in which the dextrose, protein, fat, vitamins, minerals and trace elements are mixed together in a single container. The alternative is the traditional dextrose-amino acid formulation.

Cyclic TPN (Total Parenteral Nutrition) – TPN given over a specified time each day with a corresponding “tapering off” time so that patients who may require TPN for prolonged periods can benefit from an “infusion-free” period within a 24 hour day. This allows them a time for increased mobility to conduct other activities.

Indications

Parenteral Nutrition Support is indicated when the gastrointestinal tract is not functioning, or when oral/enteral intake is not advisable. There are many factors to consider when selecting the feeding route and nutritional support formulation including: gastrointestinal function, expected duration of nutrition therapy and extent of malnutrition. Indications for Parenteral Nutrition are:

- Small Bowel obstruction
- Non-functioning GI tract with prolonged NPO anticipated (>10 days – including prior to admission)
- Small bowel resection resulting in short gut syndrome
- Enterocutaneous GI fistula with >200 mL output
- Lengthy intractable vomiting/diarrhea
- Mesenteric ischemia
- Perioperative patients with moderate-severe malnutrition

Contraindications

1. Treatment anticipated to be needed for <5days in patients without severe malnutrition.
2. Functional GI tract.
3. A futile prognosis that does not warrant aggressive nutrition support.

✚ Possible Etiology for Complications

Complications may be classified as follows:

1. Metabolic: Macronutrient and micronutrient-related complications and overfeeding or underfeeding.
2. Infectious: line related
3. Hepatobiliary: steatosis, cholestasis, gallbladder stasis, cholelithiasis

	Complication	Possible Etiology
Metabolic	Hypervolemia	Excess fluid administration Renal dysfunction Congestive Heart Failure, Hepatic failure
	Hypovolemia	Inadequate fluid administration Overdiuresis
	Hyperkalemia	Renal dysfunction Excessive potassium administration Metabolic acidosis Use of potassium-sparing medications (i.e. aldactone)
	Hypokalemia	Inadequate potassium provision Increased potassium losses (diarrhea, diuretics, intestinal fistulas)
	Hypernatremia	Inadequate free water administration Excessive sodium intake Excessive water losses (fever, burns, hyperventilation)
	Hyponatremia	Excessive fluid administration Nephritis and/or adrenal insufficiency Dilutional states (congestive heart failure, SIADH, cirrhosis of the liver with ascites)
	Hyperglycemia	Excessive dextrose load Steroids Underlying disease state (diabetes, sepsis, post op stress, chromium deficiency) Insufficient insulin
	Hypoglycemia	Abrupt discontinuation of hypertonic dextrose solution. Insulin overdose
	Hypertriglyceridemia	Underlying disease state (i.e. hyperlipidemia, sepsis, multisystem organ failure) Inability to clear/excessive administration of lipids
	Hypercalcemia	Renal failure, tumor lysis syndrome, bone cancer Excessive vitamin D administration Prolonged immobilization and stress Hyperparathyroidism
	Hypocalcemia	Decreased vitamin D intake Hypoparathyroidism Citrate binding of calcium due to excessive blood transfusions Hypoalbuminemia (use correction factor to determine if patient truly hypocalcemic; correction factor= (normal albumin-observed albumin)x 0.8
	Hypermagnesemia	Excessive magnesium administration Renal insufficiency

	Complication	Possible Etiology
	Hypomagnesemia	Refeeding syndrome, alcoholism Diuretic usage, increased losses (e.g. diarrhea) Medication usage (e.g. cyclosporine) Diabetic ketoacidosis Chemotherapy
Metabolic	Hypervolemia	Excess fluid administration Renal dysfunction Congestive Heart Failure, Hepatic failure
	Hyperphosphatemia	Excess phosphate administration Renal dysfunction
	Hypophosphatemia	Refeeding syndrome, alcoholism, phosphate-binding antacids
	Prerenal azotemia	Excessive protein administration Insufficient provision of non-protein calories Inadequate hydration and/or aggressive diuresis
	Essential fatty acid deficiency	Inadequate fat intake, inability to infuse IVFE due to hypertriglyceridemia
	Overfeeding	Excessive calorie load/overfeeding, CO ₂ retention, liver dysfunction, elevated BUN, excess nitrogen excretion
Infectious	Pneumothorax	Catheter placement by inexperienced personnel
	Air embolism	Occurs when line is interrupted and air is inspired while the line is uncapped
	Catheter embolism	Pulling the catheter back through the needle used for insertion
	Venous thrombosis	Mechanical trauma to vein Hypotension Solution osmolarity Hypercoagulopathy, sepsis
	Catheter occlusion	Hypotension Failure to maintain line patency Formation of fibrin sheath outside of catheter Solution precipitates
	Improper tip location	Venous vasculature anomalies Catheter placement by inexperienced personnel
	Phlebitis	Peripheral administration of hypertonic solution (osmolarity ≥ 900 mOsm/kg) Line infiltration
	Sepsis	Inappropriate technique in line placement Poor catheter care Contaminated solution
Hepatobiliary	Steatosis	Complication of overfeeding
	Cholestasis	Impaired secretion of bile or biliary obstruction, usually in children
	Gallbladder stasis	Lack of enteral stimulation resulting in decreased release of cholecystikinin (CCK), impaired bile flow and contractility of gallbladder. Long term PN

Initiation of Parenteral Nutrition Prescription

The decision to use TPN vs. PPN is determined by several factors including:

- Availability of venous access
- Condition of patient's veins
- Anticipated duration of therapy
- Fluid volume limits
- Patient's nutritional requirements

Monitoring PN:

- Temperature: febrile may indicate line infection; appropriate labs to rule out other infections.
- Blood sugar control <200mg/dL. One method is to add 0.05-1.0 units of regular insulin per gram of dextrose in the PN and only advance PN to goal rate after blood glucose is controlled. If further management is required, include additional Insulin in PN by adding 2/3 amount subcutaneous insulin from previous day.
- CMP, Electrolytes: Na, K, Magnesium, Phosphorus, Ca.
- I & O, Weight: prevent volume overload.
- Triglyceride, Lipid panel: accept serum triglyceride level <400mg/dL. If > 400mg/dL, lower lipid rate or change lipid to every other day.
- If > 1000mg/dL, discontinue lipids, restart when levels < 400mg/dL.
- Pre-Albumin, Liver functions, PTT, UA, Transferrin; follow trend.
- Tolerance to PN as evidenced by: stable temperature, blood sugar, electrolytes, Pre-albumin and Triglyceride, balanced intake/output and stable weight.
- Need to follow blood glucose checks every 6 hours, control blood glucose prior to advancing the rate of PN to goal.
- Order CMP, Phosphorous, Magnesium, Triglyceride, Pre- Albumin, Transferrin, PTT, urinalysis weekly.
- Watch for re-feeding syndrome.

Goal & Solutions of PN:

- Trophic feeding, via PO or tube, with 10-25% of total calorie needs to prevent GI atrophy while TPN continues.
- Ultimate goal is to return patient to as nearly normal PO intake or tolerate enteral nutrition feeding at goal rate.
- Consider cyclic PN at night while patient takes PO during the day.
- PN may be tapered as enteral feeding or PO intake is tolerated, and meets >50% needs.
- Rapid cessation of PN may be at risk for rebound hypoglycemia, reduce rate by ½ for 1-2x hours before discontinuing PN altogether.
- If 60-75% nutrition goals are met via enteral nutrition or PO intake, consider discontinue PN.

Home PN

Cyclic PN is the preferred method for home use. Cyclic PN should be initiated in the hospital a few days prior to discharge to ensure tolerance to this type of regimen.

Discontinuation of PN

The ultimate goal of PN is to return the patient to as nearly normal food intake as tolerated. For many, PN may be discontinued, as soon as they are able to eat, by reducing rate to $\frac{1}{2}$ for 1-2 hours before discontinuing completely.

Review of Macronutrients in PN:**Dextrose (Carbohydrate):**

- Commercially available in concentrations of D5 to 35% final concentration
- Provides 3.4Kcal/gm
- Acidic with a PH ranging from 3.5 to 6.5
- Amount of CHO is determined by the patient Kcal requirements
- Glucose oxidation rate is
 - 3.0 to 5.0mg/kg/min: take total volume of TPN in liters, multiply by gm/L of CHO, multiply by 1,000mg/g, divide by wt. in Kg, divide by 1440 minutes per 24 hours a day.
- Minimal carbohydrate needs estimated to be 1 mg/kg/minute (100g/day for 70 kg man). i.e. $1\text{mg} \times 70 \times 1,440 \text{ minutes/day} \div 1,000 = 100.8 \text{ g}$
- Maximal carbohydrate tolerated is 3-5 mg/kg/minute.

Amino Acids:

Standard: Physiologic mixtures of essential & nonessential amino acids

Yields 4Kcal/g, provides 15-20% total calories

Modified: Special formulations for certain disease states

Intralipids (IVFE): are 10% or 20%, isotonic, yields 9Kcal/gm

- Long chain fatty acid emulsion made from either soybean oil or a mixture of safflower and soybean oil
- Omission of IV lipids will result in essential fatty acid deficiency (EFAD); recommend minimum of 250mL 20% IVFE twice weekly or 500mL of 20% IVFE once weekly to prevent EFAD.
- Excessive rate of lipids will inhibit reticuloendothelial system, impair phagocyte function; leads to immunosuppression & undesirable inflammatory response
- 10% IL provide 1.1Kcal/ml, 20% IL 2Kcal/ml; phosphorous content in phospholipids for both 10 & 20% IL are the same, 14.8mmol/L, hence for the same calorie level, less phosphorous will be delivered in 20% concentration; provide better blood clearance of phospholipids with 20% lipids
- 20% IL is better utilized than 10% IL
- Patients with triglycerides >400 mg/dl may benefit from receiving lipids two to three times a week vs. daily.
- Discontinue IL if triglycerides >1000mg/dl, restart once level is <400mg/dL.

Micronutrients in TPN:

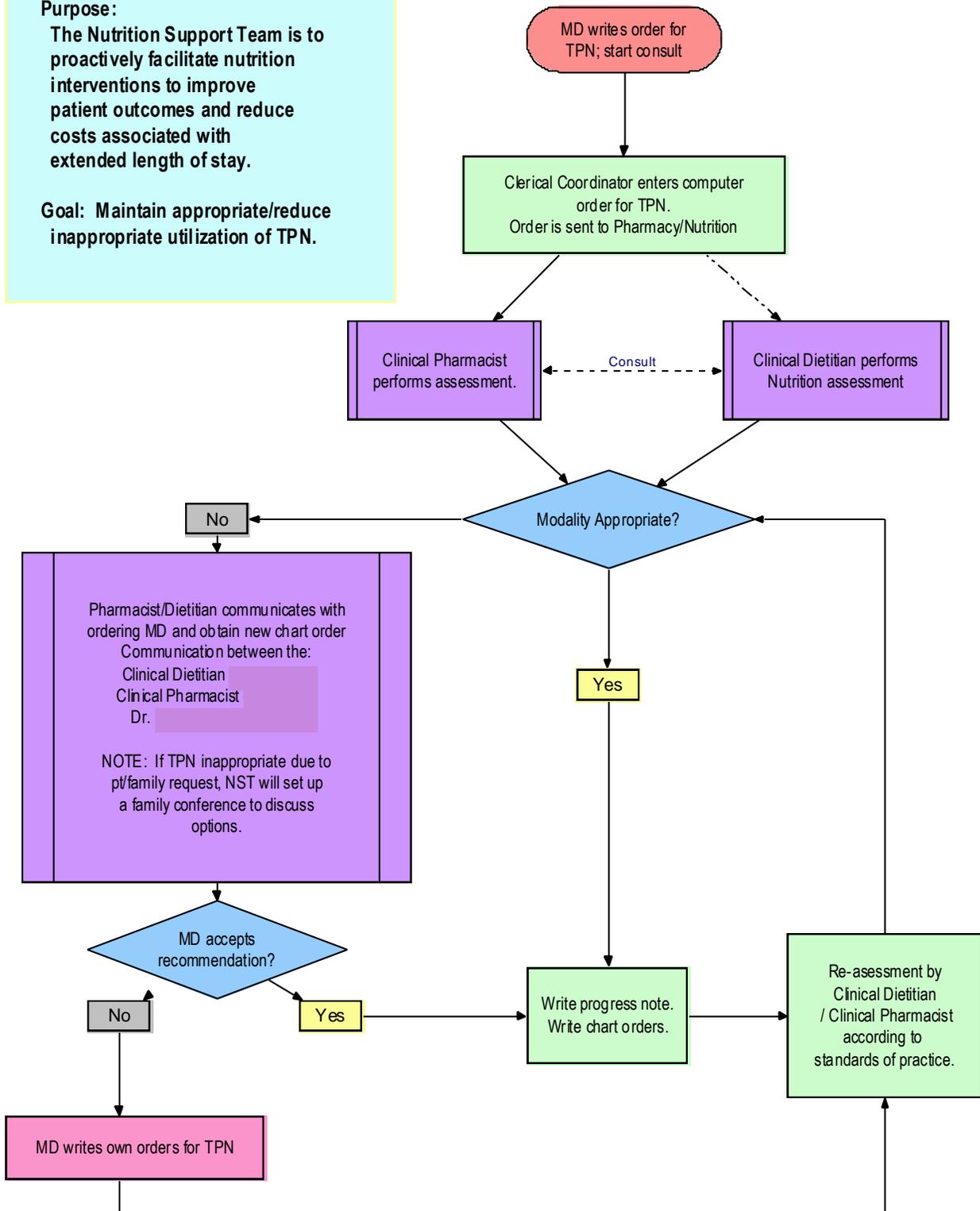
Vitamins/Minerals/Trace Elements:

1. Stability of vitamins in intravenous solutions is affected by light, temperature, pH, length of storage, other vitamins and minerals and preservatives.
2. Vitamin and mineral preparations are added just before PN is administered to minimize instability.
3. Parenteral vitamin preparations use adjusted doses for potential loss of potency with storage.
4. MVI-12 contains all vitamins except K; Vitamin K injected 1x/week in all patients except those receiving Coumadin
5. Other vitamins and minerals such as Folic Acid, Thiamine, Vitamin B6, Ascorbic Acid, Selenium should be ordered additionally, if needed
6. MTE-4 contains Zinc, Copper, Chromium and Manganese. Give to all patients except those with elevated Total Bilirubin >10.
7. Do not provide MTE to patient with liver disease due to copper and Manganese content.
8. Biliary obstruction: caution with copper & magnesium
9. Renal dysfunction: monitor serum Zn level, caution with copper
10. Zinc: For wound healing give additional 6mg/day.
Replete intestinal losses: 12mg Zn per one Liter output from the small bowel
17mg Zn per one liter for stool or ileostomy output
11. Selenium is not in MTE trace element mixture
Deficiency may lead to oxidative injury, muscle weakness and cardiomyopathy
Add 20-60mcg/day of selenium to long term TPN use

Nutrition Support Flow Diagram TPN- Sample

Purpose:
 The Nutrition Support Team is to proactively facilitate nutrition interventions to improve patient outcomes and reduce costs associated with extended length of stay.

Goal: Maintain appropriate/reduce inappropriate utilization of TPN.



Low Fiber Diet

Indication

The Low Fiber Diet is often prescribed as a dietary treatment for Crohn's disease, ulcerative colitis, acute diverticular disease, colostomy or ileostomy, before or after lower bowel surgery and temporarily during a bout of diarrhea and abdominal cramping. It contains a minimum of fibers.

Description

A diet low in fiber limits the parts of fruits, vegetables and grains that are not easily digested. Fiber only comes from plant food, especially in the skin and seeds. A low fiber food is not necessarily low in residue. Foods can be listed in order of increasing residual output as follows: protein, fat, milk, dairy products, digestible carbohydrate, and carbohydrate without digestible material.

Nutritional Adequacy

This diet is nutritionally adequate and provides approximately 1,967 calories and 122 grams of protein.

Food Group	Foods Allowed	Foods to Avoid
Milk and milk products	Milk as tolerated*; plain or flavored yogurt, pudding, cheese	Yogurt containing seeds or fruit peels, seeded cheeses, pudding with nuts
Breads and Crackers	Refined breads, muffins, quick breads, rolls, biscuits, pancakes, waffles, French toast, cornbread, saltine and graham crackers	Any made with whole-grain flour, cracked wheat or bran, rye crackers, corn bread, corn tortillas, nuts, seeds, coconut, or raw or dried fruits. Any with more than 1 gram fiber per serving
Cereal	Refined cooked cereals including grits, Cream of Wheat, rice, grits, farina, Malt-O-Meal; refined cold cereals, such as puffed rice, puffed wheat, cornflakes	Any made with whole grain flour, oatmeal, rolled oats, bran, granola, wheat germ, nuts, seeds, coconut, or dried fruit

Food Group	Foods Allowed	Foods to Avoid
Fruits	Most canned or cooked fruits* without seeds or skins, applesauce*, fruit cocktail*, ripe banana*; strained fruit juice/fruit drinks; remove peel and membranes from fresh fruit	Dried fruit; all berries; raw fruits with membranes and seeds, kiwi, melon, grapes; plums, pineapple; any juice containing fruit or vegetable pulp; prune juice; coconut
Meats and meat substitutes	Ground or well-cooked, tender beef, lamb, ham, veal, pork, poultry, fish, organ meats; eggs; creamy peanut butter	Any made with whole-grain ingredients, seeds or nuts; dried beans, peas, lentils, legumes; chunky peanut butter, any tough fibrous meat with gristle
Potato and starches	Cooked white and sweet potatoes without skin; white rice; refined pasta	Potato skin, brown and wild rice, whole wheat pasta
Soups	Bouillon, broth or cream* soups made with allowed vegetables, noodles, rice or flour	Any soup made with oats, bran, dry beans, peas, lentils, corn, seeds, vegetable skins, coconut, nuts or tough fibrous meats with gristle
Vegetables	Most well-cooked and canned vegetables without seeds* (i.e. beets, carrots, green or wax beans, Italian green beans, mushrooms, bean sprouts); lettuce if tolerated; strained vegetable juice; tomato sauce and paste	Sauerkraut, squash, peas and corn; most raw vegetables and vegetables with seeds, such as stewed tomatoes or eggplant
Fats	Margarine, butter, salad oils and dressings, mayonnaise; bacon; plain gravies	Olives, nuts, Thousand Island salad dressing, tartar sauce
Desserts & Sweets	Plain cakes and cookies made with all-purpose flour; pie made with allowed fruits; plain sherbet, fruit ice, frozen pops, gelatin, and custard; plain hard candy, jelly, and marshmallows; yogurt, ice cream as tolerated without seeds and nuts, molasses, sugar, syrup	Any made with whole-grain flour, bran, nuts, seeds, coconut or dried fruit; jam or marmalade

Food Group	Foods Allowed	Foods to Avoid
Miscellaneous	Salt, sugar, spices, herbs, ketchup, mild mustard, vinegar	Nuts, coconut, seeds, popcorn; pickles; olive; relish Avoid chili sauce, horseradish, mustard (hot/spicy), pepper, chili powder, cloves, garlic if unable to tolerate
Beverages	All, except those with avoided ingredients.	

* These foods are low in fiber but may increase colonic residue or exacerbate diarrhea. Dietary residue may be further reduced by excluding all fruits and vegetables with the exception of strained fruits and white potato without skin.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice	4 oz. Roast beef/au jus	4 oz. Baked chicken
½ c. Cream of wheat	½ c. Mashed potatoes	½ c. Lightly seasoned rice pilaf
1 Scrambled egg	½ c. Glazed carrots	½ c. Buttered green beans
1 sl. Refined bread	1 c. Lettuce salad w/	½ c. Gelatin salad with sliced banana
1 tsp. Margarine	2 tsp. French dressing	1 Hot refined dinner roll
1 c. Low-fat milk	1 sl. Angel food cake	1 tsp. Margarine
Jelly	1 sl. Refined Bread	½ c. Low-fat milk
1 tsp. Sugar	1 tsp. Margarine	1 tsp. Sugar
Coffee or tea	½ c. Low-fat milk	Tea or Water
	1 tsp. Sugar	
	Tea or Water	

High Fiber Diet

Indication

This diet is used in the treatment of atonic constipation, hemorrhoids, diverticulosis, and irritable bowel syndrome.

Description

There are two types of fiber in plants foods:

- **Insoluble fiber** is the non-digestible part of plants (roughage). It adds bulk and moves food through your digestive system. Insoluble fiber can help relieve constipation. The peel on fruits and vegetables is one example of insoluble fiber
- **Soluble fiber** attracts water and forms a gel during digestion. Soluble fiber also helps reduce cholesterol. Oats are an example of soluble fiber

A high fiber diet is based on the regular diet with an emphasis on foods high in fiber, such as bran, whole grain breads and cereals, fresh fruits and vegetables, legumes, nuts and seeds.

The Dietary Guidelines for Americans, 2015-2020 recommended:

- Men ages 50 years and younger: 31 grams fiber per day
- Men ages 51 years and older: 28 grams fiber per day
- Women ages 50 years and younger: 25 grams fiber per day
- Women ages 51 years and older: 21 grams fiber per day

The recommended fiber content for a high fiber diet is averaging 25-35 grams of fiber a day.

It is important that high fiber foods be introduced into the diet gradually. The diet should be individualized according to the patient's tolerance. Consumption of 8-10 glasses of fluids daily is essential on this diet.

Nutrition Adequacy

This diet is adequate in all nutrients specified in the Dietary Reference Intakes.
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Food Group	Servings Daily	Foods High in Fiber	Foods Low in Fiber
Beverages	8-10 cups	None	All
Bread/Cereal, potato and starches	6-11 servings each day	100% whole grain bread; rolls, muffins and hot breads; breads made with other whole grains such as cornmeal, bran, buckwheat, cracked wheat, rye; whole grain cereals such as oatmeal, Ralston, shredded wheat, granola; bran cereals and unprocessed bran; popcorn. Read labels – foods with 2 or more grams fiber per serving are good choices.	Refined breads, cracker and other baked products made primarily with white flour. Refined cooked and dry cereals such as cream of wheat, cream of rice, corn flakes, rice krispies
Desserts	As desired	White or sweet potatoes, especially with skin; brown or wild rice; whole wheat noodles, spaghetti and other pasta Cookies, cakes, and other desserts prepared with whole wheat flour, whole grains, bran, fruits, nuts and seeds	Refined starches such as noodles, macaroni, spaghetti and white rice Gelatin, ice cream, pudding; cookies, cakes and other desserts prepared with refined or white flour
Fats & Sauces	As desired	None	All
Fruits	3 servings each day	Raw and dried fruits, especially unpeeled	Cooked or canned fruits, fruit juices
Vegetables	3-5 servings each day	All raw. If cooked, vegetables should be crisp-tender	Peeled vegetables, vegetable juices
Meat, fish, egg, cheese, Meat alternative	2-3 servings or total 6oz daily	Dried beans and peas, nuts, crunchy peanut butter, seeds	All types of meat, poultry and fish; all cheeses; eggs
Soup	As desired	Soups containing vegetables, dried beans and peas (i.e. split pea, lentil), wheat bran	Cream soups.
Sweets	As desired	Jam, marmalade, candy with nuts, seeds, coconut, dried fruit; carob	Chocolate ,sugar, honey molasses, syrups, jelly

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Fresh fruit cup ½ c. All-bran cereal 1 Poached egg 1 sl. Whole grain toast 1 tsp. Margarine/Jam 1 c. Low-fat milk 1 c. Coffee Salt, pepper, sugar	1 c. Tossed green salad with dressing 3 oz. Baked Fish ½ c. Corn 1 Bran muffin 1 Fresh apple 1 tsp. Margarine 1 c. Iced tea or Water Salt, pepper, sugar	1 c. Split pea soup 3 oz. Roast beef 1 Baked potato with skin ½ c. Crisp tender broccoli ¾ c. Strawberries 1 sl. Whole grain bread 1 tsp. Margarine 1 c. Low-fat milk Salt, pepper, sugar 1 c. Coffee / creamer or Water
Mid-morning ½ c. Carrot sticks Beverage of choice	Mid-Afternoon ¼ c. Raisins Beverage of choice	Evening 2 Oatmeal cookies Beverage of choice

This sample meal plan provides approximately 1,922 Kcal, 103 grams protein, 42 grams fiber

Dietary Fiber Content of Foods*

Food Items	Serving Size	Fiber per Serving	Food Items	Serving Size	Fiber per Serving
Starch/ Bread:			Vegetables:		
All Bran cereal	½ cup	9.69	Spinach, cooked	1 cup	4.32
Bran, Raisin	1 cup	8.17	Squash, winter-all	1 cup	5.74
Bran, Raisin Nut	1 cup	5.06	Sweet potato, cooked	1	4.38
Mini-Wheats, bite size	1 cup	5.97	Snap Green Beans	1 cup	4.01
Oats, regular instant	1 cup	3.98	Tomatoes (canned)	1 cup	3.43
Wheatena/water	1 cup	6.56	Vegetables, mixed, frozen	1 cup	8.01
Shredded wheat	2 biscuits	5.29			
Oat bran, cooked	1 cup	5.69			
Kidney beans (cooked)	1 cup	13.10	Fruits and Nuts:		
Baked beans ,cooked	1 cup	12.14	Apples with skin	1 medium	3.73
Black beans, cooked	1 cup	14.96	Avocado	1 oz.	1.5
Pinto Beans ,cooked	1 cup	14.71	Banana	1-6 inch	2.83
Barley, cooked	1 cup	5.97	Blackberries	½ cup	3.82
Lima Beans, cooked	1 cup	13.16	Cantaloupe	1 cup	1.28
Navy Beans, cooked	1 cup	11.65	Cherries	10	1.56
Lentil beans	1 cup	15.64	Grapes	1 cup	1.60
Soybeans, cooked	1 cup	7.56	Mango	1 medium	3.64
Split peas, cooked	1 cup	16.27	Peaches	1 medium	3.73
Corn (cooked)	1 ear	1.76	Pear, raw	1	3.98
Corn (canned)	1 cup	4.20	Prunes, dried, stewed	¼ cup	4.09
Peas (frozen)	1 cup	8.80	Nectarines	1	2.18
Bagel, egg	3-1/2 "	1.63	Raspberries, Raw	1 cup	8.36
Whole wheat bread	1 slice	1.83	Tangerines	1 medium	1.93
Pumpernickel	1 slice	1.0	Rhubarb, cooked, frozen	1 cup	4.80
Rye bread	1 slice	1.86	Strawberries	1 cup	3.82
Wheat flour	1 cup	3.38	Orange, raw	1 cup	4.32
Buckwheat flour, whole groats	1 cup	12.00	Raisins	2 Tbsp.	1.45
Vegetables:			Dried dates	5	3.0
Broccoli ,cooked	1 cup	4.52	Almonds	12	3.35
Brussels sprouts	1 cup	6.36	Pecans	1 oz.	2.72
Carrots	1 cup	5.15	Roasted peanuts	1 oz.	2.27
Cabbage	1 cup	3.45	Walnut, pieces	1 oz.	1.90
Cauliflower	1 cup	4.86	Miscellaneous:		
Collard green	1 cup	5.32	Dill pickles	1 medium	.78
Lettuce	1 cup	1.06	Peanut butter	1 Tbsp.	1.06
Parsnips, cooked	1 cup	6.24			
Potatoes (baked w/ skin)	1	4.85			
Potatoes, mashed	1 cup	4.83			

Reflux Diet (GERD)

Indication

The diet for gastroesophageal reflux disease (GERD) is designed to decrease symptoms associated with the reflux of gastric fluid into the esophagus. This diet is indicated for persons who have gastroesophageal reflux disease complications, such as esophageal ulcers, esophagitis, and peptic esophageal strictures. The diet is useful for those who experience heartburn, a common symptom of reflux.

Description

Recommendations are based on the regular diet with guidelines to decrease total fat intake, provide adequate protein, and avoid irritants such as alcohol, carbonated beverages, citrus fruits and juices, tomato products, and coffee and tea (with or without caffeine) according to individual tolerances. Other foods that may cause heartburn are; chocolate, mint, spicy foods, onions and garlic. Calorie and further fat restrictions are indicated as needed to aid in weight loss. Large meals increase the likelihood of increased gastric pressure and subsequent reflux; therefore, smaller and more frequent meals are recommended.

The following practices are also suggested for reducing gastric reflux:

1. Achieve and/or maintain a healthy weight
2. Eat five to six small, frequent meals.
3. Go easy on caffeine-containing foods and beverages, citrus and tomato products, and chocolate if these foods cause discomfort
4. Try problem foods in small amounts or as part of a meal
5. Remain in an upright position for 60 minutes after eating meals.
6. Avoid eating within 2-3 hours before bedtime
7. Elevate the head of the bed 4-6 inches during sleep.
8. Avoid tight abdominal garments.
9. Limit bending and lifting activities.
10. Avoid cigarette smoking.

Nutrition Adequacy

Based on individual food choices and tolerance, the diet is adequate in all nutrients according to the Dietary Reference Intakes.

Food Group	Foods Allowed	Foods to Avoid
Beverages	Skim milk, 1% and 2% low fat milk or buttermilk; juices (any except citrus); decaffeinated tea, tomato juice (if tolerated)	Whole milk, chocolate milk, buttermilk, chocolate shakes or drinks made with whole milk; evaporated whole milk and cream; citrus drinks/juices; carbonated beverages; vegetable juice; mint tea; alcohol; regular coffee or decaffeinated coffee Alcoholic beverages
Breads and cereals	Plain white or whole grain bread, cereals, rolls, biscuits, crackers; pancakes, waffles, French toast; muffins made with low-fat ingredients; bagels; corn tortillas	Breads and cereals prepared with high fat ingredients such as croissants, doughnuts, sweet rolls, muffins, snacks, crackers
Meats and meat substitute	Lean meat; skinless poultry; lean pork; fish (fresh or water packed), shellfish; nonfat, low fat yogurt; low fat cheeses; tofu; dried beans, peas; eggs (limit to 3-4 yolks per week) Use broil, roast, grill, boil or bake methods	All fried meat, fatty or heavily marbled meats, sauces or gravies, poultry, fish or eggs; regular luncheon meats, hot dogs, sausages; refried beans (except low-fat), dried peas and beans prepared with fat or high-fat meat; regular cheese; nuts and peanut butter
Potatoes and potato substitutes	Baked, boiled, and mashed potatoes without added fat; enriched pasta; rice	French fries, potato chips; pasta served with cream sauce
Fruits	Fresh, frozen and canned fruits as tolerated	Orange, lemon, tangerine, pineapple, grapefruit, citrus juices
Vegetables	Plain fresh, frozen and canned vegetables prepared without fat, tomato (if tolerated) fresh or cooked	Fried or creamy style vegetables with added fat; tomato sauce, tomatoes and tomato products
Fats	Nonfat or low fat dressings and mayonnaise; nonfat liquid or powdered cream substitutes, nonfat sour cream	Gravies; bacon; meat drippings; butter; margarine, vegetable oils, heavy cream, sour cream; cream soups

Food Group	Foods Allowed	Foods to Avoid
Desserts	Angel food cake, sponge cake, low fat cookies; gelatin; fruit based desserts; sherbet; fruit ice, low-fat yogurt, pudding or custard made with 1% or 2% milk; reduced fat ice cream	Pies, cookies, cakes, pastry, donuts; ice cream; and desserts containing coconut, chocolate or cream candy; high fat snacks
Sweets and Miscellaneous	Sugar; honey; jam; jelly maple syrup; salt; garlic, oregano, sage, pepper; other herbs and spices as tolerated	Butter, coconut, chocolate, cream candies; spices and herbs with tomato-base sauces; jalapeno peppers; vinegar, chili

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ c. Apple juice ½ c. Whole grain cereal ½ Banana 1 sl. Whole wheat toast 1 tsp. Margarine 1 tsp. Jam or jelly 1 c. Low-fat milk Herb tea (no mint)	½ c. Vegetable soup 2 ea. Saltine crackers 3 oz. Lean beef patty 1 ea. Hamburger bun 1 tsp. Reduced calorie Mayonnaise Mustard Lettuce 1 serv. Fruit salad (no citrus) 1 c. Low-fat milk Herb tea (no mint)	½ c. Green salad with 1 tbsp. low fat salad dressing 3 oz. Broiled skinless chicken breast ½ c. Herbed brown rice ½ c. Steamed broccoli 1 Whole grain roll 1 c. Low-fat frozen yogurt 1 medium Apple Herb tea (no mint)

Postgastrectomy Diet

Indication

This diet is used for patients who develop dumping syndrome, early satiety, fat maldigestion or lactose intolerance following partial or total gastrectomy, Whipple procedure or any other surgery with complete or partial removal of stomach or interferes with the pyloric sphincter. Dumping syndrome is caused by the rapid emptying of the stomach contents into the small intestine. Fifteen to thirty minutes after a meal, a hyperosmolar solution forms in the jejunum, causing distention and the following symptoms: weakness, dizziness, flushing, sweating, tachycardia, nausea, vomiting and diarrhea. The diet is designed to provide adequate calories and nutrients to support tissue healing and prevent weight loss after gastric surgery.

Description

The following general guidelines are recommended:

1. Eat slowly, chew food well
2. Diet should be low in simple carbohydrates, high in complex carbohydrates and protein, and moderate in fat. A high fiber diet may be beneficial
3. Try to eat at least one protein food at each meal like poultry, meat, fish eggs, tofu, milk, yogurt, cheese, nuts and nut butters, lentils and dried beans.
4. Avoid sugar-sweetened food, especially candies, cookies, syrup, soda and juices. Use sugar-free foods and drinks in place of sweetened foods and drinks.
5. Small frequent meals should be provided. The number of feedings depends on the patient's tolerance to specific portions of food. Keep high-protein snacks handy, such as eggs, smooth peanut butter on crackers and unsweetened yogurt.
6. Avoid foods known to cause individual problems.
7. Do not drink fluids while eating solid foods. Liquids should be taken 30 to 60 minutes before or after meals and limited to $\frac{1}{2}$ to 1 cup serving. However, at least 6 cups fluid should be consumed daily to replace losses resulting from diarrhea. Drink only nutritious liquids like milk and unsweetened beverages. Avoid sparkling or carbonated beverages, they can make you full faster. Avoid alcohol.
8. All food and drink should be moderate in temperature, avoid very hot or very cold food and drinks.
9. Lactose intolerance may be present even though lactase is found primarily in the jejunum. Introduce small amounts of milk to determine tolerance.
A low lactose or lactose free diet may be indicated.
10. Sit upright while eating and wait at least 30-45 minutes after eating to lie down.

Nutritional Adequacy

This diet is adequate in all nutrients according to the Dietary Reference Intakes, but it may be deficient in vitamin D, calcium and riboflavin **if milk is not tolerated**.

Food Group	Foods Allowed	Foods to Avoid
Beverages	Milk (whole, low fat or non-fat) if well tolerated by patient, lactose reduced milk; coffee, tea; unsweetened or diluted fruit drinks, unsweetened carbonated beverages (all fluids should be consumed 30 to 60 minutes after meals and limited to ½ c or 1 cup serving)	Alcohol, regular carbonated beverages, sweetened cereal beverages, sweetened coca, chocolate milk drinks, milk shakes; sweetened fruit drinks and carbonated drinks
Bread and cereal	Limit to 5 bread exchanges daily. Unsweetened dry and cooked cereals; whole and fine wheat bread, crackers and rolls; graham crackers; English muffin, bagels	Sugar frosted or sweetened cereals, or those packaged with dates, raisins, and brown sugar, chocolate etc.; pastries, doughnuts
Meats and meat substitute	Emphasis tender lean meats; fish; poultry; shellfish; eggs; peanut butter; cottage cheese; milk cheeses	Fried meats or eggs
Potatoes and potato substitute	Potatoes; rice; barley; noodles; spaghetti; macaroni and other pastas; acorn, butternut squash; pumpkin; peas; parsnips; yam and sweet potatoes	Initially avoid corn, lima beans, coarse high fiber grains
Fats	All	None
Fruits	Unsweetened fruits and fruit juices	Sweetened canned fruits and juices. Tough skins and seeds should be avoided initially; dried fruits
Vegetables	Limit to 2 vegetables exchanges. Soft cooked vegetables. Introduce raw vegetables gradually	Any to which sugar has been added. Gas-forming vegetables may cause discomfort, (cabbage, cauliflower, Brussels sprouts, broccoli, cucumbers, onions, turnips and radishes)
Desserts	Initially fruit only. Other desserts as tolerated such as <u>sugar-free</u> pudding, gelatin dessert, custard, yogurt	Candy, cakes, cookies, pies, pastries, ice cream, sherbet, sweetened gelatin dessert; regular fruited or frozen yogurt
Miscellaneous	Soups made from allowed foods, broth, nuts, spices, condiments, gravy	Honey, molasses, jam, jellies, marmalade, syrups, sugar

SAMPLE DAILY MENU PLAN**Breakfast**

2 Scrambled eggs
 1 sl. Toast
 ½ c. Mandarin oranges
 Diet jelly
 1 tsp. Margarine
 ½-1 hour after meal,
 ½-1 cup beverage

Lunch

4 oz. Roast beef au jus
 ½ c. Mashed potatoes
 ½ c. Green beans
 ½ c. Unsweetened peaches
 2 tsp. Margarine
 ½-1 hour after meal,
 ½-1 cup beverage

Dinner

3 oz. Broiled lamb chop
 ¼ c. Mashed sweet
 potatoes
 ½ c. Carrots
 ½ c. Unsweetened fruit
 cocktail
 2 tsp. Margarine
 ½-1 hour after meal,
 ½-1 cup beverage

Mid-Morning

½ c. Cottage cheese
 ½ sl. Buttered toast
 ½ c. Milk (½ hour after
 meal, if tolerated)

Mid-Afternoon

Sandwich made from:
 2 oz. Meat or cheese
 1 sl. White bread
 1 tsp. Mayonnaise
 ½ c. Milk (½ hour after meal, if
 tolerated)

Evening

2 tbsp. Peanut butter
 2 Saltine crackers
 ½ c. Milk (½ hour after meal,
 if tolerated)

Gastric Surgery

Indication

The major goal of the diet is to provide adequate energy and nutrients to support tissue healing following surgery and minimize reflux, early satiety, dumping syndrome, and/or weight loss.

The guidelines are used for patients who undergo a surgical procedure involving bypass or excision of the pyloric sphincter, resulting in an inability to regulate normal emptying of the stomach. Surgical procedures include vagotomy, pyloroplasty, hemigastrectomy, involving Billroth I and II anastomosis, total gastrectomy, esophagogastrectomy, Whipple's procedure, gastroenterostomy, gastrojejunostomy, Roux-en-y gastric bypass, Duodenal Switch and Gastric Banding.

Description

Usually the diet following gastric surgery limits beverages and liquids at meals and the intake of simple carbohydrate, is high in protein and moderate in fat and avoids foods that are known to increase intestinal peristalsis, such as caffeine.

The diet general progresses as follows:

- Ice chips or small sips of water are allowed 24 to 48 hours after surgery
- Clear liquids such as broth, bouillon, sugar free gelatin or bland fruit juices are given
- The post gastrectomy diet can be initiated with gradual progression to solid diet which is low in simple carbohydrate, high in complex carbohydrate and protein, moderate in fat with small frequent feedings
- Avoid foods that are natural laxatives, such as figs, prunes and licorice
- Avoid taking liquids with meals. Liquids, moderate in temperature, should be taken 30 to 60 minutes before or after meals and limited to ½ to 1 cup serving
- Alcohol, caffeinated and carbonated beverages are not recommended
- If adequate caloric intake cannot be provided due to steatorrhea, consider using medium-chain triglyceride products
- Pectin, a dietary fiber found in fruits and vegetables, may be helpful for treating dumping syndrome

Complication after gastric surgery:

- Dumping syndrome
- Weight loss
- Early satiety
- Anorexia
- Mal-absorption of calcium and vitamin D
- Lactose intolerance
- Hypoglycemia
- Steatorrhea

Bariatric Clear Liquid Diet

Indication

Used as a transition from NPO to an oral diet to begin restoring integrity to the gut, post-surgery. This diet is used for patients following bariatric surgery usually only while patient is still in the hospital.

Description

This diet consists of no more than 4 ounces of liquid or food (per hour) that is clear (except protein drinks) or becomes clear liquid at room temperature; contains no caffeinated or carbonated beverages, no straws. The diet contains minimal residue and promotes digestive process.

Sugar-free or low carbohydrate (~5gm of sugar/serving or total of 15 gm of carbohydrates/serving, high protein drinks (25-30 gm protein per serving) should be consumed FIRST at each meal to preserve muscle mass & wound healing. You can eat or drink 1 hour apart, just make sure the protein goals are met first. Do not eat or drink 2-3 hours before lying down or sleeping as it may cause vomiting or acid reflux.

Nutritional Adequacy

This diet is inadequate in most nutrients and should be used post-operatively while in hospital.

BARIATRIC CLEAR LIQUID DIET WHILE IN THE HOSPITAL

1. POD (Post-op Date) # 1; sip 1-2 ounces of water per hour.
2. POD #2, after no sign of nausea or vomiting, start a high protein drink with Bariatric clear liquid diet:
Sugar free, decaffeinated and carbonated free beverages, broth, sugar free gelatin, diet sorbet, diet fruit ice, 4 oz. non-sugar added juice without pulp, water.
3. Sip slowly any sugar free, non-carbonated and caffeine free beverages, herbal tea, water, sugar free popsicles, sugar free gelatin or sugar free sorbet, between meals; aim for 64 oz. of liquids a day.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
8 oz.. Protein supplement	8 oz. Protein supplement	8 oz. Protein supplement
4 oz. Orange diet gelatin	4 oz. Diet sorbet	4 oz. Cherry diet gelatin
4 oz. Diet Gatorade	4 oz. Fat-free chicken broth	4 oz. Fat-free beef broth
	4 oz. Diet cranberry juice	4 oz. Natural apple juice

Bariatric Phase One Diet

+ Indication

This liquid diet plus vitamins is used post-operatively following bariatric surgery. Patients will be on this diet for one to two weeks after surgery. The diet will be advanced per the physician's discretion. The consistency of foods is appropriate for proper healing of the gastric staple line of the stomach.

+ Description

1. 4-5 ounces portions of supplement or clear liquid juice each hour, sip very slowly & carefully, stopping whenever you feel full.
No carbonated or caffeinated beverages.
2. Protein supplement: daily goal between 75-100 gm per day. May mix protein powder with water or non-fat milk but not with juice. You may purchase these protein supplements in stores or by mail order.
3. All vitamin/mineral supplements listed below must be liquid, chewable or powdered for first three months, everyday:
 - + Multivitamin/mineral with iron, should include the nutrient Biotin, take 2 servings daily with food at breakfast and dinner
 - + Calcium Citrate (1,200-2,000 mg daily) + Vitamin D (~ 800 international units daily),
Take half serving each after AM snack or after PM snack.
Calcium is better absorbed in small doses
Do not take at the same time as your multivitamin/minerals with iron
 - + During the day: take 350 + mcg Vitamin B₁₂ sublingual daily (melts under the tongue) at any time
 - + 325mg Iron Fumarate or 40-65 mg free/elemental iron daily, for pre-menopausal woman at bed time on empty stomach.
Take two hours apart from Calcium supplements and dairy products.
4. Drink very slowly. Do not use straw which can cause you to gulp air causing abdominal distension or gas.

Nutritional Adequacy

Bariatric procedure will result in several vitamin and mineral deficiencies. Daily supplementation, for life, is crucial to prevent deficiencies in the future.

Food Group	Foods Allowed	Foods To Avoid
Calorie free beverages	Water, sugar free gelatin, low calorie cranberry juice, diet or regular Gatorade	Carbonated beverages, caffeinated coffee or tea
Bread	None	All
Cereal	None	Any
Dessert	Sherbet, popsicle, gelatin, custards and pudding (all sugar free)	All Other
Fat	None	All
Fruit or juice	No added sugar or natural fruit juice	Any other
Meat, Eggs, Cheese, Milk	Non-fat or low-fat milk if tolerated, sugar free, fat free or low fat yogurts	Any other
Soup	Broth and bouillon, strained cream soups	Any other
Sweets	Sugar free candy	Any other
Vegetables	None	All
Miscellaneous	Salt and flavoring extracts, cinnamon	Any other

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
8 oz. Protein supplement 4 oz. Orange diet gelatin 4 oz. sugar free apple juice MVI/Minerals with Iron & Biotin Vitamin B12	8 oz. Protein supplement 4 oz. fat-free Chicken broth 4 oz. Diet sorbet 4 oz. diet Cranberry juice	8 oz. Protein Supplement 4 oz. fat-free Beef broth 4 oz. Berry diet gelatin 4 oz. sugar free apple juice MVI, Minerals with Iron & Biotin
Mid-Morning	Mid-Afternoon	Evening
Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed

Take extra iron on empty stomach before going to bed.

Bariatric Phase Two Diet

Indication

This diet of pureed foods is used post-operatively following bariatric surgery after a liquid diet has been tolerated for about two weeks. The diet will be advanced per the physician's discretion.

Description

Continue Bariatric Phase One liquid diet, additional foods are added for Phase Two: smooth, pureed foods. Pureed and mashed consistency can be achieved by using a blender, food processor or fork to mash. Blenderize well cooked vegetables, starches, cooked cereal, rinse unsweetened canned fruit without juice, small amount of healthy fat, will be allowed. The diet is carefully individualized to specific patient tolerances and calorie requirements. Over a period of time, the diet may be liberalized; additional carbohydrate-containing foods may be added slowly and cautiously. The diet is low in simple carbohydrates high in complex carbohydrates, protein and moderate in fat.

1. If you experience persistent vomiting, diarrhea or cramping, you may go back to Bariatric Phase One diet for 24 hours.
2. Same Vitamin/Mineral supplements can be in chewable form.
3. Continue 75-100 gm protein, 64 oz. total fluid goal daily.
4. The diet should be carefully individualized to specific patient tolerances.
5. You will need to drink very slowly. Do not use a straw which can cause you to gulp air causing abdominal distension and gas.

Nutritional Adequacy

Bariatric procedure will result in several Vitamin, Mineral deficiencies including Biotin, Calcium, vitamin D, Vitamin B₁₂ and Iron; daily supplementation, for life, is crucial to prevent nutritional deficiencies in the future.

Food Group	Foods Allowed	Foods To Avoid
Calorie free beverages	Water, sugar free cranberry juice, diet and regular Gatorade	Carbonated beverages, caffeinated coffee or tea
Starches / Cereal	none	All
Dessert	Non-fat plain yogurt, sugar free popsicle, sorbet or gelatin, sugar free pudding, sugar free custard No fruit chunks	Any yogurt containing seeds, nuts, grains or fruits

Food Group	Foods Allowed	Foods to Avoid
Fat	None	All
Fruit	No sugar added fruits and juice sugar free fat-free pudding, low-fat/non-fat plain yogurt, sugar-free custard	Any other
Protein	Protein powder added to non-fat milk, pureed meats, beans, fish, egg whites, yogurt, cottage cheese	All other
Soup	Fat-free strained cream soups: tomato, split pea or carrot, fat-free broth and bouillon	Any other
Vegetables	Pureed vegetable smooth texture soup	Any other
Soup	Fat-free strained cream soups: tomato, split pea or carrot; fat-free broth and bouillon	Any other
Miscellaneous	Salt and flavoring extracts, cinnamon, fat free gravy	Any other

Please note: If you experience gas, bloating or diarrhea, you might be or have become lactose intolerant. Try Lactose-free dairy products.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
8 oz. Protein supplement 4 oz. diet Custard 4 oz. sugar free apple juice MVI, Minerals with Iron & Biotin Vitamin B12	8 oz. Protein supplement 4 oz. fat-free pureed Pea soup 4 oz. Diet pudding 4 oz. diet Cranberry juice	8 oz. Protein supplement 4 oz. fat-free pureed Carrot soup 4 oz. diet, plain Yogurt 4 oz. Apple juice MVI/Minerals with iron and Biotin
Mid-Morning	Mid-Afternoon	Evening
Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed

Take extra iron on empty stomach before going to bed.

Bariatric Phase Three Diet

Indication

This soft diet is used for about two weeks after a pureed diet has been tolerated.

Description

Foods included in the diet must be adjusted to meet the needs of each individual patient. This diet includes soft, solid foods like ground meats, canned or soft fruits and cooked vegetables.

Nutritional Adequacy

Bariatric procedure will result in several Vitamin, mineral deficiencies including Biotin, Calcium, Vitamin D, Vitamin B12 and Iron deficiencies; daily supplementation, for life, is crucial to prevent nutritional deficiencies.

Food Group	Foods Allowed	Foods To Avoid
Protein	Eggs, tuna, salmon, beans, Tofu, non or low fat milk or cottage cheese, plain Greek yogurt	Tough meats like chicken breast and steak. Nuts and seeds
Calorie free beverages	Water, sugar free gelatin, low calorie cranberry juice, diet or regular Gatorade	Carbonated beverages, caffeinated coffee or tea, alcohol, sweetened cocoa, fruit drinks. Do not drink with meals
Starches / Cereal	Cream of Wheat, Cream of Rice, oatmeal, mashed potato, mashed sweet potato or yams. Use Beano for gas after eating pureed lentils, beans, peas, lima beans	Sugar frosted or sweetened cereals, or those packaged with dates, raisins, brown sugar, all breads. Bread, rice, pasta.
Vegetables	Pureed soft cooked zucchini, spinach, carrots, beets	Avoid gas forming vegetables if not tolerating: onions, garlic, cabbage, broccoli, cauliflower, cucumber, Brussels sprout, turnips
Dessert	Non-fat plain yogurt, sugar free popsicle, sugar free sorbet, sugar free gelatin, sugar & fat free pudding, sugar free custard	Any yogurt containing seeds, nuts or fruit chunks, candy, cakes, cookies, pies, pastries, ice cream, and sherbet

Food Group	Foods Allowed	Foods to Avoid
Fat	Limit to 1 tsp per meal of healthy fat: olive, canola, sesame or walnut oil, Promise, Benecol, Smart Balance; 2 slices of avocado	Butter, regular salad dressing, regular mayonnaise, lard & others
Fruit	No added sugar fruit juices and vegetable juices, pureed unsweetened fruits and canned fruits	Avoid tough skins and seeds; sweetened canned fruits and juices
Soup	Soups made from allowed foods, broth, spices, condiments and gravy	Any other Do not drink soup with meals
Miscellaneous	Salt and flavoring extracts, cinnamon	Honey, molasses, jam, jellies, marmalade, syrups, sugar

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
1 Scrambled egg ½ cup cooked Cream Of Wheat 1tsp Smart Balance Margarine ½ cup unsweetened Applesauce MVI, Minerals with Iron & Biotin Vitamin B12	½ c. puree Soup 30 minutes prior to lunch ¼ c. low-fat Cottage Cheese ½ c. unsweetened Peaches mashed with spoon Calcium, Vitamin D and Magnesium	½ c. puree Soup 30 minutes prior to dinner 1-2 oz. broiled Fish ¼ c. Mashed Potatoes ½ c. soft cooked Carrots ½ c. unsweetened Pears mashed with spoon MVI/Minerals with Iron & Biotin
Mid-Morning	Mid-Afternoon	Evening
Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed Calcium Citrate +D after snacking	Protein supplement beverage allowed

Take extra iron on empty stomach before going to bed.

Bariatric Phase Four Diet

Indication

This diet is used 6-8 weeks post-operatively following bariatric surgery.

Description

Tolerance to newly added foods may vary from one individual to the next. Through trial and error, you may find some foods are better than others. You may not tolerate well the following food: red meat, dry chicken, turkey, raw fruits or vegetables with fibrous consistency. Add very small amount of one food at a time. If not tolerating, wait a few days & try that food again.

Chew small bites of soft chopped food thoroughly & slowly, to avoid nausea, vomiting, abdominal pain or dumping syndrome.

Use moist cooking method or cook with small amount of healthy fat.

After 6-8 weeks post-operatively, regular foods can be reintroduced slowly. It is recommended to wait until 8 weeks before reintroducing: caffeine, nuts, seeds, tough meats, bread, rice and pasta.

Foods included in the diet must be adjusted to meet the needs of each individual patient. You may taper off protein supplement if you tolerate extra protein food such as seafood, ground or chopped chicken, turkey, beef and cheeses. Well-cooked vegetables without skin, chopped unsweetened canned fruits or fresh fruits without skin, small amount of healthy fat, whole grain crackers will also be allowed. The diet is carefully individualized to specific patient tolerances and calorie requirements. Over a period of time, the diet may be liberalized; additional complex carbohydrate foods may be added slowly and cautiously. The diet is low in simple carbohydrates, high in complex carbohydrates, protein and moderate in fat. A consultation with the registered dietitian is recommended.

Nutritional Adequacy

Bariatric procedure will result in several Vitamins, Mineral deficiencies including Biotin, Calcium, Vitamin D Vitamin B12 and Iron. Daily supplementation, for life, is crucial to prevent deficiencies in the future.

Food Group	Foods Allowed	Foods to Avoid
Calorie free beverages	Water, sugar free gelatin, low calorie cranberry juice, calorie free beverages	Carbonated beverages, caffeinated coffee or tea, alcohol, sweetened cocoa, fruit drinks
Starches/Cereal	Cream of wheat, oatmeal, potatoes, sweet potato or yams, lentils, beans, corn, peas, lima beans, 3-4 regular or whole grain crackers (3gm fiber/serving).	Sugar frosted or sweetened cereals, or with dates, raisins, brown sugar. Rice, bread, pasta, pancakes or tortillas for at least 6 months from date of surgery
Dessert	Non-fat plain yogurt, sugar free popsicles, sugar free sorbet, sugar free gelatin, sugar & fat free pudding, custard, ice cream	Any yogurt containing seeds, nuts, candy, cakes, cookies, pies
Fat	Limit to 1 tsp per meal of healthy fat: olive, canola, sesame or walnut oil. Promise, Benaco, Smart Balance; 2 slices of avocado; creamy peanut or almond butter.	Butter, regular salad dressing, regular mayonnaise, lard & others
Fruit	No added sugar fruit juices, unsweetened canned fruits; ripened or chopped fresh fruits without skin such as peaches, pears, applesauce, mashed banana	Avoid tough skins and seeds; sweetened canned fruits and juices
Meat, Eggs, Cheese, Milk	Eggs, fish, tofu, beans, seafood, small soft chopped chicken, turkey or beef, soft chopped or shredded low-fat cottage, cheddar, Swiss, mozzarella, feta or ricotta cheese Nonfat or low-fat milk	Fried Food, processed luncheon meats, fast food meats & all other
Soup	Soups made with well-cooked chopped vegetables	Any other
Vegetables	No added sugar vegetable juices, well-cooked chopped vegetables without skin	Vegetable juice cocktail, gas-forming vegetables (e.g. broccoli, cabbage, cauliflower, Brussels sprouts, onions, turnips and radishes)
Miscellaneous	Salt and flavoring extracts, cinnamon; spices per tolerance	Honey, molasses, jam, jellies, marmalade, syrup, sugar

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
1 poached Egg or 2 egg whites ½ c thinly cooked Oatmeal made with protein powder and non-fat milk, cinnamon 1 tsp Smart Balance ½ thin sliced Apple without skin MVI/Mineral with Iron & Biotin Vitamin B12	½ c. Vegetable soup 30 minutes prior to lunch 2 oz. Herbed baked chicken (no skin) ¼ c. Whipped potatoes ¼ c. well-cooked Green beans	½ c. Tomato soup 30 minutes prior to lunch 2 oz. Baked salmon with lemon and olive oil ½ Baked potato without skin ¼ c. tender Asparagus tips MVI/Minerals with Iron & Biotin
Mid-Morning	Mid-Afternoon	Evening
Protein supplement or ½ cup light fruit yogurt Calcium Citrate + D after Snacking	½ c. Banana with 2 tbsp. smooth peanut butter, 2 whole grain crackers Calcium Citrate + D after snacking	½ c low fat Cottage Cheese ¼ cup unsweetened Peaches

Take extra iron on empty stomach before going to bed.

Bariatric Diet after Week 8

You may eat regular solid foods without altering the texture. Always include protein as part of your meals & snacks. Continue to try one new food each week– chew a few bites well & slowly at a time, take time to eat, at least 30 minutes per meal. If you try a new food a few times & still feel discomfort, you may discontinue and try at a few weeks later.

Continue MVI, Minerals, Vitamin B₁₂, Calcium Citrate, Vitamin D, and Magnesium for the rest of your life. Iron during monthly period (females)

- At 8 weeks post op, try raw vegetables
- Use smaller cups, bowls and plates, stop eating if you feel full
- Your goal is to have well-balanced 3-5 small meals daily, always protein food first. If not eating adequate protein, protein supplement, protein bar or mixing additional protein powder to your food should be considered.
- Keep sipping not gulping plenty of fluids between meals, to meet your daily fluid goal.
 - Avoid sweets: candies, cake, cookies, cupcakes, etc.
 - Avoid high fat food

For post Gastric Banding Procedure

- Stay on Clear Liquid diet, Protein supplement and liquid, chewable or powdered MVI, minerals (See below), post op.
- Start adding small amount of puree and mashed food to liquid diet on week 2; may eat soft food on week 3 if tolerated and advised by your physician or RD.

The goal is to be tolerating most solid food one week before band adjustment.

- Meet your daily Protein Goal every day while losing weight
- Avoid tough skins of fruits and vegetables
- No bread, tortillas, pancakes, rice or pasta for the first 6 months
- Continue to use protein powder, supplements if you are not meeting protein goal
- Chew well, take time for meals
- Do not eat or drink at the same time.
 - If not tolerating, return to the last diet for a day or two.

Vitamins & Minerals for Gastric Banding

- Take only 1 serving of Multivitamin/Minerals with Iron with food
- Take different amount of Calcium (Citrate) with ~ 800 international units of Vitamin D as following:
 - Men: 1,000 mg Calcium
 - Women, Pre-menopausal: 1,200 mg Calcium
 - Women, post-menopausal: 1,500 mg Calcium
- Do not take your calcium at the same time while taking MVI/Minerals with Iron

BRAT Diet

Indication

Used for pediatric or adult patients to recover from diarrhea.

Description

This diet consists of **B**ananas, **R**ice, **A**pplesauce and **T**oast which are bland foods that are binding and low fiber to promote the digestive process. The diet contains potassium for repletion after diarrhea. For children who are actively vomiting, contact a physician to see if an electrolyte beverage is appropriate. The BRAT diet is intended for a brief period of time after diarrhea. The BRAT diet avoids dairy products, high fat and high sugar foods which may exacerbate diarrhea.

Nutritional Adequacy

This diet is inadequate in most nutrients and should be used for up to one day following an episode of diarrhea. The American Academy of Pediatrics recommends that children resume eating a regular diet within 24 hours of getting sick.

Food Group	Foods Allowed	Foods to Avoid
Soup	Broth (not part of diet but may be tolerated and is a source of electrolytes)	Any other.
Vegetables	None	Any vegetable or vegetable juice, including tomato juice.
Fruits	Bananas, applesauce	Any other fruit or fruit juice.
Desserts	None	Any other.
Cereals	Cooked white rice, toast	Any other.
Beverages	Caffeine-free herb tea (may be tolerated when warm rather than hot), sports drinks and water. Oral electrolyte solution if indicated by physician. Plenty of fluids to avoid dehydration.	Carbonated beverages unless non-caffeinated and allowed to go "flat". Beverages containing caffeine, such as regular coffee or tea. Lemonade, milk or milk drinks. Juices.

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
Banana 1c. Cooked white rice and/or toast ½ c. Applesauce	½ c. Applesauce 1 c. Cooked white rice and/or slice of toast Banana	½ c. Applesauce 1 c. Cooked white rice and/or slice of toast Banana

Esophageal Soft Diet

Indication

The esophageal soft diet is recommended after the following types of surgeries:

- Repair of hiatal hernia
- Surgeries for gastro-esophageal reflux (e.g.: Nissen Fundoplication)
- Surgeries for difficulty swallowing (e.g.: Esophageal stent or Heller Myotomy)
- Removal of the esophagus

It is needed to ease the movement of food through the temporarily swollen areas of the esophagus or stomach. Tolerance of the diet is individual and will change with time. Please refer to the guidelines below.

Description

Guidelines for esophageal surgery: (e.g.: Nissen Fundoplication, Esophageal stent, Heller Myotomy):

- Take small bites of food and chew foods well.
- Avoid tough meats, fresh “doughy” bread or rolls, fried foods and abrasive foods.
- Avoid hard bread crust.
- Sip fluids when taking solids at meals and snacks to moisten foods.
- Stop eating when starting to feel full.
- To avoid gas bloating, avoid using straws, slurping food, chewing gum, sucking on candy or ice cubes and drinking carbonated beverages.
- Chew with mouth closed.
- Sit upright when eating. Remain in a sitting position for at least 45-60 minutes after eating. Avoid eating for 3 hours before bedtime.
- Eat slowly in a relaxed atmosphere.
- Eat small, frequent, nutrient-dense meals and snacks.
- Avoid caffeine and alcohol.

Guidelines for esophageal removal follow the above guidelines plus:

Take liquids separately from solids. “Dumping Syndrome” restrictions may be required if symptoms develop, such as nausea, diarrhea or feeling faint. To avoid these symptoms:

- Limit liquids to sips only at meals and snacks
- Drink liquids 30-45 minutes before or after the time solids are consumed.
- Avoid foods sweetened with sugar; substitute products with artificial sweeteners

Food Group	Foods Allowed	Foods to Avoid
Breads and cereals	Cream of wheat and rice, oatmeal, cooked cereal without nuts or dried fruits; puffed wheat, puffed rice, cornflakes.	Fresh or "doughy" bread may cause "sticking". Avoid breads and sweet breads, rolls, cornbread. Breads containing whole grains, nuts or seeds
Meat, meat substitute, eggs, beans	Ground, well-cooked tender lean meat, veal, pork and poultry mixed with gravy; fish may be flaked without bones. Soft scrambled eggs and egg substitutes. Cooked dry beans and peas. Casseroles with ground meat. Smooth peanut butter.	Fried foods, highly cured and seasoned foods. (i.e. Corned beef, cold cuts, frankfurters) Stringy, dry or fibrous type of meats (i.e. steak, spare ribs. Shrimp, crab or lobster. Chunky peanut butter, nuts and seeds
Vegetables, potatoes and starches	Canned or cooked vegetables that are soft and without skins; asparagus, beets, carrots, eggplant, green and wax beans, mushrooms; all vegetable juices, Potatoes; baked(no skin), boiled, mashed with gravy Rice with sauce & gravy. Noodles, macaroni and pasta	All raw vegetables (except iceberg and butter lettuce) Broccoli, Brussels sprouts, cabbage, celery, cauliflower, dried split peas, lima beans, onions, turnips
Soups	Cream and broth based soup using allowed ingredients	Any made with ingredients to avoided (split peas, lentils, corn chowder
Fruits	All fruits canned, cooked or frozen. Soft fresh fruit such as banana and melon. All fruit juices	Raw, coarse, fruit with skins (grapes, dates and figs). Dried fruits with nuts
Fats and oils	All	Fried foods

Food Group	Foods Allowed	Foods to Avoid
Milk and milk products	Milk, malted milk or milkshakes. Soft cheese such as grated parmesan or ricotta; cheese sauce and cottage cheese, cream cheese. Plain or flavored yogurt	Yogurt with fresh fruit or seeds. Macaroni and cheese American, Cheddar, Jack, Swiss, or Mozzarella cheese
Desserts	Puddings, gelatin desserts, fruit ices, smooth ice, cream and sherbet, custard, cake, custard	Popcorn, chips, tacos, dessert with nuts, seeds or coconut. Pastries, pies, plain cookies
Miscellaneous	Soy sauce, mild mustard, catsup, vinegar, salt, spices such as lemon	Highly seasoned foods, condiments, pickles, olives, chili pepper, garlic

Low FODMAP Diet

🚩 Indication

This diet is indicated for patients with irritable bowel syndrome (IBS) and other inflammatory bowel diseases. This diet minimizes intake and amount of short chain carbohydrates that are poorly absorbed in the small intestine which may increase gas production and osmotic effects.

🚩 Description

This diet is an acronym for Fermentable Oligo- Di- Mono- saccharides and Polyols (FODMAP). Foods that contain lactose, fructose, fructans/ galacto-oligosaccharide (GOS) and polyols are limited to reduce symptoms of digestion. At first, foods containing increased levels of FODMAPs are avoided for 6-8 weeks under the guidance of a Registered Dietitian while keeping a food journal. Next, new foods are re-introduced every other day with increasing amounts to monitor tolerance. A low FODMAP diet does not completely eliminate all FODMAPs.

Nutritional Adequacy

This diet may be low in fiber and some vitamins and minerals depending on which fruits, vegetables and grains are avoided. As foods are re-introduced, increased nutritional adequacy can be achieved with a balanced, well planned diet.

Low FODMAP Diet

Food Group	Foods Allowed	Foods to Avoid
LACTOSE	Lactose free: milk, ice cream, cottage cheese, yogurt and sorbet Cheeses: Brie, camembert, cheddar, feta, mozzarella, Parmesan and Swiss	Milk, evaporated milk, yogurt, ice cream, custard, ricotta, cottage cheese
FRUCTOSE	Banana, blueberries, breadfruit, cantaloupe, clementine, coconut, dragon fruit, feijoa, grapes, guava, honeydew, kiwi, lemons, limes, oranges, papaya, passionfruit, pineapples, raspberries, rhubarb, starfruit, strawberry, tangelos Maple syrup, table sugar Most wine, beer and vodka	Apples, boysenberry, cherries, mango, pears, watermelon Artichokes, asparagus, sugar snap peas Agave, honey, high fructose corn syrup (HFCS) Rum

Food Group	Foods Allowed	Foods to Avoid
FRUCTANS/GOS	<p>Arugula, bamboo shoots, bok choy, bean sprouts, bell peppers, broccoli, collards, carrots, celeriac, chives, cabbage, cucumber, fennel, ginger, green beans, eggplant, endive, kale, lettuce, parsnip, potatoes, tomato, radish, rutabaga, spinach, Swiss chard, summer squash, turnip, taro, yam, water chestnuts, green parts of scallion, zucchini</p> <p>Gluten free breads, corn, rice, quinoa pasta, rice cakes, potato and tortilla chips, oats</p> <p><2Tbsp or <15 count of: macadamia, pecan and peanuts, pumpkin seeds, sesame seeds, sunflower seeds, chia seeds and flax</p> <p>Espresso, black, white, green and peppermint tea, <3tsp cocoa</p>	<p>Apples, dates, figs, grapefruit, nectarine, persimmon, white peaches, watermelon</p> <p>Artichokes, chickpeas, garlic, lentils, kidney beans, baked beans, leeks, shallot, soybeans, onion, onion and garlic salt/powders</p> <p>Rye, wheat, barley, inulin, FOS (fructo-oligosaccharides)</p> <p>Almonds, pistachios, cashews</p> <p>Chamomile tea, fennel tea, >2tsp carob</p>
POLYOLS	<p>Banana, blueberries, cantaloupe, clementine, coconut, dragon fruit, grapes, honeydew, kiwi, lemons, limes, oranges, passionfruit, papaya, pineapple, raspberries, rhubarb, starfruit, strawberry, tangelos</p> <p>Table sugar, glucose, maple syrup</p>	<p>Apples, apricots, blackberries, nectarines, pears, peaches, plums, prunes, watermelon</p> <p>Cauliflower, mushrooms, pumpkin, snow peas</p> <p>Sorbitol, mannitol, maltitol, isomalt, xylitol.</p>

Diet Following Ostomy Placement

Indication

This diet will prevent or limit unpleasant odor, gas and blockage after ostomy placement. It is important to follow an ostomy diet for 6-8 weeks after placement. After 6-8 weeks, add new foods one at a time to evaluate tolerance.

Description

At first, you may find it easier to eat 4-6 small meals a day. Try not to skip meals, this may cause gas production and watery stools.

Gas and odors that occur after you eat some foods can be controlled with carbon filters or deodorants.

Most ostomy patients do not have to exclude all gassy foods from their diet completely. Experiment with small amounts of these foods to determine your individual tolerance.

- Odor-producing foods include eggs, alcohol, asparagus, cabbage, garlic, onions, cheese, fish, dried beans and peas, some spices.
- Gas-producing foods include beer, carbonated beverages, broccoli, Brussels sprouts, cabbage, cauliflower, cucumber, onions, green pepper, dried beans and peas, fatty foods, highly spiced food, melon, milk, etc.
- Odor or gas reducing food such as buttermilk, parsley and yogurt are recommended. Try to include these foods in your diet.

To prevent gas, avoid using straws for beverages and chew slowly with your mouth closed. Avoid foods high in fiber or follow a low fiber diet. Drink at least 8-10 cups of liquids each day to prevent dehydration and constipation.

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Bread, cereal, rice and pasta: 6-11 servings each day	White bread, rolls, crackers Refined cereal (cream of wheat, cream of rice, oatmeal) White rice, pasta, barley	Foods containing insoluble fiber, such as wheat, bran, corn and nuts.
Vegetables: 3-5 servings each day	Soft, cooked green beans, carrots, beets, squash and stewed tomatoes; other cooked vegetables per tolerance. Mashed, boiled or baked Potatoes without skin	Raw celery, cabbage, mushrooms, green peppers, peas, corn Chinese vegetables, foods with kernels, nuts, skin and seeds.
Fruits: 2-4 servings Each day	Applesauce, banana, canned fruits packed in water or juice Other fruits per tolerance Unsweetened citrus or lemon juices	Dried fruit Eat coconut, raisin, pineapple in small quantities and chew well to prevent blockage
Milk, yogurt and cheese: 2-3 servings each day	Milk and milk products per tolerance	Avoid if unable to tolerate
Meats, poultry, fish, eggs, dried beans and peas, nuts: 2-3 servings or total of 6 oz. daily	Lean meat, fish, poultry, eggs Smooth peanut butter	Fried meats Avoid gravies or sauces
Fats, snacks, sweets, condiments and beverages	Fat free broth, bouillon and cream soups made with fat free milk and lean meats Low fat desserts such as angel food cake, vanilla wafers, graham crackers, nonfat frozen dessert or yogurt. Coffee or tea	High fat snacks such as potato or corn chips Use small amount of fat in food preparation

SAMPLE DAILY MENU PLAN
Ostomy Placement

Breakfast

¼ cup Orange juice
 ½ cup Oatmeal
 2 slices White toast
 1 tbsp. Jelly
 2 tsp Margarine
 1 cup Fat-free milk
 Coffee or tea

Lunch

1 cup Pureed vegetable
 soup
 4 Saltine crackers
 3 oz. Lean hamburger
 1 Hamburger bun
 1 tbsp. Ketchup
 ½ cup Canned fruit
 cocktail
 Ice tea

Dinner

¼ cup Tomato juice
 3 oz. Boneless, skinless
 baked chicken breast
 ½ cup Herbed white rice
 ½ cup Steamed green beans
 1 Dinner roll
 2 tsp. Margarine
 Coffee or tea

AM snack

½ Banana
 4 Graham crackers

PM snack

½ cup Applesauce
 2 Vanilla wafers
 ½ cup Fat free milk

HS snack

½ cup Low fat peach yogurt

Diet for Short Bowel Syndrome

Indication

Short bowel syndrome is a group of problems related to poor absorption of nutrients. Short bowel syndrome typically occurs in people who have:

- Had at least half of their small intestine and sometimes all or part of their large intestine removed
- Significant damage of the small intestine
- Poor motility, or movement, inside the intestines

As a result, malabsorption and vitamin and mineral deficiencies often occur depending on the amount of remaining bowel. Short bowel syndrome often requires enteral or parenteral nutrition to meet nutrition needs.

Description

Eat five or more small meals throughout the day. Chew foods well.

Minimize intake of concentrated sugars (sugar, candy, sweetened juices).

Drink fluids between meals (eat first, wait 30 minutes, then drink)

Take additional vitamin and minerals supplements in liquid or chewable form.

Replete lost fluids and electrolytes with oral rehydration solutions as needed.

Avoid alcohol and caffeine which can stimulate the gut.

For kidney stones, avoid high oxalate foods.

For lactose intolerance, follow a low lactose or lactose free diet.

For an intact colon, follow a high complex carbohydrate and low fat diet.

For a jejunostomy, follow a lower carbohydrate and higher fat diet.

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Bread, cereal, rice, pasta	Breads, pita bread, rolls, bagels, English muffin, pancake, plain waffle, corn bread, plain muffin, tortilla, pasta, macaroni, noodles, rice, brown or wild rice; unsweetened dry cereal, oatmeal, grits, cream of wheat	Bread with nuts/seeds, doughnuts, sweet rolls, Danishes, pop tarts, sweetened cereal, bran or high fiber cereal, cereal with nuts/seeds.
Vegetables	Canned or cooked vegetables, potatoes, sweet potatoes, yams, small amounts of lettuce	Creamed vegetables, fried vegetables

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Fruits	Banana, melons, unsweetened, canned fruit (applesauce, pears, peaches, Mandarin oranges, apricots, cherries)	Dried fruits, fruits canned in syrup, fruit juices, fruit drinks with high fructose corn syrup
Meat, eggs, poultry, fish, beans	Lean meats, ham, fish poultry, eggs, egg beaters, peanut butter	Heavily fried meats, fish, poultry, dried beans and peas (pinto, kidney etc.)
Milk, yogurt, cheese	Non-fat or low-fat cheese, plain yogurt, cream cheese, milk, soy milk	Cream, half & half, high fat milk (2% or greater) or yogurt, flavored milk, chocolate milk
Condiments	Nut butters (peanut, almond, etc.), artificial sweeteners, sugar-free jam/jelly/syrup	Nutella, jam, jellies, sugar, hone, chocolate syrup, molasses, nuts, seeds
Beverages	Soups, broths, non-fat, low-fat or lactose free milk, water	Sugary drinks, fruit juices, caffeinated beverages
Desserts	Animal or graham crackers, Angel food cake, vanilla wafers, shortbread, plain pound cakes, doughnuts without icing, marshmallow	Cake with icing, cookies, brownies, pies, pastries, iced doughnuts, ice cream, candies

Extra vitamins, minerals or nutrients you may need to supplement include:

- ✚ Multivitamins with minerals twice daily, take 1 in the morning, 1 in the evening
- ✚ Calcium Citrate (800-1200mg) with Vitamin-D.
- ✚ Magnesium Lactate or Gluconate (600mg) 1 daily, take 1hour before meals
- ✚ Vitamin B12 (Sublingual, under the tongue, nasal spray or intramuscular injectable). Take only if you have more than 100 cm of your “terminal ileum” removed – checked with your surgeon.
- ✚ Zinc Sulfate (220 mg) daily ONLY when having too much diarrhea or stool output from ostomy bag. Do not take Zinc for more than 14 days at a time as it may cause copper deficiency.
- ✚ Fiber supplement: Benefiber, Metamucil, Citrucel, etc. Take 5-10 gm per day if you experience high stool outputs (>2 liter per day)
- ✚ Oral nutrition supplement: choose supplements with low sugar (<20 gm CHO per serving) content to avoid diarrhea. Take between meals as needed for weight gain.
- ✚ L-Glutamine 30gm daily: an amino acid that helps increase recovery and absorption of your gut over time. You may buy this at local pharmacies, health food stores or on line.

- ✚ Medium Chain Triglycerides (MCT): a type of fat that is easier to digest than regular fats or oils. Available at local pharmacies, health food stores or on line.
- ✚ Check with physician and registered dietitian prior to using MCT for suggested dose.

Oral Rehydration solution (ORS) is a glucose-electrolyte drink to help promote fluid absorption and improve hydration status. To maintain hydration, one-3 liters per day of ORS may be needed.

Homemade ORS recipe:

Mix 1liter (4½ cups) clean drinking water with ½ tsp baking soda, 8 tsp sugar. Stir until mixed well and store in refrigerator. Drink 1-2 cups after each episode of diarrhea.

Monitoring hydration closely:

Monitor your weight, skin, hair and nails for unusual changes. Contact your doctor as soon as possible if you experience abnormal hair loss.

Gluten-Free Diet

Indication

A gluten free diet eliminates gluten which is necessary after a diagnosis of celiac disease also known as celiac sprue or gluten-sensitive enteropathy.

Description

Gluten is a protein found in wheat, rye and barley. Gluten is in many grains and plant foods and can be found in many food products, including flours, bread products, pasta, breakfast cereals, cakes and cookies. Gluten can be used as a filler in food that otherwise would not contain gluten as well as gluten-free foods that are contaminated with gluten during the manufacturing process.

All food labels and ingredients lists should be read carefully to see if the food contains wheat, barley or rye. The information that follows can help identify hidden sources of wheat, barley and rye in ingredient lists.

Recommended Foods:

The following are examples of the many grains and plant foods that you can safely eat:

Amaranth	Potatoes
Arrowroot	Quinoa
Buckwheat	Rice
Cassava (Manioc)	Sago
Corn	Seeds
Flax	Sorghum
Indian rice grass (Montina)	Soy
Job's tears	Tapioca
Legumes (dry beans, peas, lentils)	Tef (or teff)
Millet	Wild rice
Finger millet (Ragi)	Yucca
Nuts	

Foods Not Recommended:

Do not eat any foods containing any of the following ingredients:

- Wheat (all types, including einkorn, emmer, spelt and kumut)
- Barley, Rye, Malt
- Oats (unless they are gluten-free oats)

These ingredients are found in many food products, including flours, bread products, pasta, breakfast cereal, cakes and cookies.

SAMPLE DAILY MENU PLAN (1)

Breakfast	Lunch	Dinner
Whole-grain gluten free Waffle, maple syrup & Strawberries Low fat milk, juice	Pizza made with whole grain gluten-free crust, topped with low fat cheese, grilled chicken, fresh vegetables & pineapple slices, home -made lemonade	Whole grain or enriched gluten-free pasta topped with pesto & chick peas Mixed green salad topped with orange slices, walnuts & vinegar & oil dressing Seltzer water with lime

AM Snack

Low fat yogurt mixed with whole grain
Gluten-free cereal

HS Snack

Whole grain gluten-free rice crackers
with hummus or low fat cheese slices

Approximate Nutrition Analysis:

2,442 Calories, 89g Protein (14% of calories), 315g Carbohydrate (51% of calories),
94g Fat (35% of calorie), 1,750mg Sodium, 122mg Cholesterol, 28g Fiber

SAMPLE DAILY MENU PLAN (2)

Breakfast	Lunch	Dinner
Egg omelet made with Low fat natural cheese & fresh vegetables Rice cake (gluten-free) with Jam, jelly or preserves, orange juice	Black bean tacos made with corn tortillas, black beans, fresh vegetables & low fat natural cheese, topped with fruit salsa Seltzer water with lime	Chicken with fresh vegetables stir-fried in oil and spices Plain brown rice or plain enriched white rice Sorbet topped with fresh fruit Cranberry juice mixed With seltzer water

Snack

All natural yogurts mixed with blueberries or other fruit

Approximate Nutrition Analysis:

1,615 Calories, 67g Protein (17% of calories), 272g Carbohydrate (68% of calories),
26g Fat (15% calories), 273g Cholesterol, 2,890mg Sodium, 21g Fiber

Gluten-free label reading tips:

Under the Food Allergen Labeling and Consumer Protection Act of 2004, if a food or an ingredient contains wheat or protein from wheat, the word “wheat” must be clearly stated on the food label. Practically speaking, this means that if another term for wheat is used in an ingredient list, the word “wheat” must be included on the food label either in the ingredient list or in a separate “Contains” statement. All packaged food products regulated by the U. S. Food and Drug Administration that are labeled on or after January 1, 2006 must be in compliance.

For foods regulated by the U. S. Department of Agriculture (meat, poultry, egg), only the common or usual name of ingredients is currently required.

Read food labels carefully.

Why Do I Have Gas?

Everyone has gas. Burping or passing gas through the rectum is normal. Because it is embarrassing to burp or pass gas, many people believe they pass gas too often or have too much gas. They do not realize that passing gas 14 to 23 times a day is normal. An occasional burp during or after meals is normal, too. It is rare for a person to have too much gas. Most of the time gas is odorless. Any odor comes from sulfur made by bacteria in the large intestine. Sometimes gas causes bloating and pain. If you have symptoms it probably depends on how much gas the body makes and how sensitive a person is to gas in the large intestine.

What can I do about gas?

- ✚ Cut down on foods that cause gas
The amount of gas caused by certain foods varies from person to person. The only way to know your own limits is through trial and error. These are some foods that cause gas:
 - Beans
 - Vegetables: broccoli, cabbage, Brussels sprouts, onions, artichokes, asparagus
 - Fruits: pears, apple, peaches
 - Whole grains: whole wheat and bran
 - Soft drinks and fruit drinks
 - Milk and milk products: cheese and ice cream
 - Packaged foods that have lactose in them: bread, cereal and salad dressings
- ✚ Drink plenty of water, non-fizzy liquids and clear soup
Try not to drink liquids that cause gas: soda and beer. If you do drink these liquids, pour them into a glass first to let some of the “fizz” out.
- ✚ Reduce the amount of air you swallow. Here are some ways to avoid swallowing air:
 - Eat slower and chew more. This will cut down on the amount of air you swallow when you eat.
 - Avoid chewing gum and eating hard candy.
 - If you smoke, try to cut down or quit.
 - If you have false teeth, see your dentist to make sure they fit right.
- ✚ Keep a diary
Write down the foods and amounts that seem to cause you the most problems. Also keep track of the number of times you pass gas. You may be surprised to find that it is within the 14 to 23 times a day that is considered normal.
- ✚ See your doctor
If you are troubled by gas, you may want to see your doctor. Take your diary with you to help you answer the doctor’s questions about eating habits and symptoms.

Dieta Alta En Fibra

Indicación

Ésta dieta se usa para el tratamiento de la estreñidez, hemorroides, diverticulosis.

Descripción

Ésta es una dieta regular con énfasis en comidas altas en fibra como el salvado, granos enteros, cereales, frutas y verduras frescas, legumbres, nueces, y semillas. Se recomienda que obtenga por lo menos 13 gramos de fibra cruda o 50 gramos de fibra de dieta.

Es importante añadir fibra a la dieta gradualmente. Ésta dieta debe de acomodarse según la tolerancia del paciente. Es esencial que tome 6-8 vasos de agua al día.

Comida	Porciones Diarias	Comidas Altas En Fibra	Comidas Bajas En Fibra
Líquidos	6-8	Ninguna	Todas
Pan/Cereal	4 o más	Pan de trigo entero bolillos, molletes, o pan hecho de granos como harina de maíz, salvado, alforfón, centeno, granos enteros como avena, Ralston, trigo, granola, cereales de salvado, palomitas.	Panes hechos de harina refinada, galletas saladas o otros productos hechos de harina blanca, cereales refinados, y cereales secos, como crema de trigo, crema de arroz, Cornflakes, Rice Krispies.
Postres	Sin límite	Galletas, pasteles, o otros postres hechos con harina de trigo entero, granos enteros, salvado, fruta, nueces y semillas.	Gelatina, helados, budín galletas, pasteles hechos con harina refinada o harina blanca.
Grasas y Salsas	Sin límite	Ninguna.	Todas.
Frutas	2 o más	Fruta fresca o seca con cáscara.	Fruta enlatada o cocida, jugos.
Sopa	Sin límite	Sopas que contienen legumbres. (lentejas, chícharos, judías, habas)	Sopa de crema.

Comida	Porciones Diarias	Comidas Altas En Fibra	Comidas Bajas En Fibra
Carne Pescado Huevo, Queso y Substituto de Carne	2 o más	Frijoles, judías, chícharos, alverjas, legumbres, y semillas.	Carnes: res, pollo, pescado, queso, huevos.
Papas y Almidón	1-5	Papas blancas o dulces con cáscara, arroz negro fideo o pasta de trigo entero.	Almidones refinados, fideos, macaroni, spaghetti, arroz blanco.
Dulces	Sin límite	Mermelada, dulce con nueces, semillas, coco, o fruta seca.	Chocolate, azúcar, miel, molasa, almibrar, jaléa, gelatina.
Verduras	2 o más	Todas crudas-sin cocinarlas, que esten duras con la piel.	Verduras sin piel o jugos.

Modifications in Diet for Patients with Cancer or in Cancer Therapy

The disease of cancer itself may adversely affect nutritional status as may the techniques employed as treatment. Common effects of cancer include the complex of symptoms known as cancer cachexia: anorexia, weight loss, anemia, diminished reflexes, asthenia and emaciation.

The American Cancer Society recommends early assessment by a registered dietician to set appropriate nutrition goals and meal plans with the patient.

Fluid and electrolyte imbalances are common in patients with cancer, particularly in advanced stages. The more common ones are hyponatremia, hypoalbuminemia, hypocalcemia and over-hydration. Vitamin and mineral metabolism may also be affected with decreased serum ascorbic acid, thiamine, folate, vitamin A, iron, zinc and increased serum copper.

The pathogenesis of cachexia and how cancer affects metabolism is not known, but the following metabolic abnormalities and their outcome on metabolism are considered contributory to malnutrition in the patient with cancer.

Pathogenesis of Cancer Cachexia

<u>Metabolic Abnormality</u>	<u>Outcomes</u>
Increased metabolic rate	Increased energy expenditure; hypermetabolism
Protein metabolism	Loss of muscle mass Decreased total body protein Negative nitrogen balance Reduced immunocompetence Hypoalbuminemia
Fat metabolism	Depletion of fat stores from increased mobilization of fat for energy
Carbohydrate metabolism	Depletion of liver glycogen Increased gluconeogenesis Increased energy expenditure Glucose intolerance
Malabsorption	Reduced absorption of nutrients
Fluid and electrolytes	Increased intracellular and extracellular fluid Hyponatremia
Vitamins	Reduced levels of Vitamins C, A and B ₁₂ Reduced levels of serum folate

Sensory Changes

Patients with cancer experience sensory deficits in taste and smell which may also contribute to anorexia or reduced intake. The threshold for bitter taste tends to decrease which may result in aversion of meat. Patients can also develop an aversion to sweets.

Behavioral Issues

Physical effects often cause psychological and behavioral responses. Decreased intake results in weight loss; weight loss may result in decreased activity and fatigue; malnutrition results in muscle wasting with change in body image and further weakness; and the inability to be active and maintain one's usual role may result in depression. This cycle of effects is important to recognize in treatment.

Cancer Therapies

Additionally some cancer therapies, chemotherapy, radiotherapy and surgery, often result with side effects and/or limit the patient's food intake and result in malnutrition. Malnourished cancer patients do not tolerate these treatments as well as those in a better nutritional status. Aggressive nutritional management may not always prolong survival, but it improves the quality of life and allows the patient to better tolerate the demands made on the body by the disease and the therapies.

Potential Side Effects of Cancer TherapyRadiation Treatment

Nausea, vomiting, and general loss of appetite

Taste and smell changes

Dental problems

Mucositis and xerostomia (mouth dryness), sore throat, trouble swallowing

Esophageal stricture from radiation to thorax

Diarrhea, malabsorption resulting from bowel damage

Depressed immune function

Surgical Treatment

Dependence on tube feeding as a result of resection of oropharyngeal area

Malabsorption resulting from resection of gastrointestinal tract

Dumping syndrome resulting from gastrectomy

Hypoglycemia resulting from gastrectomy

Altered water and electrolyte balance resulting from ileostomy and colostomy

Diabetes mellitus resulting from pancreatectomy

Chemical Treatment

Taste abnormalities

Mucositis, cheilosis, glossitis, stomatitis and esophagitis

Diarrhea and malabsorption from gastrointestinal toxicity

Nauseas, anorexia and vomiting

Anemia

Depressed immune function

Constipation

Sore mouth, sore throat, weight loss or weight gain

Marrow Transplantation

Mucositis, stomatitis and esophagitis

Taste and salivary changes

Gastrointestinal damage

Graft versus host disease leading to disruption of skin, liver and gastrointestinal cells

Hepatic veno-occlusive disease causing severe liver dysfunction and metabolic problems

Nutrition Therapy

The diet should be regular as tolerated. The goal of nutritional therapy is to attain or maintain normal body weight, muscle mass and optimal sense of well being.

In the hospital setting, the patient with cancer needs special attention since the patient may be hospitalized for long periods of time. Nutrition deficits can actually occur in the hospital setting. Therefore, many hospitals have set up demand food service for cancer patients. This is often well accepted by the patient who needs to eat immediately upon feeling capable of ingesting food. Variety is also key in providing the hospitalized patient with adequate nutrition and to alleviate boredom.

- 1) Oral feedings
 - a. Should be used whenever possible
 - b. Meal frequency and portion sizes as tolerated
 - c. Frequent snacks for patients with limited capacity
 - d. Commercial oral supplements may be used to increase protein and calorie intake
 - e. Individualized attention and readjustment to meet the patient's changing needs and preferences. Taste changes are individual and it should not be assumed that every patient will experience the increased threshold for sweets or decreased threshold for bitter taste (e.g. meats).
 - f. Immuno-compromised cancer patients may require a diet excluding raw unpeeled fruits and vegetables while on a neutropenic diet.
- 2) Tube feedings
 - a. Should be used when patient cannot or will not ingest adequate calories orally.
 - b. Should be used when the gastrointestinal tract is functioning normally.
- 3) Parenteral feedings
 - a. This method using intravenous nutrition to replenish or maintain the patient is necessary when the gastrointestinal tract is not functioning normally.

A combination of any of the above feeding methods may be used to supply adequate nutrients to the patient.

NUTRITIONAL ISSUES RESULTING FROM CANCER OR CANCER THERAPY

ISSUE	SUGGESTIONS TO IMPROVE NUTRIENT INTAKE
Decreased Appetite, early satiety	<ul style="list-style-type: none"> a. Encourage patient to eat, even if not hungry. b. Apply behavior modification techniques. c. Encourage small frequent meals and snacks and pleasant meal times with family and friends. d. Patient should eat solid foods first, avoid filling up on liquid or soup. e. Consume nutritious drinks after meals. f. Avoid non-caloric liquids, water, coffee, tea. g. Encourage light to moderate exercise as tolerated, to stimulate appetite for 5-10 minutes about 30 minutes prior to meals. h. Concentrate on foods that are high in calories and protein, encourage favorite foods. i. High protein food suggestions; eggs, fish, shellfish, dried beans, peas, soy products, cheese milk, yogurt and cereals with milk. j. Higher calorie additions; butter or margarine, gravy, sauces, cream, milk shakes, stuffing, sour cream, salad dressing, vegetable dips, whipped cream, granola bars, breakfast bars, ice cream. k. Add commercially available nutrition supplements as needed. l. Avoid greasy and fried foods. m. Avoid stress at mealtime.
Changes in taste	<ul style="list-style-type: none"> a. Use herbs and spices to make food more tasty, e.g. lemon juice, mint, extra salt or sugar, basil, oregano, see cookbooks for suggestions. b. Serve food cold or at room temperature. c. Tart foods and drinks may be refreshing, e.g. lemonade, fresh fruit, cranberry juice, sour candy, peppermint. d. Vary color and texture. e. If meat has an unpleasant taste, use other sources of protein. f. Avoid smells from cooking. g. Avoid disliked foods. h. Rinse mouth before meals. i. Marinate poultry and meats with sweet-sour sauces e.g Italian dressing or sweet wines.
Decrease intake secondary to depression	<ul style="list-style-type: none"> a. Emotional support and psychosocial intervention. b. Mood-elevating drugs may be ordered by physician.

ISSUES**SUGGESTIONS TO IMPROVE NUTRIENT INTAKE**

Fatigue	<ul style="list-style-type: none"> a. Encourage eating the most nutritious meal in the morning. b. Plan rest periods. c. Avoid meals being served directly following a treatment/procedure. d. Offer foods that do not require a lot of chewing in order to conserve energy.
Pain	<ul style="list-style-type: none"> a. Often indirectly affects intake; methods of pain reduction include medicine, distraction, relaxation techniques and skin stimulation; this should be under the direction of the physician. b. Pain medication should be given 30-60 minutes prior to meal time.
Mouth Sores, mucositis Stomatitis, Esophagitis	<ul style="list-style-type: none"> a. Avoid extremes of temperature; spicy and hot foods; tart or acidic foods and juices; raw fruits or vegetables; dry, coarse, or highly salted foods. b. Liquid to soft diet. c. Mouth care as directed by physician. d. Rinse mouth with viscous xylocaine before meals. e. Drink supplements that are mildly flavored. f. Foods usually tolerated are liquids at room temperature, applesauce, cooked cereal, strained cream soup, custard, soft cooked eggs plain ice cream, jello, milk shakes, mashed potatoes, popsicle, pudding, sherbet, bland foods, puree, or baby foods. g. Using a straw to drink liquids may help. h. Supplements of glucose polymers, mildly flavored. i. Avoid smoking and alcoholic beverages. j. Use pain control measures before eating.
Dry mouth	<ul style="list-style-type: none"> a. Avoid commercial mouthwash. b. Rinse before and after meals with ½ hydrogen peroxide, mixed with ½ water. c. Citrus may stimulate saliva; suck on lemon wedges. d. Artificial saliva will provide temporary relief. e. Candies, lemon drops, mint or tart sugar-free gum or candy, popsicles may stimulate saliva. f. Moisten food by adding gravy, sauce, salad dressing, melted butter, broths, and yogurt. g. Sip liquids throughout the day, select nutritious liquids.
Thick, sticky saliva	Rinse with soda water or hot tea and lemon
Dehydration	<ul style="list-style-type: none"> a. Supply juices, fruit drinks, soft drinks, broth. b. Serve fruits with high water content, e.g. grapes, melon. c. Offer jello, sherbet and popsicles.

ISSUES**SUGGESTIONS TO IMPROVE NUTRIENT INTAKE**

Difficulty swallowing solids

- a. Puree foods; use cookbooks for suggestions to add variety to a balanced diet.
- b. Try easy-to-swallow items such as commercial liquid supplements, shakes, custard, pudding, ice cream, yogurt, gelatin, etc.
- c. Consider a liquid vitamin/mineral supplement as needed.
- d. Consult speech therapist and occupational therapist, per physician.
- e. Use butter, gravy and sauces; soft foods, avoid coarse foods.
- f. Cut food in small pieces; small frequent meals.
- g. Eat in upright position.
- h. Frequent normal saline rinses.

Nausea and vomiting

- a. Use of antiemetic before mealtime, per physician order.
- b. Attempt to reduce nausea before vomiting; eat dry toast, crackers, etc. increase ambulation and walking.
- c. Try cold, clear liquids.
- d. Avoid greasy, high fat foods and foods with strong odors.
- e. Avoid very sweet foods.
- f. Do not lie down immediately after eating.
- g. Eat and drink slowly, several small meals per day.
- h. Perform frequent oral care.

Diarrhea

- a. Eat small meals.
- b. Drink plenty of liquids such as Kool-Aid, lemonade, gelatin, nectars, broth and flat caffeine-free sodas.
- c. Eat only cooked vegetables, not raw.
- d. Avoid highly spiced or gas-producing foods, e.g. cabbage family.
- e. Use low-lactose milk products until diarrhea has stopped.
- f. Commercial supplements with water soluble fiber may be beneficial in control of certain types of diarrhea, e.g. Ensure with fiber. See Section F.
- g. Avoid apple, prune and pear juice and artificially sweetened candies; these may have a laxative effect.

Indigestion

- a. Serve small, frequent meals.
- b. Avoid spicy, greasy foods.
- c. Antacid (per physician) 1-2 hours before meals and at bedtime.
- d. Do not lie down immediately after eating.
- e. Avoid alcohol and smoking.

ISSUES**SUGGESTIONS TO IMPROVE NUTRIENT INTAKE**

Lactose intolerance

- a. Use lactose-free milk substitutes, soy milk.
- b. Add other sources of calcium if milk products are deleted.
- c. Cheese that may be tolerated; Swiss, Provolone, Edam, Bleu, Brick, Muenster, Colby, Mozzarella, Cheddar, American.
- d. Yogurt is usually tolerated.

Belching, flatus

- a. Avoid gas producing foods such as beans, bran, broccoli, brussel sprouts, cabbage, corn, green pepper, milk, onions, turnips and carbonated beverages; avoid greasy fried foods.
- b. Avoid air swallowing, talking while swallowing, chewing gum, and drinking through a straw.
- c. Eat slowly; small frequent meals.

Constipation

- a. Drink 8-10 glasses of fluid per day.
- b. Add fiber to the diet, e.g. raw fruits and vegetables, nuts, whole grain breads, wheat bran or wheat germ added to foods.
- c. Increase ambulation and exercise per tolerance.
- d. Medication may be ordered by physician to assist normal bowel function.

Dumping syndrome

- a. Eat small frequent meals.
- b. Eat slowly and sit up for ½ hour after eating.
- c. Eat solid foods without liquids; take liquids ½ to 1 hour before or after a meal.
- d. See section G for more suggestions (post-gastrectomy diet).
- e. Avoid concentrated sweets.
- f. Avoid very hot or very cold liquids.
- g. Advance diet as tolerated.

Hypogeusia

- a. Eat strong flavored, highly spiced foods; emphasis on texture and aroma.
- b. Flavored supplements.
- c. Frequent normal saline rinses.

Dysgeusia

- a. Regular, cold foods; milk, milk products.
- b. Emphasis on experimentation with seasonings, flavorings and food flavors to find tolerated food.
- c. Encourage consumption of small, frequent, high protein, high calorie meals and snacks
- d. Fruit flavored supplements.
- e. Avoid red meats, chocolate and coffee if poorly tolerated.

Modified Pathogen-Free Diet

Indication

This diet is used for the granulocytopenic cancer patient who has undergone treatment for leukemia or high dose cancer therapy.

Description

The purpose of the modified pathogen free diet is to prevent acquisition of new pathogenic organisms from foods for patients who are immune-compromised. In some facilities a sterile or pathogen-free diet is used. This diet will eliminate some potential pathogens, but is not pathogen free.

Modifications

Food groups which contain a large number of pathogenic organisms are eliminated from the diet.

Nutritional Adequacy

This diet has the potential to meet or exceed the daily requirements for all nutrients.

Guidelines

The patient will receive a Regular diet with the following modifications:

1. No fresh fruits and vegetables are allowed.
2. All fruit and vegetables juices are served in cans or shelf-stable packaging.
3. Spices, other than salt and sugar, will not be added to foods after cooking.

These modifications will eliminate some of the pathogens, but the diet is not pathogen free. The dishes, utensils and trays used will not be sterile.

Stomatitis Diet

Indication

This diet is used for patients with irritation of the oral or pharyngeal tissues. This may occur following administration of radiation therapy to the head and neck region or following systemic chemotherapy.

Description

This diet consists of foods that are not acidic or irritating to the mouth or throat areas. Patient comfort may be promoted by avoiding extremes of temperature and by providing a soft or puree consistency. Moist food items are preferred over dry or coarse items.

Nutritional Adequacy

This diet has the potential to meet or exceed the Dietary Reference Intakes for all nutrients.

Food Group	Food to Avoid
Fruits	Acidic fruits and juices, hard to chew fruits or those with seeds e.g. cranberries, apples, berries, oranges, plums, grapefruit, grapes, lemon, persimmons, pineapple, and rhubarb.
Dairy Products	Sour cream products e.g. yogurt, buttermilk, sour cream, sharp cheeses.
Vegetables	Tomatoes, beets, pickles, onion, sauerkraut, baked beans, spinach, tomato juice, pickled vegetables.
Meats	Tough cuts of meat unless finely chopped, bacon, hot dogs, ham, salami, sausage.
Miscellaneous	Extra salt or salty foods, pepper, chili powder, chili peppers, spicy foods.
Beverages	Alcoholic beverages, carbonated beverages, very hot or very cold beverages, unless well tolerated.

Clear Liquid Diet for Mucositis

Indication

This diet is used for patients with chemotherapy-related mucositis. It may be used following high dose chemotherapy.

Description

The clear liquid diet for mucositis is designed to not aggravate mucositis-related problems such as stomatitis and diarrhea.

Modifications

This is a clear liquid diet which eliminates those liquids that may be irritating to the gastrointestinal tract. It eliminates liquids which are tart or acidic, of high osmolality, of high sorbitol content, highly salted, carbonated beverages, caffeine and alcohol.

Nutritional Adequacy

This diet does not meet the Dietary Reference Intakes for any of the nutrients. It may be used concurrently with parenteral hyperalimentation. It is used as a transitional diet before progressing to solid foods.

Food Group	Foods Allowed	Foods to Avoid
Soup	Broth, bouillon	Any other
Vegetables	None	Any vegetable or vegetable juice, including tomato juice
Fruit	Strained fruit juices in limited amounts; guava nectar, papaya nectar, apricot nectar	Any other fruit or juice (orange, grapefruit, pineapple, lemon, cranberry, prune, apple, grape, pear nectar).
Desserts	Plain gelatin dessert, popsicles, fruit ices made without milk, except those with tart flavors	Lemon or other tart flavor of fruit ice, popsicle or gelatin
Cereals	Thin cereal gruel	Any other

Clear Liquid Diet for Mucositis (Continued)

Food Group	Foods Allowed	Foods To Avoid
Beverages	Decaffeinated coffee or tea, coffee substitute, caffeine-free herb tea. (May be better tolerated when warm rather than hot). "Flat" non-caffeinated carbonated beverages, if tolerated. Mildly flavored Gatorade.	Carbonated beverages unless noncaffeinated and allowed to go "flat". Beverages containing caffeine, such as regular coffee or tea. Lemonade, milk or milk drinks, alcoholic beverages.

Nutrition Assessment of the Cancer Patient

Weight Parameters

1. Calculations of Ideal Body Weight (IBW)
 Females: 100 lbs per 5 ft + 5lbs per inch >5 feet
 Males: 106 lbs per 5 ft +6lbs per inch >5 feet

 +/- 10% for small or large frame sizes used.
2. Body mass index (BMI) range adults = 18.5-24.9. Seniors BMI range = 22-27.
3. Actual weight as a percentage of usual body weight (UBW). UBW is the preferred reference for oncology patients.

% UBW + actual weight divided by UBW x 100.

UBW standards:

Normal	>95% UBW
Mild depletion	85-95% UBW
Moderate depletion	75-85% UBW
Severe depletion	<75% UBW

4. Weight loss/time standards parameters are expressed as weight change divided by time standard:

Significant weight loss=1-2% per one week; 5% per one month; 7.5% per three months; 10% per six months.

Severe weight loss=>2% per week; >5% per one month; >7.5% per three months; 10% per six months.

Calorie Parameters

1. Basal Energy Expenditure (BEE):

Harris Benedict Equation including out of bed activity factor of 1.3 and cancer "correction factor" of 1.6 for hyper-metabolic state. 7% of BEE per degree Fahrenheit above 98.6 degrees.

2. 30-35 Kcal/kg weight/day for maintenance
 >35-45 Kcal/kg weight/day for anabolism

For the patient on total parenteral nutrition, the caloric requirement may be calculated as 40-45 Kcal/kg weight/day. See Parenteral Enteral Support.

Protein Parameters

Degree of Depletion	None	Mild	Moderate	Severe
Serum Albumin (g/dl)	3.5	<3.5-3.2	<3.2-2.8	<2.8
Transferrin (mg/dl)	>200	<200-180	<180-160	<160

A deficit in transferrin is believed to be a more sensitive indicator of visceral protein than is serum albumin because of its shorter half life. This is the preferred protein parameter.

3. Oral protein-sparing therapy

1.5-2.0 gram protein/kg body weight (UBW or IBW)

Tube Feedings

Nutritional assessments of patients requiring tube feedings will include calculations of energy, protein and fluid needs. Product selection, administration procedures should be defined with recommended strength, volume and rate of delivery. See Section F.

Recommendations to Prevent Cancer:

- Body fatness: be lean as possible within the normal range of body weight
- Physical Activity: be physically active as part of everyday life
- Food and drinks that promote healthy weight: limit consumption of energy-dense food, avoid sugary drinks
- Plant foods: eat mostly foods of plant origin, with whole grains
- Animal food: limit intake of red meat and avoid processed meat
- Alcoholic drinks: limit alcoholic drinks
- Preservation, Processing, Preparation: limit consumption of salt, avoid moldy cereals(grains) or pulses (legumes)
- Dietary supplements: aim to meet nutritional needs through diet alone, do not use supplements to protect against cancer
- Breast feeding: mothers to breastfeed, children to be breastfed
- Cancer survivors: follow the recommendation for cancer prevention

HIV/AIDS Medical Nutrition Therapy

Introduction

Human immunodeficiency virus (HIV) is a virus that causes acquired immunodeficiency syndrome (AIDS). HIV/AIDS is a treatable disease since the introduction of combination antiretroviral therapy (cART). With this treatment, the frequency of wasting in developed countries has been reduced and survival went from months to decades after diagnosis. Persons infected with HIV/AIDS continue to be at greater risk for malnutrition. They may commonly face problems such as sub-optimal nutrient intake, weight/muscle loss, often related to nausea, diarrhea, anorexia, fatigue, and difficulty swallowing and chewing. Some of the side effects of receiving cART include weight gain and changes in body composition as well as metabolic disturbances. Lipodystrophy, a syndrome of fat redistribution, is being seen in HIV/AIDS patients and may be related to antiretroviral treatment.

Nutritional Concerns

Lipodystrophy

Persons infected with HIV experience changes in body fat. Fat maldistribution may include loss of subcutaneous fat with fat accumulation around the abdomen leading to central obesity. The etiologies of these changes remain uncertain. Conflicting evidence exists suggesting that fat maldistribution may be related to use of current medication therapies.

Dyslipidemia

Changes have been associated with elevated blood lipids and are raising concern for increased risk for accelerated atherosclerosis and incidence of acute myocardial infarction. Data is now suggesting that the occurrence of cardiovascular disease has increased in this population. HIV-infected individuals may benefit from a heart healthy diet like a Mediterranean diet, aerobic and resistance training and statin and/or fibrate medication therapy. Diet and exercise should be considered as first line therapy.

Insulin and Carbohydrate Dysregulation

Metabolic abnormalities occur in persons with HIV receiving cART. cART regimens that include protease inhibitors have a higher incidence of insulin resistance and diabetes mellitus. Treatment strategies like the use of metformin and insulin sensitizing medication group of thiazolidinediones treat hyperglycemia and lipodystrophy. As with persons not infected with HIV, treatment for insulin resistance and central obesity include a diet low in saturated fat, lower in carbohydrates and high in fiber, which may prove beneficial for the HIV patient.

Osteopenia and Osteoporosis

Alterations in bone metabolism, including osteopenia and osteoporosis, are increased in individuals infected with HIV. The cause of such alterations include vitamin D deficiency,

glucocorticoids, lack of regular weight bearing exercise, low calcium intake and high sodium intake. Treatment includes appropriate supplementation of calcium and vitamin D, decrease sodium intake, increase protein intake and weight resistance exercise.

Malabsorption

HIV/AIDS patients may benefit from evaluation and quantification of the magnitude of malabsorption. For these data, recommended testing may include an initial evaluation of (1) serum carotene (levels less than 23 mcg/dl suggest malabsorption); (2) D-xylose absorption test, which provide a rough picture of mucosal integrity; and/or (3) 72-hour quantitative fecal fat analysis to detect and quantify steatorrhea to provide a general indicator of absorptive competence. For more in-depth use, (4) lactose tolerance tests, (5) vitamin B₁₂ absorptive testing, and/or (5) small bowel biopsy may become necessary. In the absence of quantified malabsorptive status, it is safe to assume that high-level malabsorption is ongoing and may require up to 60% more energy (caloric) consumption. Most patients cannot ingest calories at this elevated level and may require the use of nutraceutical treatment strategies for weight maintenance.

HIV/AIDS Defined Levels of Care

Level of Care 1: HIV Asymptomatic

Clients diagnosed with HIV infection. Disease activity is characterized by Persistent Generalized Lymphadenopathy (PGL). The client is asymptomatic and does not experience complications affecting medical, nutrition, or functional health status. The primary goal of medical nutrition therapy is preservation of lean body mass, prevention of weight loss, and maintenance of nutrition health status.

Level of Care 2: HIV/AIDS Symptomatic but Stable

Clients have symptoms attributed to HIV infection or have a clinical condition that is complicated by HIV. Disease activity is managed, and symptoms are controlled. Impact on medical, nutrition, and functional health status is manageable. The primary goal of medical nutrition therapy is maintenance of weight, lean body mass, and managing symptoms and side effects associated with medical treatment.

Level of Care 3: HIV/AIDS Acute

Clients have acute signs and symptoms of AIDS-defining conditions as a result of disease progression. Medical, nutrition and functional health status is being affected. Clients may be hospitalized, or frequency of outpatient visits may increase. The primary goal of medical nutrition therapy is maintaining weight, preserving lean body mass, preventing further weight loss, and managing symptoms and side effects of medical treatment.

Level of Care 4: Palliative

Clients have active disease progression, with care emphasis on the last stages of life. Medical, nutrition and functional health status is compromised. Clients care may be provided in the home setting, or in a residential care or long-term care facility. In some instances, hospitalization may be required. The primary goal of medical nutrition therapy is alleviation of symptoms while providing nutrition treatment that maintains hydration status and/or supports the client through the dying process.

Guidelines for Medical Nutrition Therapy**Guideline 1: Starting Baseline Medical Nutrition Therapy with the Registered Dietitian Nutritionist**

Within one to six months after an HIV positive diagnosis, the patient should receive as a baseline, a comprehensive nutrition assessment, self-management training, nutrition education, and appropriate recommendations and intervention following the HIV/AIDS Medical Nutrition Therapy Protocol. HIV/AIDS medical nutrition therapy includes analysis of dietary history and intake, height, weight, pre-illness usual weight, lean body mass and fat. Skinfold caliper and measuring tape, DEXA bioelectric impedance analysis (BIA) or other comparable means can assess lean body mass and fat. Appropriate nutritional lab assessments, such as CBC, lipid panel, blood sugar and liver function tests should be done to identify and provide intervention strategies for clinical manifestations of drug toxicities and underlying abnormalities, such as anemia, vitamin/mineral depletion, diabetes mellitus, hypertension and other medical conditions.

Guideline 2: Referring for Ongoing Medical Nutrition Therapy

After receiving a baseline nutrition assessment, the patient should receive regular and ongoing HIV/AIDS medical nutrition therapy with the Registered Dietitian Nutritionist.

This should occur:

- With asymptomatic HIV infection, at least one to two times per year.
- With HIV symptoms or an AIDS diagnosis, at least two to six times per year.
- More often when there are new nutrition related clinical developments.
- If necessitated by the clients ability to understand and incorporate nutrition management skills.

HIV/AIDS Nutritional Assessment

Weight history: Significant weight loss is a common first symptom of disease progression. To define the type of weight loss, causal elements are important. A significant loss in weight is one that is (1) involuntary, and (2) recent – at least within the prior six months. Note, however, that weight alone is only a gross indicator of poor nutritional status and, as such, must be considered within the context of body composition. Triceps skinfold and mid-arm circumference may be used as an indirect measure of tissue fat and muscle stores. Body composition analysis is seen in HIV/AIDS nutrition healthcare as the best method to determine how weight is compartmentalized throughout the body. The nutritional assessment should include: usual weights, previous weights, previous measures of lean body mass (LBM), e.g. skinfold measures [triceps skinfold (TSF) and mid-arm muscle circumference (MAMC)], or body cell mass (BCM) using bioelectrical impedance.

Biochemical parameters: One of the basic abnormalities of HIV/AIDS metabolic derangement is that the muscle compartment provides caloric reserves; not body fat. Therefore, protein status is not only important; its accretion prior to opportunistic infections and/or weight loss is highly beneficial. Visceral protein stores can be measured by checking a patient's albumin. Pre-albumin is a very sensitive protein status indicator and is also preferred but is seldom completed. Other labs that should be included in the nutrition assessment: CBC, BUN, creatinine, fasting glucose, electrolytes, cholesterol, triglycerides; CD4 OR CD8, viral load, testosterone level (total

and free), other labs as available or needed, e.g., glutamine, zinc, calcium, selenium, vitamins A and B₁₂ and iron.

Clinical symptoms: fevers/sweats, anorexia, early satiety, abnormal bowel habits, diarrhea, mouth sores, chewing difficulty, swallowing difficulty, dysphagia, nausea, vomiting, flatulence, digestive problems, shortness of breath, fatigue

Primary feeding route: oral, tube feeding, parenteral, or combination

Physician's goals for client

Medical history: diabetes, cardiovascular disease, renal disease, GI abnormalities, pancreatitis, liver disease, hepatitis, dental and oral health, and mental health, current diagnosis

All medications: dose, frequency and timing, prescribed and self-prescribed, e.g., reverse transcriptase inhibitors (e.g., retrovir, videx, zert, epivir), protease inhibitors (e.g., crixivan, norvir, invirase), antifungal (e.g., amphotericin B), antibacterial (e.g., rifampin), and antiprotozoal, vitamin, mineral, or herbal supplements

Lifestyle and psychosocial/economic history

Functional status: assess activities of daily living (ADLs), instrumental activities of daily living (IADLs), or performance using Karnofsky performance scale

Patient Interview

Anthropometric data: current height/weight; calculate BMI, % ideal and usual body weight, % weight loss over time. If applicable, measure bioelectrical impedance (BIA) or obtain TSF or MAMC to estimate LBM or BCM, waist-to-hip ratio, waist circumference, neck circumference

Signs and symptoms: anorexia, early satiety, diarrhea, nausea/vomiting, maldigestion, flatulence, mouth sores, chewing difficulty, swallowing difficulty, dysphagia, bowel habits, shortness of breath, fatigue, fever/sweats, pain and change over time

Nutrition history: usual food intake with attention to calories, fat, protein, fluid, use of vitamin/mineral/herb supplement (s), nonprescription drugs, recreational drug use
Alcohol and caffeine intake

Able to shop for groceries or cooking for self

Food and water safety: sanitation practices, food allergies, food intolerances

Psychosocial and economic issues: living situation, cooking facilities, finances, educational background, literacy level, primary language, employment, ethnic or religious belief considerations (related to nutrition), family support, community support, food security, access to community resources

Barriers to care/learning: assess disabilities, e.g., sight, hearing impairment, language/speech function, mental functioning

Exercise pattern: type of activity, frequency, and duration

Smoking history: present pattern, cessation or participation in smoking cessation program

Intervention: Levels of Care 1, 2, and 3

Provide self-management training to client on identified goals/therapeutic meal planning.

Rationale for maintaining /increasing body weight and LBM

Importance of adequate nutrient/fluid intake

Any HIV-related symptoms that may occur (or are occurring)

Meal/medication scheduling. Potential food/drug interaction

Strategies to improve intake of nutrient-dense foods

Importance of progressive resistance exercise and aerobic exercise, or simply increase physical activities

Strategies to ensure adequate calories, protein, fluids, e.g., 6-9 mini-meals a day, food variety & texture modification

Vitamin/mineral supplementation to avoid deficiency, prevent toxicity

Glutamine for wasting & diarrhea, in chemo-induced mucositis: start 2 weeks prior to & last till 2 weeks after chemotherapy is completed; increasing immune competence.

Strategies to decrease or eliminate caffeine or alcohol use

Use of complementary/alternative therapies

Medical nutrition supplement needs, enteral or parenteral nutrition to provide appropriate nutrition

Rationale and benefits of appetite stimulants (if applicable)

Food and water safety and sanitation

Psychosocial issues, as appropriate

Referral to resources available for smoking cessation and substance/drug abuse

Rationale and how to record food/fluid record and its importance in treatment

Referral to appropriate community resources available for social support, mental health counseling, economic assistance or other health care providers

Intervention: Level of Care 4 (Palliative)

Provide self-management training based on wishes of client, client's family or caregivers.

Comfort is our first goal

Supportive medical nutrition therapy measures, if desired by client or family: oral supplements to optimize oral intake and nutrition health

Modified therapeutic meal prescription to meet individual food tolerances and needs

Strategies to minimize symptoms associated with condition/infections

Strategies to maintain hydration status

Nutrition support, e.g., tube feeding or parenteral nutrition only if desired by client or family

Guidance for use of alternative or complementary therapies

Provide self-management training as appropriate to level of care (1-4)**Review education materials containing information on the following:**

- Individualized therapeutic meal prescription
- Goals of therapy
- Changes in biochemical parameters
- Symptom management
- Changes in medication
- Meal and medication schedule
- Potential food/drug interactions
- Avoidance of vitamin and mineral deficiencies and/or toxicities
- Food, fluid, and activity records
- Food and water safety and sanitation practices
- Strategies to decrease or eliminate alcohol and caffeine use
- Evaluation of complementary or alternative therapies
- Need for alternative route of feeding
- Resistance weight training and aerobic exercise pattern
- Community resources for food security and other needs

Outcome Measurements:

- Weight, BMI, LBM (measured by TSF, MAMC) or BCM (measured by BIA), waist-to-hip ratio, neck circumference
- Biochemical parameters
- Clinical symptoms
- MNT goals and behavioral compliance (e.g., estimated nutrient requirement compared to estimated nutrient intake)
- Takes measures to ensure safe water and food consumption
- Verbalizes meal, meal schedule, and potential food/drug interaction
- Functional status, e.g., ADLs or IADLs or Karnofsky performance scale
- Uses community resources as needed

Follow up:

- Schedule appointment as determined by protocol and level of care
- Expected outcomes
- Maintains or improves weight status, BMI, preserves LBM and BCM
- Maintains or improves biochemical parameters, prevents vitamin/mineral deficiencies
- Side effects and symptoms are minimized or eliminated
- Nutrient intake is maintained or improved
- Meets goal(s) set with dietitian
- No occurrences of food or water-borne illnesses
- Adherence to meal and medication schedule
- Functional or performance status maintained or improved
- Uses community resources
- Alternative feeding route implemented as needed
- Wishes of client or client's family or caregiver are upheld regarding continuation/cessation of nutrition support (Level of Care 4)

Communication:

Provide summary to primary care provider and other health care providers. Note long-term goal and plans for ongoing care.

Energy and Nutrient Needs:

Calculating ideal weights using common, simple assessment techniques is suggested. These standard simple ideal body weight (IBW) calculations are similar for men and women and are usually sufficiently accurate.

Men: 106 pounds for five feet and six pounds for each inch thereafter for IBW.

Women: 100 pounds for five feet, five pounds for each inch thereafter approximates IBW. A 10% variance above and below IBW will allow for acceptable range. BMI may be used as well. A healthy BMI would be at the upper range with appropriate lean body mass.

Calorie (energy) requirements:

In general, energy requirements can be derived using the ancient Harris-Benedict equation of 1911. Using this equation, adjustments can be made for activity, stress, and weight goals, and energy needs are determined. Estimates of REE are useful in scientific investigations mainly because this is a “standard of practice” consistent with methods currently in use by clinicians. They are however, more precise and tedious than is generally necessary for clinical management. Estimates of energy needs must consider the increased need for fever and other noted stress factors. Adequate calories help maintain lean body mass. General guide:

- 17 calories per 1 lb/BW if maintaining weight
- 20 calories per 1 lb/BW with infection
- 25 calories per 1 lb/BW if losing weight

Adjustments must be made based on weight program.

Protein requirements:

It has been suggested to approximate from 1.5 to 1.8 g/kg of recommended body weight. Massive protein losses occur in watery stool excretions and emesis, along with visceral protein store catabolism and gut lumen sloughing accounting for 1/3 of the “dry fecal” matter. Adjustments in protein requirements must be made when renal or hepatic dysfunction is present.

Protein adequacy:

Protein adequacy does not ensure that dietary protein will act to replace losses from tissue depletion. Again referring to body composition, it is important to note that a level of physical activity is designed to add protein (muscle mass); the HIV/AIDS “calorie reserve” must be implemented, preferably with advice from an exercise physiologist familiar with HIV/AIDS requirements. In general, accrual of muscle mass by resistance exercise (weight lifting) is emphasized.

Dietary fat:

In the early-stage of HIV, dietary fat can often be used *ad libitum* to add weight, although with proper attention to body composition and exercise requirements. Fat malabsorption has been widely reported with associated gas and steatorrhea. When this is the case, extensive use of medium-chain triglycerides (MCTs) may be encouraged, since they are both bile and carnitine independent. It is appreciated that polyunsaturated fats are considered to be immunodepressants (secondary to oxidative risk) and should be substituted to the extent possible with monounsaturated fats and MCTs as described. Saturated fats should be limited secondary to the concerns with hyperlipidemia.

General guide:

- 30% of daily calories from fat
 - 10% or more of daily calories from monounsaturated fats
 - < 10% of daily calories from polyunsaturated fats
 - < 7 % of daily calories from saturated fats

Carbohydrates:

Carbohydrate requirements must be individualized when insulin resistance and carbohydrate dysregulation is present. Carbohydrates may make up 45-70% of calories in order to prevent over consumption of fats and/or protein substrates. Fruits, vegetables, whole grains and other complex carbohydrates are encouraged. A general guideline: 5-6 servings (~3 cups) of fruits and vegetables daily. Emphasize legumes and whole grains to meet calorie level recommended. Limit simple sugars, i.e. candy, pies, cakes, cookies, and ice cream.

Micronutrients:

Vitamin and mineral supplementation is required. While some experts suggest 2-5 times the RDA levels for these nutrients, closer examination of selective micronutrients should be undertaken. Emphasis is usually and correctly placed on antioxidant nutrients to aid immune function. Safety limits are suggested at optimal, rather than RDA levels. To approach optimum dosage, toxicity data should be referenced.

In general, the B-complex vitamins can be well tolerated at 100 mg/day. It has been observed that Pyridoxine, vitamin B₆ is needed for enhanced immune function. This vitamin is highly involved in protein metabolism. Similarly, thiamin/vitamin B₁ is needed for beneficial use of carbohydrate substrates. Biotin, normally manufactured in the gut, is potentially important at up to 200 mcg/day to maintain epithelial turgor. Pantothenic acid, responsible for acetyl-Co-A metabolism and intracellular energy derivation may also be required at higher levels. Importantly, most the vitamins in the B-complex are virtually non-toxic at doses not exceeding 200 mcg/daily. Cobalamin, vitamin B₁₂ is often measured and found deficient in newly diagnosed HIV disease. Since “normally” the human body stores can provide for 5 to 10 year’s needs, the conclusion has been drawn that this vitamin is utilized at extremely high rates of turnover. Importantly, absorption of this vitamin is accomplished only at the site of the distal ileum and is not passively, but actively absorbed through the brush border membranes. Hypochlorhydria may prevent manufacture of intrinsic factor thus rendering

externally delivered cobalamin useless. Vitamin B₁₂ injections, self-administered at 1cc (1,000 mcg) weekly or twice weekly is not appropriate. Alternatively, sublingual supplements are inexpensive and useful

Retinoic acid, preformed vitamin A is necessary along with Beta Carotene, its precursor, for immune properties and mucosal maintenance. Their conversion to vitamin A decreases when body stores are full, therefore they are not associated with adverse health effects. Antioxidant vitamin E may be toxic at levels exceeding 1,000 IU daily. Antioxidant vitamin C is used in such wide ranges that it's almost impossible to predict how much is needed; most likely, need changes from time to time and thus presents a clinical challenge. How much and what form: Answers to these questions should be discussed with a knowledgeable dietitian. Fat-soluble Ester-C and Quercetin, along with the bioflavonoid complexes may all be useful agents. However, it has been noted that doses greater than 1000 mg have been associated with diarrhea. Vitamin D supplementation is indicated for hypovitaminosis D. An initial loading dose for vitamin D deficiency provides 50,000 IU weekly of ergocalciferol (vitamin D₂) for 8 weeks and then maintenance dosing thereafter.

Balance among the major mineral compounds is necessary. For example, zinc is needed "out of balance" with regard to other minerals. Chandra (1988) recommends 50-100 mg/day. Copper depletion/deficiency will occur secondary to this dose of zinc, so the clinician must alert the patient of this caveat. Zinc is important, along with pyridoxine, to metabolize protein. Calcium is also of concern in that many HIV/AIDS patients are lactose intolerant thus cannot avail themselves of dairy, calcium's only good dietary source. Antioxidant selenium has been popularized as a potential inhibitor of viral replication and spread; its toxicity is not apparent at under 1,000 mcg/day. Here, it is important to realize that an "altered" metabolic state is in place and typical body compartment storage is rearranged by HIV infection; standard tests for adequacy of many "altered" micronutrients may be inaccurate secondary to this irregularity. Under the aegis of "first do no harm" and with availability of toxicity data and clinical trial results, aggressive yet safe supplementation is warranted and need not be prohibitively expensive.

Fat Malabsorption

This syndrome is often reported with gassiness and generalized gastrointestinal pain. Also, regulation of dietary fat may suggest limitations on normal fats. As stated elsewhere, polyunsaturated fatty acids are immunosuppressive due to high risk for auto-oxidation.

Medium-Chain Triglycerides (MCTs) are special forms of fats, all saturated with short carbon chains. They possess two very important advantages for HIV/AIDS patients

Bile independence means that MCTs are absorbed directly into the circulation from the duodenum thus not requiring any processing by the liver. These fats, then, may be advisable for patients with hepatic symptoms or elevated blood triglycerides.

Carnitine is a peptide manufactured in the liver and used as a transport molecule for carrying long-chain fatty acids into inner-mitochondrial membranes for ATP

biosynthesis. In the absence of carnitine, these fatty acids may actually exacerbate hypertriglyceridemia. MCT fats are able to reach inner mitochondrial membranes alone; they do not require carrier molecules.

For these reasons MCT fats can be useful agents for weight gain and essential fatty acid provision.

Palliative Strategies

Diarrhea

Major points include:

Avoid “roughage” such as insoluble fibers (fruits, vegetables, whole grains)

Utilize soluble fibers such as oat bran, oatmeal, bananas, apples and rice-based electrolyte beverages such as *Ricelyte/Infalyte and Best-Lyte*

Manage lactose and fat intolerance by avoiding where indicated.

Constipation

Although diarrhea is more common in HIV/AIDS than constipation, some patients may still suffer secondary to drug side-effects and/or poor dietary fiber levels.

Eat insoluble fiber-containing foods: fruits; vegetables, legumes, whole grains, popcorn

Utilize water soluble fibers

Use inexpensive glycerin suppositories

Use laxative medications

Assure adequate hydration – 2 quarts or more per day plus losses from sweat or emesis.

Walking and other weight bearing exercises are helpful as tolerated.

Nausea/Vomiting

Nausea:

Avoid food odors that may inspire nausea.

Avoid favorite foods when nauseated to prevent food aversions.

Use dry, salty foods like broths and crackers. (Caution for those with high blood pressure. Check with physician or dietitian/nutritionist).

Use anti-emetic medications where indicated.

Vomiting:

Eat small, frequent snack sized meals in relaxed surroundings.

Chew foods well

Replace lost fluids with soda or electrolyte drinks.

Fresh air during a meal may be helpful.

Don't lie down flat for at least 1 ½ hours after eating.

First do no harm. Should the information provided here seem to be related to any adverse consequences, check with the physician and/or nutritionist.

Nutrition Counseling

Often, HIV/AIDS patients demonstrate some difficulty in determining priorities in terms of their nutrition healthcare objectives. Listed here are counseling strategies which may be of assistance.

Enhanced Calorie Acquisition – Appetite

Poor appetite is associated with guilt and inability to gain or maintain appropriate weight. Appetite improvement suggestions include:

Small frequent meals (keep the gut working, but not working hard, continuously. This preserves long-term gut function).

The “10 minute window”. Appetite/desire for food will appear and call the patient to eat.

This same appetite may disappear or be blunted after about 10 minutes. The patient then is well advised to keep foods and/or nutraceuticals on hand and available for consumption within that 10-minute window – of opportunity.

Make each bite count. Often, people who are ill tends to change their diet to one considered more healthy. Generalizations in the lay press provide the information for this action type. For example, salads are seen as healthful and are useful for this analogy: change the lettuce to French fries, use extra salad dressing.

Dining in style: light a candle, pour apple juice into a wine glass, use china and silver, and “dine”. Eating in a pleasant environment may enhance calorie accrual.

Orexigenic agents such as Megestrol Acetate and dronabinol are two appetite stimulants that have shown to be beneficial in patients with HIV.

Megestrol Acetate (Megace)

A patient with advanced cancer or AIDS who has severe and chronic anorexia, unwanted weight loss, and does not respond favorably to nutrition counseling and food supplements will gain from using the drug.

Patients with significant gastrointestinal obstruction, dysfunction, or with malabsorption are not candidates for an appetite stimulant.

Side Effects

Sexually active men may develop impotence and women who have not had a hysterectomy may develop vaginal spotting or bleeding. Other side effects include hyperglycemia, thromboembolic events and adrenal insufficiency.

Dose

The most effective dose from both AIDS and cancer studies is 800 mg/day, which is associated with the highest level of appetite enhancement.

How long to continue Megace?

Appetite increases rapidly after Megestrol acetate is started, usually in a matter of hours or days. Food intake also increases at the same time. Weight changes take longer to occur and depend on the severity of the underlying illness. Patients with rapid weight loss before receiving Megace may continue to lose weight, although at a slower rate, for several weeks despite an increase in appetite and food intake. Weight may then stabilize and later increase. A significant weight gain may happen in a patient with low but stable weight and without an acute illness. Patients who have not responded by 6 to 8 weeks of therapy at an adequate dose are unlikely to respond. Discontinuation of the drug usually leads to a level of anorexia and weight loss similar to before treatments. Some patients elect to use the medication as needed over long periods of time.

Effects on Body Composition:

The current studies reveal that both body fat and lean tissue are increased with Megestrol acetate, however, the level of physical activity may have a bearing on the amount of lean tissue gain. Previously, it has been stated that typically only fat weight is gained.

Dronabinol (Marinol)

Marinol contains THC, which is an active ingredient in marijuana that is believed to increase appetite and prevent nausea and vomiting. The same type of patient that is appropriate for Megace is a good candidate for this drug. Patients who are unable to eat and digest food are not candidates for this drug.

Side Effect

A feeling of dizziness, confusion, sleepiness, or a feeling of being “high” may be experienced. These side effects usually disappear within 1-3 days with continued dosage.

Dose

The dose is 5 mg typically orally per day.

Addiction

Marinol has been noted to produce psychological and physiological dependence in healthy individuals. However, addiction is uncommon and has only been seen after prolonged, high dose administration. Withdrawal symptoms may occur if it is stopped suddenly. These symptoms include irritability, restlessness, and trouble sleeping.

Nutrition Support

Parenteral nutrition has shown benefit in patients with malabsorption, excessive diarrhea, small bowel disease and pseudo-obstruction.

Referral Criteria for HIV/AIDS Patients

A person who is HIV infected should be considered at high risk for malnutrition. Counseling and educational materials should be provided as soon as possible upon screening for HIV.

Consultation with a dietitian requires a physician’s written order since it is not “general nutrition advice” but rather advice that is specific to a disease state and tailored to the individual. Patients who seek consultation should be instructed to obtain a written order from their physician. This counseling should be provided by a health care professional who is familiar with nutrition science and behavior therapies and the accompanying complications. Early nutrition intervention is considered prophylaxis for the disease state of malnutrition, of which many HIV persons die. Treatment should be considered an integral part of the overall treatment plan and requires a multidisciplinary approach to assure the most effective treatment and support for other medical regimens. This means that the nutrition counselor must have access to medical records and communication with other health care providers involved.

Indications for referral

Initial screening for HIV status
Anorexia, food avoidance, intolerances (including lactose intolerance)
Nausea/vomiting
Diarrhea (defined as >3 stools / day) or constipation
Food faddism, mega dosing with vitamins, minerals, herbs
Dysphagia
Candidiasis (oral)
Nutrient –drug interactions
Weight loss or weight maintenance with shifting of body composition of fat stores (growing belly, thinning arms)
Slow wound healing
Diabetes mellitus, hypertension, renal or hepatic insufficiency
Chemotherapy or radiation therapy related problems: mucositis, diarrhea
Food access difficulties (immobilized, economic problems, etc.)
Biochemical changes: Serum albumin <3.5 g/dl; TLC <1,600; Hgb <12 g/dl; Hct <40; cholesterol <100
Information /recommendations required for nutritional supplements (both calorie and non-calorie containing supplements)
Recommendations/monitoring and education for enteral nutrition support (cyclic/continuous, HG, NI, enterostomies)
Recommendations/monitoring and education for parenteral nutrition support and hydration (home/in-patient, PPN, TPN)
Any other indication of nutritional risk

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50 gram Fat Diet

Indication

A diet containing no more than 50 grams of fat per day may be indicated for gallbladder disease, gastroparesis, malabsorption, diarrhea or steatorrhea.

Description

This diet contains about 50 grams of fat daily. Convenience foods such as frozen and canned dinners are usually high in fat. Read food labels carefully and look for high fat ingredients, such as cheese, oil, shortening, butter or margarine. Look for “light” frozen dinners with less than 300 calories and less than 10 grams of fat. Use fat free items sparingly. Some contain very small amounts of fat. Scan cookbooks for low fat cooking tips and low fat recipes. When dining out, ask for sauces or salad dressings on the side.

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Bread, cereals, rice, pasta: 6-11 servings daily	Whole grain or enriched breads, cereals, rice, barley and pastas. Use tomato based sauce. Low fat or fat free crackers	Products that have more than 1 gm of fat per serving. Cream based sauces
Vegetables: 3-5 servings daily	Fresh, frozen or canned vegetables cooked in broth or sprinkle with herbs and spices to add flavor.	Prepared with fat, cream cheese, cheese sauces, avocado
Fruits: 2-4 servings daily	All fresh, frozen, canned or dried fruits. All fruit juices	Prepared with cream or cheese sauces
Milk, yogurt, cheese: 2-3 servings daily	Nonfat milk, fat free cheese, low fat or nonfat yogurt and cottage cheese	Low fat, reduced fat, whole milk, buttermilk, chocolate milk and cream. Regular and processed cheese
Meats, poultry, fish, eggs, dried beans, peas and nuts: 2-3 servings or up to 6 oz. daily	Lean meat, poultry without skin. All fresh, frozen or canned fish packed in water. Luncheon meat less than 95% fat. Legumes cooked without added fat, bacon or fatty meat. Eggs whites, egg substitutes, egg yolk/maximum 3 weekly	Fried, fatty or heavily marbled meat. Canned fish packed in oil. Most luncheon meats, including bologna, hot dog, salami, pimento loaf. Dried beans and peas prepared with fat, bacon or high fat meat, nuts, peanut butter.

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Fat: limit to 3-5 servings daily	One serving equals: 1 tsp. soft margarine, olive, canola or cooking oil; 1 tbsp. Diet margarine, reduced calorie creamy salad, low fat mayonnaise or regular oil based salad dressing; 2 tbsp. reduced-calorie oil based or salad dressing, light cream cheese or light sour cream	Bacon, butter, coconut or palm oil, regular salad dressing or mayonnaise; cream cheese, whipped cream, powder or liquid coffee creamer
Snacks, sweets, condiments and beverages	Fat free broth or soups. Sherbet: fruit ice, gelatin, angel food cake, graham crackers and nonfat frozen desserts	Cream or cheese sauces or gravies Cakes, cookies, pies and ice cream Coconut, chocolate and creamed candies. Snacks such as chips, buttered popcorn

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
½ cup Orange juice ½ cup Whole grain cereal 1 Medium banana 2 Slices whole wheat toast 1 tbsp. Diet margarine 1 tbsp. Jelly or jam 1 cup Fat free milk Coffee or tea	1 cup Fat free vegetable soup 4 Saltine crackers 3 oz Lean roast turkey 2 Slices whole wheat bread sliced tomato, lettuce 1 tbsp. Reduced calorie mayonnaise 1 tbsp. Mustard 1 Medium orange Coffee or tea	1 cup Tossed green salad 2 tbsp. Low-fat vinegar & oil salad dressing 3 oz Broiled boneless chicken breast ½ cup Herbed brown rice ½ cup Broccoli 1 Whole grain roll 1 tbsp. Diet margarine ½ cup Fruit ice 1 Medium fresh apple Coffee or tea

Diet for Cardiovascular Disease

Indication

This diet is indicated in the treatment of cardiovascular disease. A DASH diet is also recommended as a treatment of cardiovascular disease. See Section K: Modifications in Sodium for the DASH diet.

Description

This diet is lower in saturated fat, and trans fats. This diet is higher in polyunsaturated and monounsaturated fats. Saturated and trans fats increase blood cholesterol levels which increases atherosclerosis which promotes cardiovascular disease. Saturated fats are found primarily in red meat and dairy products and trans fats are found primarily in baked goods. The largest sources of saturated fat in the average American diet are cheese, pizza and grain and dairy based desserts. Foods that provide saturated fats are: beef, lamb, pork, poultry, lard, butter, cheese and full-fat dairy products. Plant based foods high in saturated fat include palm oil, palm kernel oil and coconut oil. Naturally occurring trans fats are found in milk and meat products as trans fats are produced naturally in the gut of some animals. Artificial sources of trans fats are foods made with partially hydrogenated oils including donuts, cakes, pie crusts, biscuits, frozen pizzas, cookies, crackers and margarines.

2015-2020 RDA

<u>Component</u>	<u>Recommendation</u>
LDL- raising nutrients	
Saturated fats	Less than 10% of total calories
Trans fats	Reduce intake

Recommended Amounts of Saturated fat in Grams

Calorie Level	Saturated Fat Intakes
1,200	less than 13 grams
1,500	less than 17 grams
1,800	less than 20 grams
2,000	less than 22 grams
2,500	less than 28 grams

Sample Menu

	1,800 calories	2,500 calories
Breakfast		
Oatmeal	1 cup	1 cup
Fat-free milk	1 cup	1 cup
Raisins	¼ cup	¼ cup
English Muffin	-	1 medium
Soft margarine	-	2 tsp
Jelly	*	1 tbsp.
Honeydew melon	1 cup	1 cup
Orange juice calcium fortified	1 cup	1 cup
Coffee with fat-free milk	2 tbsp.	2 tbsp.
Lunch		
Roast beef sandwich		
Whole wheat bun	1 med	1 med
Roast beef, lean	2 oz.	2 oz.
Swiss cheese, low fat	1 oz.	1 oz.
Romaine	2 leaves	2 leaves
Tomato	2 medium slices	2 medium slices
Mustard	2 tsp	2 tsp
Pasta Salad	½ cup	1 cup
Pasta noodles	¼ cup	¾ cup
Mixed vegetables	¼ cup	¼ cup
Olive oil	1 tsp	2 tsp
Apple	1 medium	1 medium
Ice tea	1 cup	1 cup
Dinner		
Orange Roughy	2 oz.	3 oz.
Olive oil	2 tsp	2 tsp
Parmesan cheese	1 tbsp.	1 tbsp.
Rice	1 cup	1 ½ cup
Soft margarine	1 tsp	1tsp
Broccoli	½ cup	1 ½ cup
Soft margarine	1 tsp	1 tsp
Strawberries	1 cup	1 cup
Topped with low-fat frozen yogurt	½ cup	½ cup
Water	1 cup	1 cup
Fat-free milk	-	1 cup
Snack		
Popcorn with 1 tbsp. canola oil	2 cups	2 cups
Peaches canned in water	1 cup	1 cup
Calories	1795	2523
Cholesterol	115	139
Sodium	1,128	1,800
Carbohydrates % calories	57	57
Total fat % calories	27	28
Saturated fat % calories	6	6
Protein % calories	19	17

Diet for Cardiovascular disease

Food Group	Foods Allowed	Foods To Avoid
Lean meats, Poultry, Fish, Seafood and meat substitutes	Lean meat, chicken or turkey without skin, shellfish, fish (one time per week), legumes (dry beans, peas, lentils), tofu, lean luncheon meat with 3 grams or less fat	Fatty meats, hot dogs, organ meats, sausage, bacon, luncheon meat
Eggs	Egg whites, egg substitute	Egg yolks – limit to 3 egg yolks per week
Milk and Cheese	Nonfat or 1% fat milk and milk products (yogurt, cheese, cottage cheese) with no more than 2-6 gm/fat/oz.	Whole milk and milk products (yogurt, cheese, cottage cheese), Sour cream, cream cheese
Fruit	Fresh, frozen, canned	
Desserts	Fruit sherbets	Any with added cream or other fat. Ice cream, pastries, cookies, cakes, chocolate.
Fats and Oils	<p>Monounsaturated oil such as olive oil, canola oil, peanut oil.</p> <p>Unsaturated vegetable oils such as corn, rapeseed (canola oil), grapeseed, safflower, sesame, soybean, sunflower</p> <p>Margarine or shortening made from one of the unsaturated oils listed above: diet and tub margarines</p> <p>Fat free or low-fat mayonnaise, salad dressing made with unsaturated oils listed above</p> <p>Fat free or low-fat mayonnaise: salad dressing made with unsaturated oils listed above</p>	<p>Bacon fat, coconut oil, lard, palm oil, butter, meat drippings</p> <p>Stick margarine</p> <p>Dressing and mayonnaise made with egg yolk or cheese such as bleu cheese, Roquefort</p> <p>Dressing with mayonnaise made with egg yolk or such as bleu cheese, Roquefort</p>

Food Group	Foods Allowed	Foods To Avoid
Fats and Oils	Low-fat or nonfat salad dressings, avocado , baked cocoa, appropriate amount of seeds and nuts Limit all fats based on daily fat allowance in meal plan	Chocolate and foods containing chocolate, coconut, coconut oil, palm oil
Breads and Starches	Whole grain breads and cereals. Homemade baked goods using allowed oils, low fat cookies and oils, low fat crackers. Rice and pasta except these made with whole egg.	Breads with eggs as a main ingredient. Cereals with above fat listed to be restricted. Ready-made baked goods, sweet breads, pastries and cakes. Biscuits, pancakes, waffles, doughnuts.
Vegetables	Fresh, frozen or canned	Vegetables made with butter or cream made from whole milk.
Soups	Bouillon, broth base soups without fat, cream soups made with nonfat milk.	Cream soups made with butter, whole milk and cream.
Miscellaneous	Herbs and spices	Seasoned coating mixes.

Heart Healthy Cooking Tips

- Select meats labeled “select” or “choice” rather than “prime”. “Select” and “choice” meats are redder in color and lower in saturated fat, i.e., beef eye round, pork tenderloin.
- Trim visible fat from meat and remove skin from poultry before cooking.
- Small amounts of meat, fish or poultry can be combined with vegetables, pasta, rice or other grains for a hearty entrée.
- Cook foods by baking, broiling, boiling, roasting, grilling, stewing or steaming.
- Place meats on a rack so fat can drain off.
- Switch to low fat or fat free dairy products and cheese.
- Skim milk and low fat cheese may be used for making sauces for vegetables.
- Select a margarine which lists liquid oil as the first ingredient.
- Opt for a margarine that is free of trans-saturated fat (hydrogenated oils).
- Substitute two egg whites or ¼ cup of liquid egg substitute for one whole egg.
- Read labels carefully. Choose foods having more polyunsaturated and monounsaturated fats than saturated fats. Omit foods with Trans-fat.
- Cook with vegetable oils instead of butter or shortening. Good choices include olive, canola oil, peanut oil or tub margarine.
- Include Omega-3 fatty acids in the diet such as salmon, mackerel, albacore tuna and lake trout once a week.
- Omega-3 fatty acids are also found in ground flaxseeds, walnuts, canola oil and soybean oil.
- Increase the use of soy in the diet. The recommended level of soy protein is 25 grams per day.
- Increase the use of monounsaturated fats (15-30 grams per day). The grams of monounsaturated fat in 1 oz. (3 tbsp.) of nuts: Macadamia -16.5 gm, filberts -14.0 gm, pecans -11.4 gm, almonds- 9.5 gm. pistachios – 9.3 gm
- Every 1 – 2 grams soluble fiber reduces LDL cholesterol by 1%
- Try to eat 15 grams soluble fiber each day (20-25 grams) of total fiber.
- Legumes, fruits, root vegetables, oats, barley and flax are good sources of soluble fiber.
- Increase intake of Anti-Oxidants by eating a diet rich in fruits and vegetables.
- Aim for 5-9 servings of fruits and vegetables each day.
- Beta-Carotene and Vitamin A can be found in carrots, broccoli, collard greens, kale, spinach, and apricots.
- Vitamin C sources include broccoli, cantaloupe, citrus, kiwi, red pepper, strawberries and tomatoes.
- Reduce the salt in your diet by avoiding canned or commercially prepared foods. Remove the salt shaker from the table and replace with Mrs. Dash, or mixture of spices and herbs.

Table J-I Fatty Acid and Cholesterol Content in Food Dairy Products and Related Products

	Serving size	Total Fat (g)	Saturated Fatty Acids (gm)	Mono-unsaturated Fatty Acids (gm)	Poly-unsaturated Fatty Acids (gm)	Cholesterol (mg)	Food Energy Calories
Milk							
Fluid whole	1 cup	8.2	5.1	2.4	0.3	33	150
2% Nonfat Milk solids added	1 cup	4.7	2.9	1.4	0.2	18	125
1%	1 cup	2.6	1.6	0.8	0.1	10	102
Nonfat	1 cup	0.4	0.3	Trace	0	4	86
Buttermilk (cultured)	1 cup	2.2	1.3	0.6	0	9	99
Cheese							
American & Swiss processed	1 oz.	8.3	5.2	2.2	0.3	26	101
Bleu	1 oz.	8.2	5.3	2.2	0.2	21	100
Camembert	1 oz.	6.9	3.4	2.0	0.2	20	85
Cheddar	1 oz.	9.4	6.0	2.7	0.3	30	114
Cottage, creamed 4% fat	1 cup	9.5	6.0	2.7	0.3	31	217
Cottage, uncreamed 1% fat	1 cup	2,3	1,5	0,7	0	10	164
Cream cheese	1 oz.	9.9	6.2	2.8	0.4	31	99
Cream cheese 1%	1 oz.	4.7	2.8	-	0.1	16	62
Feta	1 oz.	6.0	4.2	1.3	0.2	25	75
Mozzarella part skim	1 oz.	4.5	2.9	1.3	0.1	16	72
Muenster	1 oz.	8.5	5.4	2.5	0.2	27	104
Parmesan, grated	1 Tbsp	1.5	1.0	0.4	0	4	23
Ricotta part skim	½ cup	9.8	6.1	2.9	0.3	38	171
Roquefort	1 oz.	8.7	5.5	2.4	0.4	26	105
Swiss	1 oz.	7.8	5.0	2.1	0.3	26	107
Titlist, whole milk	1 oz.	7.4	4.8	2.0	0.2	29	96
Cream							
Light (coffee table) cream	1 Tbsp.	2.9	1.8	0.8	0.1	10	29
Heavy whipping	1 Tbsp.	5.6	3.5	1.6	0.2	21	52
Sour, cultured	1 Tbsp.	2.5	1.6	0.7	0	5	26
Liquid, coffee mate, non-dairy	½ oz.	1.0	0.3	0.7	0.1	0	16
Light, mocha mix	½ oz.	1.6	0.3	0.6	0.7	0	14
Related Products							
Ice milk, soft serve	½ cup	2.3	1.4	0.7	0.1	10	111
Ice milk, hardened	½ cup	2.8	1.7	0.8	0.1	9	92
Ice cream, 10% fat	½ cup	7.3	4.5	2.1	0.3	29	132
Ice cream, 16%	½ cup	12	7.4	3.5	0.5	45	178
Sorbet & Cream, Haagen-Dazs	½ cup	5.2					153
Yogurt, plain part skim	8 oz.	3.5	2.3	1.0	0.0 1	14	144
Yogurt, frozen soft serve	½ cup	4.3	2.6	1.3	0.2	3	115

Table J-II Fatty Acid and Cholesterol Content in Food Cooked Meat, Poultry, Fish and Related Products*

	Serving size	Total Fat (g)	Saturated Fatty Acids (gm)	Monoun-saturated Fatty Acids (gm)	Poly-unsaturated Fatty Acids (gm)	Cholesterol (mg)	Food Energy Calories
Meats							
Lean Beef	3.5 oz.	7.8	2.6	3.5	0.3	78	193
Ham	3 oz.	9.3	3.4	3.9	0.8	76	186
Pork, lean broiled	3.5 oz.	10.5	3.6	4.7	1.3	98	231
Lean Veal, roasted leg (top round)	3.5 oz.	3.4	1.2	1.2	0.3	103	150
Lamb leg and shoulder, broiled	3.5 oz.	7.3	2.6	3.0	0.7	90	186
Poultry							
(roasted light meat skinless)	3.5 oz.	4.5	1.3	1.5	1.0	85	173
Fish							
lean: Cod raw	3 oz.	0.6	0.1	0.1	0.2	37	70
fatty: Salmon Atlantic	3 oz.	5.4	0.8	1.8	2.2	47	121
Canned Fish Sardines (canned in oil; drained solids)	2 sardines	2.8	0.4	0.9	1.2	34	50
Shellfish							
Crab, Dungeness, cooked	3 oz.	1.1	0.1	0.2	0.3	64	94
Clams, ½ cup cooked	19 small	1.7	0.2	0.1	0.5	57	126
Lobster, cooked.	3 oz.	0.5	0.1	0.1	0.1	81	83
Oyster, eastern, cooked	3 oz.	4.2	1.1	0.4	1.3	93	117
Scallops, sea	3.5 oz.	0.7	0.1	0	0.3	27	59
Shrimp	15 lg.	0.9	0.2	0.2	0.4	166	84
Related Products							
Liver, Beef	3.5 oz.	4.9	1.9	0.7	1.1	389	161
Frankfurters (all beef; 30% fat)	1.5 oz.	12.7	5	6.2	0.5	23	141
Sweetbreads (calf)	3 oz.	1.8	n/a	n/a	n/a	396	82
Eggs, chicken, boiled hard/soft	1 large	5.3	1.6	2.0	0.7	213	77

*Always check labels for current data.

Table J-III Fatty Acid and Cholesterol Content in Food Fats, Oils and Related Products*

	Serving size	Total Fat (g)	Saturated Fatty Acids (gm)	Monounsaturated Fatty Acids (gm)	Polyunsaturated Fatty Acids (gm)	Cholesterol (mg)	Food Energy Calories
Peanut Butter	2 tbsp.	16.0	3.1	7.5	4.6	0	188
Bacon, cooked crisp	2 slices	8.0	2.5	3.7	0.7	14	85
Bacon, Canadian (unheated)	3 ¼ oz. 2 slices	4.0	1.3	1.8	0.4	28	89
Butter	1 tbsp.	12.0	7.6	3.6	0.4	33	108
Lard	1 tbsp.	13.0	5.1	5.3	1.3	13	115
Tub Margarines							
Safflower oil	1 tsp.	3.8	0.4	1.1	2.1	0	34
Corn oil	1 tsp.	3.8	0.7	1.5	1.5	Trace	34
Sticks Margarines							
Corn oil	1 tsp.	3.8	0.7	1.8	1.1	0	34
Imitation Margarine Diet**	1 tsp.	1.9	0.3	0.7	0.8	0	17
Mayonnaise	1 tbsp.	11.0	1.7	3.3	5.9	51	100
Vegetable Shortening (hydrogenated)	1 tbsp.	12.0	3.1	6.0	3.6	0	106
Polyunsaturated oils							
Corn oil	1 tbsp.	13.6	1.7	3.3	8.0	0	120
Corn oil Fleischman's	1 tbsp.	14	2.0		8.0	0	120
Cottonseed oil	1 tbsp.	13.6	3.5	2.4	7.1	0	120
Safflower oil	1 tbsp.	13.6	1.2	1.6	10.1	Trace	120
Sesame oil	1 tbsp.	13.6	1.9	5.4	5.7	Trace	120
Soybean oil	1 tbsp.	13.6	2.0	3.2	7.9	Trace	120
Sunflower oil	1 tbsp.	14	1.7		9.7		120
Margarine Spreads w/ Stanols Sterols:							
Take Control™	1 serving	6					50
Benecol™	1 serving	5					45
Benecol™ light	1 serving	3					30
Monounsaturated Oils							
Canola oil	1 tbsp.	14	1.0	8.2	4.1	0	124
Olive oil	1 tbsp.	13.5	1.8	9.9	1.1	0	119
Peanut oil	1 tbsp.	13.5	2.3	6.2	4.2	0	119
Baker's Joy Baking spray	1 spray	0	0	0	0	0	4
Mazola No stick spray	2.5 sec. spray	0.2	0	0	0.1	0	2

*Always check labels for current data.

Source: Bowes & Church's Food Values of Portions Commonly Used, Eighteenth Edition.

Diet Baja en Grasa 50 gramos

✚ Indicación

Una dieta que contiene no mas de 50 gramos de grasa puede ser indicada para la enfermedad de la vesícula biliar, la gastroparesia, malabsorción, diarrea o esteatorrea.

✚ Descripción

Esta dieta contiene aproximadamente 50 gramos de grasa al día. Alimentos de conveniencia tales como los alimentos congelados o enlatados usualmente son altos en grasa. Lea las etiquetas nutricionales cuidadosamente y evite ingredientes altos en grasa tales como el queso, aceite, manteca, mantequilla o margarina. Si va a usar alimentos congelados busque las opciones que sean "light" con menos de 300 calorías y menos de 10 gramos de grasa. Use alimentos sin grasa con moderación ya que algunos tiene una cantidad pequeña de grasa. Use libros de recetas para obtener ideas para cocinar bajo en grasa y recetas bajo en grasa. Cuando salga a cenar, pida salsas y aderezos al lado de su alimento.

Grupo de Alimentos	Permitido/Recomendado	Evite/Use Con Moderación
Pan, cereales, arroz, pasta: 6-11 servicios diarios	Grano entero o pan enriquecido cereales, arroz, cebada y pastas. Use tomate basado en salsa. Galletas bajas en grasa o sin grasa	Productos que tengan más de 1 gramo de grasa por servicio Salsas basadas de crema
Vegetales: 3-5 servicios diarios	Vegetales frescos, congelados o enlatados cocinados en caldo o añada hierbas y especias para añadir sabor.	Preparado con grasa, cremas, queso, salsas de queso y aguacate
Frutas: 2-4 servicios diarios	Todo fresco, congelado o enlatado y todos tipo de jugo de fruta	Preparado con cremas o salsas de queso
Leche, yogur, queso: 2-3 servicios diarios	Leche sin grasa, baja en grasa, requesón	Leche baja en grasa, grasa reducida, entera, suero de mantequilla, leche de chocolatey crema. Queso regular y procesado.
Carne, aves, pescado, huevos, frijoles secos, chicharos y nueces: 2-3 servicios o 6 oz. diarios	Carne magra, aves sin piel. Pescado fresco, congelado o enlatado empacados en agua Carnes procesadas con menos de 95% de grasa. Legumbres cocinados sin grasa añadida, tocino, o carne grasosa. Clara de huevos, huevos sustituto, yema no mas de 3 veces por semana.	Carne frita, grasosa o carne con marmól. Pescado en aceite, carne procesada como bologna, hot dog, salami, pimiento loaf. Frijoles secos y chicharos preparados con grasa, tocino, o carne alta en grasa, nueces, y mantequilla de maní.

Grupo de Alimentos	Permitido/Recomendado	Evite/Use Con Moderación
Grasa: límite a 3-5 servicios diarios	Un servicio equivale a: 1 cda. de margarina, aceite de oliva, canola o aceite para cocinar; 1 cda. margarina de dieta, mayonesa baja en grasa o aderezo basado en aceite: 2 cda. Aceite reducido en clorías o aderezo de ensalada, queso crema o crema agria "light".	Tocino, mantequilla, aceite de coco o aceite de palma aderezo regular o mayonesa, queso crema, crema batida, crema de café en polvo o liquido.
Meriendas, dulces, condimentos y bebidas	Caldo o sopa sin grasa, Sherbet: hielo de fruta, hielo, gelatina, pastel de ángel, galletas graham, fruit ice, gelatin, angel food cake, graham crackers y postres congelados sin grasa.	Crema o salsas de queso, salsas de carne. Pasteles, galletas, empanadas, y nieve. Coco, chocolate y dulces de crema. Meriendas como papitas o palomitas con mantequilla.

EJEMPLO DE MENU-1 DIA

Desayuno

½ taza jugo de naranja
 ½ taza cereal integral
 1 banana mediana
 2 rebanadas de pan integral
 1 cda. Margarina de dieta
 1 naranja mediana
 1 cda. de mermelada
 1 taza leche sin grasa
 1 Café o té

Almuerzo

1 taza de sopa de vegetales
 4 galletas de soda
 3oz pavo bajo en grasa
 2 rebanadas de pan integral
 tomate rebanado, lechuga
 1 cda. Mayonesa baja en grasa
 1 cda. Mostaza
 1 Café o té

Cena

1 taza ensalada verde
 2 cda vinagre bajo en grasa o aderezo de aceite
 3oz pechuga de pollo azado a la parrilla
 ½ taza de arroz integral
 ½ taza de brócoli
 1 pan integral
 1 cda margarina de dieta
 ½ taza de hielo de fruta
 1 manzana mediana
 1 Café o té

Dieta para la Enfermedad Cardiovascular

Indicación

Esta dieta es indicada para el tratamiento de la enfermedad cardiovascular. Una dieta DASH (Consejos Dietéticos para frenar la Hipertensión) también es recomendada como tratamiento para la enfermedad cardiovascular. Vea sección K: Modificaciones en sodio para la dieta DASH.

Descripción

Esta dieta esta baja en grasa saturada y grasas trans. Esta dieta es mas alta en grasas poliinsaturadas y monoinsaturadas. Grasas saturadas y trans incrementan los niveles de colesterol en la sangre haciendo que incrementamente la aterosclerosis que promueve la enfermedad cardiovascular. Las grasas saturadas se encuentran primeramente en carnes rojas y productos lácteos y las grasas trans se encuentran en productos horneados. La fuente más grande de grasas saturadas en la dieta Americana es en los quesos, pizza y postres con granos y basados en lácteos. Alimentos que proveen grasas saturadas son: carnes de res, cordero, puerco, aves, manteca de cerdo, mantequilla, queso y productos lácteos con grasa entera. Alimentos con grasa saturada en plantas incluyen aceite de palma, almendra de palma, aceite de coco. Grasas trans que ocurren naturalmente se encuentran en la leche y productos de carne la razón es porque las grasas trans se producen naturalmente en las tripas del animal. Fuentes artificiales de grasas trans se encuentran en alimentos hechos con aceites parcialmente hidrogenados incluyendo las donas, pasteles, maza de pastel, panecillos, pizzas congeladas, galletas y margarinas.

Recomendación de Dieta

Componente	Recomendación
LDL- nutrientes que elevan	
Grasas Saturadas	Menos de 6% de las calorías en total
Grasas Trans	Reduzca ingesta

Recomendación de Grasa Saturadas en Cantidad de Gramos

Nivel de Calorías	Ingesta de Grasas Saturadas
1,200	menos de 8 gramos
1,500	menos de 10 gramos
1,800	menos de 12 gramos
2,000	menos de 13 gramos
2,500	menos de 17 gramos

Menu de Ejemplo

	1,800 calorías	2,500 calorías
Desayuno		
Avena	1 taza	1 taza
Leche sin grasa	1 taza	1 taza
Pasas	¼ taza	¼ taza
Panecillo Inglés	-	1 med
Margarina	-	2 cda
Mermelada	*	1 cda
Melón	1 taza	1 taza
Jugo de naranja fortificado con calcio	1 taza	1 taza
Café con leche sin grasa	2 cda	2 cda
Almuerzo		
Sándwich de carne asada		
Panecillo integral	1 med	1 med
Carne asada, magra	2 oz	2 oz
Queso suizo, bajo en grasa	1 oz	1 oz
Lechuga romana	2 hojas	2 hojas
Tomate	2 rebanadas medianas	2 rebanadas medianas
Mostaza	2 cda	2 cda
Ensalada de pasta	½ taza	1 taza
Pasta de fideos	¼ taza	¾ taza
Vegetales mixtos	¼ taza	¼ taza
Aceite de Oliva	1 cda	2 cda
Manzana	1 med	1 med
Té helado	1 taza	1 taza
Cena		
Pescado reloj anaranjado	2 oz.	3 oz.
Aceite de Oliva	2 cda	2 cda
Queso parmesano	1 cda	1 cda
Arroz	1 taza	1 ½ taza
Margarina	1 cda	1 cda
Brócoli	½ taza	1 ½ taza
Margarina	1 cda	1 cda
Fresas	1 taza	1 taza
Con yogur bajo en grasa	½ taza	½ taza
Agua	1 taza	1 taza
Leche sin grasa	-	1 taza
Merienda		
Palomitas con 1 cda de aceite canola	2 tazas	2 tazas
Durazno en su jugo	1 taza	1 taza
Calorías	1795	2523
Colesterol	115	139
Sodio	1,128	1,800
Carbohidratos % calorías	57	57
Grasa total % calorías	27	28
Grasa Saturada % calorías	6	6
Proteína % calorías	19	17

Dieta para la enfermedad cardiovascular

Grupo de Alimento	Comidas Permitidas	Alimentos que debe evitar
Carnes magras, aves, pescado, mariscos, y carnes sustitutos.	Carnes magras, aves sin piel, mariscos, pescados (una vez a la semana), legumbres, (frijoles, chícharos, lentejas), tofu, carnes procesadas bajas en grasa con menos de 3 gramos de grasa.	Carnes grasosas, "hot dogs", vísceras, salchichas, tocino, carnes procesadas.
Huevos	Clara de huevo, huevo sustituto	Yema – limite a 3 yemas por semana
Leche y Queso	Leche sin grasa o 1% o productos lácteos (yogur, queso, requesón) no más de 2-6 gm/grasa/oz	Leche entera y productos lácteos regulares (yogur, queso, requesón, crema agria, queso crema
Fruta	Fresca, congelada, y enlatada	
Postres	Helados de fruta	Cualquiera que tenga nieve añadida u otra grasa. Nieve, postres, galletas, pasteles y chocolate.
Grasas y aceites	Aceite monoinsaturada como aceite de oliva, canola, maní. Aceites de vegetal no saturadas como maíz, canola, uva, cártamo, sésamo, soya, girasol	Grasa de tocino, aceite de coco, aceite de puerco, aceita de palma, mantequilla, sobrantes de carne.
	Margarina o materia de grasa aceites no saturadas listada anteriormente: margarina de dieta	Margarina
	Mayonesa baja en grasa o baja en grasa, aderezo hecho con aceites no saturados listados anteriormente	Aderezo y mayonesa hechos con yema o queso como queso azul, Roquefort.

Grupo de Alimento	Comidas Permitidas	Alimentos que debe evitar
Grasas y aceites	Aderezos bajos en grasa o sin grasa, aguacate, coco horneado, cantidad apropiada de nueces. Limite todas las grasas basadas en su plan de alimentación.	Chocolate y alimentos que contienen chocolate. Coco, aceite de coco, aceite de palma.
Panes y almidón	Panes y cereales integral. Alimentos cocinados en casa con grasas permitidas, galletas bajas en grasa, galletas de soda bajas en grasas. Arroz y pasta sin huevos.	Panes con huevos como al alimento principal. Cereales con grasas que debe evitar. Alimentos horneados procesados, pan dulce, postresa y pasteles. Panqueques, waffles, donas.
Vegetales	Frescos, congelados o enlatados	Vegetales hechos con mantequilla o crema hecha con leche entera.
Sopas	Bouillon, sopas de caldo sin grasa, sopas de crema con leche sin grasa.	Sopas de crema, sopas hechas con mantequilla, leche entera y crema
Misceláneo	Hierbas y especias	Mesclas de sasonadores

Consejos Para Cocinar

- Seleccione carnes etiquetadas “select” o “choice” en vez de “prime”. “Select” y “choice” son más rojas en color y bajas en grasas saturadas.
- Corte grasas visibles de las carnes y remueva la piel de las aves antes de cocinar.
- Cantidades pequeñas de carnes, pescado o aves pueden ser combinadas con vegetales, pasta, arroz u otros granos.
- Cocine alimentos horneando, asando, hirviendo o cocinando al vapor.
- Ponga carnes en una parrilla para que las grasas se escurran.
- Cambie a productos lácteos bajos en grasa o sin grasa y quesos.
- Leche desnatada y queso bajo en grasa pueden ser usados para hacer salsas y vegetales.
- Seleccione margarina que indique el aceite como primer ingrediente.
- Opcione por margarina sin grasas trans (aceites hidrogenados).
- Sustituya dos claras de huevo o 1/4 taza de huevo sustituto en líquido por un huevo entero.
- Lea etiquetas nutricionales cuidadosamente. Escoga alimentos que tengan más grasas poliinsaturadas y monoinsaturadas que grasas saturadas. Evite grasas trans por completo.
- Cocine con aceite de vegetales en vez de mantequilla. Buenas opciones son aceite de oliva, canola, maní, o margarina en contenedor.
- Incluya ácidos grasos de Omega-3 en la dieta como salmon, caballa, albacora, tuna y trucha de lago una vez a la semana.
- ácidos grasos de Omega-3 también se encuentran en semillas de lino molidas, nueces “walnuts, canola y aceite de soya.
- Incremente el uso de soya en la dieta. La recomendación es 25 gramos por día.
- Incremente el uso de grasas monoinsaturadas (15-30 gramos por día) Los gramos de grasa monoinsaturadas en 1 onza (3 cucharadas) de nueces: macadamia -16.5 gm, pacans -11.4 gm, almendra- 9.5 gm. pistacho – 9.3 gm
- Cada 1 – 2 gramos de fibra soluble reduce el colesterol LDL por 1%.
- Trate de comer 15 gramos de fibra soluble cada día (20-25 gramos) de fibra total.
- Legumbres, frutas, vegetales de raíz, avena, cebada y lino son buenas fuentes de fibra soluble.
- Incremente la ingesta de antioxidantes con una dieta rica en frutas y vegetales.
- Consuma 5-9 porciones de fruta y vegetales diariamente
- Beta-Caroteno y Vitamina A pueden ser encontrados en zanahorias, brócoli, col rizada, espinaca, albaricoques.
- Buena fuente de Vitamina C incluyen brócoli, melón, kiwi, cítricos, pimiento rojo, fresas y tomates.
- Reduzca la sal en su dieta evitando enlatado o preparado comercialmente. Remueva el salero de la mesa y sustituya con “Mrs. Dash” o mezcle hierbas y especias.

Sodium Restricted Diets

Indication

Sodium restricted diets are used to control hypertension, and to prevent, control, and/or reduce edema. They are also prescribed in the treatment of congestive heart failure, liver disease (cirrhosis, ascites), renal disease, and with adrenocortical therapy. The degree of sodium restriction will depend on the medical condition of the individual patient.

The 2015-2020 Dietary Guidelines for Americans advises adults to consume no more than 2,300 mg of sodium per day to lower blood pressure. For even greater reduction in blood pressure, a daily sodium intake of 1,500 mg is recommended. Even a reduction of 1,000mg per day from usual sodium intake was beneficial in lowering blood pressure. It is recommended to combine the DASH dietary pattern with reduced sodium intake.

Description

The diet order should be written in terms of milligrams of sodium per day. Diet orders such as “low salt,” “low sodium,” and “salt-free” are not acceptable and should be clarified with the physician. Until the order can be clarified, the patient will receive a 2,000 mg sodium diet. The following sodium levels are provided in this manual with suggested meal patterns.

Sodium Levels

1,500 – 2,400 mg sodium
 2,000 mg sodium (87 mEq)
 3,000-4,000 mg sodium
 (130-174 mEq)

Description

DASH Diet
 2 gm Low Sodium
 No Added Salt or Low Salt

Table salt and highly salted foods are eliminated on all sodium restricted diets. Foods which naturally contain moderate amounts of sodium, such as meat, milk, and eggs, are limited depending on the level of sodium restriction.

Nutrition Adequacy

These diets are adequate in all nutrients specified in the Dietary Reference Intakes.

Additional Information

Sodium is an essential mineral. Sodium occurs naturally in most foods. A certain amount of sodium is necessary for optimal health and well-being; everyone requires a certain amount of sodium every day. When a person is well, the kidneys eliminate extra sodium the body does not need. In certain illnesses, however, the extra sodium stays in the body along with fluid and may result in edema, which may be harmful to the patient with renal or cardiovascular disease. To help prevent this accumulation of sodium and water in the body, sodium in the diet is provided only in amounts the body needs to maintain a balance of sodium and water.

Many people may be confused about the difference between sodium and salt. Sodium is not salt, but ordinary table salt (chemical name: NaCl or sodium chloride) is nearly half sodium. One quarter teaspoon of table salt has approximately 500 mg of sodium. Most foods contain some sodium, either because the sodium is naturally present or because it has been added in some form. The typical American sodium intake is 3,400mg per day or higher.

Fresh foods contain very little sodium. Protein foods such as eggs, meat, poultry, fish, and milk contain more sodium and these foods are measured on most sodium restricted diets. Sodium values of vegetables vary considerably, depending on whether vegetables are fresh or processed; those excessively high are not allowed on the diets such as sauerkraut and canned vegetables.

Sodium, combined with other chemical elements, may be added to foods as they are processed or prepared. Whether sodium or these sodium combinations have been added to foods is best recognized by carefully reading food labels. If the label contains the word "Sodium" or "Soda," or the chemist's symbol for sodium, "Na," then the food should be used with caution and calculated into the patient's specific daily sodium allowance.

Avoid salty foods like smoked, processed, canned or pickled meats: bacon, beef jerky, Bratwurst, deli meats, ham, liverwurst, sausage, pepperoni, and salami, canned salmon, sardines or canned tuna. Condiments such as: barbecue sauce, chili sauce, steak sauce, taco sauce, Worcestershire sauce, gravy, bouillon, catsup, cheese, dill pickle, soy sauce (light and regular), teriyaki sauce, mustard, salt, sea salt, light salt, seasoned salt, garlic salt, onion salt, lemon pepper, salad dressing. Salty snacks: such as corn chips, potato chips, salted nuts and seeds, olives, pretzels, snack crackers. Other items such as: canned vegetables, pancakes, waffles, pastas with sauce, rice mixes, salted peanut butter, canned soup, stuffing, and vegetable juice are limited or avoided.

Some sodium compounds to be avoided are: baking soda, baking powder, Brine, Monosodium glutamate (accent, MSG), sea salt, kosher salt and flavored salts. Several commercial salt substitutes are available on the market. Some of these contain potassium chloride instead of sodium chloride such as No Salt, "Lite Salt" and should only be used with a physician's permission since some are contra indicators with some medications.

Table K-I: Sodium expressed as Milligrams, Milliequivalents or Sodium Chloride

Sodium (mg)	mEq	NaCl (g)	NaCl- table salt (household measure)
250	11	0.63	1/8 tsp.
500	22	1.25	¼ tsp.
1,000	44	2.50	½ tsp.
2,000	87	5.0	1 tsp.
2,400-4,500	105-197	6.1-11.4	1 ¼ tsp. – 2 ¼ tsp.

USE THE FOOD LABELS TO COMPARE PRODUCTS!

Serving Size:

Similar foods have standard serving sizes. This makes it easier to compare foods. Always compare the label serving size with the amount you actually eat.



Nutrition Facts			
Serving Size 1 cup (228g)			
Serving Per Container 2			
Amount Per Serving			
Calories 90 <small>Calories from Fat 30</small>			
		% Daily Value*	
Total Fat			5%
Saturated Fat	0g		0%
Cholesterol	0mg		0%
Sodium	300mg		13%
Total Carbohydrate	13g		4%
Dietary Fiber	3g		12%
Sugar	3g		
Protein	3g		
Vitamin A 80% * Vitamin C 60%			
Calcium 4% * Iron 4%			
<small>* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:</small>			
		<small>Calories</small>	<small>2,000 2,500</small>
Total Fat	<small>Less than</small>	<small>65g</small>	<small>80g</small>
Sat Fat	<small>Less than</small>	<small>20g</small>	<small>25g</small>
Cholesterol	<small>Less than</small>	<small>300mg</small>	<small>300mg</small>
Sodium	<small>Less than</small>	<small>2,400mg</small>	<small>2,400mg</small>
Total Carbohydrate		<small>300g</small>	<small>375g</small>
Dietary Fiber		<small>25g</small>	<small>30g</small>
<small>Calories per gram:</small>			
<small>Fat 9 • Carbohydrate 4 • Protein 4</small>			

Nutrition Information

Select those nutrients that are of concern to you when comparing products. See the "Sodium Terms" section to identify low sodium foods.

Sodium Terms

- **High Sodium:** 400 mg or more per serving
- **Low Sodium:** 140 mg or less per serving
- **Very Low Sodium:** 35 mg or less per serving
- **Sodium Free:** Less than 5 mg sodium per serving
- **Salt Free:** Meets requirements for sodium free
- **Reduced Sodium:** at least 25% less sodium when compared with a similar food
- **Light in Sodium:** 50% less sodium per serving
- **Unsalted, No added salt, without added salt:** no salt is added during processing compared to a similar product that is normally processed with salt.

DASH: Dietary Approaches to Stop Hypertension (1,500 mg or 2,400 mg Sodium)

The Dietary Approaches to Stop Hypertension (DASH) diet has been shown to be effective in lowering blood pressure and improving lipid profiles by reducing the amount of sodium consumed and increasing intake of fresh fruits and vegetables. While each step alone lowers blood pressure, the combination of the eating plan at appropriate calorie levels and a reduced sodium intake with increased potassium intake gives the biggest benefit in decreasing blood pressure and improving lipid profiles.

The menus and recipes are given for two levels of daily sodium consumption: 2,400 mg and 1,500 mg. Those with high blood pressure may especially benefit from following the 1,500 mg eating plan to reduce sodium intake.

High blood pressure can be controlled with these steps:

- 1) Maintain a healthy weight
- 2) Be physically active
- 3) Follow a healthy eating plan, which includes foods lower in salt and sodium
- 4) If you drink alcoholic beverages, so do in moderation or as directed by your physician
- 5) If you take medication as prescribed by your physician.

DASH Eating Plan – Number of Servings for Calorie Levels per Day

Food Group	1,500 Calories	2,000 Calories	3,100 Calories
Grains and grain products	5	7-8	12-13
Vegetables	3-4	4-5	6
Fruits	4	4-5	6
Low fat or fat free dairy foods	2	2-3	3-4
Meats, poultry, and fish	2	2 or less	2-3
Nuts, seeds, and dry beans	3/week	4-5 / week	1
Fats and oils	2	2-3	4
Sweets	0	2/week	2/week

Guide to DASH EATING PLAN – 2,000 Calories

Food Group	Daily Servings	Serving Sizes	Examples and Notes	Significance of each Food Group to the DASH Eating Plan
Grains and grain products	7-8	1 slice bread 1 oz. dry cereal ½ c cooked rice, pasta, or cereal	Whole wheat bread, English muffin, pita bread, bagel, cereals, grits, oatmeal, crackers, unsalted pretzels and popcorn	Major sources of energy and fiber
Vegetables	4-5	1 c raw leafy vegetable ½ c. cooked vegetables 6 oz. unsalted vegetable juice	Fresh tomatoes, carrots, green peas, green beans, squash, broccoli, turnips greens, collards, kale, spinach, artichokes, green beans, lima beans	Rich sources of potassium, magnesium and fiber
Fruits	4-5	6 oz. fruit juice 1 medium fruit ¼ c dried fruit ½ c fresh, frozen or canned fruit	Apricots, bananas, dates, grapes, tangerines, oranges, orange juice, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, prunes, raisins, blueberries, strawberries	Important sources of potassium, magnesium, and fiber
Low fat or fat free dairy foods	2-3	8 oz. low fat milk 1 c yogurt 1 ½ oz. cheese	Fat free (skim) or low fat (1%) milk, fat free or low fat, low salt buttermilk, fat free or low fat regular or frozen yogurt, low fat and fat free cheese	Major sources of calcium and protein
Meats, poultry, and fish	2 or less	3 oz. cooked fresh meats, poultry, or fish	Select only lean trimmed meats; broil, roast, or boil, instead of frying; remove skin from poultry	Rich sources of protein and magnesium
Nuts, Seeds, and dry beans	4-5 per week	1/3 cup or 1 ½ oz. salt free nuts 2 tbsp. or ½ oz. salt free seeds ½ c cooked dry beans, peas	Salt free nuts or seeds: Almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds; kidney beans, lentils	Rich sources of energy, magnesium, potassium, protein and fiber
Fats and Oils	2-3	1 tsp soft margarine 1 tbsp. low fat mayonnaise 2 Tbsp. light salad dressing 1 tsp vegetable oil	Soft margarine in tub, low fat mayonnaise, light salad dressing, vegetable oil (such as olive, corn, canola or safflower)	DASH has 27% of calories as fat, including good fat in or added to foods
Sweets	2 per week	1 tbsp. sugar 1 tbsp. jelly or jam ½ oz. jelly beans 8 oz. lemonade	Maple syrup, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch, sorbet, ices	Sweets should be low in fat

Tips to Reduce Salt and Sodium:

- Use reduced sodium or no-salt-added products. For example, choose low or reduced sodium, or no-salt-added versions of foods and condiments.
- Buy fresh, plain frozen or canned with “no-salt added” vegetables.
- Use fresh poultry, fish and lean meat, rather than kosher, canned, smoked or processed meats.
- Choose ready-to-eat breakfast cereals that are lower in sodium.
- Limit cured foods (bacon and ham), foods packed in brine (pickles, pickled vegetables, olives and sauerkraut), and condiments (MSG, mustard, horseradish, catsup and barbecue sauce). Limit even lower sodium versions of soy sauce and teriyaki sauce- treat these condiments as you do table salt.
- Use spices and herbs instead of salt. In cooking and at the table, flavor foods with herbs, spices, lime, lemon, vinegar, or salt-free seasoning blends.
- Cook rice, pasta, and hot cereals without salt. Cut back on instant or flavored rice, pasta, and cereal mixes which usually have added salt.
- Choose “convenience” foods that are lower in sodium. Cut back on frozen dinners, mixed dishes such as packaged mixes, canned soups or broths and salad dressings – these often have a lot of sodium.
- Rinse & soak canned foods, such as beans to remove some sodium. Only use water packed no salt added in tuna or salmon.

Compare Food Labels

Read the Nutrition Facts on food labels to compare the amount of sodium in products. Look for the sodium content in milligrams and the Percent Daily Value. Aim for foods that are less than 5 percent of the Daily Value of Sodium.

Label Language

Phrase	What It Means
Sodium	
Sodium free or salt free	Less than 5 mg per serving
Very low sodium	35 mg or less of sodium per serving
Low sodium	140 mg or less of sodium per serving
Low sodium meal	140 mg or less sodium per 3½ oz. (100 g)
Reduced or less sodium	At least 25 % less sodium than the regular version
Light in sodium	50% less sodium than the regular version
Unsalted or no salt added	No salt added to the product during processing
Fat	
Fat Free	Less than 0.5 g per serving
Low saturated fat	1 g or less per serving
Low fat	3 g or less per serving
Reduced fat	At least 25 % less fat than the regular version
Light in fat	Half the fat compared to regular version

Add herbs and spices to your favorite foods for a low sodium treat:

Beef	Poultry	Lamb	Pork	Fish	Eggs
Basil Rosemary Savory Marjoram Sage Oregano Bay Leaf Thyme Pepper Mustard Mushrooms Nutmeg	Ginger Tarragon Marjoram Sage Thyme Parsley Paprika Cranberries Mushrooms	Garlic Mint Curry Oregano Rosemary Pineapple	Apples Cloves Applesauce Cinnamon Sage Thyme Garlic Rosemary Onion Cayenne Chili powder	Basil Bay leaf Chili powder Dill, Ginger Sage, Oregano Paprika Tarragon Thyme Fennel Lemon juice Mushrooms	Basil Chives, Marjoram Oregano Tarragon Thyme Onion Paprika Green pepper Parsley Tomato
Potatoes	Pasta	Rice	Vegetables	Salad	Soup
Basil Caraway Chives Dill Marjoram Parsley Savory Garlic Onion	Basil Chives Marjoram Oregano Saffron Garlic	Cumin Fennel Saffron Turmeric	<u>General:</u> Basil, Parsley <u>Broccoli:</u> Caraway, Oregano <u>Carrots:</u> Basil Bay leaf Mint Ginger Marjoram Thyme Oregano <u>Spinach:</u> Marjoram Nutmeg Rosemary <u>Green</u> <u>beans:</u> Basil Cloves Marjoram Sage Savory <u>Onions:</u> Basil Oregano Thyme	<u>Chicken:</u> Chives Celery seed Oregano Tarragon <u>Egg:</u> Marjoram Tarragon <u>Greens:</u> Basil Black pepper Chives Garlic Marjoram Mint Onion Tarragon Thyme <u>Vegetables:</u> Oregano	<u>Chicken:</u> Bay leaf, Mace, Marjoram Paprika Parsley Sage Thyme <u>Creamy:</u> Chives, Sage Rosemary Tarragon <u>Legume/Bean:</u> Basil, Oregano Coriander Savory Thyme Rosemary Potato: Chives, Dill Curry <u>Tomato:</u> Allspice Basil Cloves Garlic Sage <u>Vegetable:</u> Allspice Basil

Sample Meal Plan for 2,400 mg Sodium, 2,000 Calories

No salt added to cooking:

Breakfast	Sodium (mg)	Lunch	Sodium (mg)	Dinner	Sodium (mg)
¾ c. All Bran cereal	210	¾ c Chicken salad made with low fat mayonnaise	270	3 oz. lean Roast beef	52
1 sly Whole wheat bread	149	2 sl. Whole wheat bread	299	2 tbsp. Beef au jus, low fat	163
¾ cup sliced fresh berries	1	1 Tbsp. Dijon mustard	372	½ c. Green beans, cooked from frozen	12
1 c. sugar and fat free Fruit yogurt	53	Salad: ½ c. Fresh cucumber	8	1 Small baked potato	7
1 c. Fat free milk	126	½ c. Tomato wedges	1	2 tsp. low fat Sour cream	9
2 tsp Jelly	5	1 Tbsp. Ranch dressing, low fat	153	2 Tbsp. Grated cheese, natural, reduced fat	86
8 oz. salt free V-8 juice	140	½ c. Fruit cocktail, juice packed	5	1 Tbsp. Chopped scallions	1
				1 Small whole wheat roll	148
Snack 1 small Banana	1	Snack 1/3 c. Almonds, unsalted	5	1 tsp. Soft margarine	51
		2 tbsp. Raisins	2	1 Small apple	0
		1 c. Water	2	1 c. Fat free milk	126

		Grains	7 svg	Meat, fish, poultry	2 svg
Sodium per day	2,457 mg	Vegetables	4 svg	Salt free nuts, seeds	1 svg
Total fat	51 g	Fruits	5 svg	Fats & oils	2 svg
Cholesterol	164 mg	Dairy	3 ¼ svg	Sweets	2/3 svg

Sample Meal Plan for 1,500 mg Sodium, 1,800 Calories

Breakfast	Sodium (mg)	Lunch	Sodium (mg)	Dinner	Sodium (mg)
2/3 c. Shredded wheat	3	¾ c SF Chicken salad	127	3 oz. SF lean roast beef	52
1 sl Whole wheat bread	112-149	10 Low Sodium saltine crackers or 2 slices whole wheat bread	50	2 Tbsp. beef au jus, low fat	163
1 small. Banana	1	1 Tbsp. Dijon Mustard	372	1/2 c. Green beans, cooked from frozen	12
		Salad: ½ c. Fresh cucumber	8	1 Small baked potato	7
1 c. Fat free milk	126	½ c. Tomato wedges	1	1 Tbsp. Low Fat Sour cream	14
2 tsp Jelly	5	1 Tbsp. Low Fat Yogurt dressing	42	2 Tbsp. grated cheese, natural, reduced fat	86
4oz Orange juice	1	½ c. Fruit cocktail, juice packed	5	1 Tbsp. Chopped scallions	1
		1 c. Water	2	1 Whole wheat roll	148
				1 tsp. Soft Salt Free margarine	1
				1 Small apple	0
				1 c. Fat free milk	126
		Grains	6 svg	Meat, fish, poultry	2 svg
Sodium per day	~1,580 mg	Vegetables	4 svg	Fats & oils	2 svg
Total fat	50 g	Fruits	4 svg	Sweets	2/3 svg
Cholesterol	164 mg	Dairy	2 ¼ svg		

Sample Meal Plan for 1,000 mg Sodium, 1,500 Calories

Breakfast	Sodium (mg)	Lunch	Sodium (mg)	Dinner	Sodium (mg)
2/3 c. Shredded wheat	3	¾ c SF Chicken salad	127	3 oz. SF lean roast beef	52
1 sl Whole wheat bread	149	10 Low Sodium Saltine Crackers	50	2 Tbsp. SF beef au jus, low fat	5
1 small Banana	1	1 tsp Dijon Mustard	124	1/2 c. Green beans, cooked from frozen	12
		Salad: ½ c. Fresh cucumber	8	1 Small baked potato	7
1 c. Fat free milk	126	½ c. Tomato wedges	1	1 Tbsp. Low Fat Sour cream	14
2 tsp diet Jelly	5	1 Tbsp. Low Fat Yogurt dressing	42	2 Tbsp. Salt Free grated cheese, natural, reduced fat	1
		½ c. Fruit cocktail, juice packed	5	1 Tbsp. Chopped scallions	1
		1 c. Water	2	1 Whole wheat roll	148
				1 tsp. SF margarine	1
				1 Small apple	0
				1 c. Fat free milk	126

		Grains	6 svg	Meat, fish, poultry	2 svg
Sodium per day	1,010 mg	Vegetables	3 svg	Fats & oils	2 svg
Total fat	50 g	Fruits	3 svg	Sweets	0
Cholesterol	164 mg	Dairy	2¼ svg		

3,000-4,000 Milligrams Sodium Diet (No Added Salt)

General Principles

A regular diet is served with the exception of the foods listed below to avoid. Light use of salt is permitted during cooking. Salt is not to be added at the table.

Food Group	Foods to Avoid
Milk	Processed cheese, such as American cheese, feta cheese, cottage cheese
Meat, poultry, fish, cheese and meat substitute	All salted, smoked, cured, canned meat, fish, and poultry (i.e. Bacon, bologna, and other luncheon meats, Canadian bacon, chipped beef, corned beef, frankfurters, ham, kosher meat, sausage, turkey ham, turkey or chicken franks, turkey or chicken bologna, pastrami), frozen pre-cooked meals and dinner mixes unless labeled low sodium, TV dinners
Egg	Processed eggs, Asian salty eggs
Breads	Salted crackers, chips, pretzels or other salty snacks
Cereals and Starches	Instant seasoned rice, noodle, and stuffing mixes.
Fruits	None
Vegetables	Sauerkraut, pickles, commercially prepared vegetables in sauces; pickled vegetables, canned tomato or vegetable juice, tomato sauce
Fats	Bacon, bacon fat, salt pork, packaged gravy mixes, gravy prepared with salted broth or bouillon, regular salad dressing
Sweets and Desserts	Pies, cakes
Beverages	Softened water and mineral water
Soups	Regular bouillon cubes, instant soup mixes, canned soups (unless labeled low sodium), powdered soup
Miscellaneous	Salt, sea salt and "Lite Salt" at the table, seasoning salts (celery salt, onion salt, garlic salt, seasoned salt, Lemon pepper), catsup, prepared mustard, barbecue sauce, chili sauce, soy sauce, teriyaki sauce, steak sauce, Worcestershire sauce, horseradish prepared with salt, MSG, meat tenderizers, meat extracts, olives, pickles, relish, and salted nuts.

Sample Daily Meal Plan 3,000-4,000 Milligram Sodium Diet

Breakfast	Lunch	Dinner
½ c. Orange juice	4 oz. Roast Beef	4 oz. Baked chicken
½ c. Oatmeal	½ c. Mashed potatoes	½ c. Orange glazed sweet potatoes
1 Scrambled egg	½ c. Green beans	½ c. Peas
1 sl. Wheat toast	Under the sea salad	Tossed green salad with French dressing
1 tsp. Margarine	1 sl. Apple pie	1 Small banana
1 c. Low fat Milk	1 sl Whole Wheat Bread	1 sl. Whole Wheat Bread
1 tsp. Sugar	1 tsp. Margarine	1 tsp. Margarine
Pepper	Pepper	1 c. Low fat milk
Jelly	1 tsp. Sugar	Pepper
Coffee or tea	Coffee or tea	Coffee or tea

Table K-II: Examples of the Varying Amounts of Sodium in Some Foods

Food Groups	Serving Size	Sodium (mg)
Grains and grains products		
Cooked cereal, rice, pasta, unsalted	½ cup	0-5
Ready-to-eat cereal	1 cup	100-360
Bread	1 slice	110-175
Vegetables		
Fresh or frozen, cooked without salt	½ cup	1-70
Canned or frozen with sauce	½ cup	140-460
Tomato juice, canned	¾ cup	820
Fruit		
Fruit, frozen, canned	½ cup	0-5
Low fat or fat free dairy foods		
Milk	1 cup	120
Yogurt	8 oz.	160
Natural chesses	1 ½ oz.	110-450
Processed cheeses	1 ½ oz.	600
Nuts, seeds, and dry beans		
Peanuts, salted	1/3 cup	120
Peanuts, unsalted	1/3 cup	0-5
Beans, cooked from dried or frozen without salt	½ cup	0-5
Beans, canned	½ cup	400
Meats, fish, and poultry		
Fresh meat, fish, poultry	3 oz.	30-90
Tuna canned, water pack, no salted added	3 oz.	35-45
Tuna canned, water pack	3 oz.	250-350
Ham, lean, roasted	3 oz.	1,020
Egg	1	65
Fats		
butter, margarine, mayonnaise	1 tsp	50

2,000mg (2gm) Sodium Diet

Food Group	Food Allowed	Foods to Avoid
Milk, fresh (serving size = 1 cup)	As desired- low sodium milk. 2 cups per day – regular whole, low-fat or nonfat milk; unsalted buttermilk; evaporated or dry milk (reconstituted), yogurt	Regular milk in excess of 2 cups, salted buttermilk, chocolate milk, malted milk, eggnog, milkshakes, Dutch process cocoa drinks or mixes, all other kinds of milk including sweetened condensed.
Meat, Poultry, Fish, Cheese and Meat Substitute (serving size = 1 oz.)	6 oz. per day (cooked weight) – fresh beef, veal, pork, lamb, chicken, turkey, liver, fish. Substitute for 1 oz. of meat: 1 oz. low sodium cheese ½ cup cottage cheese ½ cup unsalted (dietetic pack) canned tuna or salmon 1 tbsp. low sodium peanut butter Kosher meats must be soaked & rinsed	Brains or kidneys; salted, smoked, cured, or canned meat, fish, and poultry, (i.e., bacon, sausage, ham, Canadian bacon, bologna, luncheon meats, frankfurters, corned beef, dried beef); shellfish, kosher meat, frozen fish fillets; frozen precooked meals; all regular cheeses; salted peanut butter; commercial vegetarian meat substitute.
Egg (serving size =1)	1 per day – prepared any style without salt or one egg substitute prepared without salt	More than one egg a day or egg substitutes Processed eggs
Breads (serving size = 1 slice)	4 servings per day – regular loaf breads (i.e., white, wheat, rye, sourdough, and French and yeast rolls; low sodium crackers, corn tortillas, homemade hot breads made with low sodium baking powder and without salt	Regular breads and yeast rolls in excess of allowed amounts; regular crackers. Cornbread, biscuits, pancakes, waffles, flour tortillas, and all other regular baked goods

Food Group	Foods Allowed	Foods To Avoid
Cereals and Starches (serving size = ½ cup)	Puffed Wheat or Puffed Rice, Shredded Wheat, other low sodium dry cereals, and rice, spaghetti, macaroni and noodles cooked in unsalted water, unsalted popcorn, pretzels, and chips; tapioca, cornstarch	All other dry cereals, instant hot cereals; instant seasoned rice, noodles and stuffing mixes; salted popcorn, pretzels, and chips; self-rising cornmeal or flour
Fruits (serving size = ½ cup)	3 or more servings per day fresh, frozen, or canned fruit or fruit juice; raisins, prunes; 1 serving daily should be high in vitamin C such as citrus, strawberries, kiwi	Fruits dried with sodium sulfite, crystallized or glazed fruit, maraschino cherries
Vegetables (serving size = ½ cup)	2-4 servings per dry fresh, frozen or unsalted canned vegetables, except those on avoid list, dried beans, split peas and lentils, low sodium tomato and V-8 juice	All regular canned vegetables; regular tomato and V-8 juice; sauerkraut and other pickled vegetables; instant mashed potatoes and potato mixes. Frozen vegetables with salt
Fats (serving size = 1 tsp.) Butter, Margarine, Mayonnaise	Butter, margarine, cooking oils, French dressing, oil and vinegar dressing, mayonnaise, cream and avocados. Limit to 2 tbsp. cream per day, sour cream, cream cheese, or non-dairy creamer	Regular butter, margarine, and mayonnaise in excess of allowed amounts; regular salad dressings, bacon fat, salt pork, gravies prepared from salted bouillon or instant mixes; cream, sour cream, cream cheese, and non-dairy creamer in excess of 2 tablespoons

Food Group	Foods Allowed	Foods to Avoid
Sweets and Desserts (serving size = varies)	As desired – sugar, honey, molasses, syrup, jam, jelly, hard candy, jelly beans, gumdrops, marshmallows; the following prepared with low sodium baking powder and without salt or baking soda; cookies, cakes, pies, cobblers, coffee cakes; unflavored gelatin or flavored gelatin; custard and pudding prepared with cornstarch, tapioca or rice using part of milk or allowance; ½ cup sherbet and ice cream	Regular desserts in excess of 1 serving per day
Beverages (serving size = 1 cup)	Coffee, tea, herb tea, decaffeinated coffee, Postum, Kool-Aid, lemonade, powdered fruit drink mixes, soda water, carbonated beverages with less than 20 mg sodium per serving (consult manufacturer or food label), alcohol with physician's permission.	Carbonated beverages with more than 20 mg sodium per serving, softened water, mineral water
Soups (serving size = ½ cup)	1-2 servings per day unsalted homemade soup using foods allowed, low sodium bouillon or broth; commercial low sodium soups	Regular (salted) bouillon or broth and commercial soups; soups using foods on avoid list
Miscellaneous (serving size = varies)	Salt substitute with physician's permission; fresh or dried herbs and spices, vinegar, low sodium catsup, low sodium mustard, mustard powder, vanilla and other flavoring extracts, cream of tartar, yeast, sodium free baking powder, unsalted nuts	SALT (in cooking and added to food), "Lite Salt", sea salt, seasoning salts (celery, garlic, onion, seasoned salts, lemon pepper), regular catsup and prepared mustard, Worcestershire sauce, soy sauce, teriyaki sauce, BBQ sauce, chili sauce, horseradish prepared with salt, MSG, meat tenderizer, olives, pickles, relish, salted nuts

SAMPLE DAILY MEAL PLAN

Breakfast	Lunch	Dinner
½ c. Orange Juice	3 oz. SF Roast beef	3 oz. Baked chicken
½ c. SF Oatmeal	½ c. SF Mashed potatoes	½ c SF Orange glazed sweet potatoes
1 SF Scrambled egg	½ c. SF Green beans	½ c. SF Green peas
2 slices Toast	Under-the Sea salad	Tossed green salad with Salt free French Dressing
2 tsp. Margarine	1 Fresh apple	1 slice Bread
1 c. Low fat milk	1 slice Bread	1 slice Peach pie
1 tsp. Sugar	1 tsp. Margarine	1 tsp. Margarine
Pepper	1 tsp. Sugar	1 c. Low fat milk
Jelly	Pepper	Pepper
Coffee or tea	Tea	Tea

Diet as designed provides approximately 1,740 mg sodium. Regular fats or other foods may be added to increase sodium level.

SF = Prepared without salt of salt compounds

Plan de Alimentación Saludable Control la Hipertensión

✚ Prevenir y controlar la presión arterial alta siguiendo el plan de alimentación conocido como DASH*

Comenzar el plan de alimentación saludable contra la hipertensión

Se ha demostrado que el plan de alimentación DASH (*Dietary Approaches to Stop Hypertension: Plan de alimentación saludable contra la hipertensión) previene y reduce la presión arterial alta. Este plan es rico en frutas, verduras y productos lácteos con bajo contenido de grasa. Incluye cantidades moderadas de grasa total y bajo contenido de grasas saturadas y colesterol. Si además reduce el consumo de sal y sodio, obtendrá aun mejores resultados.

10 SUGERENCIAS DEL PLAN DE ALIMENTACIÓN SALUDABLE CONTRA LA HIPERTENSIÓN

1. Utilice muchos condimentos en lugar de sal. Cuando cocine o en la mesa, sazone las comidas con hierbas, especias, limón, lima, vinagre o mezclas de condimentos que no contengan sal.
2. Utilice pollo, pescado y carne magra frescos en vez de utilizar carnes enlatadas, ahumadas o procesadas.
3. Sírvasse porciones moderadas, y cuando tome una merienda, coma fruta, verduras, o palomitas de maíz sin sal y sin manteca.
4. Elija comidas “de preparación rápida” que tengan bajo contenido de sodio. Trate de no comer muchas comidas congeladas, ni platos combinados, como pizza, mezclas en paquete, sopas o caldos, enlatados, y aderezos para ensalada (ya que, en general, contienen mucho sodio).
5. Comience el día con un desayuno de cereales con bajo contenido de sal y sodio.
6. Cocine arroz, pastas y cereales calientes sin sal; trate de no comer arroz, pastas o mezclas de cereales que sean instantáneos o condimentados, ya que usualmente contienen sal.

7. Compre verduras frescas, congeladas o enlatadas “sin agregado de sal”.
8. Beba agua en lugar de beber refrescos con alto contenido de azúcar.
9. Cuando vaya a comer afuera, retire el salero de la mesa. Disminuya la cantidad de condimentos, com ketchup, encurtidos (pickles) y salsas, que tienen ingredientes con alto contenido de sal.
10. Trate de no comer comidas rápidas o procesadas con alto contenido de sal y sodio.

Recursos para prevenir y controlar la presión arterial alta

La Guía para reducir la presión arterial alta (Your Guide to Lowering High Blood Pressure) incluye más información sobre la dieta DASH, consejos prácticos para comenzar con la dieta, ejemplos de planes de alimentación e incluso recetas.
www.nhibi.nih.gov/hbp/prevent/h_eating/h_eating.htm.

Propóngase alcanzar un peso saludable (Aim for a Healthy Weight) incluye una tabla para calcular el índice de masa corporal (BMI: Body Mass Index), consejos sobre cómo comprar y preparar los alimentos, y un planificador de menús diseñado para la preparación y elección de las comidas diarias con la cantidad de calorías permitidas por día.
www.nhibi.nih.gov/health/public/heart/obesity/lose_wt/index.htm

Dieta De 1,000 Mg De Sodio

Comidas

Deben Evitar

Bebidas:

Café instantáneo y regular, sin cafeína, Sanka, Postum, 2 tazas de leche o equivalente diariamente.

Leche de Malta, condensada, mas de 2 tazas de cualquier leche, suero o leche de chocolate.

Pan:

Sin sal. Cualquiera con énfasis en lo de grano entero, o enriquecido. Dos rebanadas.

Pan o panecillos salados, galletas saladas.

Cereales:

Sodio bajo, cocinados sin sal, Farina , harina de avena, trigo o trigo seco.

Cosinados instantáneamente o enriquecidos. Cereales secos menos lo permitidos. Harina de maíz.

Postres:

Cualquiera fruta o postre preparado sin sal, levadura o bicarbonato de soda, o preparados con mas de la racion de leche. Sorbete.

Helado, o cualquier que contenga levadura o bicarbonato de soda, mezclas de budín o gelatina.

Grasas:

Mantequilla sin sal, margarina, crema, manteca o aceite de cocinar, mayonesa. 2 cucharadas al día

Todos los demás

Frutas:

Todas menos en la lista prohibida.

Cristalizada, cerezas Maraschino, o que sean preservadas en compuestas de sodio.

Carne-Substituciones:

Carne o pollo, fresca, conjelada o envasada de sodio bajo de dieta. SODIO BAJO DE DIETA: atún o salmon, requesón, queso, mantequilla de cacahuete. Límite de un huevo y 6 oz. de carne.

Sesos, riñones, carne salada, envasada o ahumada, tocino salchicha, puerco salado, carnes encurtidas, lengua ahumada, filetes de pescado conjelados, envasados, salados o ahumados, caviar, bacalao, anchoas, salmón envasado, sardinas, atún envasada, etc. Mariscos: almejas, cangrejo, langosta, ostras, camarones, etc. Queso, mantequilla de cacahuete.

Comidas**Deben Evitar****Papas – Substituciones:**

Papas sin sal, macarrones, fideos, arroz hecho sin sal.

Maíz envasado, papitas. Papas fritas con sal.

Condimentos:

Anís, alcaravea, salsa de tomate, (de dieta) polvo de chile, cebollino, canela, clavos, comino, curry, ajo, jengibre, rábano, enebro, mejorana, menta, mostazas secas o de semilla, cebolla, orégano, paprika, perejil, pimienta.

Cyclamates de sodio, sal de ajo, rábano preparado, extractos de carne, monosodio glutamate, mostaza preparada, aceitunas, sal de cebolla, sal de ajo salmueras, condimentos, encurtidos, salsa de Worcestershire.

Caldos:

Cualquieres que sean de las comidas permitidas – bajo en sal.

Todos los demás.

Dulces y condimentos:

Sacarina, calcium cyclamate, azúcar, extracto de almendra, cacao (1-2 cucharadas) jugo o extracto de limón, extracto de arce, extracto de menta, extracto de nuez, jalea, mermelada, dulces sin sal.

Molaza, dulces comerciales y todos los demás.

Vegetales:

Frescos, congelados o envasados para dieta menos los que sean prohibidos.

Envasados o jugos solo que sean de sodio bajo. Evite: Alcachofas, hojas de betabel, hojas de amargón, hojas de mostaza, repollo encurtido, nabo blanco.

Dieta De 2,000 Mg De Sodio

Comidas

Deben Evitar

Bebidas:

Café instantáneo y regular, sin cafeína, Sanka, Postum, 2 tazas de leche o equivalente diariamente

Leche de Malta, condensada, más de 2 tazas de cualquier leche, leche de chocolate.

Pan:

Cualquiera con énfasis en lo de grano entero, o enriquecido. 4 rebanadas, cereales bajos en sal.

Pan o panecillos salados, galletas saladas. Cereales calientes instantáneos, cereales altos en sal.

Cereales:

Sodio bajo, cocidos sin sal, Farina, harina de avena, trigo o trigo seco. Cereales bajo en sal: Puffed Wheat, Puffed Rice, Shredded Wheat, Shredded Rice, low sodium Cornflakes, arroz hecho sin sal.

Cocinados instantáneamente o enriquecidos. Cereales secos menos los permitidos. Harina de maíz.

Postres:

Cualquieras frutas o postres preparado sin sal, levadura o bicarbonato de soda, o preparados con más de la ración de leche. Sorbete.

Helado, o cualquiera que contenga levadura, bicarbonato de soda, mezclas de budín o gelatina.

Grasas:

Mantequilla sin sal, margarina, crema, manteca o aceite de cocinar, mayonesa. 2 cucharadas el día.

Todos los demás.

Fruta:

Todas menos en la lista prohibida.

Cristalizada, cerezas Maraschino, o que sean preservadas en compuestas de sodio.

Comidas**Deben Evitar****Carne-Substituciones:**

Carne o pollo, fresco, congelado o envasado de sodio bajo de dieta. SODIO BAJO DE DIETA: atún o salmón, requesón, queso, mantequilla de cacahuete. Límite de un huevo y 6 oz. de carne.

Sesos, riñones, carne salada, envasada o ahumada, tocino, salchicha, puerco salado, carnes encurtidas, lengua ahumada, filetes de pescado congelados, envasados, salados o ahumados, caviar, bacalao, anchoas, salmón enlatado, sardinas, atún enlatada, etc. Mariscos: almejas, cangrejos, langostas, ostras, camarones, etc. Queso, mantequilla, de cacahuete.

Papas – Substituciones:

Papas sin sal, macarrones, fideos, arroz cocido sin sal.

Maíz enlatado, papitas. Papas fritas con sal.

Condimentos:

Anís, alcaravea, salsa de tomate, (de dieta) polvo de chile, cebollino, canela, clavos, comino, curry, ajo, jengibre, rabano, enebro, mejorana, menta, mostazas secas o de semilla, cebolla, orégano, pimentón, perejil, pimienta.

Cyclamates de sodio, sal de ajo, rábano preparado, extractos de carne, monosodio glutamate, mostaza preparada, aceitunas, sal de cebolla, sal de ajo, salmueras, condimentos, encurtidos, salsa de Worcesterhire.

Caldo:

Cualquieres que sean de las comidas permitidas – bajo en sal.

Todos los demás. Todos con sal.

Dulces y condimentos:

Sacarina, calcium cyclamate, azucar, extracto de almendra, cacao (1-2 cucharadas) jugo o extracto de limón, extracto de arce, extracto de menta, extracto de nuez, jalea, mermelada, dulces sin sal.

Molaza, dulces comerciales y todos los demás.

Vegetales:

Frescos, congelados o envasados para dieta menos los que sean prohibidos.

Envasados o jugos solo que sean de sodio bajo. Evite: Alcachofas, hojas de betabel, hojas de amargón, hojas de mostaza, repollo encurtido, nabo blanco.

3-4 Gramas De Sodio Dieta Sin Añadir Sal

Tipo de Comida	Evitar
Leche	Ninguna
Carne, pollo, pescado, queso, y substitutos de carne	Todas las carnes, aves, pescados salados, ahumados, procesados, o enlatados (tocino, bolonia, salchichas, perros calientes, carne kosher, jamón de puerco o pavo), carnes o comidas preparadas comercialmente o congeladas.
Huevos	Ninguno.
Panes	Galletas saladas.
Cereales y Almidones	Arroz instantáneo, fideos instantáneos
Fruta	Ninguna.
Vegetales	Verduras encurtidas o en salmuera, vegetales preparados comercialmente con salsas, verduras enlatadas.
Grasas	Grasa de tocino, puerco salado, salsas empaquetadas, salsas preparadas con cubitos de sopa o sopas deshidratadas o enlatadas.
Dulce o Postres	Saladitos, dulces con sal.
Bebidas	Agua mineral
Sopas	Enlatadas, en cubitos, en vasito, deshidratadas y instantáneas.
Otros	Sal de la mesa, condimentos con sal (polvos marcados “salt” en vez de “powder”), salsa de tomate, mostaza, salsa de barbacoa, salsa de chile, salsa de soya o teriyaki (comidas chinas), monosodium glutamate, extractos de carne, aceitunas, encurtidos, adobos, comidas en salmuera, condimentos preparados comercialmente, nueces salados, saladitos.

Espicias Y Hierbas Bajas En Sodio

No más porque su dieta tiene que ser baja en sal, no quiere decir que no puede tener sabor. Trate de usar estas especias para añadirle sabor a su comida.

PIMIENTA – carnes, tomates, melocotones, verduras

EXTRACTO DE ALMENDRA – frutas, flanes

ALBAHACA – huevos, pescado, cordero, carnes molidas, hígado, ensaladas, sopas, salsas, ceviche

HOJA DE LAUREL – carnes, casuelas, pollo, pavo, sopas, tomates

SEMILLAS DE ALCARAVEA – carnes, sopas, ensaladas, panes, col, esparagos, fideos

CEBOLLINO – ensaladas, verduras, salsas

CILANTRO – carnes, ensaladas, salsas

VINAGRE DE SIDRA – ensaladas, verduras, salsas

CANELA – frutas, panes, pastels

POLVO DE CURRY – carnes (especialmente cordero, pollo, pescado) tomates, sopa de tomate

ENELDO – salas de pescado, sopas, tomates, ensaladas, macaroni

AJO – (fresco o en polvo, no sal de ajo) – carnes, sopas, ensaladas, verduras, tomates

JENGIBRE – pollo, fruta

JUGO DE LIMÓN – carne, pescado, pollo, pavo, ensaladas, verduras

MACIS – panes calientes

MOSTAZA – carne molida, ensaladas, salsas

NUEZ MOSCADA – frutas, requeson, pastels, papas

CEBOLLAS (polvo de cebolla, no sal; o fresca) – carnes, verduras, ensaladas

PIMENTÓN – carnes, pescado, sopas, salsas, verduras

PEREJIL – carnes, pescado, sopas, ensaladas, salsas, verduras

MENTA – frutas, ensaladas, flanes

ROMERO – pollo, ternero, carne molida, carnes, puerco, salsas, rellenos, papas

SALVIA – carnes, tomates, ejotes

AJEDREA (Savory) – ensaladas, guisados con huevo, puerco, carne molida, sopas, ejotes, tomates, sapallo, chicharos

TOMILLO (thyme) – huevos, carnes (especialmente ternero y puerco) salsas, sopas, tomates.

Dietary Management of Anorexia Nervosa

Indications

Anorexia nervosa is an eating disorder characterized by refusal to maintain a minimal normal body weight, intense fear of weight gain, and distorted body image. Inadequate calorie intake or excessive energy expenditure results in severe weight loss. The condition usually occurs in adolescence or young adulthood. It is more common in women, affecting 1-2% of the female population and only 0.1-0.2% of males.

The revised fifth Diagnostic and Statistical Manual of Mental Disorders (DSM-V) outlines the diagnostic criteria necessary for anorexia nervosa.

1. Restriction of energy intake relative to requirement, leading to a significantly low body weight in the context age, sex, developmental trajectory, and physical health.
2. Intense fear of gaining weight or becoming fat or persistent behavior that interferes with weight gain, even though at a significantly low weight.
3. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight¹.

Additional psychological characteristics of the disorder include: anxiety, depression, poor self-esteem, a confused identity and feeling a lack of control over one's life. One of the characteristic behaviors of the anorexic is the attempt to control every aspect of him/her self. This includes food and fluid intake, gastrointestinal functions, sleeping behavior, and any other bodily/biological/behavioral functioning.

Patients are typically perfectionist and obsessive-compulsive in their behaviors. Ritualistic eating behaviors, such as cutting food up in very small pieces and eating very slowly are usually seen. The patient is usually secretive about his/her food, prefers to eat alone, counts calories, and is afraid of fats or carbohydrates.

¹ Diagnostic and Statistical Manual for Mental Disorders, 5th rev. ed. American Psychiatric Association, Washington, D.C, 2017.

Symptoms

- Weight loss of 15% or greater below the expected weight
- Inappropriate use of laxatives, enemas, or diuretics (water pills) in an effort to lose weight
- Self-imposed food intake restrictions, often hidden
- Absence of menstruation
- Skeletal muscle atrophy, loss of fatty tissue
- Abnormal blood counts, dehydration
- Low blood pressure, irregular heart rhythm
- Dental cavities may be present with self-induced vomiting
- Blotchy or yellow skin; swelling of arms or leg
- Depression may be present in addition to the eating disorder
- Most individuals with anorexia nervosa refuse to recognize that they have an eating disorder (denial)
- Excessive exercise
- Osteoporosis

Signs and Tests

Diagnosis is based upon ruling out other causes of endocrine, metabolic, and central nervous system abnormalities to explain the weight loss. Tests may include: physical examination, laboratory tests, psychological evaluation, X-rays, electrocardiograms, bone density, energy utilization and others.

Medical and Psychological Effects of Starvation

Anorexia nervosa is life threatening. Substantial weight loss causes protein-energy malnutrition. The psychological effects of malnutrition include a narrowing of interests, apathy, shallow affect, excessive rigidity, social isolation and withdrawal, confusion, and a deteriorating mental state which leads to a loss of judgment relative to food requirement and further food intake restriction.

Physiological complications can include lowered body temperature, decreased muscle mass including cardiac muscle spasms, dehydration, hair loss, bruising, delayed sexual development, and lanugo (a downy growth of body hair), or even death. Other complications include hypotension, dependent edema, and bradycardia. Serum proteins and electrolytes are usually normal and vitamin deficiencies are rare, possibly because these patients frequently use vitamin supplements and tend to prefer healthy foods.

Goals of Nutrition Therapy

The most effective treatment of anorexia nervosa involves a multidisciplinary team approach. The nutrition therapy should be highly individualized to each patient and the registered dietitian should work closely with the other team members, such as MD, psychiatrist, psychologist, social worker, etc.

The primary goals of nutrition therapy are weight restoration, and correction of protein-energy malnutrition and any other nutritional deficiencies. This is accomplished by re-establishing normal and regular eating patterns and providing sound nutrition education to the patient. The emphasis should be on promoting the patient's health through a nutritiously balanced food intake and not on weight gain. The weight gain should not be the primary goal, but should be viewed as a sign that the patient is becoming healthier emotionally and physically.

Nutrition Assessment and Initial Diet History

The success of nutrition therapy is highly dependent on the dietitian's establishment of trust and rapport with the patient. The registered dietitian must be seen by the patient as supportive and non-judgmental. In taking an initial history the dietitian should discuss the patient's diet history, weight history, eating behavior, dieting behavior, bingeing, purging, body image, exercise, alcohol or drug use, menstrual history, physical problems related to eating, medical history, effect of eating problems on life adjustment, prior treatment, socio-cultural factors, family assessment and psychological assessment.

The patient will experience several physical changes and consequences of eating during the first one to two weeks. The registered dietitian should explain these to the patient before they occur so that the patient knows what to expect and is not alarmed. The patient will normally feel discomfort and easy filling after eating the prescribed meal plan. These symptoms will decrease as the patient's capacity for food increases.

Rapid weight gain may occur due to improved hydration and repletion of liver and muscle glycogen. The patient will describe feeling bloated or puffy, and will be afraid that he/she is getting fat and losing control of his/her body. The dietitian should reassure the patient that he/she is not getting fat and that the rapid weight gain will not continue indefinitely. Many patients experience constipation due to slowed gut motility, the small volume of food eaten, and the patient's irregular eating pattern. This problem usually resolves itself as the patient eats more food and establishes regular meals.

Diet Composition

The method of nutrition repletion used will depend on the severity of the patient's condition. The use of nasogastric tube feeding, peripheral intravenous feeding, and total parenteral nutrition (TPN) should be limited to stabilizing patients with severe weight loss and in acute medical danger, or who are unable to consume sufficient calories orally. These methods carry increased medical and psychological risks, do not provide long-term benefit or self-motivated changes in eating, and should never be used as punishment for resistant patients.

Aggressive TPN therapy carries the greatest medical risks which include fluid retention, electrolyte changes, and hypophosphatemia. Nutritional repletion should be gradual over five to seven days to permit adaptation. Additionally, careful monitoring of fluid balance and mineral concentration, especially phosphorus, is necessary.

Symptoms of severe hypophosphatemia (serum phosphorus level below 1 mg/dl) include abnormal red cell, white cell, and platelet function, central nervous system disturbances, cardiac dysfunction, and rhabdomyolysis. The risk of these occurring rapidly with the use of TPN is greatest in patients with chronic weight loss, diabetic ketoacidosis, metabolic alkalosis, patients undergoing alcohol withdrawal, and patients who have been on chronic antacid or diuretic therapy.

Patients receiving TPN therapy should be given routine parenteral phosphate supplements, (i.e. 13.6 mol/L) to prevent hypophosphatemia. Patients at greatest risk (see above) may need an additional 20.4 mol/1000 kcal. If a patient develops hypophosphatemia, the carbohydrate load should be reduced.

Oral feedings should be the primary method of nutrient intake with the emphasis placed on a well-balanced diet providing a variety of conventional foods. Liquid supplements may be used as an intermediate step for patients who are unwilling or unable to eat an adequate amount of normal foods, but generally are to be avoided.

There are different views on what the calorie level of the diet should be. The initial calorie level should be set where it will not overwhelm the patient and heighten his/her fear of weight gain. Most anorexic patients initially do not need above average quantities of food because of their low body weight and hypometabolic state. Usually, the patient will be more trusting and accepting if the initial calorie level is low. A general guide is to give approximately 250-300 kcal/day more than the patient's previous diet provided or to approximate the patient's resting energy expenditure, whichever is greater. If the initial calories are too high, the patient may become fearful and refuse to eat or hide uneaten food.

It is not appropriate to set daily or weekly goals for weight gain. The first goal should be to stop weight loss and stabilize the present weight.

Weight gain should then be slow enough for the patient to adjust psychologically as it progresses. The increase in calories should be individualized to each patient. The amount of food will be increased later as the patient tolerates. The dietitian should discuss any dietary changes with the patient before the changes are made. The patient will feel that he/she has some control in his/her treatment if he/she is allowed to have input in making changes and selecting foods for increasing calories.

The initial meal plan should include foods from MyPlate.gov with respect to the patient's food preferences. It is best to begin with foods considered "safe" by the patient and gradually introduce more variety as the patient develops trust. Since the patient will initially feel full on a small amount of food, bulky foods should be avoided. Protein foods should be encouraged.

The meal plan should include three balanced meals. If the patient cannot comfortably tolerate the quantity of food in three meals, the size of the meals may be decreased and snacks may be given between meals and at bedtime. Detailed record keeping of foods eaten and calorie counting will usually feed into the patient's perfectionist and obsessive-compulsive tendencies and are best avoided.

Nutrition education should help the patient understand how restricted food intake and or binging affect health and behavior. The dietitian should challenge the patient's rigidity and unhealthy beliefs about food and provide information about energy and nutrient needs for strength, growth, development, tissue maintenance, and weight management.

Issues for Normalizing Metabolic Rate

Metabolic Adaptations to Dieting

- Slows metabolic rate
- Conserves calories
- Diet cycling

Implications for Anorexics and Bulimics

- Weight changes may be other than expected.
- Calories a minimum of 1200 per day.
- Allow weight to reach set point range.

Hydration Shifts

- ✚ Predicting weight changes as clients change eating disordered behavior

Bulimia

- following cessation of vomiting
- following cessation of diuretic abuse
- following cessation of laxative abuse

Anorexia

- variable
- flexible weight goals

Sensations of dehydration:

- washed out, drained empty feeling
- having protruding bones, especially checks and hips
- having loose clothes
- having flat abdomen
- feeling light-headed

Dealing with Body Weight Issues

- Maintaining an unhealthy weight takes continuous effort
- Cognitive distortions need to be challenged.
- Some will only be normal at higher than average weights.
- Must accept set-point weight to recover.
- “Feeling fat” or the desire to lose weight is red flag.
- There are consequences to prolonged restriction than can’t be controlled or avoided.
- Separate self-esteem and body weight.

Weight Limits

- Set limit on weight can lose without being hospitalized
- Weight at beginning of session.
- If weight falls, client has one week to raise it.
- Weigh-ins continues until predetermined point.

To Deal with Anxiety around Weight Gain

- Avoid choosing weight goal and concentrate on normal eating
- Understand that weight frequently varies
- Monitor weight weekly
- Blind weighing
- Do not applaud weight gain
- Deal with image issues
- Deal with wardrobe

Assessing Personal Limits and Boundaries for Nutrition Therapists

- How long are you willing to sit with a client when s/he is stuck?
- Do you start and end sessions on time?
- How much time and money (training and supervision) is to be spent on working with a particular client?
- What kind of clients will you take, and how many:
- How do you decide a client is too difficult or complex to work with?
- What types of clients will you NOT work with?
- What are your general conditions for contracting to work with a particular client?
- How many client-hours do you work per week? How many are you comfortable with?
- Are you willing to go over your limit for clients in crisis?
- Do you work weekends and/or holidays? Do you take vacations? Do you take calls on vacations?
- How do you identify the limits of your competency:
- How much do you trust your intuition:
- What is the balance between appropriate and intrusive limit setting: What kind of therapists do you choose to work with?
- Why do you not work with anyone else?

Section L: Eating Disorders

L - 7

- What is your comfort level in sitting with undefined process (not understanding much of what is happening in the moment)?
- What is your comfort level with intense affect and content?
- How much of your feelings do you share in session in the moment?
- How much of your personal life do you share in session, and for what reason?
- Do you get regular supervision and/or consultation?
- Do you have structured time to unload with colleagues?
- Do you find yourself talking about work with family or in social situations? Do you avoid talking about it at all?
- Does your work sometimes disturb your sleep or enjoyment in life?
- How comfortable are you in saying “no”?
- How aware are you of your own comfort level with personal boundaries and limits?
- How can you tell if you are within your limits or have overstepped them:
- What are your particular signs of stress or burnout: Do you tend to withdraw from or become more involved with clients when you are stressed:
- What are your stresses at work? At home?
- How much time do you spend reading clinical material? Do you read anything else?
- Do you tend to your physical well being? Exercise? Eat properly?
- How do you tend to your spiritual needs? How does your work impact you spiritually?

What are your personal limits?

physical contact	grounds for termination
phone calls	extra calls
extra sessions	personal safety and safety of client
hospitalization	issues around violence
giving personal information	gift giving and receiving
therapy outside the therapy room	fees
verbal abuse and threats from the client	amount of credit you will extend and length of time
community contact with the client	clients who owe money
contact with family of client	

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Barriers to Increasing Amount of Food Consumed*

There are new barriers to recovery, as mentioned before, that arise when a person with anorexia nervosa begins increasing the amount of food that she is eating. Not all people experience these, but enough do that it is advantageous to discuss them before the person makes changes in intake.

1. **Hypomotile gastrointestinal tract function:** One of the consequences of prolonged semi- starvation is a slowing of gastric emptying; thus the person may have a legitimate reason for complaints of feeling overly full and bloated. Eating small meals and/ or taking medication that speeds gastric emptying decreases the likelihood of feeling overly full or bloated.
2. **Malabsorption syndrome:** Another consequence of prolonged semi-starvation may be difficulty in digesting certain foods due to lack of appropriate digestive enzymes. As nutrition improves, these enzymes will be replenished. Symptoms of malabsorption syndrome include flatulence, bloating, and diarrhea alternating with constipation. Small frequent meals help decrease symptoms. If it is determined that the person has symptoms of lactose intolerance, a temporary decrease in the intake of dairy products is likely to improve the situation.

Because the symptoms of these gastrointestinal problems are so uncomfortable and may cause the person to feel "fat" due to the bloating, the temptation for her to return to her restricting food behaviors is great. These symptoms can potentially be a major barrier to recovery; therefore, the nutrition therapist needs to be very supportive during this time. If the person recovering from anorexia nervosa persists in consistently meeting minimal caloric and nutrient needs, the gastrointestinal distress will stop in approximately three months. During these three months, she will need to be continually reminded that her symptoms will diminish with time and be reassured that what she is experiencing is normal.

Components in Promoting Behavior Change in Recovery from Anorexia Nervosa

1. Stabilize weight if losing weight.
2. Begin challenging cognitive distortion involving food and weight.
3. Educate the person regarding the effects of semi-starvation.
4. Increase total high-quality protein intake.
5. Add vitamin/mineral supplements.
6. Increase calories in small increments while slowly increasing weight.
7. Alternate incrementally increasing intake then stabilizing weight until a healthy weight is achieved.
8. Stabilize weight at a healthy level
9. Increase the variety of foods eaten.
10. Address social eating issues.
11. Adjust exercise to an appropriate level.

Dietary Management of Bulimia Nervosa

Indications

Bulimia is an eating disorder characterized by recurrent episodes of binge eating. The disease is referred to as bulimia nervosa when the binge episodes are accompanied by purging through self-induced vomiting, the use of laxatives or diuretics, vigorous exercise, strict dieting, or fasting. The disorder usually begins in late adolescence, often following a period of strict dieting to lose weight. It affects primarily women in their late teens to mid-thirties, but occurs in men as well.

The revised fifth Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) outlines the diagnostic criteria for bulimia nervosa:

1. Recurrent episodes of binge eating characterized by both of the following:
 - a. Eating in a discrete amount of time (within a 2 hour period) large amounts of food.
 - b. Sense of lack of control over eating during an episode.
2. Recurrent inappropriate compensatory behavior in order to prevent weight gain (purging).
3. The binge eating and compensatory behaviors both occur, on average, at least once a week for three months.
4. Self-evaluation is unduly influenced by body shape and weight.
5. The disturbance does not occur exclusively during episodes of anorexia nervosa.²

Psychological characteristics of the disorder include an obsession with body weight, anxiety, depression, low self-esteem, and a feeling of being out of control. Bulimic patients are aware that their eating patterns are abnormal and are therefore, often secretive about their food. They may hide and/or steal food and lie about their binge-purge behavior.

The typical eating pattern of most bulimics is characterized by a period of fasting or severe dieting followed by episodes of overeating or binge eating. A typical binge involves the rapid consumption of large quantities of high-calorie, easily ingested foods, such as breads, pastries, ice cream, and candy. Binges are usually done in secret and may be planned or spontaneous.

A binge usually lasts from one to two hours and may last for as long as eight hours. The amount of food consumed in a binge is at least 1,000 calories. The ingestion of 4,000 to 5,000 calories is not unusual, and some patients have consumed as much as

² Diagnostic and Statistical Manual for Mental Disorders, 5th Rev. ed., American Psychiatric Association, Washington, DC, 2017

15,000 to 20,000 calories. A binge may be stopped by the onset of abdominal discomfort, social interruption, self-induced vomiting, abuse of cathartic drugs, or sleep. Binge frequency usually increases during times of emotional stress. Some patients binge several times a day and as much as ten or more times per day.

The bulimic individual often believes many food fallacies and has a strong desire to be healthy. When not binge eating, the bulimic attempts to adhere to rigid food restrictions. Any deviation from these restrictions, such as the ingestion of "forbidden" foods or too much food, brings feelings of guilt and precipitates the binge-purge cycle.

The bulimic patient's weight may fluctuate frequently due to extremes of binge eating and purging or food restriction. Most patients are within a normal weight range, from 10% - 15% above or below ideal body weight. The "normalcy" of the weight should not fool you, since the patient has much lower metabolic rate and has, in general, consumed inadequate amounts of healthful food stuffs for sometime.

Medical Complications

Serious medical complications can result from this disorder. Frequent vomiting leads to destruction of the tooth enamel, swelling of the parotid glands which causes a chipmunk-like facial puffiness, esophageal strictures, and sore throat. Metabolic complications include hypokalemia and hypochloremic metabolic alkalosis which may lead to cardiac arrhythmias and sudden death in severe cases. Acute gastric dilation, post-binge pancreatitis, and calcium malabsorption are other possible complications.

Chronic laxative abuse leads to dehydration, hypokalemia, kidney problems, and hypocalcemia from altered calcium metabolism, spastic colon, and constipation. Abuse of diuretics may also lead to hypokalemia and kidney problems as well as hypercalcemia, hyperuricemia, and hyponatremia.

Other medical complications result from a poor nutritional intake and may include poor skin and hair, anemia, dizziness, weakness, tremors, tiredness, apathy, and irritability.

Goals of Nutrition Therapy

The primary goals of nutrition therapy are:

1. establishment of a regular and consistent eating pattern,
2. improvement of the patient's nutritional status
3. elimination of the binge-purge cycle, and
4. modification of abnormal attitudes toward food, weight and eating. As in the treatment of anorexia nervosa, nutrition therapy should be highly individualized and the dietitian must develop a rapport with the patient for treatment to be successful.

Initial Nutrition Interview

The initial nutrition interview helps the dietitian begin to develop a relationship with the patient. Information gathered during the interview should include the patient's weight history, dieting behavior, eating patterns, binge-eating and purging behaviors, food fears, and exercise patterns. At this time, the patient should be told what to expect when he/she begins to eat regular meals and stops vomiting and/or taking laxatives. Patients usually complain of feeling full or bloated, which they interpret as gaining weight. Patients often also experience constipation due to changes in eating patterns, activity level, and emotional stress. Patients should be encouraged to drink at least eight glasses of water daily and to include high fiber foods to minimize these symptoms.

Diet Principles

Patients with bulimia nervosa tend to be rigid, controlling, obsessive-compulsive, impulsive, and perfectionist. Therefore, they should be discouraged from adherence to rigid meal plans, keeping strict food diaries, and rigorous exercise routines. The emphasis should be on healthy, sensible eating meal plans, and moderation; not on calories and weight control.

Many patients will want to lose weight and request a weight-reduction food plan. Dieting can trigger binge-eating and hinder disruption of the binge-purge cycle. It should, therefore, be delayed until the binge-purge behaviors have stopped and the patient has established normal eating patterns.

The diet should provide three balanced meals and one or two snacks. Eating should be planned and structured, and meals should be eaten as close to regular times as possible. The pattern of over-eating and severe food restriction interferes with the brain's natural appetite control center so that patients cannot rely on their own hunger and fullness to tell them when to start and stop eating.

Patients should be instructed to eat their meals regardless of whether they feel hungry or not. Eating must be almost mechanical. Physically feeling over-hungry and over-full both can trigger a binge. Skipping meals must be avoided and the dieting advice of leaving the table without feeling full should be discarded. Patients should feel comfortably full at the end of the meal so they are not tempted to nibble on other foods later.

Patients should be encouraged to give up rigid food restrictions, such as not eating red meat, avoidance of all fats, and excessive restriction of starches and grains. Initially, for a period of two to three weeks, it is best for the patient to give up all control of food selection to the dietitian. The diet should provide at least 1200 calories or more if possible with at least 50% coming from carbohydrates. Emphasis should be placed on high biological value protein foods and emphasis should also be placed on eating breakfast. Patients should learn that regular inclusion of complex carbohydrates with each meal will help to maintain normal blood sugar levels and prevent the symptoms of hypoglycemia which can lead to binge-eating of high sugar foods. Patients should be encouraged to eat again after a binge/purge experience.

During the initial stages of treatment, the use of high sugar foods should be avoided, since these foods are common binge foods or can trigger binge-eating. Any other foods which were previously binge foods should be avoided as well. These foods may be gradually reintroduced into the diet later in the patient's recovery.

Some behavior modification principles are helpful in teaching patients more healthy and disciplined eating habits. Patients should be encouraged to eat only at designated places, such as the dining table. They should avoid eating on the counter, on the sofa, in the car, or any other places not intended for eating. Eating while doing other activities, such as watching TV or reading, should also be avoided. Behaviors which slow down eating, such as putting utensils down while chewing food and taking at least twenty minutes to eat a meal help patients to sense feelings of fullness.

Nutrition education should focus on teaching the patient how restricted food intake, binge-eating, and purging affect health and alter behavior. The patient should learn basic information on nutrient and energy requirements for maintenance of health, growth, and weight control. Patients should be guided in making appropriate food choices and challenged to give up unrealistic weight goals. The diabetic food exchange lists are useful in teaching patients to plan balanced meals using appropriate food portions.

Components in Promoting Behavior Change in Recovery from Bulimia Nervosa

1. Educate the person regarding factors increasing the likelihood of binge eating.
2. Develop an individualized food plan.
 - a. Increase net intake to raise basal metabolic rate.
 - b. Alter intake to meet nutrient needs.
3. Stabilize weight.
 - a. Increase weight to estimated lower set-point threshold if weight is low.
 - b. Promote cessation of efforts to lose weight.
4. Increase control over binge eating/purging.
 - a. Increase carbohydrate intake.
 - b. Decrease meal interval.
 - c. Begin eating breakfast.
 - d. Challenge distorted beliefs that perpetuate the binge/purge cycle.
 - e. Gradually decrease frequency of binge/purge episodes.
 - f. How to respond if the person has binge/purge episodes.
 - g. Give a list of helpful hints.
5. Slowly reintroduce "binge" foods and foods eaten prior to developing the eating disorder.
6. Promote appropriate weight gain or loss.
7. Stabilize healthy weight.
8. Address social eating issues.
9. Adjust exercise to appropriate level.

Helpful Hints for the Patient Recovering from Bulimia Nervosa

1. Avoid finger foods; eat foods requiring the use of utensils.
2. Include warm foods, rather than cold or room temperature foods, to increase meal satiety.
3. Include vegetables, salad, and/or fruit at a meal in order to prolong the meal time; chose whole grain and high fiber breads and cereals.
4. Diet and meals should be well balanced to increase satiety and to increase variety of foods consumed.
5. Use foods that are naturally divided into portions, such as potatoes (rather than rice or pasta), rolls or bagels (instead of bread), 4 and 8 oz containers of yogurt, ice cream, or cottage cheese, precut steaks or chicken parts, and frozen dinners and entrees.
6. Include adequate fat to enhance meal satiety via slower gastric emptying.
7. Include generous portions of complex carbohydrate-containing foods.
8. Eat meals and snacks sitting down.
9. Plan meals and snacks; keep a food diary by recording food prior to eating.

Additional helpful hints:

1. Don't constantly deny yourself your favorite foods or you will wind up feeling deprived and go overboard. Try to figure out what you really wanted to eat and allow yourself to have it in moderation.
2. Find some form of regular exercise that you can enjoy.
3. Do little things that will make you feel good about yourself.
4. If feeling deprived is a big issue for you, you might try the opposite tack and make sure you surround yourself and stock your kitchen with large quantities of your favorite foods; enough so that you're really sure it will be there for you and you won't run out.
5. When you feel the urge to binge, try to think about the negative consequences instead of giving in immediately. Try to figure out what you're feeling and find some alternative activity to satisfy it.
6. When you're tired, the solution is to go to bed and sleep, not eat.
7. Deprivation and starvation lead to bingeing. In order not to binge, you must eat regularly, even if very small meals at first. If you do end up bingeing, eat normally at your next meal instead of trying to "make up for it" by not eating and starting the cycle all over again.
8. Don't deprive yourself! Bingeing occurs when you're starving from not eating all day, so make sure you eat breakfast, lunch, and dinner. You deserve to eat and get pleasure from eating!
9. Remove yourself from situations where you're feeling out of control around food. Get out of the kitchen after dinner until your body has a chance to begin feeling full, then go back in and do the dishes.
10. Its okay to have a bowl of ice cream or those other "bad" foods! you deserve to eat foods you like. Try to pay more attention to exactly what your body wants to eat, and then eat it. If you satisfy cravings and don't let yourself feel deprived, you'll binge less.

Low Potassium Diet 2,000 mg

Indication

This diet is prescribed for patients who cannot excrete potassium normally and when the urine volume falls below 500 mL/day, as in acute and chronic renal failure. A potassium restricted diet is commonly ordered along with phosphorous, sodium, and fluid restrictions for reduced kidney function.

Description

Potassium is an essential mineral that is naturally present in many fresh foods. The low potassium diet limits the intake of foods high in potassium, such as milk, fruits, and vegetables to provide about 2000 mg potassium daily. The average American diet usually contains 3,500 mg (90 mEq) or more of potassium per day.

Nutritional Adequacy

At lower levels of potassium restriction, the diet will be low in protein, iron, and riboflavin. When the potassium restriction is below 1,000 mg, the diet may be low in ascorbic acid and folic acid.

Foods Low in Potassium

Food Group	Foods/Serving Size	Potassium	
		(mg)	(mEq)
Meat	Egg - 1 large	61	1.6
	Cheese, cheddar, American - 1 oz.	28	0.7
	Beef, chicken – 1oz	106	2.7
	Fish – 1 oz.	73	1.8
Fruit	Apple Juice - ½ c.	147	2.6
	Applesauce - ½ c.	78	2.0
	Blueberries - ½ c.	65	1.7
	Cranberries, raw - ½ c.	40	1.0
	Cranberry Juice Cocktail - ½ c.	23	0.6
	Grapes, purple - 12	93	2.4
	Pears (halves), canned- 2 medium halves	73	2.0
	Pear Nectar - ½ c.	50	1.3
	Peach halves (1 half)	125	3.2
	Pineapple, canned - 1 sl.	95	2.4

Foods Low in Potassium (Continued)

Food Group	Foods/Serving Size	Potassium		
		(mg)	(mEq)	
Vegetables	Cabbage, raw, shredded - 3/4 c.	86	2.2	
	Carrots, frozen - 1/2 c.	115	2.9	
	Cauliflower, cooked - 1/2 c.	125	3.2	
	Corn, frozen - 1/2 c.	120	3.0	
	Cucumber, raw - 1/2 c.	88	2.3	
	Endive - 1/2 c.	78	2.0	
	Green Beans, frozen - 1/2 c.	78	2.0	
	Green Pepper, cooked - 1/2 c.	100	2.6	
	Onion, cooked - 1/2 c.	125	3.2	
	Radishes, raw - 5 medium	50	1.3	
	Wax Beans, canned - 1/2 c.	85	2.2	
	Zucchini - 1/2 c	110	2.8	
	Starches	Refined white breads and crackers, White bread - 1 sl.	30	0.8
Refined cereals, Cream of Wheat, cooked - 1/2 c.		22	0.6	
Corn Flakes - 1/2 c.		12.5	0.3	
Refined rice, noodles, pasta White rice, cooked - 1/2 c.		28	0.7	
Spaghetti, cooked - 1/2 c.		22	0.6	
Fats		All (butter, margarine, mayonnaise) 1 Tbsp	4	0.4
Beverages		Kool-Aid - 1 c.	1	0.03
	Tang, orange - 1/2 c.	45	1.2	
	Tang, grape - 1/2 c.	1	0.03	
	Lemonade - 1/2 c.	18	0.5	
	Coke, 7-Up, Pepsi - 12 oz.	4	0.1	
Miscellaneous	Sugar	trace	trace	
	Jam, jelly, honey - 1 Tbsp.	15	0.4	
	Hard candy - 1 oz.	1	0.03	

SAMPLE Meal Plan for 2,000 mg (51 mEq) Potassium Diet

Food Group	Foods/Serving Size/ Exchange	Potassium	
		Mg	mEq
Milk	1 serving = ½ cup	150	3.8
Meat	5	600	15.4
Fruit	2 from low potassium list	600	15.4
	2 from medium potassium list		
Vegetable	1 from low potassium list	300	7.7
Starch	6 (salted or unsalted)	180	4.6
Fat	Ad lib (salted or unsalted)	0	0
Beverage	3 servings (20 oz)/day	180	4.6
Miscellaneous	4 or more	0	0
	Total Potassium	2,010	51.5

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Apple juice	2 oz. Roast beef	2 oz. Roast turkey
½ c. Cream of Wheat	½ c. Buttered rice	½ c. Cranberry sauce
1 Egg, scrambled	½ c. Buttered carrots	½ c. Buttered noodles
1 sl. White toast	1 sl. Enriched bread	½ c. Buttered green beans
1 tsp. Margarine	2 tsp. Margarine	½ c. Canned peaches (drained)
1 tbsp. Jam	½ c. Sugared Strawberries	1 Dinner roll
½ c. Milk	1 c. Kool-Aid	½ c. Instant coffee
1 c. Instant coffee	1 tsp. Sugar	1 tsp. Sugar
2 tsp. Sugar		

Sample meal plan provides approximately 1,800 -2,000 calories, 74 g. protein, and 1,781 mg. (46 mEq) potassium.

High Potassium Diet 4,000 mg

Indication

This diet may be used to replenish potassium stores. Patients on certain prescribed diuretics or adrenal corticosteroid may have an increased loss of potassium in the urine. Potassium deficiency due to urinary loss may also be caused by an increased endogenous production of steroids in conditions such as primary hyperaldosteronism, cirrhosis, congestive heart failure, Cushing's disease, and Barther's syndrome.

Some ileostomies and ulcerative colitis cause a large volume loss of liquid stool which often leads to hypokalemia if dietary intake is not adequate. Vomiting which causes continued losses of digestive secretions may lead to hypokalemia as well.

Description

This diet allows all foods as tolerated by the individual, but foods high in potassium should be emphasized.

Nutritional Adequacy

This diet is adequate in all nutrients specified in the Recommended Dietary Allowances and Dietary Reference Intakes.

Foods High in Potassium

Food Group	Foods/Serving Size	Potassium	
		(mg)	(mEq)
Milk	Recommended Servings/Day: 3 or more		
	Whole, low-fat, skim, buttermilk, or Chocolate milk - 1 c.	418	10.7
	Powdered instant - 1/3 c.		
Meat	Recommended Servings/Day: 2		
	Beef, pork, fish, poultry, liver - 3 oz.	318	8.1
Fruit	Recommended Servings/Day: 3 or more		
	Apricots, fresh - 4 medium	408	9.0
	Apricots, canned – 1 cup	361	9.3
	Avocado - 1/4 medium	360	9.2

Foods High in Potassium (Continued)

Food Group	Foods/Serving Size	Potassium	
		(mg)	(mEq)
Fruit (Continued)	Banana - 1 medium	467	11.9
	Cantaloupe, 5" diameter - 1/4 melon	426	11.0
	Dates – 5	271	7.0
	Figs, raw - 2 medium	271	7.0
	Honeydew, 6 ½" diam. - 1/8 melon	434	11.0
	Orange juice - 1 c.	473	12.0
	Papaya - ½ medium	391	10.0
	Prune juice - ½ c.	354	9.1
	Prunes, dried, uncooked - 5 medium	313	8.0
	Raisins - 1/4 c.	272	7.0
	Rhubarb, cooked - 1 c.	230	5.9
Vegetables	Recommended Servings/Day: 2 or more		
	Artichoke - 1 medium	425	11.0
	Beet greens, boiled - ½ c.	260	6.7
	Broccoli, cooked - 1 c.	456	11.7
	Brussel sprouts - 8	495	12.7
	Carrots, raw - 7 ½" - 1"	233	6.0
	Cauliflower, cooked - 1 c.	303	7.8
	Collard greens, cooked - ½ c.	247	6.3
	Lentils, cooked - ½ c.	365	9.3
	Lima beans: canned, drained - 1 c.	530	13.6
	Frozen, boiled, drained - ½ c.	350	9.0
	Dry, cooked, drained - ½ c.	477	12.2
	Parsnips, chopped - ½ c.	287	7.4
	Potato, white: boiled, in skin - 1 medium	515	13.2
	Raw, baked - 1 medium	844	21.6
	Pumpkin, canned - ½ c.	253	6.5
	Rutabagas, cooked ½ c.	277	7.1
	Soybeans, cooked - ½ c.	485	12.4
	Spinach, raw, boiled, drained - ½ c.	420	10.8
	Squash: winter, baked & mashed - ½ c.		
	Butternut - ½ c.	319	8.2
	Acorn - 1/4 c.	490	12.5
	Split peas, cooked - ½ c.	355	9.2
	Sweet potato, boiled & mashed - 1 c.	287	9.2
	Tomato, fresh - 1 medium	273	7.0
	Tomato juice - 6 oz.	401	10.3

Foods High in Potassium (Continued)

Food Group	Foods/Serving Size	Potassium	
		(mg)	(mEq)
Starches	Recommended Servings/Day: 4 or more		
	Whole Wheat bread - 1 sl.	70	1.8
	Bran flakes (40% bran) – 3/4 c.	175	4.5
	Raisin Bran - 1 c.	287	7.4
Miscellaneous	Recommended Servings/Day: As Desired		
	Bouillon, unsalted - 1 cube	500	12.8
	Molasses, blackstrap - 1 Tbsp.	498	12.8
	Chocolate syrup - 1/4 c.	169	4.3
	Cocoa beverage w/o milk - (1 oz = 4 heaping tsp.)	140	3.6
	Peanut butter - 2 Tbsp.	240	6.2
	Nuts – 1 oz.		
	Brazil Nuts	170	6.4
	Peanuts	169	6.4
	Cashews	150	3.9
	Walnuts	125	3.2
Tomato catsup - 1/4 c.	288	7.4	

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
Banana	½ c Tomato juice	6 oz Cream of potato soup
¾ c. All Bran	4 oz. Roast beef w/gravy	4 oz. Baked chicken
1 Poached egg	½ Baked potato	½ c. Cooked rice
2 oz Cheese	½ c. Buttered broccoli	½ c. Buttered spinach
1 sl. Whole wheat toast	Carrot sticks	½ c. Waldorf salad
1 tsp Margarine	1 tsp Margarine	1 Hot dinner roll
Jelly	½ c. Ice cream	1 tsp Margarine
Beverage	Beverage	1 sl Cherry Pie
		Beverage

Sample Daily Meal Plan provides approximately 3,333 milligrams potassium and ~2,300 calories.

Low Oxalate Diet

Indication

This diet is indicated for individuals who are predisposed to calcium oxalate stone formation due to hyperoxaluria. In hyperoxaluria, large amounts of oxalate are absorbed from the intestinal lumen and excreted in the urine. Normally, dietary calcium combines with oxalate in the intestine and prevents the absorption of oxalate. In hyperoxaluria, however, calcium combines instead with fatty acids causing excess absorption of oxalate. This condition is usually caused by the steatorrhea of small bowel inflammatory disease or ileal resection or bypass.

Description

Dietary management for a low oxalate diet involves the following recommendations:

1. Consume adequate (DRI) amounts of calcium daily. Adequate calcium is encouraged because it binds dietary oxalate in the intestinal lumen.
2. Reduce sodium intake as a high sodium diet can result in more calcium in urine.
3. Avoid vitamin C (ascorbic acid) supplements but foods rich in vitamin C are okay. Since oxalates can be formed from ascorbic acid during digestion, ascorbic acid intake above that needed to meet the Dietary Reference Intakes should be avoided. Limit vitamin C intake to less than 2,000 mg per day.
4. Increase fluid intake daily to dilute urine. Aim for 8-12 cups of alcohol-free, caffeine-free fluids per day.
5. Reduce oxalate intake to 40-50mg of oxalate per day. Avoid the following foods which are high in oxalate content:

Fruits: Fresh blackberries, blueberries, cantaloupe, concord grapes, red currants, elderberries, figs, fruit cocktail, kiwi, citrus peel, strawberries, plums, raspberries, rhubarb and oranges.

Vegetables: Beets and beet greens, cauliflower, celery, chard, collards, cucumber, dandelion greens, eggplant, mustard greens, endive, green peppers, okra, onion, spinach, sweet potatoes, pumpkin, kale, leeks, rutabagas and zucchini.

Beverages: Beverages fortified with ascorbic acid, chocolate, cocoa, tea, dark beer, ovaltine, soy drinks and cola.

Miscellaneous: Chocolate, nuts, soybeans/tofu, dried beans, nut butters, wheat germ, sesame seeds, grits, and bran cereals.

Sample Daily Plan

Breakfast	Lunch	Dinner
1/4 c. Orange juice 1/2 c. Cream of Wheat 1 Scrambled egg 1 sl. White toast 1 tsp. Margarine 1 tbsp. Jelly 1 c. Low-fat milk 8 oz. Coffee 8 oz. Water	3 oz. Roast beef w/gravy 1 sm. Baked potato 1/2 c. Buttered carrots 1/2 c. Molded apricot gelatin salad 1 sl. Whole wheat bread 2 tsp. Margarine 3" slice Angel food cake 1 c. Low-fat milk 8 oz. Coffee 12 oz. Water	3 oz. Baked chicken 1/2 c. Buttered rice 1/2 c. Whole kernel corn 1 c. Chopped lettuce salad w/ 2 tbsp. French dressing 1/2 c. Sliced peaches 1 Dinner roll 1 tsp. Margarine 1 c. Low-fat milk 8 oz. Coffee 12 oz. Water
Mid-Morning Snack	Mid-Afternoon Snack	Evening Snack
12 oz. Water 4 oz. Cranberry Juice	12 oz. Water 4 oz. Nectar	8 oz. Water 6 oz. Grape juice

Salt, pepper, sugar and allowed beverage of choice are routinely served with all meals.

Section M: Modifications in Minerals

M - 9

Table M-I: Foods High and Low in Calcium

High in Calcium			Low in Calcium		
Food	Amount	Mg	Food	Amount	Mg
Cottage Cheese	1 cup	126	French Bread	1 slice	10
American Cheese	1 oz.	175	Wheat Bread	1 slice	26
Swiss Cheese	1 oz.	272	Butter	1tbsp	3
Milk	1 cup	300	Cornflakes	1 cup	1
Chocolate Milk	1 cup	288	Cream of Wheat	1 cup	50
Yogurt 10 g protein	8 oz.	345	Egg	1	43
Ice Cream	½ cup	84	Cream, half and half	1 tbsp.	16
Pudding, chocolate rte.	4 oz.	102	Crackers, saltine	4	14
Molasses	1 tbsp.	172	Soda	12 oz.	11
Sardines	3oz	325	Plain Gelatin	½ cup	3
Salmon, Pink	3 oz.	181	Jelly	1 tbsp.	1
Soybeans, cooked	1 cup	261	Apple, raw	1	10
Tofu, soft	1 piece	133	Banana	1	7
Beans, baked	1 cup	127	Orange, raw	1	9
Black-eyed peas	1 cup	211	Peach	1	8
Rhubarb, frozen	1 cup	348	Pear, canned	2	22
Beet greens	1 cup	64	Carrots, cooked	1 cup	48
Broccoli	1 cup	72	Corn, cooked	1 cup	7
Collards	1 cup	226	Potato, baked	1	20
Dandelion	1 cup	147	Beef	3 oz.	9
Kale	1 cup	94	Chicken	3 oz.	16
Lettuce	1 cup	102	Lamb	3 oz.	19
Okra, frozen	1 cup	177	Pork	3 oz.	24
Spinach	1 cup	245	Tuna Fish, canned	3 oz.	12
Turnip greens	1 cup	197	Veal	3 oz.	9

Source: USDA Nutrient Database for Standard Reference Release 14

Diets for Renal Disease

Indication

When the kidneys are not functioning properly, toxic amounts of certain by-products of metabolism may accumulate in the bloodstream. Excess sodium, potassium and phosphorus from foods are not fully excreted by the kidneys in renal disease. In addition to the accumulation of these substances in the blood, the body may retain fluids. When this occurs, the body is unable to maintain a biochemical homeostasis. The purpose of dietary restrictions of potassium, sodium and phosphorous is to assist in maintaining the biochemical homeostasis by lightening the workload of the diseased kidney. Acute kidney injury (AKI) is defined as a sharp decline in kidney function over 24-48 hours leading to a reduction of glomerular filtration and tubular function. Chronic kidney disease (CKD) is defined as persistent kidney damage for at least 3 months. CKD has been categorized into five stages using the glomerular filtration rate:

- Stage 1: Kidney damage with $\text{GFR} \geq 90 \text{ mL/min/1.73 m}^2$.
- Stage 2: Kidney damage with $\text{GFR } 60\text{--}89 \text{ mL/min/1.73 m}^2$.
- Stage 3: $\text{GFR } 30\text{--}59 \text{ mL/min/1.73 m}^2$ moderate loss of kidney function.
- Stage 4: $\text{GFR } 15\text{--}29 \text{ mL/min/1.73 m}^2$ severe loss of kidney function.
- Stage 5: $\text{GFR} < 15 \text{ mL/min/1.73 m}^2$ kidney failure

Description

The nutritional management of patients with renal disease focuses on the intake of calories, protein, sodium, potassium, phosphorus and fluids. Modifications in the diet may vary depending on the stage of renal failure, the treatment modality and the presence of diabetes.

Calories:

The number of calories in the diet is determined by the individual's needs. All patients with renal disease require adequate caloric intake. When weight is lost rapidly, protein will be used for energy and cause serum blood urea nitrogen and creatinine to rise, just as if a high protein meal were consumed. Calories may be adjusted in the diet without affecting protein, sodium, or potassium. Patients with AKI may require 25-35 calories/kilogram (kcal/kg) body weight. Patients receiving renal replacement therapy (RRT) may need 30-40 kcal/kg. For patients with diabetes, a carbohydrate controlled diet may be indicated, see section D for dietary management of diabetes for additional information.

Protein:

Protein needs vary depending on the kidney function and the use of RRT. For a patient with CKD not yet on dialysis, protein needs are 0.6-0.8 grams/kg/day. The purpose of a low protein diet for CKD is to slow the progression of kidney disease and prolong the need for dialysis. Once dialysis or other methods of RRT has been started, daily protein needs increase to 1.2-1.5 g protein/kg/day. Protein needs during AKI are 1.5-1.8 g protein/kg/day given that the injury is often associated with many metabolic and

inflammatory complications.

Sodium:

Sodium is naturally present in foods and is present in greater amounts in processed foods. In end stage renal failure, the kidney is unable to excrete large amounts of sodium. If sodium intake is not restricted, the body will retain fluids resulting in edema and congestive heart failure. Sodium content of urine and serum and degree of hypertension and edema will determine the level of sodium restriction needed. The sodium restriction is usually 2,000 mg per day, see section K for additional information modifications in sodium.

Potassium:

Potassium is also naturally present in foods. Foods that are rich in potassium include milk, animal protein, many fruits and vegetables and some salt substitutes (those with potassium chloride). These foods must be limited or eliminated from the diet. A sudden rise of potassium in the bloodstream above normal levels can cause cardiac arrest. Serum potassium levels should be monitored for dietary restriction. The potassium restriction is usually 2000mg per day; see section M for additional information modification in minerals.

Fluids:

Maintenance of proper fluid balance is one of the kidney's major functions. Fluid restriction depends upon the daily urine output, weight changes and fluid status. Fluid allowance may be determined according to 24 hour urine output plus 500 - 750 ml or 1000 ml if anuric (<75 ml urine output in a day). Insensible fluid losses through the skin, lungs, etc., are approximately equal to the fluid in solid food, if vegetables and fruits are not consumed in large quantities. Fluid intake should be modified to prevent weight gain of no more than 1 kg per 24 hours between hemodialysis treatments.

Phosphorus:

A normal concentration of serum phosphorus is essential for proper bone metabolism and skeletal structure. The kidney no longer excretes the same amount of phosphorus in end stage renal disease. If serum phosphorous is elevated or plasma intact PTH levels are elevated, a 1,000 mg phosphorous diet is indicated. To achieve a low phosphorus diet, meat and dairy products are modified. Often a dietary phosphorus restriction may not be necessary if the patient is already on a phosphorous binder medication. If serum phosphorous levels are > 4.6mg/dl in Stage 3 and 4 CKD then a phosphorous diet restriction is indicated. In Stage 5 CKD, a serum phosphorous levels > 5.5mg/dl indicates a dietary restriction. Additionally, a dietary phosphorous restriction is indicated if plasma intact PTH levels are > 70 pg. /ml for patients with Stage 3 CKD, >110 pg. /ml for patients with Stage 4 CKD and > 300 pg. /ml for patients with Stage 5 CKD.

Nutritional Adequacy

If the protein allowance of the diet is above 0.8 gram per kilogram of body weight, the diet can meet the Dietary Reference Intakes when planned to include the recommended servings of all food groups in the daily meal plan. Specific vitamin/mineral supplementation must be determined on an individual basis. Water soluble vitamins are advised for patients on a renal-restricted diet and all hemodialysis and peritoneal dialysis patients. Iron, zinc, vitamin D and vitamin A supplementation may be indicated for patients with kidney disease and each patient should be assessed for deficiencies.

Fluid Restriction

A fluid is considered to be any food that is liquid or melts at room temperature. Fluids include items such as: water, soda, coffee, tea, milk, cream, carbonated beverages, fruit juices, fruit flavored drinks, gelatin, ice, popsicles, fruit ice, sherbet, ice cream, frozen yogurt, hot chocolate and soup.

Measurement	Fluid ounces (oz.)	Milliliters (ml)
1 cup	= 8 oz.	= 240 ml.
½ cup	= 4 oz.	= 120 ml.
¼ cup	= 2 oz.	= 60 ml.
2 Tablespoons	= 1 oz.	= 30 ml.
1 Tablespoon	= ½ oz.	= 15 ml.

**Mineral Conversions of Milliequivalent to Milligram
and Milligram to Milliequivalent of Na⁺, K⁺**

To change mEq Na⁺ to mg Na⁺ :

$$1 \text{ mEq Na}^+ = 23 \text{ mg Na}^+$$

$$\text{i.e. } 87 \text{ mEq Na}^+ \times 23 = 2001 \text{ mg Na}^+$$

To change mg Na⁺ to mEq Na⁺:

$$\text{mg Na}^+ \text{ divided by } 23 \times 1 = \text{mEq Na}^+$$

$$\text{I e. } 2000 \text{ mg Na}^+ \text{ divided by } 23 = 87 \text{ mEq Na}^+$$

To change mEq K⁺ to mg K⁺:

$$1 \text{ mEq K}^+ = 39 \text{ mg K}^+$$

$$\text{i.e. } 64 \text{ mEq K}^+ \times 39 = 2496 \text{ mg K}^+$$

To change mg K⁺ to mEq K⁺:

$$\text{mg K}^+ \text{ divided by } 39 \times 1 = \text{mEq K}^+$$

$$\text{i.e. } 2500 \text{ mg K}^+ \text{ divided by } 39 = 64 \text{ mEq K}^+$$

Table N-I: Selected nutritional parameters for varying levels of kidney failure

Daily Nutrient Recommendations for Renal Disease

	AKI	Pre-Dialysis CKD	Hemo – dialysis	Peritoneal dialysis	Transplant	
Protein gm/kg IBW or SBW	1.5-1.8g/kg, less if AKI on CKD	0.6-0.8g/kg	1.2g/kg	1.3g/kg	1.3-2.0	
Energy kcal/kg IBW or SBW standard (dry wt.)	25-35 depends on stress & status of nutrition	35-40 if malnourished , 30-35 for normal weight, adjust weight for obesity	30-35	≥35 include dialysate kcal; 20-25 for weight loss	35-40 if malnourished, 30-35 for normal weight, adjust weight for obesity	
Sodium (Na⁺) gm/day	2 gm/day based on BP, edema; replace diuretic phase	Varies from 2-3 gm/day to no added salt	2 gm/day	2-3 gm/day Monitor fluid balance	2-4 gm/day	2-4 gm/day
Potassium (K⁺)gm/day	2 gm/day Maintain serum <5 mEq/L. Replace diuretic phase losses	2 gm K+ diet if serum K+ > 5.0	2-3 gm/day Adjust to serum levels	3-4 gm/day Adjust to serum levels	2 gm K+ diet if serum K+ > 5.0	
Phosphorus	Maintain serum value WNL	≤ 10 mg/kg/day	≤ 17 mg/kg BW/day	≤ 17 mg/kg BW/day	RDA	RDA
Calcium gm/day	1.0-1.5 g/d	1.0-1.5g/d	<2000 mg/d	<2000 mg/d	0.8-1.5	0.8-1.5
Fluid cc/day	As tolerated	As tolerated	Output + 1000 cc	Keep fluid balance 2000+	Unrestricted, unless fluid overloaded	
Vitamins/ Minerals (Daily)	RDA: adjust to degree of catabolism.	DRI	DRI 75-100 mg Vit C, 1mg Folic Acid/day	DRI 75-100 mg Vit C, 1mg Folic Acid/day, 5- 10 mg/d of pyridoxine	RDA may need additional Vitamin D	

Guideline from NKF.

Table N-II: Average Protein, Sodium, Potassium and Phosphorus Values

Food Group	Amount in One Serving	Protein (Gm)	Sodium		Potassium		Kcal	Phosphorus (mg)
			mg	mEq	mg	mEq		
Milk	½ cup	4	80	3.47	185	4.74	75	110
Meat	1 oz	7	25	1.1	100	2.56	65	65
Starches	Varies	2	80	3.5	35	0.89	90	35
Vegetables	Varies							
Low K		1.0	15	0.65	70	1.8	25	20
Medium K		1.0	15	0.65	150	3.8	25	20
High K		1.0	15	0.65	270	6.9	25	20
Fruits	Varies							
Low K		0.5	Tr.	Tr.	70	1.8	70	15
Medium K		0.5	Tr.	Tr.	150	3.8	70	15
High K		0.5	Tr.	Tr.	270	6.9	70	15
Fats	Varies	Tr.	55	2.4	10	0.25	45	5
Non-dairy Milk Substitutes	Varies	0.5	40	1.7	80	2	140	30
Salt Choices	Varies	-	250	11	-	-	-	-
Beverages	Varies	varies	varies	varies	varies	varies	varies	varies
High-Calorie Choices*	Varies	Tr.	15	.65	20	51	100	5

Note: The values used in the food lists are approximate averages because the nutrients in food vary widely. If the diet must be severely restricted in protein and/or potassium, the diet must be calculated by using current food nutrient composition tables.

* High calorie choices are foods high in carbohydrates and contain only a trace of protein and minimal electrolytes. These should be used to raise calorie intake to a desired level.

Diets for Renal Disease

The DASH diet is often recommended for early stages of kidney disease. The DASH diet can be found in Section K: Sodium Restricted Diet.

Procedure for Calculating a Renal Diet

Step 1: Convert the milliequivalents of K^+ and Na^+ (if the diet is ordered in mEq) to milligrams:

To change mEq Na^+ to mg Na^+ : $1 \text{ mEq } Na^+ = 23 \text{ mg } Na^+$

To change mg Na^+ to mEq Na^+ : $\frac{\text{mg } Na^+}{23} \times 1 = \text{mEq } Na^+$

To change mEq K^+ to mg K^+ : $1 \text{ mEq } K^+ = 39 \text{ mg } K^+$

To change mg K^+ to mEq K^+ : $\frac{\text{mg } K^+}{39} \times 1 = \text{mEq } K^+$

Step 2: Determine the amount of protein of high biological value the patient is to have (at least 65% of amount prescribed).

Step 3: Divide the high biological value (HBV) protein between milk, fish and meat. Make appropriate adjustment if patient is lactose intolerant.

Step 4: Divide the remaining protein between starches, fruits and vegetables. At the same time, calculate the amount of K^+ used from starches, fruits and vegetables.

Step 5: Total the amount of potassium used in arriving at the protein level, and add this amount of K^+ obtained in Step 4. Subtract this total amount from the amount prescribed.

Step 6: Obtain the remaining potassium from beverages.

Step 7: Calculate the sodium level. If the sodium amount exceeds the prescription, reduce the sodium by using unsalted fats and unsalted starches. If the sodium is too low, increase the sodium by using salted starches and salted fats.

Step 8: Calculate the fluid level.

Section N: Diets for Renal Disease

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Example for calculation a Renal Diet: Diet prescription: 60 gm protein; 2,000 mg sodium; 2,000 mg potassium; 1,000 mg phosphorus; 1,000 ml fluid per day

Step 1	Convert the millequivalents of K ⁺ and Na ⁺ (if the diet is ordered in mEq) to milligrams						
Step 2	Divide HBV (high biological value) protein between milk and meat						
Step 3		Amount	Protein (Gm)	K ⁺ (mg)	Na ⁺ (mg)	Phos. (mg)	Fluid (ml)
	Milk	1	4	185	80	110	120
	Meat	5	35	500	125	325	0
	Total protein of HBV		39				
Step 4	60 gm protein - 30 gm protein of HBV = 20 gm protein remaining for starches, fruits & vegetables						
		Amount	Protein (Gm)	K ⁺ (mg)	Na ⁺ (mg)	Phos. (mg)	Fluid (ml)
	Starches	8	16	280	640	280	0
	Fruit - Low K	1	0.5	70	trace	15	120
	- Medium K	1	0.5	150	trace	15	-
	- High K	1	0.5	270	trace	15	-
	Vegetables - Low K	2	2	140	15	20	-
	- Medium K	1	1	150	15	20	-
	- High K	0	-	-	15	20	-
Fats	8	-	80	440	40	-	
Add 3 & 4	Total Protein		59.5				
	Total Potassium			1,825			
	Total Sodium				1,330		
	Total Phosphorus					860	
Step 5	Total Potassium (in diet prescription) 2000 mg K ⁺ - 1825 mg K ⁺ used =175 mg K ⁺ remaining for beverages						
Step 6		Amount	Protein (Gm)	K ⁺ (mg)	Na ⁺ (mg)	Phos (mg)	Fluid (ml)
	Beverage	3	0	180	0	0	720
	Total Potassium			2,005			
	Total Fluid						960
Step 7	Total Sodium (in diet prescription) 2,000 mg Na ⁺ - 1,330 mg Na ⁺ used = 670 mg Na ⁺ remaining for salted fats, starches, and salt choices. Note: the amount Na ⁺ used varies depends on individual food plan, with regular cereals the Na ⁺ content will be slightly higher.						
Step 8	Total Fluid level (in diet prescription) Anything that is liquid at room temperature must be counted as fluid.						

Sample Renal Diet Prescription**Basic Renal Patterns**

Diet: 60 gm protein, 2,000 mg potassium, 2,000 mg sodium, 1,000 mg phosphorus

Quantity	Food Group	60 (gm) Protein	2,000 (mg) Potassium	2,000 (mg) Sodium	1,000 (mg) Phosphorus	Fluid (mL)
1 (½ cup)	Milk	4	185	80	110	120
5	Meat	35	500	125	325	0
3	Vegetables	3	290	45	60	0
3	Fruits	1.5	490	Trace	45	120
8	Starches	16	280	640	280	0
8	Fats	-	80	440	40	0
+	Beverages	-	180	varies	-	720
	Total	59.5	2,005	1,330	860	960

To meet increased caloric needs, encourage use of whole milk, canned fruit with heavy syrup, higher calorie starches (i.e. sweetened dry cereal, cookies, etc.) and use of appropriate fats in cooking. Fats should be polyunsaturated or monounsaturated vs. saturated whenever possible.

*To meet Na⁺ prescription of 2,000 mg; may use salted margarine, regular condiments, etc.; monitor blood sodium closely.

Basic Renal Patterns**Diet: 40 gm protein, 2,000 mg (87 mEq) Sodium, 2,000 mg (51 mEq) Potassium**

Food Group	Servings /Day	Protein (g)	Sodium* (mg)	Sodium (mEq)	Potassium (mg)	Potassium (mEq)	Kcal
Milk Substitute ½ c. (Non-Dairy)	1	0.5	40	1.7	80	2	140
Meat	4	28	100	4	400	10	260
Fruit (2 low K, 1 med. K)	3	1.5	Trace	Trace	290	7.4	210
Vegetables (2 low K, 1 med. K)	3	2	45	2	290	7.4	75
Starch	4	8	320	14	140	3.6	360
Fats	8	0	440	19	80	2	360
Beverages	3	0	0	0	180	4.6	0
Miscellaneous	6	0	0	0	0	0	600
Totals		40	945	41	1,460	37	2,005

Sample Daily Meal Plan**Breakfast**

½ c. Cranberry juice
 1 c. Puffed wheat w/
 2 tsp. sugar
 ½ c. Milk Substitute (mocha mix)
 1 Egg fried in
 1 tsp. salted margarine
 1 sl. White toast (low protein)
 1 tsp. Salted margarine
 1 Tbsp. Jam
 ½ c. Instant coffee
 1 tsp. Sugar

Lunch

1 oz. Roast beef
 ¼ c. Rice w/
 1 tsp. salted margarine
 ½ c. Cooked carrots w/
 1 tsp. salted margarine
 1 sl. Low protein bread
 1 tsp. Salted margarine
 Cherries (12) w/
 1 tsp. sugar
 1 c. Kool-Aid
 ½ c. Instant Coffee
 1 tsp. Sugar

Dinner

2 oz. Roast turkey
 ¼ c. Cranberry sauce
 ¼ c. Noodles w/
 1 tsp. salted margarine
 1 c. Green beans w/
 1 tsp. salted margarine
 1 Dinner roll
 1 tsp. Salted margarine
 1 Tbsp. Honey
 ½ c. Canned sliced pears (drained)
 3 Low protein cookies
 ½ c. Instant coffee

Add or adjust miscellaneous food servings with or between meals to bring calories to 2,500 + or to appropriate calorie levels of diet prescription.

* To meet Na⁺ prescription of 2,000 mg may use salted margarine, regular condiments, etc.; monitor blood sodium closely.

Basic Renal Patterns**Diet: 60 gm Protein, 2,000 mg (87 mEq) Sodium, 2,000 mg (51 mEq) Potassium**

Food Group	Servings / Day	Protein (g)	Sodium* (mg)	Sodium (mEq)	Potassium (mg)	Potassium (mEq)	Kcal
Milk whole (½ c)	1	4	80	3.5	185	4.7	75
Meat	5	35	125	5.4	500	13	325
Fruit (3 med. K)	3	1.5	Trace	Trace	450	11.5	210
Vegetables (2 low K, 1 med. K)	3	3	45	2	290	7.4	75
Starch	8	16	640	28	180	7.2	720
Fats	10	0	550	24	100	2.5	450
Beverages	3	0	0	0	180	4.6	0
Miscellaneous	5	0	0	0	0	0	500
Totals		59.5	1,440	63	1,985	51	2,355

Sample Daily Meal Plan**Breakfast**

½ c. Apple juice
 ½ c. Salted Cream of Wheat w/
 1 tsp. salted margarine
 ½ c. Milk, whole
 1 Egg, fried in
 1 tsp. salted margarine
 1 sl. White toast
 1 tsp. Salted margarine
 1 Tbsp. Jam
 ½ c. Instant coffee
 2 tsp. Sugar

Lunch

2 oz. Roast beef
 ½ c. Salted rice w/
 1tsp. salted margarine
 ½ c. Cooked carrots w/
 1 tsp. salted margarine
 2 sl. Enriched bread
 2 tsp. Salted margarine
 5 large Strawberries w/
 2 tsp. sugar
 ½ c. Instant Coffee
 1 tsp. Sugar

Dinner

2 oz. Roast Turkey
 ¼ c. Cranberry sauce
 ½ c. Salted noodles w/
 1tsp. salted margarine
 1 c. Green beans w/
 1 tsp. Salted margarine
 ½ c. Canned sliced
 peaches (drained)
 1 Dinner roll
 1 tsp. Salted margarine
 ½ C. Hot tea
 1 Tbsp. Honey

Add or adjust miscellaneous food servings with or between meals to bring calories to 3,000+ or to appropriate calorie levels for prescription.

* To meet Na⁺ prescription of 2,000 mg. may use salted margarine, regular condiments; monitor blood sodium closely.

Basic Renal Patterns**Diet: 80 gm Protein, 2,000 mg (87 mEq) Sodium, 2,500 mg (64 mEq) Potassium**

Food Group	Servings /Day	Pro. (g)	Sodium* (mg)	Sodium (mEq)	Potassium (mg)	Potassium (mEq)	Kcal
Milk, whole (½ C)	1	4	80	3.5	185	4.7	75
Meat	8	56	200	8.7	800	20.5	520
Fruit (4 med. K)	4	2	Trace	Trace	600	15.4	280
Vegetables (2 low K, 1 med. K)	3	3	45	2	290	7.4	75
Starch	8	16	640	28	280	7.2	720
Fats	10	0	550	24	100	2.5	450
Beverages	3	0	0	0	180	4.6	0
Miscellaneous	5	0	0	0	0	0	500
Totals		81	1,515	66	2,435	62.3	2,620

Sample Daily Meal Plan**Breakfast**

1 c. Apple juice
 ½ c. Salted Cream of Wheat w/
 2 tsp. salted margarine
 ½ c. Milk, Whole
 1 Egg, fried in
 2 tsp. salted margarine
 1 sl. White toast
 2 tsp. Salted margarine
 1 Tbsp. Jam
 ½ c. Instant coffee
 2 tsp. Sugar

Lunch

3 oz. Roast beef
 ½ c. Salted rice
 2 tsp. Salted margarine
 ½ c. Cooked carrots w/
 2 tsp. salted margarine
 1 sl. Enriched bread w/
 2 tsp. Salted margarine
 1 c. Strawberries w/
 2 tsp. sugar
 ½ c. Instant coffee
 1 tsp. Sugar
 1 c. Kool-Aid

Dinner

4 oz. Roast turkey
 ¼ c. Cranberry sauce
 ½ c. Salted noodles w/
 2 tsp. Salted margarine
 1 c. Green beans w/
 2 tsp. salted margarine
 ½ c. Canned sliced
 peaches (drained)
 1 Dinner roll
 2 tsp. Salted margarine
 1 tbsp. Honey
 ½ c. hot tea
 1 tsp. Sugar

Adjust miscellaneous food servings with or between meals to bring calories to appropriate levels for prescription.

*To meet Na⁺ prescription of 2,000 mg may use salted margarine, regular condiments, etc.; monitoring blood sodium closely.

Renal Diet for the Diabetic Patient

Average Calculation for Planning Diabetic Renal Diet

Food Groups	Kcal	CHO (g)	Pro (g)	Fat (g)	Na ⁺ (mg)	K ⁺ (mg)	Phos (mg)
Milk, 1 exchange (1/2 cup)	100	8	4	5	80	185	110
Milk substitutes (Non Dairy)	140	12	0.5	10	40	80	30
Meat (1oz)	65	-	7	4	25	100	65
Starches	80	15	2	1	80	35	35
Vegetables							
Low K	25	5	1	trace	15	70	20
Medium K	25	5	1	trace	15	150	20
High K	25	5	1	trace	15	270	20
Fruits							
Low K	60	15	0.5	-	trace	70	15
Medium K	60	15	0.5	-	trace	150	15
High K	60	15	0.5	-	trace	270	15
Fats	45	-	trace	5	55	10	5
High-calorie choices	60	15	trace	-	15	20	5
Beverages	varies		varies	varies	varies	varies	varies

Food Exchange Lists for Renal Diet for Diabetic Patient

Milk Group

[1 serving contains 4 grams protein, 5 grams fat (except low-fat and nonfat) 100 kcal, 8 gram carbohydrate, 80 mg sodium (3.5 mEq), 185 mg potassium (4.7 mEq), 110 mg phosphorus]

	<u>Serving Size</u>
Milk (nonfat, low-fat, whole)	½ cup
Chocolate milk	½ cup
Buttermilk, cultured	½ cup
Sweetened condensed milk	¼ cup
Half & half	½ cup
Heavy cream	½ cup
Evaporated milk	¼ cup
Alterna	1 cup
Yogurt, plain or fruit-flavored	½ cup
Cream cheese	3 Tbsp.
Sour cream	4 Tbsp.

Guidelines:

1. Count milk and milk product as part of fluid intake.
2. **Non-dairy milk substitutes** contain 12 gram carbohydrate, 0.5 gram protein, 140 kcal, 40 mg sodium, 80 mg potassium, 30 mg phosphorus.

Dessert, nondairy frozen	½ cup
Dessert topping, nondairy frozen	½ cup
Liquid nondairy creamer, polyunsaturated	½ cup

Meat Group

[1 serving (1 oz) contains approximately 7 grams protein, 4 grams fat, 65 kcal, 25 mg (1.1 mEq) sodium, 100-120 mg (2.6-3.1 mEq) potassium, and 65 mg phosphorus, unless otherwise indicated]

Prepared without added salt	Serving Size
Beef Round, sirloin, flank, cubed, T-bone, porterhouse steak; tenderloin, rib, chuck, rump roast; ground beef or ground chuck	1 oz.
Pork Fresh ham, tenderloin, chops, loin roast, cutlets	1 oz.
Lamb Chop, leg roast	1 oz.
Veal Chops, roasts, cutlets	1 oz.
Poultry Chicken, turkey, Cornish hen, domestic duck or goose	1 oz.
Fish All fresh and frozen fish, lobster, scallops, shrimp, clams, canned tuna (unsalted), canned salmon (unsalted) sardines (unsalted)* Crab and oysters	1 oz. 1½ oz
Wild game Venison, rabbit, squirrel, pheasant, duck, goose	1 oz.
Egg Whole Egg white or yolk Low-cholesterol egg product	1 large 2 large ¼ cup
Organ meats* Chitterlings	1 oz. 2 oz.

Meat Group (continued)

Prepared with added salt (add an additional 250 mg to total sodium of meat)	Serving Size
Beef Deli-style roast beef _____	1 oz.
Pork Boiled or deli-style ham _____	1 oz.
Poultry Deli-style chicken or turkey _____	1 oz.
Fish Canned tuna, canned salmon, sardines* _____	1 oz.
Cheese Cottage _____	¼ cup

* High in phosphorous, (100 mg or more of phosphorus); no more than 2 servings/week.

The following foods are high in sodium, phosphorus, and/or saturated fat – should be used in limited quantities.

All cheeses	Anchovies
Bacon	Sausage
Corned beef	Cold cuts (bologna, liverwurst, picnic loaf, salami)
Frankfurter	Canned, salted pickled, spiced or smoked meats
Kosher meats	Commercially frozen or breaded fish or meats

Bread/Starch Group

[1 serving contains approximately 2 gram protein, 80 kcal, 15 gram carbohydrate, 1 gram fat, 80 mg sodium (3.5 mEq), 35 mg potassium (.9 mEq), 35 mg phosphorus]

Bread and Starches	Serving Size
Bread (French, Italian, raisin, light rye, sourdough white) _____	1 slice (1 oz.)
Bread, whole wheat _____	1 slice
Rye or pumpernickel** _____	1 slice
Bagel _____	½
Dinner roll _____	1 (2")
English muffin _____	½
Hamburger or hot dog bun _____	½
Dried bread crumbs _____	3 Tbsp.
Tortilla, flour _____	1 (6" diameter)
Tortilla corn _____	1 (6" diameter)
Pita Bread _____	½ (6" diameter)
Pancake _____	1 small (4")
Waffle _____	1 small (1oz)

Cereal and Starches	
Bran flakes** _____	½ cup
Other ready to eat unsweetened cereal _____	¾ cup
Puffed cereal (unfrosted) _____	1 ½ cup
Cereal (cooked) _____	½ cup
Grits (cooked) _____	½ cup
Oat bran or oatmeal, Ralston _____	½ cup
Pasta, spaghetti, noodles, macaroni (cooked) _____	⅓ cup
Cornmeal, cooked _____	¾ cup
Flour _____	2½ Tbsp.
Rice, cooked _____	⅓ cup
Wheat germ _____	3 Tbsp.

Crackers	
Arrowroot _____	3 each
Graham 2 ½" square _____	3 each
Matzo 4x6 " square unsalted _____	½
Oyster, unsalted _____	20
Pretzels, sticks or sticks _____	10 sticks
Rye wafers, unsalted (2" x 3 ½") _____	3 each
Saltines, unsalted _____	6 each
Soda, unsalted (2 ½" square) _____	4 each
Tortilla chips _____	9 chips

Desserts	Serving Size
Cake, angel food	1 oz.
Shortbread cookies	1 oz. (3)
Sugar cookies	1 oz. (3)
Vanilla wafers	1 oz. (3)

Below items contain low & poor quality (LBV) protein and high amounts of phosphorus, should be used rarely and in limited quantities:

Bran cereal or muffins, Grape-Nuts, granola cereal or bars
 Boxed, frozen, or canned meals, entrees, or side dishes
 Pumpernickel, dark rye, whole wheat or oatmeal breads
 Whole wheat crackers, Whole wheat cereals

Foods to Avoid:

Seasoned bread crumbs; cracker crumbs; commercial breading and stuffing mixes; fruit cake; nut breads and rolls; commercial seasoned rice/noodles; chow mein noodles; cookies; fig bars; éclairs; cream puffs; macaroons; molasses; Boston cream pie; and any other not listed.

Vegetable Group

Vegetables should be fresh, frozen without salt, or unsalted canned. All fresh vegetables should be peeled, diced or sliced and cooked in a large amount of water to reduce K⁺ content. Drain all vegetables after cooking. Vegetables should not be eaten raw unless specified.

Preparation is cooked, unless otherwise specified, without added salt. [**One serving contains approximately 1 gram protein, 25 kcal, 5 gram carbohydrate, 15 mg sodium (0.65 mEq) , and 20 mg phosphorus, ½ cup per serving unless otherwise indicated**]

Low Potassium (0-100 mg)

Alfalfa sprouts 1 cup	Cucumber
Bamboo shoots, canned	Endive, Escarole
Bean sprouts	Lettuce, all varieties
Beans, green snap	Pepper, jalapeno, canned
Beans, yellow wax	Pepper, green, sweet
Cabbage, raw	Water chestnuts, canned
Chinese cabbage, raw	Watercress
Chard, raw	

Medium Potassium (101-200 mg)

Artichoke	Onions
Broccoli	Peas, green (40 mg phos.)
Cabbage, cooked	Peas and carrots
Cauliflower	Radishes
Carrots	Snow peas (40 mg phos.)
Celery, raw	Spinach, raw

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Section N: Diets for Renal Disease

Collards
Corn (40 mg phos.)
Eggplant
Kale
Mushrooms, canned or fresh (canned 40 mg phos.)

Squash, summer
Succotash
Turnip greens
Turnips

High Potassium (201-350 mg)

Asparagus (5 spears) (40 mg phos.)
Avocado (¼ whole)
Beets
Brussels sprouts (40 mg phos.)
Celery, cooked
Kohlrabi
Mushrooms, fresh cooked (40 mg phos.)
Okra (¼ cup) (40 mg phos.)
Parsnips (40 mg phos.)
Pepper, chili
Potato**, baked (½ medium)
Potato, boiled or mashed (40 mg phos.)**
Rutabagas
Pumpkin

Tomato (1 medium)
Tomato juice, unsalted
Tomato puree (2 tbsp.)
Tomato paste (2 tbsp.)
Tomato sauce (2 tbsp.) (40 mg phos.)
Vegetable juice cocktail, regular
Vegetable juice, unsalted
Spinach**, cooked
Sweet Potato
Potato chips** (1 oz or 14 chips)
Potato**, hash browned
Winter squash (40 mg phos.)

** Very high in potassium content

Fruit Group

[1 serving contains approximately 0.5 gram protein, 60 kcal, 15 gram carbohydrate, 1-2 mg sodium (0.04 mEq), and 15 mg phosphorus. ½ cup per serving unless otherwise indicated]

Low Potassium (0-100 mg)

Applesauce
Blueberries
Cranberries (1 cup)
Cranberry juice cocktail (1 cup)
Grape juice
Hawaiian punch

Hi-C fruit drink
Lemon (½)
Papaya nectar
Peach nectar
Pears, canned
Pear nectar

Medium Potassium (101-200 mg)

Apple (1 med)
Apple juice
Blackberries
Cherries
Figs, canned
Fruit cocktail
Grapefruit (1/2 med)
Grapes (15 each)
Gooseberries
Lemon juice
Mango (½ med)
Papaya

Peach halves, canned
Peach, fresh (1 small)
Pineapple, canned or fresh
Plums, fresh (1 med)
Raisins (2 Tbsp.)
Raspberries (¼)
Rhubarb
Strawberries
Tangerines (1 med)
Watermelon (1 cup)

Peach, fresh (1 small)

High Potassium (201-350 mg)

Apricots, canned or fresh (2 halves)

Apricots, dried (5)

Banana (½ med)

Cantaloupe (1/8 small)

Dates (¼ cup)

Figs, dried (2 whole)

Honeydew melon (1 small)

Kiwifruit (½ medium)

Nectarine (1 small)

Orange juice

Orange (1 small)

Pear, fresh (1 med)

Prune juice

Prunes, dried or canned (5)

Fat Group

[One serving contains 0 gm protein, 45 kcal, 55 mg (2.4 mEq) sodium, 0 -15 mg (0 -0.4 mEq) potassium, and 5 mg phosphorus]

These foods contribute to the calorie content of the diet and should be used as much as possible. It is not necessary to measure the unsalted butter or margarine, oil, or unsalted salad dressings, because they contain only small amounts of sodium and potassium. To add more calories, use extra unsalted butter or margarine on cereals, vegetables, breads, potatoes, etc.

Serving Size**Unsaturated**

Margarine, soft

1 tsp

Reduced calorie margarine

1 Tbsp.

Mayonnaise

1 tsp

Low sodium mayonnaise

Oil:

1 tsp

Sunflower, corn, soybean, olive, peanut, canola

Salad dressing:

Mayo-type

2 tsp

Oil-type

1 Tbsp

Low calorie mayo-type or oil-type*

2 Tbsp

Tartar sauce

1½ tsp

Saturated:

Butter

1 tsp

Coconut

2 Tbsp.

Powdered coffee whitener

1 Tbsp.

Solid shortening

1 tsp*Additional 250 mg sodium; use sparingly*.

Foods to Avoid:

Bacon, salt pork, canned and packaged gravies, bacon fat, soup, condiments and other commercial salad dressings.

Beverage Group

The beverages listed below must be counted a part of the daily fluid intake. Anything that is liquid or melts at room temperature must be counted in the fluid allowance: Ice, Mineral Water, Water, Lemonade, Limeade.

The following beverages contain moderate amounts of potassium and/or phosphorus and should be used in limited quantities: Coffee, Regular or decaffeinated, Tea, Postum (cereal grain beverage), Sugar free fruit-flavored drinks, Sugar-free carbonated beverages

High Calorie Choices

One serving (½ c, unless otherwise indicated) contains no protein, 100 kcal , 15 gram carbohydrate, 15 mg sodium (0.65 mEq), 20 mg (.5 mEq) potassium and 5 mg phosphorus. The beverages listed below must be counted a part of the daily fluid intake. They contribute minimal valuable nutrients to the diet.

Beverages (½ cup, unless otherwise indicated)

Carbonated beverages	Lemonade
Fruit flavors, root beer, cola,* or Pepsi type* physician)	Tang
Cranberry juice cocktail	Wine (¼ cup) (Check w/ your
Kool-Aid	Fruit flavored drink
	Limeade

* Contains 20 mg or more phosphorus

Frozen Desserts (¼ cup)

Fruit ice	Juice bar (1 bar)
Popsicle (1 bar)	Sorbet

Candy and sweets

Candy corn (12)	Butter mints (8)
Gumdrops (9 small)	Fruit chew (3)
Hard candy (3pcs)	Chewy fruit snacks (½ pouch)
Jellybeans (6)	Fruit Roll-ups (1)
LifeSavers/cough drops (8)	Cranberry sauce or relish (½ cup)
Marshmallows (3 large)	Honey (1 Tbsp.)
Sugar, brown or white (4 tsp)	Jam/Jelly (1 Tbsp.)
Sugar, powdered (2 Tbsp.)	Marmalade (1 Tbsp.)
Syrup (1 Tbsp.)	

Miscellaneous**Low-Protein Products:**

Low protein bread	1 slice
Anellini imitation pasta	½ cup
Tigatelli (Rigatelli) imitation pasta	1 cup
Rusk	2 pieces
Semalina, hot cereal, cooked	¾ cup
Tagliatella imitation pasta	½ cup
Low protein cookies	1 ½

Free food containing few or no calories:

Chewing gum (sugar-free)	Cornstarch
Arrowroot	Tapioca, dry
Wheat starch	Herbs
Spices	Seasoning (except those listed to avoid)
Flavoring extracts, such as: vanilla, maple, peppermint	
Vinegar	

Salt Choices Average choice: 250 mg sodium

Salt	1/8 tsp	Seasoned salts (onion, garlic)	1/8 tsp
Accent	¼ tsp	Barbecue sauce	2 Tbsp.
Bouillon	1/3 cup	Catsup	1½ Tbsp.
Chili sauce	1½ Tbsp.	Dill pickle	1/6 large
Mustard	4 tsp	Olives, green	2 med
Olives, black	3 large	Soy sauce	¾ tsp
Steak sauce	2 ½ tsp	Sweet pickle relish	2 ½ Tbsp.
Taco sauce	2Tbsp	Tamari sauce	¾ tsp
Teriyaki sauce	1 1/4 tsp	Worcestershire sauce	1 Tbsp.

Broth, Bouillon, Consommé - must be counted in fluid allowance (very high in sodium and/or potassium, please check with your physician or dietitian). Low sodium broths and consommé are available.

Basic Diabetic/Renal Meal Plan

Diet: 1,500 Calories 60 gm Protein

Food group	Number of Exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, ½ cup	½ whole	8	4	5
Vegetable	2	10	2	-
Fruit	3	45	1.5	-
Starch	8	120	16	8
Meat (med)	5	-	35	20
Fat	5	-	-	25
Total – 1,477 kcal		183	58.5	58

Sample Daily Meal Plan

Breakfast

1 Bagel
 1 medium Apple
 2 Tbsp. Cream cheese
 4 oz Whole milk

Lunch

2 slices Bread
 2 oz. roast Turkey
 ½ cup steamed Carrots
 1 cup fresh Strawberries
 1 tsp Mayonnaise

Dinner

3 oz. Roast beef
 2/3 cup Rice
 ½ cup Green beans
 ½ cup Fruit cocktail, unswt.
 1 Dinner roll
 2 tsp. Margarine

Snack:

3 each Graham crackers

Basic Diabetic / Renal Meal Plan (continued)

Diet: 1,500 Calories 80 gm Protein

Food group	Number of exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, 2 cups	4 NF	32	16	-
Vegetable	4	20	4	-
Fruit	3	60	1.5	-
Starch	7	105	14	8
Meat (lean)	6	-	42	24
Fat	3	-	-	15
Total - 1545 kcal		217	77.5	47

Sample Daily Meal Plan

Breakfast

½ c. Cereal, unswt.
 1 sl. Toast
 ½ c. Apple juice
 ½ c. Nonfat milk
 1 Egg
 1 Tbsp. Reduced calorie margarine

Lunch

2 sl. Bread
 2 oz. Tuna
 1 c. Broccoli
 ½ c. Strawberries
 1 Tbsp. Low calorie mayonnaise
 1 oz. Angel food cake
 ½ c. Nonfat milk

Dinner

3 oz. Grilled chicken
 ½ c. Rice
 1 c. Squash
 1 Dinner roll
 1 Tbsp. Reduced calorie margarine
 1 fresh Peach
 ½ c. Nonfat milk

Snack:

5 Vanilla wafers
 ½ c. Nonfat milk

Basic Diabetic/Renal Meal Plan (continued)

Diet: 1,800 Calories 60 gm Protein

Food group	Number of exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, whole (½ C)	1	8	4	5
Vegetable	2	10	2	-
Fruit	6	90	3	-
Starch	8	120	16	8
Meat (lean)	5	-	35	20
Fat	8	-	-	40
Total -1,793 kcal		228	60	73

Sample Daily Meal Plan

Breakfast

- 4 oz. Cranberry juice
- ½ c. Cereal, cooked unswt.
- ½ Bagel
- 1 medium Peach
- 3 Tbsp. Cream cheese
- 4 oz. Whole milk

Lunch

- 2 oz. Turkey
- 2 sl. Bread
- ½ c. Carrots
- ½ c. Canned pears, unswt.
- 4 oz. Apple juice
- 2 tsp. Mayonnaise

Dinner

- 1 c. Pasta
- 3 oz. Lean meatballs
- 1 sl. Garlic bread
- ½ c. Green beans
- ½ c. Canned peaches, unswt.
- 4 tsp. Margarine

Snack:

- 3 each Graham Crackers
- 1 Apple

Basic Diabetic/Renal Meal Plan (continued)

Diet: 1,800 Calories 80 gm Protein

Food group	Number of exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, whole (½ C)	2	16	8	10
Vegetable	2	10	2	-
Fruit	4	60	2	-
Starch	8	120	16	8
Meat	7	-	49	28
Fat	5	-	-	25
Total – 1,760 kcal		206	77	71

Sample Daily Meal Plan

Breakfast

4 oz. Apple juice
 1 c. Cereal, cooked unswt.
 1 sl. Toast
 1 Egg
 1 tsp. Margarine
 4 oz. Whole milk

Lunch

3 oz. Grilled chicken
 ½ c. Rice
 ½ c. Broccoli
 ½ c. Fruit cocktail, unswt.
 2 tsp. Margarine
 1 Dinner roll

Dinner

3 oz. Roast beef
 ½ c. Noodles
 ½ c. Wax beans
 ½ c. Canned peaches
 2 tsp. Margarine
 1 Dinner roll

Snack:

½ c. Fruit
 5 each Vanilla wafers
 4 oz. Whole milk

Basic Diabetic/Renal Meal Plan (continued)

Diet: 2,000 Calories 60 gm Protein

Food group	Number of exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, whole	1(½ c)	8	4	5
Vegetable	2	10	2	-
Fruit	7	105	3.5	-
Starch	8	120	16	8
Meat (lean)	5	-	35	20
Fat	10	-	-	50
Total – 1,961 kcal		243	60.5	83

Sample Daily Meal Plan

Breakfast

4 oz. Cranberry juice
 ½ c. Cereal, cooked, unswt.
 ½ Bagel
 2 tsp. Margarine
 1 Tbsp. Diet jam
 1 Medium peach
 4 oz. Whole milk

Lunch

2 sl. Bread
 2 oz. Roast beef
 ½ c. Carrots
 ½ c. Applesauce
 2 Tbsp. Mayonnaise

Dinner

Salad: lettuce,
 cucumber, bean
 sprouts
 3 oz. Baked chicken
 ⅓ c. Rice
 ½ c. Corn
 1 Apple
 4 oz. Apple juice
 1 Dinner roll
 2 Tbsp. Salad dressing
 (oil type)

Morning Snack:

3 each Graham Crackers

Afternoon Snack:

½ c. Canned pears

HS Snack:

3 c. Popped popcorn lite
 12 Cherries

Basic Diabetic/Renal Meal Plan (continued)**Diet: 2,000 Calories 80 gm Protein**

Food group	Number of exchanges	Carbohydrates (Gm)	Protein (Gm)	Fat (Gm)
Milk, whole	2 (½ c)	16	8	10
Vegetable	3	15	3	-
Fruit	5	75	2.5	-
Starch	10	150	30	10
Meat	6	-	42	24
Fat	6	-	-	30
Total – 2,016 kcal		256	81.5	74

Sample Daily Meal Plan**Breakfast**

4 oz. Cranberry juice
 ½ c. Cereal, cooked unswt.
 1 Bagel
 1 Egg
 3 Tbsp. Cream cheese
 1 tsp. Margarine
 4 oz. Whole milk

Lunch

1 Pita bread
 2 oz. Turkey
 ½ c. Mixed vegetables
 15 Grapes
 3 tsp. Mayonnaise
 Lettuce, 1 sl. Tomato, 5 sl.
 Cucumber

Dinner

⅓ c. Rice
 3 oz. Roast beef
 ½ c. Corn
 ½ c. Green beans
 ½ c. Strawberries
 2 tsp. Margarine
 1 Dinner roll

Morning Snack:

3 each Graham Crackers
 ½ c. Applesauce, unswt.

Afternoon Snack:

1 sl. Angel food cake
 ½ c. Papaya

HS Snack:

5 each Vanilla wafers
 4 oz. Whole milk

Low Phosphorus Diet

Indication

When kidney function is reduced, the kidneys cannot eliminate extra phosphorus in the body so a low phosphorus diet is indicated. If serum phosphorus levels are elevated or plasma intact PTH levels are elevated, a low phosphorus diet is indicated. A low phosphorus diet is usually limited to 1,000 mg phosphorus per day.

Description

This diet restricts the amount of phosphorus to about 1,000 mg per day. Phosphorous containing foods are often protein containing foods and limiting both can be useful for kidney disease. For patients on dialysis, higher protein, lower phosphorus foods should be chosen to provide adequate protein.

Food Group	Foods Allowed	Foods to Avoid
Meats/fish	Lean beef, pork, lamb, chicken, turkey, and fish	Organ meats, walleye, pollock, anchovies, herring, sardines.
Milk	Rice milk, non-dairy creamer	Cow milk, yogurt, cheese, sour cream, whipping and heavy cream.
Beverages	Water, lemon-lime soda, ginger ale, root beer.	cocoa, colas, chocolate milk, buttermilk, milk, milkshakes, malts, bottled teas, beer
Fruits	All	None
Vegetables	All	Dried peas, dried beans, lentils, chickpeas or garbanzo beans, sauerkraut, lima beans
Cereals/Grains/Pasta	Bulgur, cooked (½ cup) Cooked cereals (½ cup) Cornmeal, dry (2½ Tbsp.) Grapenuts (3 Tbsp.) Grits, cooked (½ cup) Pasta, cooked (½ cup) Puffed cereal (1 ½ cup) Rice, white, brown cooked (⅓ cup) Bread Bread sticks, crisp, 4"x ½ " wide (2) Croutons, low-fat (1 cup) English muffin (½) Frankfurter or hamburger bun (½) Pita, 6" across (½)	Whole grain breads, crackers cereal, rice and pasta. Bran cereals, concentrated (all bran) Quick cooking or instant cereals. Salted crackers, oatmeal, whole wheat. Self-rising flour, seasoned bread crumbs, cracker crumbs. Commercial breading and stuffing mixes, fruitcakes, nut breads and rolls,

	Plain roll, small (1) Raisin, unfrosted (1 slice) Rye, pumpernickel (1 slice) Tortilla, 6" in diameter (1) White (French, Italian - 1 slice) Crackers/Snacks Animal crackers (8) Graham crackers, 2 ½" sq. (3) Matzoth (¾ oz) Melba toast (5 slice) Oyster crackers, unsalted (24) Popcorn, popped, no fat added, unsalted (3 cups) Pretzels, unsalted (¾ oz) Rye crisp, 2" x 3 ½" (4) Crisp breads such as Finn, Kavli	commercial seasoned rice and noodles, chow mein noodles. Fig bars. Quick breads, biscuits, cornbread, muffins, pancakes and waffles.
Desserts	Pound cake, angel food, lemon or vanilla cakes, cooked (without chocolate, nuts, or coconut), sherbet, sorbet, frozen fruit pops.	Puddings, ice cream, jello and any dessert made with milk, chocolate, coconut, nuts or molasses.
Sweets	Honey, jam, preserves, jelly, sugar, syrup, candy (without chocolate, coconut or nuts), marshmallows, jelly beans, mints, gum drops.	Sweets containing chocolate, coconut, or nuts. Chocolate syrup, molasses.
Fats and Oils	vegetable oils and margarine, vinegar based salad dressings, mayonnaise, cream cheese, non-dairy creamers and whipped toppings.	Sour cream, bleu cheese salad dressing, gravies, meat fats, heavy cream, half and half, fat free cream cheese
Soups	Broth or water based soups	Bean, lentil, pea and creamy soups.
Miscellaneous	Sugar, honey, jam, jelly, vinegar, garlic powder, herbs, spices, dry mustard, onion powder, cranberry sauce, vanilla, almond extract.	Peanut butter, nuts and seeds

Look for the following additive ingredients to avoid:

Calcium phosphate

Disodium phosphate

Phosphoric acid

Tricalcium phosphate

Monopotassium phosphate

Pyrophosphate polyphosphates

Renal Diet in Spanish/Dieta Renal

Indicación

Esta dieta se usa para el tratamiento de las enfermedades del riñón. Cuando los riñones no trabajan adecuadamente, cantidades tóxicas del metabolismo pueden acumularse en la sangre. Por ejemplo, los desperdicios de la digestión de la proteína, urea y creatinina, normalmente son removidos de la sangre por los riñones. Excesivas cantidades de sodio, potasio, y fósforo también son removidas por los riñones. Con la acumulación de estas sustancias en la sangre, el cuerpo puede retener líquidos. Cuando esto ocurre, el cuerpo no puede mantener un equilibrio bioquímico. El propósito de esta dieta es darle menos trabajo a los riñones enfermos y así ayudarlos a mantener el equilibrio bioquímico.

Descripción

El manejo nutricional de pacientes con enfermedad renal se concentra en las cantidades de calorías, proteína, sodio, potasio, y líquidos ingeridos. Alteraciones en la dieta pueden ser simples o pueden que requieran algunas modificaciones más complejas, esto depende del estado de la enfermedad, el tratamiento o si el paciente sufre de diabetes.

Calorías: La cantidad de calorías es determinada por las necesidades del paciente. Todas las personas con enfermedad renal necesitan suficientes calorías. Cuando se pierde peso rápidamente, la proteína es usada para energía y esto causa que aumente la cantidad de BUN y creatinina en la sangre, al igual que si hubiera ingerido una comida alta en proteína. Las calorías son ajustadas en la dieta sin afectar la proteína, el sodio, o el potasio añadiendo o eliminando alimentos en la lista de opciones.

Proteína: La proteína debe de ser controlada cuidadosamente para evitar la acumulación excesiva de urea y de creatinina en la sangre. La cantidad de proteína permitida depende del grado de fallo renal. Cuando el ritmo de filtración glomerular es menos de 20-25 ml/min. y la urea sanguínea (BUN) es mayor de 100 mg/100 ml, se indicará una restricción de proteína. En fallo renal crónico, un paciente con una proporción de BUN: creatinina de más de 10, quizás no este siguiendo la dieta.

Si se presentan niveles bajos de albúmina en la sangre puede ser indicativo de una restricción excesiva en proteína. En fallo renal crónico acompañado por el síndrome nefrótico, se aumentará la proteína para reemplazar la pérdida de proteína en la orina en 24 horas

Para mantener un buen estado nutricional, 65% (2/3) de la proteína permitida debe de ser de comidas que contienen proteína de alto valor biológico. Estas son: leche, huevos, pescado, pollo, carne y queso. Pocas cantidades de estas comidas deben ser ingeridas en cada comida. El resto de la proteína proviene de comidas que contengan un bajo valor biológico: vegetales, panes, cereales, y almidones.

Investigaciones han demostrado que el aumento en el catabolismo de proteína dietética o

endógena agrava los síntomas urémicos. Dietas con restricción en protein menos de 0.8 grams/kg deben incluir:

(1) suficiente proteína de alto valor biológico para mantener balance de nitrógeno;
(2) suficientes calorías para prevenir catabolismo de reservas endógenas de nitrógeno. Calorias adicionales de carbohidrato deben de ser ingeridas con proteína o en las próximas cuatro horas después de comer proteína. Dietas que contienen menos de 60 gramos de proteina deben incluir productos altos en calorías, bajos en proteínas y en electrolitos.

Sodio: El sodio se encuentra en las comidas por naturaleza y se encuentra en mayores cantidades en comidas procesadas. En la etapa terminal de fallo renal el riñon pierde la capacidad de desechar grandes cantidades de sodio. Si el sodio no es restringido, se retiene sodio y agua, y se puede desarrollar edema y fallo cardiaco conjestivo. La canitadad de sodio en la orina y en la sangre, el grado de alta presión y edema determinarán el nivel de restricción o suplementación de sodio necesaria. La restricción de sodio varia de 2.0 a 4.0 gramos por dia.

Potasio: El potasio también se encuentra por naturaleza en los alimentos. Alimentos ricos en potasio incluyen la leche, proteína animal, varias frutas y vegetales y el sustituto de la sal (cloruro de potasio). Estos alimentos deben ser limitadas o eliminadas de la dieta. Un elevamiento repentino de potasio en la sangre sobre niveles normales puede producir paro cardiaco y muerte. La cantidad de potasio en la sangre y el volume de la orina determinan la restricción de potasio necesario. Cuando el volumen de la orina producida en 24 horas es menos de 500 ml, una restricción es necesaria. La restricción de potasio varia de 2.0 a 4.0 gramos por día.

Líquidos: Una de las funciones principales del riñon es el mantenimiento en el balance de líquidos. La cantidad de líquido permitido es determinada según la pérdida de orina en 24 horas más 500-600 ml (una pinta) de líquido. Los líquidos perdidos de forma insensible ya sea por la piel, pulmones, etc. son equivalentes a los líquidos ingeridos a través de los alimentos sólidos, si las frutas y vegetales no son consumidos en grandes cantidades. La ingesta de liquid debe ser modificada para prevenir el aumento en peso de no más 1kg en 24 horas.

Fósforo: Es necesario mantener una concentracion normal de fósforo en la sangre para mantener el metabolismo apropiado en los huesos y en la estructura del esqueleto. El riñon no desecha la misma cantidad de fósforo en fallo renal extremo. El médico puede recetar una restricción de fósforo cuando el paciente refleja altos niveles de fósforo en la sangre. Para lograr una dieta baja en fósforo es necesario limitar las carnes y productos lácteos. La dieta baja en proteína es respectivamente baja en fósforo.

Los médicos usualmente recetan antiácidos para reducir el nivel de fósforo en la sangre. A menudo la restricción de fósforo en la dieta es necesaria. Los antiácidos trabajan para unir el fósforo, absorbiendo el fósforo en el intestino para que sea eliminado en les feces y no sea absorbido en la corriente sanguínea.

Consideraciones Especiales

También se deben considerar otras facetas en la dieta. El paciente puede tener dificultad en aceptar una dieta tan estricta. El paciente puede padecer de náusea y anorexia. La aceptación de la dieta puede mejorar si uno planea el menú diario con el paciente o su familia. Las comidas deben de ser lo más atractivas y deliciosas posibles según las recomendaciones médicas. La historia en su ingesta dietaria le ayudará a identificar las necesidades del paciente y se identificarán las comidas preferidas del paciente. Al ser dado de alta, se le debe proveer al paciente listas de comidas, recetas e información sobre fórmulas comerciales.

Necesidades Nutricionales

Las necesidades nutricionales varían de persona a persona. Si la cantidad de proteína permitida sobrepasa 0.8 gramos por kilo de peso, la dieta puede alcanzar las Cantidades Dietéticas Recomendadas (RDA) si se planifica alrededor de las porciones recomendadas en la Pirámide Alimenticia. Cuando la cantidad de proteína permitida es menos de 40 gramos por día, es difícil lograr el RDA.

Suplementos específicos de vitaminas y minerales deben de ser determinados individualmente. Vitaminas solubles en agua son recomendadas para pacientes en hemodiálisis y diálisis peritoneal. Hierro y calcio usualmente son indicados; zinc también puede necesitarse para pacientes en hemodiálisis. Se receta Vitamina D dependiendo de la habilidad del paciente para absorber calcio.

Listas De Comida

La dieta es planificada usando listas de comida. Las listas se encuentran en las páginas N-36 hasta N-47. Comidas con cantidades similares de proteína, sodio, y potasio son agrupadas para ayudarle a planificar su dieta.

Modelo Renal

Dieta: _____ gm Proteína: _____ mg (mEq) Sodio: _____ mg (mEq)
Potasio

Grupo de comida Por día	Porción	Proteína (g)	Sodio		Potasio		Calorías
			mg	mEq	mg	mEq	
Leche							
Carne							
Fruta							
Verduras							
Almidones sin sal							
Almidones con sal							
Grasas							
Bebidas							
Opciones							

1. Starches/breads Exchange-lista De Almidones/panes

One serving contains 3 gm protein, 6-120 mg (0.3-5.2 mEq) sodium, and 30 mg (0.8mEq) potassium.

Una porción contiene 3 gm de proteína, 6-120 mg (0.3-5.2mEq) sodio, y 30 mg (0.8mEq) potasio.

Bread/pan

White (include French/Italian) slice/rebanada	Blanco (incluya Frances/Italiano)	1
Whole wheat slice/rebanada	Trigo entero	1
Rye or pumpernickel slice/rebanada	Centeno o centeno entero	1
Bagel	Bagel	½
Dinner roll	Bolillo	1 (2")
English muffin	Mollete Ingles	½
Hamburger or hot dog bun	Pan de hamburguesa/perro caliente	½
Dried bread crumbs	Miga de pan	3 Tbsp./Cu-da
Tortilla (corn/flour), 6"	Tortilla (maiz/harina), 6"	1

Cereal & Starches/Cereales & Almidones

Bran flakes	Escama de salvado	½ cup/taza
Other ready-to-eat, unsweetened cereals	Otros cereales sin azucar listos para comer	¾ cup/taza
Puffed cereal (unfrosted)	Cereal inflado (sin azucar)	1 ½ cup/taza
Cereal (cooked)	Cereal (cocido)	½ cup/taza
Grits (cooked)	Semola (cocida)	½ cup/taza

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Rice/Barley (cooked)	Arroz/Cebada (cocida)	_ cup/taza
Pasta (cooked)	Pasta (cocida)	½ cup/taza
spaghetti, noodles, macaroni	espaguetis,fideos, macarrones	
Cornmeal	Harina de maiz	2 Tbsp./Cu-da
Flour	Harina	2 ½ Tbsp/Cu-
da		
Wheat germ	Germen de Trigo	3 Tbsp./Cu-da

Crackers/Galletas

Arrowroot	Arruruz	3
Graham 2 1/2" square	Graham 2 1/2" cuadrada	2
Matzoth 4 x 6" unsalted	Judias 4 x 6" sin sal	½
Oyster, unsalted	De ostion sin sal	20
Pretzel sticks (3 1/8" x 1/8")	Monos salados (3 1/8 x 1/8)	25
Rye wafers, unsalted (2"x 3 1/2")		Oblea de
centeno, sin sal (2"x 3 1/2')	3	
Saltines, unsalted	Galletas saladas, sin sal	6
Soda, unsalted (2 1/2" square)	Galletas de soda, sin sal (2 1/2" cuadro)	4

Desserts & Snacks/Postres y Antojos

Moderate sodium (<120 mg sodium/serving-use as part of starch/bread allowance) /
Moderado en sodio (<120 mg sodio/porción-use como parte de la cantidad de almidón/
panes permitido)

Butter cookies	Galletas de mantequilla	3
Sherbet	Sorbete	½ cup/taza
Jello	Gelatina	½ cup/taza
Popcorn	Palomitas	3 cup/taza
Pound cake	Bizcocho	½" sl/rebanada
Shortbread cookies	Galletas de quebradiza	3
vanilla wafers	Obleas de vainilla	6

Higher sodiom (>150 mg sodium/serving) limit 1 serving/day
Mas alto en sodio (>150 mg sodio/porcion) límite a una porción diaria

Angel food cake	Pastel de angel	1/12
cake/queque		
Doughnut	Buñuelo	1
Sponge cake	Pastel de esponja	1
½"sl/rebanada		
Sugar cookies	Galletas de azúcar	3

Foods to avoid: Seasoned bread crumbs; cracker crumbs; commercial breading and stuffing mixes; fruit cake; nut, breads and rolls; commercial seasoned rice/noodles; chow mein noodles; cookies; fig bars; eclairs; cream puffs; macaroons; molasses; raisins; desserts; Boston cream pie; and any other not listed.

Foods to avoid/Comidas a evitar: Migajón de pan con especies, migajón de galletas,

mezclas de rellenos y panes comerciales, pastel de fruta, panes y bolillos de nuez; arroz y fideos con especias comerciales, fideos chow mein, galletas, galletas de higo, repollos, galletas de coco, molasa, pasas, postres, postres con cremas; otros no mencionados.

2. Meat Exchange-Lista De Carnes

One serving contains 7 gm protein, 25 mg (1.1 mEq) sodium, & 120 mg (3.1 mEq) potassium.

Una porcion contiene 7 gm proteina, 25 mg (1.1 mEq) sodio, & 120 mg (3.1 mEq) potasio.

Beef (ground, steaks, roast)	Carne (molida, bistec, asados)	1 oz.
Cheese (unsalted)	Queso (sin sal)	1 oz.
Chicken	Pollo	1 oz.
Clams*	Almejas*	1 oz.
Cottage cheese(salt free)	Requesón (sin sal)	1/4 cup/taza
Crab	Jaiba	1 oz.
Duck	Pato	1 oz.
Egg	Huevo	1
Lamb	Cordero	1 oz.
Liver (beef, chicken)*	Hígado (rez, pollo)	1 oz.
Lobster	Langosta	1 oz.
Oysters*	Ostiones*	1 oz.
Pork	Puerco	1 oz.
Salmon (salt free)	Salmón (sin Sal)	1 oz.
Scallops	Escalopas	1 oz.
Shrimp	Camarones	1 oz.
Tuna fish (salt free)	Atún (sin sal)	1 oz.
Turkey	Pavo	1 oz.
Veal	Ternero	1 oz.
Peanut Butter	Crema de cacahuate	1 Tbsp/Cu-da
Fish	Pescado	1 oz.

* These are high in phosphorus-limit to no more than 2 servings/week.

Estas comidas son altas en fósforo-límite: no más de 2 porciones por semana.

Foods to avoid/Comidas para evitar:

Cheese, cold cuts, corned beef, frankfurter, ham, sausage, and kosher meats.

Anchovies: canned, salted, pickled, spiced or smoked meats: nuts; commercially frozen or breaded fish and meats.

Queso, salchichas, jamon, y carnes kosher. Anchoas: enlatadas, saladas, en escabeche, con especias, ahumadas, o preparadas comercialmente; nueces; carnes o pescados empanizados comercialmente o congelados.

3. Vegetable Exchange-Lista De Vegetales

Vegetables should be fresh, frozen without salt, or unsalted canned. Try to eat

vegetables raw. If cooked, use large amounts of water, and drain vegetables before consuming.

Los vegetales deben de ser frescos, congelados sin sal, o enlatados sin sal. Si los cocina, añade bastante agua, y escurralos antes de comerlos.

Exchange A: 1 serving contains 2 gm protein, 16 mg (1.2 mEq) sodium, & 125 mg (5.4 mEq) potassium.

Lista A: 1 porción contiene 2 gm proteína, 16mg(1.2 mEq) sodio, & 125 mg(5.4 mEq) potasio.

Asparagus (fresh)	Espáragos (frescos)	½ cup/taza
Beans, green snap or yellow wax	Ejotes, verdes o amarillos	½ cup/taza
Cauliflower, cooked	Coliflor, cocido	½ cup/taza
Corn, canned (unsalted)	Maiz, enlatado (sin sal)	½ cup/taza
Cucumber slice/rebanadas	Pepino	6
Eggplant, cooked	Berenjena, cocida	½ cup/taza
Green pepper ring/rebanadas	Pimenton	6
Lettuce	Lechuga	4 leaves/ojas
Onions, cooked	Cebollas, cocidas	½ cup/taza
Onions, green	Cebollitas, verde	½ cup/taza
Radishes	Rabanos	½ cup/taza
Squash, summer	Sapallo, verano	½ cup/taza

Vegetable Exchange List B: One serving contains 2 gm. protein, 27 mg (1.2 mEq) sodium, & 210 mg (5.4 mEq) potassium.

Lista B: Una porción contiene 2 gm proteína, 27 mg (1.2 mEq) sodio, & 210 mg (5.4 mEq) potasio.

1 Serving = 1/2 cup cooked or frozen

1 Porcion = 1/2 taza cocido o fresco

Asparagus spears, frozen	Esparagos, conjelados
Bean sprouts, cooked	
Beets, cooked or canned	Betabeles, remolachas; cocidas o enlatadas
Cabbage, green or Chinese; fresh o Chino; fresco	Repollo, verde
Carrots	Zanahorias
Cauliflower, frozen	Coliflor, congelado
Celery, cooked	Apio, cocido
Corn, sweet; frozen	Maiz, dulce: congelado
Dandelion greens, cooked	Hojas verdes de dandelion, cocidas
Kale, frozen	Hojas verdes de berza, congeladas
Okra, frozen	Quimbombo, congelado
Onions, fresh	Cebollas, frescas
Peas, green; fresh, canned, and frozen	Guisantes, frescas, enlatadas, o congeladas
Potato, fresh mashed**	Puree de papas**
Pumpkin, canned	Calabaza, enlatada
Rutabaga, cooked	Rutabaga, cocida

Squash, winter; frozen	Sapallo, invierno; congelado
Tomato, fresh (1 small)	Tomate, fresco (1 chico)
Tomato, canned	Tomate, enlatado
Turnip greens, frozen	Hojas verde de nabo, enlatados
Vegetable juice, unsalted	Jugo de vegetal, sin sal
Vegetables, mixed; frozen	Vegetales mixtos, congelados

** Must be specially prepared. Soak cooked, peeled, sliced, diced potato in WARM water for 2-4 hours. Use about 10 times the amount of water to the amount of potatoes. Change water several times to keep it warm. After soaking, rinse well in warm water. Cook 10 minutes in large amount of water. Drain. Prepare as desired.

**Debe ser preparado como sigue: Remoje las papas cocidas sin piel y cortadas en cuadros chicos en agua TIBIA 2-4 horas. Ocupe 10 veces más agua que papas. Cambie el agua varias veces para mantenerla tibia. Despues enjuagelas en agua tibia. Cocine las papas por 10 minutos. Escurralas. Prepare el puré como acostumbra.

Foods to Avoid/Comidas para evitar:

Artichokes, baked beans, lentils, lima beans, rhubarb, raw spinach, sweet potatoes, regular canned vegetables, dried peas or beans, all other dark greens and potatoes not on list, brussel sprouts, mushrooms, pickles, potato chips, sauerkraut, tomato catsup, tomato paste or puree, tomato juice, & yams.

Alcachofas, frijoles al horno o enlatados, lentejas, habas, ruibarbo, espinaca fresca, batata amarilla, boniato, verduras enlatadas; chicharos, guisantes o frijoles secos; Todas la hojas verdes o papas que no se encuentran en la lista, coles de bruselas, bretones, callampas, papas fritas, encurtidos, col; puré, pasta o jugo de tomate, catsup; ñame.

4. Fruit Exchange-Lista De Fruta

Exchange A: One serving contain 0 gm protein, 1 mg (0.04 mEq) sodium, & 100 mg (2.6 mEq) potassium.

Lista A: Una porción contiene 0 gm proteina, 1 mg (0.04 mEq) sodio, & 100 mg (2.6 mEq) potasio.

Apple	Manzana	1 small/chica
Apple juice	Jugo de Manzana	½ cup/taza
Applesauce	Puré de manzana	½ cup/taza
Blueberries	Moras	½ cup/taza
Cherries, canned	Cerezas, acerolas; enlatadas	12
Cranberries, fresh	Arándano agrio, frescos	1 cup/taza
Cranberry juice	Jugo de arándano agrio	1 cup/taza
Grapes, purple	Uvas, moradas	12
Grape juice	Jugo de uvas	1/3 cup/taza
Hawaiian punch	Ponche Hawaiano	1 cup/taza

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Hi-C fruit drink	Bebida de fruta Hi-C	1 cup/taza
Peach nectar	Zumo de melocotón	1/3 cup
Pears, canned halves/mitades	Peras, enlatadas	2
Pear nectar	Zumo de pera	½ cup/taza
Pineapple, canned	Piña, enlatada	½ cup/taza
Plums, canned	Ciruelas, enlatadas	2

Fruit Exchange List B: One serving contain gm protein, 1 mg (0.04 mEq) sodium, and 210 mg (5.4 mEq) potassium.

Lista B: Una porción contiene 0 gm proteína, 1 mg (0.04 mEq) sodio, y 210 mg (5.4 mEq) potasio.

Apricots, canned halves/mitades	Albaricoque, chavacano, enlatado	3
Blackberries	Zarzamora	½ cup/taza
Figs, canned medium/medianos	Higos, enlatados	3
Fruit cocktail	Masedonia, enlatada	½ cup/ taza
Grapefruit	Toronja	½ small/chica
Grapefruit sections	Secciones de toronja	½ cup/taza
Grapes	Uvas	22
Mango medium/mediano	Mango	½
Cherries medianas	Cerezas	10 medium/
Peach, fresh medium/mediano	Durazno, melocotón; fresco	1
Peach, canned halves/mitades	Durazno, meloction; enlatado	2
Pear, fresh medium/mediana	Pera, fresca	1
Pineapple juice	Jugo de pina	½ cup/taza
Plums, fresh medium/mediana	Ciruella,fresca	2
Raspberries	Frambuesas	2/3 cup/taza
Nectarines medium/mediano	Nectarina	1
Strawberries	Fresas, frutillas	10 large/grande
Tangerines	Mandarinas	1 small/chica

Foods to avoid/Comidas para evitar:

Avocado, bananas, oranges, olives, dried fruits, all tropical fruits, watermelon, cantaloupe, dates, glazed fruits, honeydew melon, kumquats, maraschino cherries, orange juice, papaya, plantains, pomegranate, prune juice, prunes, raisins, rhubarb.

Aquacates, plátanos, naranjas, jugo de naranja, aceitunas, frutas secas, pasas, ciruelas secas, jugo de ciruela, toda clase de fruta tropical, sandía, melones, papayas, plátanos machos, granadas, cerezas "maraschino", kumquats, guanábana, chirimoya.

Guideline/Guia:

Fruits should be drained before eating. Canned fruits should be packed in water or syrup, not in juice.

Las frutas deben de ser enjuagadas antes de comerlas. Frutas enlatadas deben estar empacadas en agua o almíbar, no en jugo de fruta.

5. Milk Exchange- Lista De Leche

One serving contains 4 gm protein, 60 mg (2.6 mEq) sodium, and 150 mg (3.9 mEq) potassium.

Una porción contiene 4 gm proteína, 60 mg (2.6 mEq) sodio, y 150 mg (3.9 mEq) potasio.

Whole milk	Leche entera	½ cup/taza
Skim milk	Leche desgrasada	½ cup/taza
Lowfat milk	Leche baja en grasa	½ cup/taza
Half & half	Crema, rala	½ cup/taza
Heavy cream	Crema, espesa	½ cup/taza
Sour cream	Crema, agria	½ cup/ taza
Evaporated milk	Leche evaporada	¼ cup/taza
Yogurt	Yogur	½ cup/taza
Ice cream (vanilla)	Helados, nieve (vainilla)	½ cup/taza

Foods to avoid/Comidas para evitar:

Buttermilk, chocolate milk, eggnog, commercial milk drinks, milkshakes, condensed milks,

goat's milk, imitation milk. Instant breakfast, malted milk, commercially prepared pudding

mixes, ice creams containing nuts, custard, and coconut.

Leche agria, leche de chocolate, ponche de huevo, maltiadas, leche condensada, leche de cabra, imitación de leche. Desayunos instantáneos, pudin comercial, flan, helados que contengan nueces o coco.

Guidelines/Guia:

1. Count milk and milk products as part of your fluid intake.

Cuente la leche y productos lácteos como parte de la cantidad de líquidos permitidos.

2. Liquid non-dairy creamers can be used in the place of milk. It contains less than 1

gm of protein per 1/2 cup and approximately 175 calories per 1/2 cup.

Cremas no-lácteas y líquidas pueden ser usadas en vez de la leche. 1/2 taza contiene menos de 1 gm de proteína y contiene aproximadamente 175 calorías.

6. Fat Exchange-Lista De Grasa

One serving containing 0 gm protein, 50 mg (2.2 mEq) sodium, and 0-15 mg (0-0.4 mEq) potassium.

Una porción contiene 0 gm proteína, 50 mg (2.2mEq) sodio. y 0-15 (0-0.4 mEq) potasio.

Butter	Mantequilla	1
tsp/cucharadita		
Butter, unsalted*	Mantequilla, sin sal*	1
tsp/cucharadita		
Cream cheese	Queso de crema	2
Tbsp/cucharadas		
Half & half	Crema, rala	2
bsp/cucharadas		
Margarine	Margarina	1
tsp/cucharadita		
Margarine, unsalted*	Margarina, sin sal*	1
tsp/cucharadita		
Mayonnaise	Mayonesa	1
tsp/cucharadita		
Oil, vegetable	Aciete, vegetal	1
tsp/cucharadita		
Sour cream	Crema, agria	2
Tbsp/cucharadas		
Whipping cream	Crema, batida	2
Tbsp/cucharadas		
Salad Dressings:	Salsas de ensaladas	
French, Italian	Francesa, Italiana	2 tsp/cucharada
Russian	Rusa	1
Tbsp/cucharada		
Thousand Island	Thousand Island	1
Tbsp/cucharada		
Tartar sauce	Salsa Tarara	1 1/2Tbsp/ cucharada

Foods to avoid/Comidas para evitar:

Bacon, salt pork, canned and packaged gravies, bacon fat, and other commercial salad dressings.

Tocino, puerco salado, salsas empaquetadas o enlatadas, grasa del tocino, y otras salsas comerciales.

Guidelines/Guia:

These foods contribute to the calorie content of your diet. They will enable you to maintain your normal weight. It is not necessary to measure your unsalted fats they contain only small amounts of sodium and potassium. Use these to increase your caloric intake.

Las grasas contribuyen calorías a su dieta. Le ayudarán a mantener su peso normal. No es necesario medir las grasas sin sal*: estas contienen muy poco sodio y potasio. Utilizelas para aumentar las calorías en su dieta.

Definition of Fluids/Definición De Líquidos

A fluid is considered to be any food that is liquid or melts at room temperature. Fluids include items such as: coffee, tea, milk, cream, carbonated beverages, fruit juices, fruit flavored drinks, gelatin, ice, popsicles, fruit ice, sherbet, ice cream and soup.

Un líquido se considera cualquier comida que es líquida o se derrite a temperatura ambiente. Incluye comidas como: café, té, leche, crema, bebidas carbonatadas, jugos, bebidas con sabor a fruta, gelatina, hielo, raspados, chupetes de helado, sorbetes, helados, nieve, o sopa.

Measurement/Medida	Fluid ounces/Oncias Líquidas	Milliliters/litros
1 cup/taza	= 8 oz.	= 240 ml.
1/2 cup/taza	= 4 oz.	= 120 ml.
1/4 cup/taza	= 2 oz.	= 60 ml.
2 Tablespoons/cucharadas	= 1 oz.	= 30 ml.
1 Tablespoon/cucharada	= 1/2 oz.	= 15 ml.

Beverages/Bebidas

One serving contains no protein, no sodium, and 60 mg (1.5 mEq) potassium.

Una porción no contiene proteína, nada de sodio, y 60 mg (1.5 mEq) potasio.

Coffee (regular); brewed, drip method	Café (regular); hecho de grano	1/2 cup/taza
Coffee, instant	Café instantáneo	1/2 cup/taza
Coffee (decaffeinated); brewed, drip method	Café (descafeinado) hecho de grano	1/2 cup/taza
Coffee (decaffeinated), instant	Café (descafeinado), instantáneo	1/2 cup/taza
Postum	Postum	1/2 cup/taza
Tea bag	Bolsa de té	1
Alcoholic beverages (only with Physician's permission)	Bebidas alcohólicas (solo con autorización médica)	
Beer	Cerveza	8 ounces/onzas
Sherry & Dessert wine	Cereza y Vino dulce	3 ounces/onzas
Table wine	Vino de mesa	2 ounces/onzas

Beverages to avoid/Bebidas para evitar:

Instant tea mixes

Mezclas de té instantáneo

Miscellaneous Foods/Otras Comidas

One serving contains trace amounts of protein, sodium and potassium, and contain 100 calories.

Una porción contiene cantidades mínimas de proteína, sodio and potasio, y contiene 100 calorías.

Guidelines/Guia:

1. These foods contain carbohydrate and fat. Use them to add calories to your diet.

Estas comidas contienen carbohidratos o grasas. Uselas para añadir calorías a su dieta.

2. Count liquids are part of fluid allowed.

Cuente los líquidos como parte de la cantidad de líquidos permitidos.

Beverages-bebidas

Carbonated beverages (not diet)	Bebidas carbonatadas (no de dieta)	1 cup/taza
Cranberry juice	Jugo de arándano agrio	½ cup/taza
"Hi-C" (any except orange)	"Hi-C" (cualquier menos naranja)	1 cup/taza
Kool Aid (made w/ sugar)	Kool Aid (hecho con azúcar)	1 cup/taza
Lemonade	Limonada	1 cup/taza
Limeade	Jugo de lima	1 cup/taza
Tang	Tang	1 cup/taza
Alcohol (w/MD's permission)	Alcohol (con permiso medico)	
Gin, rum, whiskey, vodka	Ginebra, ron, whiskey, vodka	1 ½ ounce/onza

Fats-grasas

Butter or margarine (unsalted)	Matequilla o margarina (sin sal)	1 Tbsp/Cuchada
Mayonnaise (unsalted)	Mayonesa (sin sal)	1 Tbsp/Cuchada
Lard	Manteca	1 Tbsp/Chuchada
Shortening or vegetable oil	Manteca o aceite de vegetal	1 Tbsp/Cuchada
"Cool Whip"	"Cool Whip"	½ cup/taza

Sweets-dulces

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Butterscotch candy piece	Dulce de azúcar terciado con mantequilla	1 ounce or 5 1 onza 0 5
piesas		
Candy canes, gum drops	Dulces de azúcar	1 ounce/onza
Hard candy, lifesavers, lollipops	Candy corn	1 oz or 2 Tbsp
Fondant		1 ounce/1 onza
Jelly beans		1 oz or 15
Marshmallows	Bombon de merengue blando	5 large/grande
Mints (no chocolate)	Mentas (sin chocolate)	1 ounce/onza
Sour Balls		1 ounce/onza
Corn syrup	Miel de maiz	2 Tbsp/Cuchada
da		
Cranberry sauce	Salsa de arándano agrio	¼ cup/taza
Honey	Miel de abeja	2 Tbsp/Cuchada
da		
Imitation maple syrup	Imitación de miel de palma	2 Tbsp/Cuchada
da		
Jam, jelly, marmalade	Jalea, mermelada	2 Tbsp/Cuchada
da		
Sugar white, granulated or	Azúcar blanca: granulada o	2 Tbsp/Cuchada
da		
powdered	azucar flor	
Popsicle/Fruit Ice	Paleta de agua/Helado de agua	1 or ½ cup/taza
Sweets to avoid/Dulces para evitar:		
Candy bars	Barras de chocolate o dulce	
Caramel	Caramelos	
Carob	"Carob"	
Chocolate syrup	Jarabe de chocolate	
Cocoa powder	Cocoa	
Imitation chocolate	Imitación de chocolate	
Licorice	Regaliz	
Molasses	Melaza	
Maple syrup, pure	Miel de palma, pura	
Brown sugar	Azúcar negra	
Apple butter	Mantequilla de manzana	
Coconut	Coco	

Low Protein Products-Productos Bajo En Proteina

Low protein bread slice/rebanada	Pan bajo en proteina	1
Anellini imitation pasta	Anellini pasta de imitación	½ cup/taza
Rigatelli-Rigantelli imitation pasta	Rigatelli-Rigantelli pasta de imitacion	1 cup/taza
Rusk	"Rusk"	2 pieces/piesas

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Semalino, hot cereal, cooked	Semalino, cereal cocido	¾ cup/taza
Tagliatella imitation pasta	Tagliatelli pasta de imitacion	½ cup/taza
Low protein cookies	Galletas baja en proteina	1½ cup/taza

Free Foods Containing Few or No Calories/comidas Gratis Que Contienen Pocas O Ninguna Caloria

Chewing gum	Chicle
Cornstarch	Maiz de harina
Arrowroot	Arruruz
Tapioca, dry	Tapioca
Wheat starch	Almidón de harina
Herbs	Hierbas
Spices	Especias
Seasonings (except those below)	Condimentos (menos los señalados abajo)
Flavoring extracts:	Extractos de sabor
Vanilla, maple, peppermint	Vainilla, de Palma, de Menta
Vinegar	Vinagre

Seasons and sauces to avoid/Condimentos y salsas para evitar:

Anise	Anise
Barbecue sauce	Salsa de barbacoa
Bouillon cubes	Cubos de caldo
Catsup (salted or unsalted)	Salsa de tomate (con sal o sin sal)
Chili sauce (salted or unsalted)	Salsa de Chili (con sal o sin sal)
Cooking wine	Vino para cocinar
Prepared mustard	Mostaza preparada
Prepared horseradish	Rábano picante preparado
Steak sauce	Salsa para bistec
Soy sauce	Salsa china de soya
Worcestershire sauce	Salsa inglesa "worcestershire"
Monosodium glutamate, (Accent, MSG)	Condimento chino "monosodium glutamate", (Accent, MSG)
Meat tenderizers	Abandasadores de carne
Yeast, brewer's	Levadura
Seasoning salts:	Salas de condimentos:
Sea salt	Sal de mar
Celery salt	Sal de apio
Garlic salt	Sal de ajo
Onion salt	Sal de cebolla
Seasoned salt	Sal condimentada
Vegetable salt	Sal de verdura
(Buy seasoning powders, i.e.:	(Compre condimentos como:
Celery powder	Polvo de apio
Garlic powder	Polvo de ajo
Onion powder)	Polvo de cebolla)

Nutrition Therapy for Liver Disease

Indication

Liver disease is often accompanied by nutrition abnormalities requiring dietary modifications to help treat some of the complications. A low sodium (2 gm) diet will help manage ascites, a restriction on red meat may help with hepatic encephalopathy and a carbohydrate controlled diet may be needed with a history of diabetes (see section D for diet for diabetes). Management of daily calorie intake to reach or maintain a healthy weight is recommended.

Dietary Considerations for Patient with Liver Disease

Complication	Nutrition Recommendations
Malnutrition	<ul style="list-style-type: none"> ▪ Provide 35-40 kcals/kg ▪ Offer small, frequent meals of calorie-dense foods or oral nutritional supplements between meals. ▪ Provide 1.2-1.5 g of protein/kg of body weight per day. May need to restrict in patients with severe protein intolerance. I.e. grades III, IV, or HE protein may need to be reduced for short periods of time.
Hepatic Encephalopathy (HE)	<ul style="list-style-type: none"> ▪ Restrict red meat (beef, pork, lamb) to 3-6oz per week. ▪ Consider dairy and vegetable-based proteins ▪ Supplement zinc if deficient ▪ Provide adequate calories to prevent catabolism of endogenous protein stores
Ascites and Edema	<ul style="list-style-type: none"> ▪ 2gm Sodium diet
Hyponatremia	Restrict fluid to 1.5-2.0 L/day
Nonalcoholic Steatohepatitis (NASH)	<ul style="list-style-type: none"> ▪ Vitamin E supplementation may be beneficial
Hyperglycemia	<ul style="list-style-type: none"> ▪ Carbohydrate controlled diet, limit sweets
Steatorrhea or cholestasis	<ul style="list-style-type: none"> ▪ Restrict dietary fat; if diarrhea does not resolve, discontinue fat restriction ▪ Try MCT oil supplements ▪ Supplement with fat-soluble vitamins A, D, E and K

Osteopenia	<ul style="list-style-type: none"> ▪ Maintain an appropriate weight ▪ Encourage intake of a well-balanced diet with a wide variety of food choices ▪ Provide enough protein to maintain muscle mass ▪ Provide 1,500 mg of calcium per day via diet and/or supplements ▪ Provide enough vitamin D via supplementation ▪ Monitor for the development of steatorrhea and adjust the diet as needed to minimize nutrient losses ▪ Avoid alcohol intake
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Permission granted from Jeanette Hasse, PhD, RD, LD, FADA, CNSD; "Nutrition Therapy for End-Stage Liver Disease: A Practical Approach", Support Line; August 1997

Sample Daily Meal Plan

2,000 Calories 2,000 mg Sodium

Breakfast	Lunch	Dinner
8 oz. Salt-free V-8 juice ¾ c. All bran cereal ¾ c. Sliced fresh berries 1 sl. Whole wheat toast 2 tsp. Jelly 1 c. Fat-free milk 1 c. Sugar and fat-free fruit yogurt Coffee /tea 2 tsp. Sugar	¾ c. Chicken salad made with low fat mayonnaise 2 sl. Whole wheat bread ½ c. Fresh cucumber ½ c. Tomato wedge 1 tbsp. Ranch dressing, fat-free ½ c. Fruit cocktail, juice packed 1 c. Lemonade	3 oz. Baked fish 2 tbsp. Lemon sauce ½ c. Boiled potato ½ c. Green beans, cooked 1 Small whole wheat roll 1 Small apple 1 c. Ginger ale
Midmorning 1 small banana	Mid-afternoon 1 Frozen popsicle	Evening Jelly Beans

Lactose-Free Diet

Indication

This diet may be used in the treatment of primary or secondary lactase deficiencies. A primary deficiency occurs as a congenital abnormality in the intestinal mucosa. A secondary lactase deficiency may result from diseases such as celiac sprue, kwashiorkor, malnutrition, gastrointestinal milk protein allergy, irritable bowel syndrome, regional enteritis, and ulcerative colitis.

People with lactose intolerance vary widely in their degree of lactose intolerance. Persons with mild forms of lactose intolerance usually can handle small amounts of dietary lactose and do not need a totally lactose free diet. See Low Lactose Diet. This diet should be differentiated from a Milk Allergy Diet, which is used for persons with a sensitivity to milk protein (casein, lactalbumin), as opposed to milk sugar (lactose).

Description

This diet eliminates milk products and all other foods which naturally contain lactose or have small amounts of lactose added in processing and ingredients like whey, milk solids and dry milk powder. Lactate, lactic acid, and lactalbumin do not contain lactose and are not eliminated.

Nutritional Adequacy

This diet does not meet the Dietary Reference Intakes for calcium, vitamin D and riboflavin unless supplemented with lactose free dairy products.

Lactose-free Diet

Food Group	Foods Allowed	Foods to Avoid
Beverage	Coffee, tea, some instant coffee (check labels), fruit juices, fruit drinks, carbonated beverages; Mocha Mix or other lactose-free non-dairy creamer, lactose-free milk or milk treated with lactase enzymes (i.e. Lactaid) see list of commercial milk substitutes. Rice, almond, and coconut "milk." Lactose free yogurt.	All forms of cow and goat milk (whole, low fat, nonfat, evaporated, condensed, dried, buttermilk, yogurt, chocolate milk), except those treated with enzymes; chocolate drinks, cocoa, Ovaltine; cream, half and half, some instant coffees with dried milk, powdered fruit drinks with lactose curds.

Food Group	Foods Allowed	Foods to Avoid
Breads	Most sourdough, French, and Italian breads; other bread products made without milk or lactose.	All bread products made with milk or milk solids; commercial baking mixes containing milk (such as muffins, biscuits, pancakes).
Cereals	Cooked cereals and some dry cereals (read labels) without milk added.	Dry cereals such as Total, Special K, and Cocoa Krispies (read labels carefully) and instant Cream of Wheat.
Desserts	Angel food cake, other cakes, cookies, and pies made without milk products; fruit ices, gelatin desserts; custard and pudding prepared with milk substitute or lactose-free milk.	All containing milk products, butter or margarine; commercial cakes, cookies and mixes; custard, pudding, sherbet, and ice cream made with milk; commercial fruit fillings; gelatin made with carrageenan.
Fats and Sauces	Milk-free margarine, salad dressing made without milk products (French, Italian), mayonnaise, cooking oils, shortening, lard, some non-dairy whipped topping, milk-free sauces and gravies.	Butter, margarine and salad dressings containing milk, milk products or lactose; sour cream, cream cheese; milk-based sauces and gravies.
Fruits	All prepared without milk	Any processed with lactose.
Meat, Fish, Egg, Cheese	Any except those to avoid; Kosher frankfurters; dried beans and peas.	Meats and meat substitutes containing milk solids, such as frankfurters and luncheon meats; creamed or breaded meat, fish or poultry; all cheeses.
Potato and Starches	Potatoes, rice, macaroni, noodles, spaghetti prepared without milk.	Any prepared with milk, cheese, cream, butter, margarine (containing milk solids), or containing lactose; instant potatoes.

Food Group	Foods Allowed	Foods to Avoid
Soups	Homemade soups made with allowed ingredients; some commercial meat and vegetable soups made with lactose free milk (check labels).	Homemade or commercial soups containing milk or milk products; dried soup mixes.
Sweets	Sugar, honey, molasses, jelly, jam, marmalade, corn syrup, pure sugar hard candy, Baker's cocoa, carob; some artificial sweeteners without lactose.	Chewing gum; chocolate, some cocoa; toffee; peppermint; butterscotch; caramels; artificial sweeteners containing lactose, such as Sweet N' Low.
Vegetables	Any fresh, frozen or canned vegetables except those on avoid list.	Any prepared with milk products (scalloped, creamed, au gratin); any canned or frozen to which lactose is added during processing; breaded or buttered vegetables.
Miscellaneous	Pure spices, herbs, condiments, vinegar, flavorings, cornstarch, flour, nuts, peanut butter without milk solids, pure monosodium glutamate (MSG), soy sauce, olives, pickles, popcorn (with milk-free margarine).	Prepared mixes; monosodium glutamate (MSG) extenders; spice blends containing milk products; peanut butter with milk solids filler.

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Orange juice ½ c. Oatmeal 1 Scrambled egg 1 sl. Toasted French bread 1 tsp. Margarine, milk-free 1 c. Lactose free milk	4 oz. Roast beef with milk-free gravy ½ c. Mashed potatoes milk-free ½ c. Seasoned green beans Sliced tomato salad with French dressing 1 sl. French bread 1 tsp. Margarine, milk-free	4 oz. Baked chicken with milk-free sauce ½ c. Glazed sweet potatoes ½ c. Peas Tossed green salad with Italian dressing ½ c. Fruit compote 1 sl. French bread 1 tsp. Margarine, milk-free 1 c. Lactose free milk

Low Lactose Diet

Indication

A low lactose diet is indicated with lactose intolerance. Lactose is a naturally occurring sugar found in milk and milk products. Lactase is the name of the digestive enzyme needed to break down lactose. Tolerance to lactose varies from person to person. A low lactose diet will help prevent uncomfortable side effects, such as bloating, cramping or diarrhea.

Because there are varying degrees of lactose intolerance, you will need to experiment with foods to determine your individual tolerance. Many lactose free dairy products are now available.

Description

Terms like milk solids, whey, curds, dry milk powder and skim milk solids mean that lactose is present. Scan all product ingredient lists.

Look for cookbooks with recipes adapted for a lactose-controlled diet.

Try to include plenty of other sources of calcium in your diet. Some food sources include dark green vegetables, canned fish with fine bones (sardines and salmon) and dried beans and lactose free dairy products such as lactose free milk and yogurt. You may be able to tolerate up to 2 cups of milk each day. Drink only a small amount (½ cup or less) at a time with meals to assess tolerance.

Talk to your doctor or pharmacist about lactase enzymes in tablet or droplet form for use with products containing milk.

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Bread, cereals, rice and pasta	whole grain or enriched breads, cereals, rice, barley, pasta made with milk-free ingredients	Any prepared with milk, milk products or mixes containing lactose
Vegetables:	All vegetables	Vegetables prepared with milk or milk products
Fruits:	All fruits and fruit juices	None
Meats, poultry, fish, meats, eggs, nuts and peas,	All meats, poultry, fish and dried beans, eggs Dried peas and beans Nuts and peanut butter Egg substitutes	Commercially made such as croquettes, hamburger patties, cold cuts or frankfurters

Lactose Controlled Diet (Continued)

Food Group	Allowed/Recommend	Avoid/Use Sparingly
Milk, yogurt and cheese: 2-3 servings each day	Soy milk, lactose-reduced milk, lactose-free supplement Hard, aged and processed cheese, if tolerated Yogurt, if tolerated	Milk, milk products, goat's milk, acidophilus milk
Fat, snacks, sweets	Butter or margarine, nondairy	Salad dressings containing milk

SAMPLE DAILY MENU PLAN

Breakfast	Lunch	Dinner
¼ c. Orange juice 1 c. oat bran cereal 1 med. Banana 2 sl. Whole wheat toast 2 tsp. Margarine 1 tbsp. Jelly or jam 1 c. 1% Lactose-reduced milk Coffee or tea	1 c. Vegetable barley soup 4 crackers 3 oz. Lean roast beef ½ c. Mashed potato 1 c. Tossed salad 2 oz. Sliced tomato 1 tbsp. Vinegar and oil dressing 1 med Orange Coffee or tea	1 c. Apple raisin salad 3 oz. Broiled skinless chicken breast ½ c. Steamed rice ½ c. Cooked carrots 1 Whole grain roll 1 tsp. Margarine ½ c. Lemon ice Coffee or tea 1 c. 1%Lactose-reduced milk

Lactose Content of Selected Foods**11-15 Grams**

Milk, all kinds = 1 c.
Yogurt = 1 c.

5-6 Grams

Ice cream = ½ c.
Ice milk = ½ c.

1-3 Grams

Pudding = ½ c.
Sherbet = ½ c.
Cheese spread* = 1 oz.
Half and half = 2 Tbsp.

* Processed cheese spreads and cheese foods may have nonfat milk solids added which may increase the lactose content.

0.5-1 Gram

*Processed American cheese = 1 oz.
Cottage cheese = ¼ c.
Sour cream = 2 Tbsp.

Less than 0.5 Gram

Butter = 1 Tbsp.
Cream cheese = 1 Tbsp.
Aged cheese = 1 oz.

EGG ALLERGY DIET

Indication

This diet is used for individuals with known allergy to eggs and egg products. Allergic reaction to eggs can range from mild to severe. Strict avoidance of egg products is indicated for an egg allergy.

Description

This diet omits eggs and foods prepared with egg. All packaged foods sold in the US must have "Egg" listed if the product contains egg as an ingredient.

Nutritional Adequacy

This diet is nutritionally adequate in calories, protein and nutrients.

Food Group	Foods to Avoid
Beverages	Homemade or commercial beverages containing egg (eggnog, Ovaltine and malted drinks).
Breads	Breads, rolls, pastry, quick breads containing eggs or egg albumin; graham crackers, zwieback and other crackers containing egg or egg albumin; commercial prepared flour mixes. Pretzels with an egg wash.
Desserts	Commercial pastries and bakery products, angel food and sponge cakes, other cookies and cakes prepared with egg; ice cream, sherbet, custard, pudding, meringue, marshmallows, cream pies containing egg. Pie crusts glazed with egg wash.
Eggs	All eggs and egg substitutes.
Fats and Sauces	Cesar salad dressing, Hollandaise sauce, tartar sauce, mayonnaise, other sauces or gravies containing eggs.
Fruits	Fruits served with custard, breaded fruits with egg batter.
Meat, Fish, Poultry	Any breaded with egg mixture; combinations such as meatloaf cheese or croquettes; casseroles or convenience foods containing egg or egg noodles. Batter fried foods.

Egg Allergy Diet (Continued)

Food Group	Foods to Avoid
Soups	Soups containing egg noodles or cooked pastas (i.e., alphabet soup), whole eggs (i.e. egg drop soup), or egg yolk as a clarifier (i.e. consommé)
Starches	Egg noodles, dumplings.
Sweets	Cream filled candies, nougat, divinity, marzipan, meringue, and marshmallows.
Vegetables	Any vegetables prepared with eggs, such as sauces and egg batter for breading.
Miscellaneous	Baking powder containing egg white or albumin. Lecithin, fried rice.

SAMPLE DAILY MEAL PLAN

Breakfast	Lunch	Dinner
½ c. Orange juice	3 oz. Roast turkey w/ gravy	3 oz. Roast beef with gravy
½ c. Oatmeal	2 oz. Cranberry sauce	½ c. Rice pilaf
¼ c. Cottage cheese	½ c. Whipped potatoes	½ c. Carrots
1 sl. Wheat toast	Tossed salad with oil and	Lettuce wedge with French
1 tsp. Margarine	vinegar dressing	dressing
Jelly	2 Apricots	Baked apple with whipped
1c. Lowfat milk	1 sl. Bread	cream
Tea	1 tsp. Margarine	1 Dinner roll
	Tea	1 tsp. Margarine
		1 c. Low-fat milk
		Tea

Sugar, salt, pepper, and allowed beverage of choice are routinely served with all meals.

Tips:

1. Some coffees, wines and beer are clarified with egg.
2. Some root beers contain egg to make the foam.
3. If a label or package is unclear, contact the manufacturer.
4. Some commercial candies are brushed with egg white to give a luster like jellybeans.
5. Many canned soups contain egg - read the label.
6. Egg is present if the label indicates any of the following:

- Albumin	- Ovomuroid	- Surimi
- Ovalbumin	- Yolk	- Simplese
- Globulin	- Livetin	
- Ovomucin	- Lysozyme	

Milk Allergy Diet

Indication

This diet is used for individuals who are allergic to milk proteins.

Description

The diet omits milk, milk products, and foods that have casein or lactalbumin added. All packaged foods sold in the US must contain the word “Milk” on the label if milk is an ingredient.

Nutritional Adequacy

This diet does not meet the Dietary Reference Intakes for calcium, Vitamin D and riboflavin. A supplementary source of these nutrients should be prescribed.

Food Group	Foods Allowed	Foods to Avoid
Beverage	Coffee, tea, fruit juices, milk-free chocolate, pure cocoa made with water or milk substitute, carbonated beverages, milk substitute such as soy milk and almond fortified with calcium and vitamin D, milk-free non-dairy creamers. Fermented milk products such as acidophilus milk and yogurt may be tolerated. Doctor may suggest hydrolyzed, casein based formula for babies.	All forms of milk (whole, low fat, nonfat, evaporated, condensed, dried, buttermilk, chocolate milk); hot chocolate made with milk; Ovaltine; cream, half and half; “non-dairy” products containing casein or lactalbumin.
Breads	Most sourdough, French and Italian breads; some rye breads (check labels); English muffins, Rye-Krisp, soda crackers, Matzo, other bread products made with milk substitute and/or without milk.	All breads, crackers and baked products containing milk products, commercial baking mixes containing milk product, Zwieback.
Cereal	Any made without milk	Cooked cereals with milk

Milk Allergy Diet (continued)

Food Group	Foods Allowed	Foods to Avoid
Desserts	Angel food cake, chiffon cake, sponge cake, meringue, other cakes, cookies and pies made without milk products; fruit ices, gelatin desserts; custards and puddings prepared with milk substitutes.	All desserts containing milk products, casein, or lactalbumin, such as sherbet ice cream, custard, pudding, frozen yogurt.
Fats and Sauces	Milk-free margarine, salad dressing made without milk products (French, Italian), mayonnaise, cooking oils, shortening, lard; milk-free sauces and gravies; some non-dairy whipped toppings.	Butter, margarine (containing milk solids), sour cream, cream cheese, half and half, milk-baked sauces and gravies.
Fruits	All	None
Meat, Fish, Egg, Cheese	Any except those to avoid; Kosher frankfurters; dried beans peas.	Meats or meat substitutes containing milk solids such as frankfurters and luncheon meats; creamed or breaded meat, fish or poultry; all cheeses.
Potato and Starches	Potatoes, macaroni, noodles, rice, spaghetti prepared without milk.	Any prepared with milk, cheese, cream, butter, margarine (containing milk solids); any package creamed, scalloped, or au gratin products.
Soups	Bouillon, broth, broth-base soups, homemade cream soups made with milk substitutes.	Homemade or commercial soups containing milk or milk products.
Sweets	Sugar, honey, molasses, jelly, jam, marmalade, syrup, pure sugar candy, jelly beans, Baker's cocoa.	Milk chocolate and other candies not allowed.

Milk Allergy Diet (continued)

Food Group	Foods Allowed	Foods to Avoid
Vegetables	Any fresh, frozen or canned, except those to avoid.	Any prepared with milk products (scaloped, creamed, au gratin).
Miscellaneous	Spices, herbs, condiments, vinegar, flavorings, cornstarch, flour, nuts, nut butters, popcorn (with milk-free margarine), olives, pickles.	Peanut butter with milk solid fillers, prepared mixes and any other homemade or commercial food containing milk solids, casein, or lactalbumin.

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Orange juice	4 oz. Roast beef with milk-free gravy	4 oz. Baked chicken with milk-free sauce
½ c. Oatmeal	½ c. Mashed potatoes, milk free	½ c. Glazed sweet potatoes
1 Scrambled egg	½ c. Seasoned green beans	½ c. Peas
English muffin	Sliced tomato salad with French dressing	Tossed green salad with Italian dressing
2 tsp. Milk-free margarine	1 sl. French toast	1 sl. French bread
1 c. Milk substitutes	1 Fresh apple	1 tsp. Milk-free margarine
Jelly		½ c. Fruit compote
		1 c. Milk substitute

Salt, pepper, sugar, and milk-free beverage of choice are routinely served with all meals.

Tips:

1. The casein is similar in both goat's milk and cow's milk so both must be avoided.
2. Read all labels carefully
3. Some non-dairy creamers, imitation milk and artificial butter products may contain milk.
4. Labels that list the following products contain milk or milk protein

- Lactose	- Lactoglobulin	-Lactalbumin
- Caseinate	- Curd	- Milk solids
- Casein	- Whey	-Diacetyl
-Ghee	-lactoferrin	-lactulose
-rennet casein	-tagatose	-whey protein hydrolysate

Wheat Allergy Diet

Indication

This diet is used for individuals allergic to wheat. A wheat allergy should not be confused with gluten intolerance or celiac disease. For a Gluten free diet see section G.

Description

The diet eliminates wheat products or foods containing wheat as a base, stabilizer, emulsifier, or thickening agent. However, some people who are allergic to wheat may be able to tolerate other grains. Each individual should check with their physician or allergist to determine the degree of wheat restriction and tolerance to other grains.

Nutritional Adequacy

This diet is nutritionally adequate when planned to include a variety of grains.

Food Group	Foods to Avoid
Beverages	Malted milk, Nestle's Quick, Ovaltine, Postum, any beverages containing malt or wheat; beer, gin, whiskey. Some coffee substitute.
Breads and cereals	Wheat flours (white, whole wheat, graham), wheat bran, wheat germ, bread crumbs. Breads, rolls, pastry, quick breads containing wheat; bread dressings (potato, rye and other breads may contain a large percentage of wheat; read label carefully). Crackers containing wheat. This includes most crackers - graham, saltine, soda crackers, matzoth, rusk, zwieback, pretzels. All cereals containing wheat, bran cereals, farina, Cream of Wheat. Triticale, sprouted wheat, spelt, semolina, seitan, Kamut, Emmer, einkorn, durum, couscous, bulgur
Desserts	Cakes, cookies, pies, ice cream cones; ice cream, and other desserts containing wheat as a thickener, some puddings, sundae sauces, etc.
Fats and Sauces	Boiled salad dressings thickened with wheat flour; gravies and sauces thickened with flour. Wheat germ oil

Wheat Allergy Diet (Continue)

Food Group	Foods to Avoid
Fruits	Fruits containing wheat, i.e., battered.
Meat, Fish, Egg, Cheese	Meat, fish, poultry and meat substitutes containing wheat as a breading, thickener, or binder. Cold cuts, frankfurters and sausages containing wheat fillers. Surimi- imitation crab
Soups	Soups containing wheat as a thickener or other products made with wheat flour.
Starches	Macaroni, dumplings, noodles, spaghetti, and other pastas made with wheat/semolina flour.
Sweets	Chocolate candy, any candy containing wheat, malt, or cereal extracts.
Vegetables	Breaded or battered vegetables.
Miscellaneous	Soy sauce, Worcestershire sauce, vital wheat gluten

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Orange juice	3 oz. Roast turkey	3 oz. Roast beef
½ c. Cream of Rice	Cranberry sauce	½ c. Rice pilaf
1 Scrambled egg	½ c. Whipped potatoes	½ c. Buttered carrots
1 Corn muffin (wheat free)	Tossed salad with oil and vinegar dressing	Lettuce wedge with French dressing
1 tsp. Margarine	2 Apricots	1 sl. Cornbread – wheat free
1 c. Lowfat Milk	1 sl. Rice bread	1 tsp. Margarine
	1 tsp. Margarine	Baked apple with whipped cream
		1 c. Lowfat milk

Purine Restricted Diet

Indication

This diet is used for the treatment of gout. The purpose of the diet is to reduce production of uric acid by consuming less purines.

Description

A low purine diet restricts many animal products which are rich sources of purines. It is best to avoid the foods highest in purines and to eat in moderation the other foods listed. To help treat gout it is important to achieve or maintain a healthy body weight, avoid alcohol, drink plenty of fluids and to follow a low saturated fat, heart healthy diet while avoiding high protein weight loss diets. Inclusion of low fat or fat free dairy products may help.

Nutritional Adequacy

A low purine diet is adequate in calories, protein and all nutrients.

Foods to Avoid that are HIGH in purines

Meat gravies	Sweetbreads	Anchovies
Mackerel	Beer	Sardines
Scallops	Organ meats	Tuna
Shrimp	Lobster	Salmon
Herring	Game meat	Beef
Pork	Lamb	Bacon
High fructose corn syrup	Agave	Mussels

Foods to eat in moderation

Yeast	Poultry	Mushrooms
Oatmeal	Wheat bran	Fish
Lentils	Broccoli	Peas
Artichoke	Apricots	Spinach
Banana	Green pepper	Dried beans

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Orange juice	Macaroni and cheese	2 oz. Baked chicken
½ c. Farina	½ c. Buttered broccoli	½ c. Buttered rice
1 Scrambled egg	Sliced tomato and cucumber with French dressing	½ c. Whole kernel corn
1 sl. Toast	1 sl. Wheat bread	½ c. Molded apricot gelatin salad
1 tsp. Margarine	1 tsp. Margarine	1 tsp Margarine
Jelly	1 Fresh apple	Angel food cake
1 c. Milk		1 c. Milk

Low Tyramine Diet

✚ Indication

This diet is used for individuals receiving antidepressant drugs which are monoamine oxidase (MAO) inhibitors. These drugs prevent the enzyme MAO from converting toxic monoamines, such as tyramine and dopamine, to their nontoxic metabolites. Excessive accumulation of monoamines may produce serious adverse reactions such as a hypertensive crisis, excruciating headaches, tachycardia, or even fatal intracranial hemorrhages.

✚ Description

The diet eliminates all major sources of tyramine, especially foods containing bacteria capable of enzymatically converting the amino acid tyrosine to tyramine. The diet provides less than 2 mg. tyramine daily. Tyramine and other pressor amines are naturally found in foods. Tyramine is found in foods that have been fermented, aged, not stored properly, or stored too long.

Nutritional Adequacy

This diet is adequate in specified nutrients from the Dietary Reference Intakes.

Food Group	Foods to Avoid
Beverages	Alcoholic beverages, red wine, white wines (2 oz.) including Chianti, Sherry and Vermouth, ale, beer on tap.
Dairy Products	Aged cheeses like cheddar, Swiss, blue cheese, camembert
Fats and Sauces	Commercial gravies or meat extracts. Fish or shrimp sauce
Fruits	Banana, avocado, canned figs, raisins, plums, raspberries Amounts larger than ½ cup or 4 oz. canned figs, raisins, banana peel extract.
Meats, Fish, Cheese	Cured meats like salami and pepperoni, fish sauce, Blue cheese, brie, Camembert, cheddar, Emmenthaler, Mozzarella, Parmesan, Roquefort, Gruyere, Romano, Stilton. Aged game, and canned meats, sausage, salami, bologna, smoked meats: ham, turkey, liver sausage, smoked, pickled or salted dried fish - caviar, herring, cod. Summer sausage
Soups	Broths made from hydrolyzed protein extracts (most often added to soup bases, gravies and sauces); Soups

Vegetables	packaged with yeast extracts. Miso soup Sauerkraut, Fava beans, Lentils, Snow peas, Soy beans, Broad beans, kimchee
Miscellaneous	Banana peel, Brewer's yeast, soy sauce, brewers yeast, beer or ale, Marmite.

Food Storage Guidelines

Label food packages with type of food and date purchased.

FreezerFresh, uncooked:

Beef (steaks, roast), 6 -12 months
Beef (ground, stew), 3 -4 months
Poultry (pieces), 6 months
Poultry (whole), 9 months
Shellfish, 1-2 months

Leftovers, cooked:

Beef, lamb, pork, 2-3 months
Chicken, 4 months
Ham (canned, smoked), 1 month

RefrigeratorFresh, uncooked:

Beef (steaks, roast), 1-2 days
Beef (ground, stew), 1-2 days
Poultry, 1-2 days
Fish/Shellfish, 1-2 days
Fish, 6 -9 months

Leftovers, cooked:

Beef, lamb, pork, 1-2 days
Chicken, 1-2 days
Ham (canned, smoked), 3-4 days

Foods Interacting with MAO Inhibitors

Avocados	Particularly if overripe.
Bananas	If taken in large amounts reactions can occur. Banana peel is high in tyramine.
Bean curd	Fermented bean curd, fermented soya bean, soy sauces, soya bean pastes and miso soup prepared from fermented bean curd all contain large amount of tyramine.
Beer and ale	Most major domestic brands do not contain appreciable amounts; some imported brands have high levels of tyramine. Nonalcoholic beer may contain tyramine and should be avoided.
Cheese	All cheeses except cottage cheese, ricotta cheese, cream cheese and processed cheese.
Figs	Particularly if overripe.
Fish	Safe if fresh; dried, smoked, pickled products should not be Eaten (herring, caviar).
Liver	Safe if very fresh, but rapidly accumulates tyramine.
Milk Products	Buttermilk, yogurt and sour cream ½ cup or 4 oz. appear to be safe.
Meat	Safe if fresh; fermented varieties such as bologna, pepperoni, salami, sausage, liver sausage have a high tyramine content. Smoked ham and turkey.
Shrimp paste	Large amounts of tyramine present.
Soups	Made from hydrolyzed protein extracts; soups packaged with Yeast extracts should be avoided.

Vegetables	Fava beans, Italian broad beans, snow peas and sauerkraut.
Wines	Chianti, Champagne, Sherry and other. 2 oz. white wine or 1 oz. clear distilled spirits (vodka, gin) allowed per day.
Yeast extracts	Brewer's yeast in amounts larger than ½ cup. Yeast in baked goods, however, is safe.

Food May Be Used in Small Quantities

Caffeinated beverages	A weak pressor agent. Large amounts may cause reactions.
Chocolate	Contains phenylalanine, a pressor agent which can cause reactions in large amounts.
Whiskey	Reactions have occurred; cause unknown.

Foods normally low in tyramine content may become a risk if spoilage has occurred. The tyramine content of foods increases significantly in the aging, fermenting and spoiling process as noted above. Consuming fresh food is highly recommended, due to the fact that the tyramine content of many foods is unknown.

Sulfite Restricted Diet

Indication

To eliminate foods containing sulfites for people who are sensitive to sulfites which is a salt of sulfurous acid. Sulfite sensitivity is not considered an allergy since sulfite does not contain protein.

Description

This diet restricts foods containing sulfites, sulfur dioxide, potassium bisulfite, potassium metabisulfite, sodium sulfite, sodium bisulfite and sodium metabisulfite. Sulfites are commonly added to processed food as a preservative. Reading labels carefully will sometimes help to avoid products that contain sulfites, but certain foods may not identify a sulfite on the label if the sulfite is included in one of the ingredients, such as wine in wine vinegar salad dressing. Foods that contain more than 10 ppm of sulfites must list sulfites as an ingredient. FDA banned use of sulfites on fruits and vegetables (such as lettuce and apple) eaten raw in 1986. Sulfites may be used in some cooked and processed foods; ask the server if sulfites are used in food preparation when eating out.

Nutritional Adequacy

This diet is adequate in all calories, protein and nutrients.

Foods that often contain sulfites

- All cheeses
- Baked goods (filled crackers, pie crust, pizza crust, tortillas)
- Beer, cordials
- Cider
- Cocktail onions, pickles, olives
- Canned seafood, dried cod, shellfish
- Fruits (dried fruits like apricots and golden raisins, pie filling, maraschino cherries)
- Bottled lemon or lime juice (not frozen), grape juice
- Gelatin
- Molasses, maple syrup, corn syrup, jams and jellies
- Potatoes (dried, frozen, canned, mashed potato granules, potatoes sold as ready to use peeled, fresh potato chips)
- Salad dressings (dry mix)
- Salads (cut up or shredded packed vegetables, lettuce, etc., sold as "clean" must be thoroughly washed)
- Sauces and gravies (canned or dried)
- Sauerkraut, coleslaw
- Soups (canned or dried)
- Vegetables (frozen, canned, dried, fresh mushrooms)
- Wine vinegar
- Wine and wine coolers (red and white wine both contain sulfites)

Sample Daily Meal MenuBreakfast

Fruit
 Cereal
 Egg
 Bread/Margarine
 Coffee/Tea
 Milk

Fresh grapefruit half
 Oatmeal
 Scrambled eggs
 Buttered wheat toast
 Coffee or Tea
 Cream/sugar/jelly
 Milk

Lunch

Meat
 Starch
 Vegetable
 Bread/margarine
 Milk
 Coffee/Tea

Roast meat (no gravy)
Baked potato / margarine and sour cream
 Fresh steamed broccoli
 Hot roll/margarine
 Milk
 Coffee or tea
 Cream/sugar

Dinner

Meat
 Starch
 Vegetable
 Bread/margarine
 Milk
 Coffee/tea

Baked chicken
 Buttered noodles
 Fresh steamed carrots
 Wheat bread/margarine
 Milk
 Coffee or tea
 Cream/sugar

Fat-Free Meal Test

Purpose

This diet is often ordered the evening before a gallbladder x-ray to empty the gallbladder of bile so that the dye will be more readily absorbed. New studies, however, indicate that dietary preparation is not necessary for adequate visualization of gallstones.

Description

The following foods only are allowed in the fat free test meal: fat-free bouillon, clear gelatin, fruit juice, canned fruit, fat-free potato or starch, fat-free cooked vegetables, dry toast, jelly, coffee or tea, and sugar.

Sample Daily Meal Pattern

Fat-free bouillon
Strawberry-flavored gelatin
Plain baked potato
Plain cooked carrots
1 sl. Bread
1/2 c. Peaches
Tea
Sugar, jelly

100 Gram Fat Diet

✚ Purpose

This diet is used to test for fat malabsorption. The purpose of the diet is to be sure that enough fat is consumed by the patient to show malabsorption in the stool.

✚ Description

The diet will provide 100 or more grams of fat per day for 6 days. The patient should be on the diet for 3 days prior to the test and during the 3 days when stools are collected. The patient's actual daily fat intake should be calculated as accurately as possible and recorded each day in the medical record.

A normal fecal fat excretion is 5 -7 g/24 hours over a 3-day period on a diet providing 100 grams of fat/day.

Include at least the following foods daily:

<u>FOOD</u>	<u>FAT (g)</u>
2 c. Whole milk	20
6 oz. Meat (med. fat)	30
1 Egg	5
10 fat servings, such as 10 tsp. Butter, margarine, oils, etc.	50
TOTAL FAT	105

Fruits, vegetables, breads and cereals do not contain significant fat, but should be served as they would in the normal diet.

Sample Daily Meal Plan

Breakfast	Lunch	Dinner
½ c. Orange juice	3 oz. Roast beef	3 oz. Baked chicken
1 Scrambled egg	½ c. Mashed potatoes	½ c. Sweet potatoes
½ c. Oatmeal with 1 tsp. margarine	½ c. Carrots	½ c. Peas
2 sl. Toast with 2 tsp. margarine	Tossed green salad with 2 tsp. mayonnaise dressing	Angel food cake
Jelly	1 Fresh apple	1 sl. Wheat bread
1 c. Whole milk	1 sl. Wheat bread	3 tsp. Margarine
	2 tsp. Margarine	1 c. Whole milk

Salt, pepper, sugar, and allowed beverage of choice are routinely included with each meal.

Barium Enema Test Diet

Purpose

This diet is used to clear the gastrointestinal tract prior to a Barium Enema.

Description

A clear liquid lunch and clear liquid dinner is given the day before the test. See Clear Liquid Diet, Section B.

Vanillylmandelic Acid (VMA)

Purpose of Test

This test is used to aid in the diagnosis of neurogenic tumors (pheochromocytomas, associated with neuroblastomas and ganglioneuromas). Under these conditions, urinary VMA, the metabolite of epinephrine and norepinephrine, is increased.

Description of Diet

Formerly it was thought that ingestion of certain foods just prior to and during urine collection would interfere with the test results, giving a falsely increased urinary VMA. The following foods are omitted from the diet, usually for 3 days, on the basis that they contain phenolic acids: coffee, tea, other caffeine-containing beverages, energy drinks, chocolate, cocoa, bananas, citrus fruit, raisins, nuts and vanilla.

If newer and more specific test procedures are used which convert VMA to vanillin or measure metanephrines rather than VMA, no dietary restrictions are necessary.

Glucose Tolerance Test Diet

Purpose

It was formerly thought that a 300 grams carbohydrate diet was necessary for 3 days before the test to give valid glucose tolerance results. Now, it is thought that unless the patient has been on a hypocaloric diet, a 300 grams carbohydrate test diet is unnecessary. An intake of 150 grams carbohydrate daily is adequate preparation for the test. This can be provided by a regular adequate diet.

Upper GI Test Diet

 **Purpose**

To have the stomach empty before the test.

 **Description**

Patient is N.P.O. (no food is served) after 9 p.m. the day before the test.

Hydroxyindol Acetic Acid (5-HIAA) and Serotonin Restricted Diet

Purpose

This test is used to establish the diagnosis of malignant carcinoid tumors which secrete serotonin. The purpose of the diet is to eliminate falsely increased urinary 5-HIAA levels by eliminating foods containing serotonin. Serotonin in foods is oxidized to form 5-HIAA which is excreted in the urine.

Description

The following foods are high in serotonin and should be avoided for at least 24 hours before the test and during the test (some doctors recommend 4 days): avocados, bananas, papaya, cantaloupe, honey dew, kiwi, dates, eggplant, passion fruit, pineapples, pineapple juice, plantains, red plums, blue plums, tomato, grapefruit, nuts, walnuts, coffee, tea and alcohol.

Hydroxyproline Test Diet (Collagen Free Diet)

Purpose

This test is used to establish the diagnosis of congenital bone malformations and malignant bone tumors. The measurement of urinary hydroxyproline may be useful as a guide to metabolic activity of the levels associated with medication and in various diseases. The diet is used to reduce exogenous hydroxyproline.

Description

The diet eliminates collagen-containing foods for 3-7 days, such as skin and bones of meat, fish, and poultry; gelatin and gelatin-containing products; and meat itself contains some hydroxyproline.

Adenosine Cardiolyte Stress Test

Indication

Used as a diagnostic tool for Cardiac patients.

Description

This diet consists of foods that are void of caffeine, decaffeinated coffee and tea, and alcohol for a varying amount of time before the test.

Nutrition Adequacy

This diet is inadequate in most nutrients and should be used for only short periods of time. If patient is to be maintained on diet for three or more days, multi-vitamin mineral supplementation may be indicated.

Instructions

1. **No food two (2) hours** prior to test.
2. **No caffeine 24 hours** prior to the test. No decaffeinated coffee or tea.
3. **No alcohol 48 hours** prior to the test.

Food Products That Contain Caffeine:

Coffee

Brewed drip coffee
Brewed percolated coffee
Instant coffee
Decaffeinated brewed coffee
Decaffeinated instant coffee

Tea

Brewed commercial tea
Brewed imported tea
Instant tea
Iced tea

Food

Cocoa
Chocolate milk
Milk chocolate
Dark semi-sweet chocolate
Baker's chocolate
Chocolate syrup
Chocolate cake
Candy, chocolate
Candy, chocolate covered
Chocolate ice cream
Chocolate pudding, instant
Nut fudge brownie

Soft Drinks

Coca-Cola drinks
Cola, decaffeinated
Dr. Pepper
Dr. Pepper, sugar-free
Jolt cola
Mellow Yellow
Mountain Dew
Mr. Pibb
Pepsi Cola
Pepsi, Diet
Tab

Nutrition Assessment

Definition

Defined as the evaluation of the present nutritional status of an individual, enabling the identification of a patient who is malnourished or at risk of malnutrition and providing guidelines for medical nutrition therapy (MNT).

The Nutrition Care Process (NCP) defines specific steps a dietetic practitioner uses when providing MNT. It is designed to improve the consistency and quality of individualized patient/client care and the predictability of the patient/client outcomes. It is not intended to standardize nutrition care for each patient/client but to establish a standardized process for providing care. There are four steps in the process: Nutrition Assessment, followed by Nutrition Diagnosis, Nutrition Intervention, and Nutrition Monitoring and Evaluation.

NCP Step 1: Nutrition Assessment:

Obtaining, verifying and interpreting data that is needed to identify a nutrition related problem.

Review the Following Chart Sections:

1. Order Sets - Verify diet order: P.O., enteral and parenteral; dates; medications that would indicate altered requirements or alter assessment data, i.e., IV albumin, lactulose, Lasix, etc.; emphasis on length of time NPO or clear liquid status.
2. Nursing Graphics - Obtain actual weights, I and O, body temperature changes.
3. Nursing Notes - Note percentage of meals/snacks eaten, food from outside, tolerance to enteral feedings, PPN or TPN, frequency and consistency of stools, GI symptoms, skin or wound conditions.
4. Patient Admit date - Obtain height, weight, weight changes, previous appetite, previous diet/PO intake, chewing and/or swallowing difficulties, food allergies.
5. Progress Notes - Identify M.D.'s following patient, clinical status of patient and course of therapy; identify other staff charting on patient including R.D.
6. History and Physical Exam - Identify any previous nutritional implicated disease processes, references to weight fluctuations, GI tract disturbances, medical and surgical history and medication history information.
7. Laboratory Tests - Initially look at consecutive albumins, prealbumin, Total Lymphocyte Count, BUN, Creatinine, Transferrin, Glucose, Ammonia, Triglycerides, Skin tests, Hgb, Hct, MCV, Electrolytes, Blood Gases, Cholesterol, etc.

Biochemical Data, Medical Tests and Procedures:

There is no one single laboratory measurement that is indicative or predictive of nutrition status. Each measurement has limitations and may be helpful in the context of a complete nutrition assessment.

1. Total Lymphocyte Count (TLC) is considered a nonspecific marker for malnutrition.
2. Albumin, a serum protein, is an indicator of morbidity and mortality yet is nonspecific and insensitive as an indicator for malnutrition.
3. Prealbumin (PAB) is a visceral protein that acts as a transport protein for thyroxine and a carrier protein for retinol binding protein and is also a nonspecific marker for malnutrition.
4. Retinol binding protein (RBP) is a rapid turnover protein like transferrin and PAB and is affected by inflammation, renal disease and vitamin A deficiency.
5. C-reactive protein (CRP) is a positive acute phase reactant used as an indicator of inflammation.
6. Transferrin is used in iron transport and is a poor marker for malnutrition as it is insensitive and nonspecific.
7. Creatinine Height Index (CHI): Indicator of muscle mass and depletion.
 - a. Requires determination of the creatinine excreted in a 24 hour urine collection
 - b. Results compared to expected creatinine excretion based on sex and height
 - c. $CHI = \text{actual urinary creatinine} \div \text{ideal urinary creatinine} \times 100$
 - i. 60% not depleted
 - ii. 59% - 40% moderately depleted
 - iii. 39% severely depleted
 - d. Invalidated as a nutritional parameter in the following conditions:
 - i. Renal Function
 - ii. When 24 hour urine cannot be accurately collected
8. Nitrogen Balance: Means of evaluating and documenting effectiveness of the nutritional therapy and adequate protein intake.
 - a. Calculated from a 24-hour urine urea nitrogen (UUN) excretion and a concurrent 24-hour nutrient intake record.
 - b. Nitrogen balance
 - i. +1 to -1 = Homeostasis maintained
 - ii. +4 to +6 = Anabolism (recommended for repletion of nutritional deficits)
 - iii. 0 to -2 = Catabolism (continued breakdown of protein)
 - c. Invalidated as a means of evaluating the efficacy of nutritional therapy in the following conditions:
 - i. Excessive losses of fluid that contain nitrogen which cannot be measured; i.e., diarrhea, high output fistulas, wounds, burns.
 - ii. When 24 hour urine cannot be accurately collected.
 - iii. Renal dysfunction.
 - d. $\text{Nitrogen balance} = \text{protein intake (gm)} \div 6.25 - (\text{Urinary Urea Nitrogen} + 4)$

Note: Each 6.25 gram of protein contains 1 gram of nitrogen. The + 4 represents the non-urea nitrogen loss via bowel and bladder elimination, skin, respiration.

Table R- I: Ideal Urinary Creatinine Value (mg) Adults

Men*		Women**	
Height (cm)	Ideal Creatinine (mg)	Height (cm)	Ideal Creatinine (mg)
157.5	1288	147.3	830
160.0	1325	149.9	851
162.6	1359	152.4	875
165.1	1386	154.9	900
167.6	1426	157.5	925
170.2	1467	160.0	949
172.7	1513	162.6	977
175.3	1555	165.1	1006
177.8	1596	167.6	1044
180.3	1642	170.2	1076
182.9	1691	172.7	1109
185.4	1739	175.3	1141
188.0	1785	177.8	1174
190.5	1831	180.3	1206
193.0	1891	182.9	1240

* Creatinine coefficient (males) = 23 mg/kg of ideal body weight.

** Creatinine coefficient (females) = 18 mg/kg of ideal body weight.

Interview

1. Patient or/and family - clarify data from chart, i.e.: height, weight history/changes, actual current appetite, food and nutrition intake, chewing, swallowing, nausea, vomiting, diarrhea, constipation, abdominal pain/distention, culture needs, food preferences, food allergies/intolerance, food availability, nutrition related knowledge and practices, and physical activity.
2. Nurse - to obtain current status of patient (especially if patient is on enteral and/or parenteral alimentation), i.e., tolerance to enteral feeding, fluid limitations, I&O, goal of present therapy, if not outlined in chart.

Observations

1. Enteral Feeding - Verify protocols are being followed, i.e., route of tube feeding, proper formula strength and rate, aspirate every 4 hours, flush tubing every 4 hours, elevate head of bed at 30°.
2. Parenteral Feeding - Verify route of PN, correct formula and rate being administered according to physician's order and nursing cardex. Fat being administered within appropriate period to allow sufficient time prior to drawing of blood in AM, i.e., in by 12 MN.
3. Physical Examination Findings: Oral health, physical appearance, muscle and subcutaneous fat, wasting and mental status, skin, hair conditions, and wounds.

Nutrition Assessment data obtained above are organized in five major categories so you can organize and category the data in a meaningful way that relates to nutrition problems:

Anthropometric Measurements:

Height, weight, BMI, growth rate, and rate of weight change

Physical Examination Findings:

Oral health, physical appearance, muscle and subcutaneous fat, wasting and mental status

Client history:

Medication and supplement use, medical/health history and social, personal/family history, cultural and religious beliefs, housing situation, social isolation/connection

Food/Nutrition History:

Food and nutrient intake, meals and snack patterns, environmental cues to eating, food and nutrient tolerance, current diet and food modification, nutrition and health awareness and management include knowledge, beliefs and practices, past nutrition counseling and education, physical activity and exercise, and food availability

Biochemical Data, Medical Tests and Procedures:

Laboratory data (e.g., electrolytes, glucoses, lipid panel) and tests (e.g., gastric emptying time, resting metabolic rate)

Based on the nutrition assessment, the dietetics practitioner is able to determine whether a nutrition diagnosis/problem exists, forms the basis for identifying a nutrition diagnosis. It also leads to the appropriate determination for the continuation of care, such as progression through the nutrition care process or the need for additional information/testing prior to continuing in the process. The data collection procedure persists throughout the nutrition care process and forms the foundation for reassessment and reanalysis of the data.

Guidelines for Use of Nutrition History

Purpose

The nutrition history is used as a guide for the dietitian to individualize a patient's diet. The completed questionnaire may alert the dietitian of potential problems.

Consider These Factors When Counseling Patients

General Information

Age: Regardless of age, everyone needs the same nutrients, but often in different amounts. Normal good nutrition should be emphasized for all age groups:

- . Provide selections from a wide variety of healthy food daily
- . Balance calories to growth and exercise requirements
- . Reduce unnecessary salt, sugar and fat in diet, especially saturated fat, *Tran's* fats
- . Adjust diet to meet therapeutic needs determined by medical diagnosis

The Infant: For the first few months of life, virtually most of the nutrients a baby needs come from breast milk or a commercial formula. By six months or so, most infants are starting to eat solid foods.

The Young Child: The preschooler is growing, active and has fewer reserves than an adult. In addition to healthy foods at meals, the growing child needs nutritional snacks such as: fruits, peanut butter, nuts, enriched or whole-grained breads, cheese cubes, celery, carrot sticks and hard-cooked eggs.

The Teenager: The teenage years are a time of rapid growth spurts and hormonal changes, creating an extra need for nutrients and calories. The average teenager needs at least two servings of protein-rich foods daily, plus three or four glasses of milk or milk equivalent. Encourage whole grain breads and cereals and five or more servings of fruits and vegetables daily.

Pregnant Women: Because of the importance of providing for the nutritional needs of an unborn child, as well as her own, a pregnant woman must eat a well-balanced diet, rich in proteins, vitamins and minerals as well as carbohydrates and fats. Pregnant women should take a daily multivitamin with minerals.

Nursing Women: A lactating mother needs an additional 500 calories per day above her normal requirements. In addition to a well-balanced diet, nursing women should continue to take a daily multivitamin with minerals.

Middle-Aged: It is important during the middle years to reduce the intake of foods high in saturated fats and eat more foods lower in fat such as poultry and fish. Encourage whole grain breads and cereals and five or more servings of fruits and vegetables.

Elderly: Elderly people have some special nutritional concerns. They may have difficulty eating because of poor teeth, an impaired sense of taste and smell, dry mouth, difficulties in shopping for food, preparing it and even swallowing. Other factors such as retirement, isolation, senility, disability, depression and decreased income all play a part in creating nutritional problems. The elderly frequently consume fewer animal proteins due to problems with swallowing and chewing. Suggest alternate sources of protein such as eggs, cheese, milk, peanut butter, and dry beans. Encourage whole grain breads and cereals and five or more servings of fruits and vegetables daily.

Family Status: Include family members who are involved in the food preparation in planning discharge diet instructions. Consider eating habits of people who live alone, such as skipping meals, not bothering or able to cook, etc.

Occupation: Get an idea of the hours of work, activity level, where meal(s) away from home are obtained. Individualize diets to include eating out and business lunches.

Daily Working Hours: Plan meal times for insulin dependent diabetic and functional hypoglycemic patients according to their work schedule.

Stress that patient does not exceed 4 - 5 hours between meals.

Level of Daily Activity: Compare with occupation. Ask patients if they participate in any regular exercise program. Review examples of activity given by patients to determine if the activity listed is sedentary, moderate, or vigorous.

Weight History: Be alert to patients whose body weight is 20% above or below Ideal Body Weight. Conduct follow-up visits for patients who have recently, unintentionally lost or gained 10% or more of their usual body weight, i.e. Ideal body weight is 130 pounds. For 10% loss or gain, patient's maximum weight (10% gained) would be 143 pounds, and minimum weight (10% loss) would be 117 pounds.

$$130 \times .10 = 13.00$$

$$130 - 13 = 117$$

$$130 + 13 = 143$$

Eating Problems

Soreness in mouth: For patients who complain of soreness of the mouth recommend eating soft cold foods such as canned fruits, ice cream, melon, popsicles, gelatin, and custards. Avoid highly acidic foods.

Vomiting and Nausea: Recommend eating dry foods such as crackers or toast to calm nausea, particularly in the morning. Drink only small amounts of liquids with meals. Drink cold, clear drinks, apple, grape, or cranberry juice. Suggest eating six small meals instead of three large ones. Patients often feel better if they rest or lie down 30 minutes after eating.

Chewing Problems: Alter texture of foods for patients with dental or swallowing problems. With patient's help, determine whether pureed, ground, or finely chopped foods will be best tolerated.

Food Taste & Odors: Different people experience different changes in their sensations. Determine which foods will be best tolerated.

Swallowing Problems: Coughing usually occurs after drinking thin liquids; thicken liquids such as milkshakes, or commercially thickened supplements may be better tolerated. If patient is confused and cannot swallow, he may likely pocket food in his cheeks or under tongue.

Refusing to Eat: Determine patient's likes and dislikes. Stress to the patient the importance of good nutrition. Vigorous efforts must be made to convince the patient to eat. Loss of appetite frequently may lead to poor nutritional state. Explain to the patient that his failure to eat can result in a vicious cycle i.e. failure to eat = low appetite = weight loss. Encourage the ingestion of food. As nutrition improves, the appetite will usually improve. Consider appetite stimulant when appropriate.

Diarrhea:

Suggest:

- ✚ Try to eat small meals more often; i.e., six small meals per day.
- ✚ Patients lower the insoluble fiber in their diet. Roughage is the material in food that cannot be digested and is passed in bowel movements. Foods high in roughage include bran, whole grain cereals and breads, raw fruits and vegetables, popcorn and nuts.
- ✚ Increase soluble fiber such as oats, to bulk up your stools, if you do not have IBS, Crohn's disease or recent GI surgery.
- ✚ Avoid highly spiced foods.

Section R: Comprehensive Nutrition Assessment

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- ✚ Foods that are warm are better tolerated than hot foods.
- ✚ Drink plenty of liquids between meals instead of with meals.
- ✚ As potassium loss is associated with diarrhea, recommend potassium-rich foods such as bananas, orange juice, or apricots.
- ✚ Discourage the use of milk and milk products if they cause diarrhea; encourage proper substitutes.

Constipation:

Suggest:

- ✚ Eat foods high in both insoluble & soluble fiber such as bran and whole grain breads and cereals, fresh fruits and vegetables, popcorn, and nuts.
- ✚ Drink at least two quarts of liquid, including water, each day.

Meal Times

Consider patient's regular eating habits when individualizing the diet. Stress the importance of establishing regular meal times for diabetic, hypoglycemic, and post gastrectomy patients. Suggest menu items for dining out.

Food Dislikes

List in the dietary cardex or computer diet order foods which patients do not like or will not eat. Recommend substitutions for these foods.

Food Allergies or Intolerance

List all food allergies in patient dietary order. Record in the medical record all food allergies according to the procedure established by your hospital/facility.

Ethnic, cultural or religious food preferences

Supplements

Determine if patient is taking specific vitamin/mineral supplements in doses above the RDA/DRI. If so, stress to the patient that a vitamin pill is not a substitute for good eating habits. Ask patient how long he has been taking supplements. Was this a recommendation by the physician? Mega dosing without a physician's recommendation may be dangerous and should be discouraged. Cautioned Food Drug Interactions.

Diet Instructions

Ask patients who have received previous diet instructions what they have learned about the diet. Do they understand the rationale of the diet and restrictions? What difficulties did they experience adhering to the diet?

Eating Habits/Food Intake

Obtain a brief recall of patient's eating habits at home or complete the Daily Food Intake if time allows. Gear counseling towards problem solving versus content focus in order to get commitment from patient for change in behavior.

Section R: Comprehensive Nutrition Assessment
24-hour Diet Recall/Diet History

Breakfast	Lunch	Dinner	Group	CHO	Pro	Fat	Kcal
			Starch				
			Fruit				
			Vege				
			Meat				
			Milk				
AM snack	PM snack	HS snack	Fat				
			Total				

State appetite: Good Fair Poor

Wt. Status: Current _____ Usual _____ Wt. Change/Time frame _____
 %IBW _____ % UBW _____

Note these on patient profile card and dietary computer order. Make adjustments and alternates in patient's menu to accommodate these preferences as much as possible.

NCP Step 2: Nutrition Diagnosis

Nutrition practitioners do not identify medical diagnosis; they diagnose phenomena in the nutrition domain.

Nutrition diagnosis is a critical step between nutrition assessment and nutrition intervention. The standard nutrition diagnosis language will enhance communication and documentation of nutrition care. Refer to International Dietetic and Nutrition Terminology (IDNT) reference Manual for Nutrition Diagnostic terminology.

Nutrition Diagnosis is to identify and describe a specific nutrition problem that can be resolved or improved through treatment/nutrition intervention by a dietetic practitioner. Each nutrition diagnosis has a reference sheet that includes its definition, possible etiology/causes and common signs or symptoms identified in the nutrition assessment step. The format for the PES statement is “**Nutrition problem label related to _____ as evidenced by_____”**”.

The PES statement is derived from the synthesis of information from the nutrition assessment data. Dietetic practitioners write a PES statement to describe the problem, its root cause and the assessment data that provide evidence for the nutrition diagnosis, and set realistic and measurable expected outcomes for each patient/client. Identifying the nutrition diagnosis also assists practitioners in establishing priorities when planning and individual patient/client’s nutrition intervention.

PES statements:

P/Problem: Dietitian writes a specific nutrition Problem/diagnosis from Clinical, Intake, and Behavioral-Environmental, within which the nutrition diagnosis/problems fall

E/Etiology

S/Signs/symptoms

Nutrition Screening

Identification of Nutritional Risk Factors: any factor that has a probable effect on nutritional status

1. Age - < 18 or > 80 (Children and the elderly)
2. Diet: Sodium controlled (< 2 gram)
Renal
Altered texture of food or liquid
Calorie/ carbohydrate controlled
High protein, high calorie (or receiving supplements)
Vegetarian/vegan
3. Lab Data - Low Albumin High BUN/ creatinine
High amylase High Lipase
Low Hgb & Hct Cholesterol >200
TG > 200 High blood glucose
High blood pressure High Osmolality
Abnormal Electrolytes
4. Weight/height index - BW > 120% IBW (high end)
BW < 90% IBW (low end)
Continual unintentional weight loss in the last 3 months.
5. Diagnosis/ Treatment - AIDS Cancer COPD or CHF
CVA Liver disease Renal disease
Crohn's Heart disease Bowel problems > 3 days
Eating Disorders
6. Medications that may affect the ability to ingest, digest, or absorb nutrients.
Insulin Antidepressants/antipsychotics
Antibiotics Diuretics
Pain Med Cardiovascular
7. Metabolic/ mechanical problem - Anorexia/bulimia Cachexia
Anemia Hyperlipidemia
Hypertension Alcoholism
Poor Dentition Diabetes out of control
Dysphagia Diarrhea > 3 days
Nausea/vomiting Weight loss (unintentional)
Pregnancy Lactation
Burn Major injury, trauma, surgery
8. Wounds, pressure ulcer, abscess with drainage, wound vacuum.

NCP Step 3: Nutrition Intervention

Nutrition interventions are specific actions used to remedy a nutrition diagnosis/problem, and can be used with individuals, a group or the community at large. These nutrition interventions are intended to change a nutrition-related behavior, environmental condition, or aspect of nutritional health.

The intervention consists of two interrelated components: planning and implementation.

Planning involves prioritizing the nutrition diagnoses; conferring with the patient, others, and practice guides and policies; jointly establishing goals; and defining the nutrition prescription and identifying specific nutrition interventions.

Implementing the nutrition intervention is the action phase, which includes carrying out and communicating the plan of care, continuing the data collection, and revising the nutrition intervention, as warranted, based on the patient response.

This step cannot be completed unless both components are in place to support the nutrition intervention.

Another aspect of planning the nutrition intervention is referring to evidence-based guidelines, institutional policies and procedures, care maps and other resources for recommended nutrition interventions. Dietetics practitioners should carefully examine resources to determine if the recommendations are evidenced-based.

An essential part of planning the nutrition intervention is detailing the Nutrition Prescription. The nutrition prescription concisely states the patient/client's individualized recommended dietary intake of energy, protein, and/or selected foods or nutrients based on current reference standards and dietary guidelines and the patient/client's health condition and nutrition diagnosis.

It is determined by using the assessment data, the nutrition diagnostic statement (PES), current evidence, policies and procedures, and patient/client values and preference.

The nutrition prescription either drives the nutrition intervention selection or is the context within which the nutrition intervention should be implemented. With the nutrition prescription defined, the dietetics practitioner identifies the specific nutrition intervention strategies and establishes the patient/client-focused goals to be accomplished.

As a dietetics practitioner plans the nutrition intervention, he/she prioritizes the nutrition diagnosis, based on the severity of the problem, safety, patient/client need, likelihood that the nutrition intervention will impact the problem, and the patient/client perception of importance.

The nutrition intervention is, almost always, aimed at the etiology (E) of the nutrition diagnosis/problem identified in the PES statement. In very specific instance, the nutrition intervention is directed at reducing the effects of the signs and symptoms (S) to reduce the signs and symptoms. Generally, the signs and symptoms form the basis for the next step in the NCP: nutrition monitoring and evaluation (Step 4).

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Section R: Comprehensive Nutrition Assessment

There are four domains of nutrition intervention: Food and/or Nutrient Delivery, Nutrition Education, Nutrition Counseling, and Coordination of Care.

Critical thinking skills required during this step:

Setting goals and prioritizing

Defining the nutrition prescription for basic plan

Make interdisciplinary connections

Initiating behavioral and other nutrition interventions

Matching nutrition intervention strategies with client needs, nutrition diagnosis, and value

Choosing from among alternatives to determine a course of action

Specifying the time and frequency of care

Samples of Calculations for Patient's Needs:

Estimated Calorie Need by using predictive equations:

Basal Energy Expenditure (BEE)

FAO/WHO Basal Energy Estimation Equations

	<u>Age</u>	<u>Equation</u>
Men:	18-30 years	Kcal/day = (15.3 x weight) + 679
	30-60 years	Kcal/day = (11.6 x weight) + 879
	>60 years	Kcal/day = (18.8 x weight) + (1,128 x height) – 1071
Women:	18-30 years	Kcal/day = (14.7 x weight) + 496
	30-60 years	Kcal/day = (8.7 x weight) + 829
	>60 years	Kcal/day = (9.2 x weight) + (637 x height) – 302

Adapted from FAO/WHO. Energy and Protein Requirements. Geneva: WHO: 1985. Technical Report Series 724.

Harris-Benedict Equations for BEE (basal energy expenditure) published 1919.

Men: $BEE = 66 + (13.7 \times W) + (5 \times H) - (6.8 \times A)$

Women: $BEE = 655 + (9.6 \times W) + (1.7 \times H) - (4.7 \times A)$

W = Actual weight in kg (pound ÷ 2.2 = kg) if BMI is <40; if ≥40 use IBW.

H = Height in cm (Height in inches x 2.54 = cm)

A = Age in years

Activity Factor	Use	Injury Factor	Use
Confined to bed	1.2	Minor injury	1.2
Out of bed	1.3	Skeletal trauma	1.3
		Major sepsis	1.6
		Severe burn	2.1

Mifflin-St. Jeor: predictive equation for RMR published 1990.

Men: Energy expenditure = $5 + 10 (\text{wt. in kg}) + 6.25 (\text{ht in cm}) - 5 (\text{age})$

Women: Energy expenditure = $-161 + 10 (\text{wt. in kg}) + 6.25 (\text{ht in cm}) - 5 (\text{age})$

Indirect calorimetry (IC) is an assessment method for Resting Metabolic Rate (RMR) using a metabolic cart. The RMR from indirect calorimetry is approximately 10% greater than basal metabolic rate (BMR). IC also measures respiratory quotient (RQ) which reflects the amount of each substrate being utilized.

Substrate Oxidation	RQ
Ethanol (ethyl alcohol)	.67
Lipid	.71
Carbohydrate	1.0
Protein	.82
Mixed fuels	.85
Lipogenesis	1.0-1.2

Estimated Protein Need depending upon disease state.

1. Protein requirement based on data, individually for each patient
 - Nitrogen Balance**
 - Creatinine height index**
 - Protein and Calories in current feeding**
 - Fluid balance**
2. Protein level provided in alimentation ordered by physician.

Recording Nutritional Information in Medical Records

The dietitian, like other members of the health care team, cooperates in carrying out the written orders of a physician. By promptly recording in the patient's medical record pertinent, meaningful observations and information on food habits, food acceptance, and dietary treatment, the dietetic staff uses the only reliable means of documenting regular communications with the physician and other professionals participating in the patient's multidisciplinary care.

Brevity of essential facts is the essence of effective recording. Nutrition therapy progress notes and summaries should be as brief as is consistent with clear communication and should have meaning for all responsible members of the health care team contributing to the patient's care.

Entries in patient medical records may be made only by individuals so authorized by the institution's policies which are usually developed in cooperation with the medical staff. When the services of a qualified dietitian are not available, dietetic technicians, dietetic assistants or food service supervisors may be designated as authorized alternates to record current, pertinent nutritional care information. All entries should be dated and signed with the name and title of the person making the entry.

Confirmation of Diet Order

- _____ Within 24 hours or 1 or 3 days (depending on guidelines set by the nutrition department) of admission, a notation that the prescribed modified diet order is being fulfilled.
- _____ All subsequent orders by the physician for a modified diet, including enteral or parenteral nutrition support.

Summary of Diet History

- _____ Evaluation of the patient's diet pattern, types of food, consumption, nutrient deficit, lifestyle, food allergies, and socioeconomic resources essential for nutritional care planning.
- _____ Assessment of the patient's awareness of the relationship of diet to disease which has a direct bearing on plans for individual nutritional care.

Medical Nutrition Therapy

- _____ Type of diet and, if indicated, the number of calories or other nutrients, such as potassium, sodium, phosphorous or grams of carbohydrates.
- _____ Daily record of patient's nutrient intake during a period of quantitative or qualitative control of food and fluid intake, medication or other pertinent therapy.
- _____ Report of the patient's tolerance to the prescribed diet modification, including the effect of the patient's appetite and food habits on food intake and any substitutes.
- _____ Notations of any changes in diet orders and medical nutrition therapy plans.
- _____ Brief written communications between dietetic staff and physician and/or nursing service personnel pertinent to patient's nutrition therapy.
- _____ Request, if indicated, for referral of patient to appropriate community agency for assistance in following diet at home.

Nutrition Therapy Discharge Plan

- _____ Description of diet instructions given to patients and/or family.
- _____ Description or copy of diet pattern forwarded to referral agency or nursing home facility for subsequent patient care.
- _____ Plan for patient's continued nutrition therapy, including any dates for return visits. Unless noted, nutrition therapy follow-up reverts to the physician's office practice.

Nutrition Consultation

- _____ The physician's written request for dietetic consultation should be acknowledged.
- _____ Consultation reports containing a written opinion by the dietitian that reflects an assessment of the patient's dietary history, examination of the patient's dietary history, examination of the patient's medical record for any previous nutrition therapy, and any recommendations for normal or modified medical nutrition therapy. Subsequent counseling of the patient or family should be recorded in the patient's medical record.

Complete:

1. Chart assessment with above parameters, identify PES, calculate patient's protein, calorie and fluid needs, take actions to remedy a nutrition diagnosis, and make recommendations to physician.
3. Initiate calorie count if patient on suboptimal P.O. intake, by notification of dietetic technician, R.N., and/or patient.

Any appropriate adaptation has to be made for outpatient nutritional care.

NCP Step 4: Nutrition Monitoring and Evaluation

Dietetic practitioners do the following three things:

Monitor progress:

- Check patient/client's understanding and compliance with nutrition intervention
- Determine if the intervention is being implemented as prescribed
- Provide evidence that the nutrition intervention is or is not changing the patient/client's behavior or status
- Identify other positive or negative outcomes
- Gather information indicating reasons for lack of progress
- Support conclusions with evidence

Measure outcomes:

- Select the nutrition care outcome indicator(s) to measure the desired outcome(s)
- Use standardized nutrition care outcome indicator(s) to increase the validity and reliability of the measurements of change

Evaluate outcome:

- Compare monitoring data with the nutrition prescription/goals or reference standard to assess progress and determine future action
- Evaluate impact of the sum of all interventions on overall patient/client health outcomes.

It tracks patient outcomes relevant to the nutrition diagnosis and intervention plans and goals. The outcomes are organized in the same four domains: Food and Nutrient Intake Outcomes, Nutrition-Related Physical Sign and Symptom Outcomes, Nutrition-Related Patient-Centered Outcomes and Nutrition-Related Behavioral and Environmental Outcomes.

Quality documentation for nutrition monitoring and evaluation includes:

- Date and time
- Indicators measured, results, and the method for obtaining the measurement
- Criteria to which the indicator is compared (i.e., nutrition prescription/goal or reference standard)
- Factors facilitating or hampering progress
- Other positive or negative outcomes
- Future plans for nutrition care, nutrition monitoring, and follow up or discharge

To monitor and evaluate a patient/client's progress, the following tools may be used:

- Patient/client questionnaire
- Surveys
- Pre-tests and post-tests
- Patient/client/family member interview
- Anthropometric measurements
- Biochemical and medical test results
- Food and nutrition intake tools

Nutrition care should result in important changes that lead to improved behaviors and/or nutrition status.

Food & Drug INTERACTIONS

DRUG**FOOD INTERACTIONS****ANALGESICS:**

Acetaminophen (Tylenol, APAP)

Excessive intake of alcohol may increase the risk of acetaminophen-induced hepatotoxicity (liver toxicity).

Food: Take with or without food.

Herb/Nutraceutical: St John's Wort may decrease acetaminophen levels.

Aspirin (ASA, Bayer, Ecotrin, etc.)

Do not use aspirin that have strong vinegar-like odor. Do not crush enteric coated tablets. While using this medication, avoid alcohol. Maintain adequate hydration, unless instructed to restrict fluid intake.

Food: Administer with food or large volume of water or milk to minimize GI upset.

Herb/Nutraceutical: Benedictine liqueur, prunes, raisins, tea, and gherkins have a potential to cause salicylate accumulation. Fresh fruits containing vitamin C may displace drug from binding sites, resulting in increased urinary excretion of aspirin. Curry powder, paprika, licorice; may cause salicylate accumulation. These foods contain 6 mg salicylate/100 g. An ordinary American diet contains 10-200 mg/day of salicylate. Limit curry powder, paprika, licorice.

Narcotics:
(Morphine, Codeine, Hydrocodone, Hydromorphone, Fentanyl, Methadone, Oxycodone)

Take with food if GI upset occurs. Be consistent when taking pain medications with or without food.

Avoid the use of alcohol and other prescription or OTC medications (especially sedatives, antihistamines, or pain medications). Maintain adequate hydration, unless instructed to restrict fluid intake.

Instruct patients not to consume alcoholic beverages or use prescription or nonprescription products that contain alcohol while taking narcotic medications. The co-ingestion of alcohol with narcotic medications may result in increased plasma levels of these agents and potentially fatal overdose.

Celecoxib (Celebrex)

May be taken with food to reduce GI upset. Avoid alcohol.

Phenazopyridine (Pyridium)

Take with food to reduce GI upset.

May discolor urine (orange/yellow); but will also stain fabric. If you have diabetes, use serum glucose tests; this medication may interfere with accuracy of urine testing. Report persistent headache, dizziness, or stomach cramping.

DRUG

Tramadol (Ultram)

FOOD INTERACTIONS

Immediate release tablet: Rate and extent of absorption were not significantly affected by food. Management: Administer without regard to meals.

Extended release:

ConZip: Administer without regard to meals.

Ultram ER: Administer with or without food, but keep consistent.

Orally disintegrating tablet: Administer without regard to meals.

ANTIBIOTICS:

Cephalosporins:
(Ceclor, Keflex, Omnicef)

Take without regard to food. If GI distress, take with food.
Take at regular intervals around-the-clock. Maintain adequate hydration, unless instructed to restrict fluid intake. Avoid alcohol.

Macrolides:
Azithromycin
(Zithromax, Z-Pak)

Immediate release suspension and tablet may be taken without regard to food.

Extended release suspension should be taken on an empty stomach (at least 1 hour before or 2 hours following a meal).

Macrolides:
Clarithromycin
(Biaxin)

Clarithromycin immediate release tablets and oral suspension may be administered with or without meals

Extended release tablets: Should be given with food. Do not crush or chew extended release tablet.

Herb/Nutraceutical: St John's Wort may decrease clarithromycin levels.

Macrolides:
Erythromycin
(EES, Ery-tab,
Erythrocin)

Food: Take on empty stomach to improve absorption – 1hr before or 2 hrs. after meals. Erythromycin serum levels may be altered if taken with food (formulation-dependent). If severe nausea/vomiting occurs, may take it with food.

Alcohol: Avoid alcohol (may decrease absorption of erythromycin or enhance Alcohol effects).

Herb/Nutraceutical: St John's Wort may decrease erythromycin levels.

Patient education: **Tablets/capsules:** Take around-the-clock, with a full glass of water (not juice or milk); may take with food to reduce GI upset. Do not chew or crush extended release capsules or tablets.

Penicillin (Pen VK,
PenG)

Take on an empty stomach 1 hour before or 2 hours after meals. Food decreases drug absorption rate; decreases drug serum concentration.

Patient education. Take at intervals, around the clock. Maintain adequate hydration unless instructed to restrict fluid intake. May cause nausea, vomiting, or diarrhea. Report signs of opportunistic infection (e.g., fever, chills, diarrhea, unhealed sores, white plaques in mouth or vagina, purulent vaginal discharge) or signs of hypersensitivity reaction (rash, hives, itching, swelling of lips, tongue, mouth, or throat).

DRUG**FOOD INTERACTIONS**

Amoxicillin (Trimox)	Multiple daily doses should be taken at equal intervals around-the-clock. May be taken with milk, juice, or food. Maintain adequate hydration, unless instructed to restrict fluid intake. May cause nausea, vomiting, or diarrhea. Report respiratory difficulty; rash, itching, or hives; easy bruising or bleeding; persistent diarrhea; signs of opportunistic infection (e.g., unusual sore throat, fever, chills, fatigue, thrush, vaginal discharge); CNS changes (confusion, agitation, dizziness, insomnia); or if condition being treated worsens or does not improve by time prescription is completed.
Amoxicillin and clavulanate (Augmentin)	May be taken with meals or on an empty stomach; take with meals to increase absorption and decrease GI upset; may mix with milk, formula, or juice. Extended release tablets should be taken with food. Some products may contain sodium. Some products contain phenylalanine; if you have phenylketonuria or PKU, avoid use. All dosage forms contain potassium.
Tetracycline (Apo-Tetra, Nu-Tetra)	Preferable to take on an empty stomach, 1 hour before or 2 hours after meals. Avoid antacids, iron, or dairy within 2 hours of taking tetracycline. May experience photosensitivity, dizziness, lightheadedness, or nausea/vomiting. Report rash or intense itching, yellowing of skin or eyes, fever or chills, blackened stool, vaginal itching or discharge, foul-smelling stools, excessive thirst or urination, acute headache, unresolved or persistent diarrhea, respiratory difficulty, if condition does not improve, or worsening of condition.
Fluoroquinolones: Levofloxacin (Levaquin)	Tablets may be taken without regard to meals. Take 2 hours before or 2 hours after multiple vitamins, antacids, or other products containing magnesium, aluminum, iron, or zinc. Oral solution should be administered on an empty stomach (1 hour before or 2 hours after a meal).
Fluoroquinolones: Moxifloxacin (Avelox)	May be taken without regard to meals. Take 4 hours before or 8 hours after multiple vitamins, antacids, or other products containing magnesium, aluminum, iron, or zinc.
Fluoroquinolones: Ciprofloxacin (Cipro)	May administer with food to minimize GI upset. Avoid antacids, dairy products, or calcium-fortified juices. Alternatively, take ciprofloxacin 2 hours before or 6 hours after antacids, dairy products, or calcium-fortified juices alone or in a meal containing >800 mg calcium, oral multivitamins, or mineral supplements containing divalent and/or trivalent cations. Ensure adequate hydration during therapy.

DRUG

Metronidazole
(Flagyl)

FOOD INTERACTIONS

Short acting tablet or capsule: Take with or without food. Take with food if it causes an upset stomach.

Extended release tablet: Take on an empty stomach. Take 1 hour before or 2 hours after meals. Swallow whole. Do not chew, break, or crush.

Alcohol: Use of Alcohol is contraindicated during therapy and for 3 days after therapy discontinuation.

Linezolid
(Zyvox)

Take without regard to meals. Some products may contain sodium and/or phenylalanine. Avoid consuming large amounts of tyramine-containing foods/beverages. Some examples include aged or matured cheese, air-dried or cured meats (including sausages and salamis), fava or broad bean pods, tap/draft beers, Marmite concentrate, sauerkraut, soy sauce, and other soybean condiments.

ANTIDEPRESSANTS

SSRI's:

citalopram (Celexa)
escitalopram(Lexapro)
fluoxetine (Prozac),
paroxetine (Paxil),
sertraline (Zoloft),
vilazodone (Viibryd)

Patient Education:

Most may be taken with or without food. Take Viibryd with food. Avoid alcohol. It may take up to 3 weeks to see therapeutic effects from this medication. May experience sexual dysfunction (reversible). May cause dizziness, anxiety, blurred vision, nausea, or dry mouth. Report confusion or impaired concentration, suicide ideation, severe headache, palpitations, rash, insomnia or nightmares, changes in personality, muscle weakness or tremors, altered gait pattern, signs and symptoms of respiratory infection, or excessive perspiration.

Herb/Nutraceutical: Avoid valerian, St John's Wort, kava kava, gotu kola (may increase CNS depression).

Tricyclic Antidepressants:
amitriptyline, doxepin,
nortriptyline

Food: Grapefruit juice may inhibit the metabolism of some TCAs and clinical toxicity may result.

Alcohol: Avoid alcohol. May increase CNS depression. Caution patients about effects.

Herb/Nutraceutical: St John's Wort may decrease TCA levels. Avoid valerian, St John's Wort, kava, gotu kola (may increase CNS depression).

DRUG

MAOI's: phenelzine,
tranylcypromine,
isocarboxazid, selegiline

FOOD INTERACTIONS

Food: Concurrent ingestion of foods rich in tyramine may cause sudden and severe high blood pressure (hypertensive crisis). Avoid tyramine-containing foods/beverages with MAOI's . Some examples include aged or matured cheese, air-dried or cured meats (Pizza with aged cheese, sausages and salamis), fava or broad bean pods, tap/draft beers, Marmite concentrate, sauerkraut, soy sauce and other soybean condiments. Food's freshness is also an important concern; improperly stored or spoiled food can create an environment where tyramine concentrations may increase.

Alcohol: Avoid alcohol

Herb/Nutraceutical: Avoid valerian, St John's Wort, SAMe, kava (may increase risk of serotonin syndrome and/or excessive sedation); Avoid supplements containing caffeine, tyrosine, tryptophan, or phenylalanine. Ingestion of large quantities may increase the risk of severe side effects (e.g., hypertensive reactions, serotonin syndrome).

ANTI CONVULSANTS

Phenytoin (Dilantin)

Food: Phenytoin serum concentrations may be altered if taken with food. May decrease calcium, folic acid, and vitamin D levels.

Alcohol: Acute use: Avoid or limit Alcohol (inhibits metabolism of phenytoin). Alcohol may also increase CNS depression. Caution patients about effects.

Chronic use: Avoid or limit Alcohol (stimulates metabolism of phenytoin).

Herb/Nutraceutical: Avoid evening primrose (seizure threshold decreased). Avoid valerian, St John's Wort, kava, gotu kola (may increase CNS depression).

Carbamazepine
(Tegretol)

Food: Carbamazepine serum levels may be increased if taken with food. Carbamazepine serum concentration may be increased if taken with grapefruit juice; avoid concurrent use.

Alcohol: May increase CNS depression. Avoid use.

Herb/Nutraceutical: Avoid evening primrose (seizure threshold decreased). Avoid valerian, St John's Wort, kava, gotu kola (may increase CNS depression).

Gabapentin
(Neurontin, Gralise)

Tablet, solution (immediate release): No significant effect on rate or extent of absorption; Administer without regard to food.
Tablet (Gralise): Increases rate and extent of absorption.
Administer Gralise with food.

Other anticonvulsants:
Levetiracetam (Keppra),
Zonisamide (Zonegran),
Pregabalin (Lyrica),
Topiramate (Topamax)
Lacosamide (Vimpat)

May be taken with or without food. Take with food if it causes stomach upset.

DRUG**FOOD INTERACTIONS****ANTIMANIC**

Lithium carbonate
(Lithobid)

Limit caffeine.
May be taken with meals to avoid GI upset; maintain adequate fluid intake.
Do not crush or chew extended release tablets or capsules. Avoid changes in sodium content (e.g., low sodium diets); reduction of sodium can increase lithium toxicity. Frequent blood tests and monitoring may be necessary. May cause decreased appetite, altered taste sensation, drowsiness, or dizziness, especially during early therapy.

ANTI-PARKINSONS

Carbidopa-levodopa
(Sinemet)

Food: Avoid high protein diets (>2 g/kg) due to potential for impaired levodopa absorption.
Alcohol: Avoid Alcohol (due to CNS depression).
Herb/Nutraceutical: Avoid kava (may decrease effects). Pyridoxine (vitamin B₆) in doses >10-25 mg (for levodopa alone) may decrease efficacy. Iron supplements or iron-containing multivitamins may reduce absorption of levodopa.

Benzotropine (Cogentin)

Tablet may be taken with or without food.
Avoid alcohol use.

Trihexyphenidyl (Artane)

Take with meals if GI upset occurs. Maintain adequate hydration unless instructed to restrict fluid intake; void before taking medication. Do not use alcohol.

BENZODIAZEPINES

Alprazolam (Xanax)
clonazepam (Klonopin)
flurazepam (Dalmane)
diazepam (Valium)
temazepam (Restoril)

May cause physical and/or psychological dependence.
Food: Serum levels and response may be increased by grapefruit juice, avoid concurrent use.
Diazepam serum concentrations may be increased if taken with food.
Alcohol: May increase CNS depression; avoid use. Caution patients about effects.
Herb/Nutraceutical: Avoid valerian, St John's Wort, kava kava, gotu kola (may increase CNS depression).
Cigarette smoking: May decrease alprazolam concentrations up to 50%.

DRUG**FOOD INTERACTIONS****ANTIPSYCHOTICS**Patient Education

Avoid alcohol. Maintain adequate hydration unless instructed to restrict fluid intake. May cause excess drowsiness, lightheadedness, dizziness, blurred vision, nausea, vomiting, constipation, postural hypotension, urinary retention, ejaculatory dysfunction (reversible), decreased perspiration, or photosensitivity. Herb/Nutraceutical: Avoid kava kava, valerian, St John's Wort, gotu kola (may increase CNS depression). Avoid dong quai, St John's Wort (may also cause photosensitization).

Haloperidol (Haldol)

It may take 2-3 weeks to achieve desired results. Dilute oral concentration with water or juice. Avoid skin contact with medication; may cause contact dermatitis (wash immediately with warm, soapy water).

Mellaril (Thioridazine)

May be taken with food.

Navane (Thiothixene)

Capsules may be taken with food.

Prolixin (Fluphenazine)

Dilute with water, milk, orange juice, or grapefruit juice; do not dilute with beverages containing caffeine, tannin, or pectinate (e.g., coffee, colas, tea, or apple juice). Avoid skin contact with liquid medication; may cause contact dermatitis (wash immediately with warm, soapy water).

Trifluoperazine
(Stelazine)

May be taken with food.

Chlorpromazine
(Thorazine)

May be taken with or without food.

Perphenazine (Trilafon)

It may take 2-3 weeks to achieve desired results.
May be taken with or without food.

**ATYPICAL
ANTIPSYCHOTICS:**

May take 2-3 weeks to achieve desired results. Avoid alcohol. In diabetics, monitor blood glucose levels closely prior to treatment; periodically throughout; may cause hyperglycemia. Herb/Nutraceutical: Avoid St John's Wort kava kava, gotu kola, valerian; St John's Wort (may increase CNS depression).

Ariprazole (Abilify)

Food: Ingestion with a high-fat meal delays time to peak plasma level.
Patient Education: Take at the same time of day, without regard to meals. Patient may be more vulnerable to overheating and dehydration while taking this medication; maintain adequate hydration. May cause headache, dizziness, problems sleeping, anxiety, nausea, vomiting, constipation, or orthostatic hypotension.

DRUG**FOOD INTERACTIONS**

Asenapine (Saphris)	Sublingual tablets should be placed under tongue to dissolve. Avoid eating or drinking for at least 10 minutes. May cause excess sedation, drowsiness, problems sleeping, restlessness, dizziness, or blurred vision; dry mouth, nausea, or GI upset; postural hypotension; or urinary retention (void before taking medication).
Clozapine (Clozaril)	May be taken without regard to food. Some products may contain phenylalanine.
Iloperidone (Fanapt)	May be taken with or without food.
Lurasidone (Latuda)	Should be taken with food (≥ 350 calories).
Olanzapine (Zyprexa)	Tablets may be taken without regard to meals. Some products may contain phenylalanine. <u>Orally-disintegrating tablet</u> : Remove from foil blister by peeling back; do not push tablet through the foil. Place tablet in mouth immediately upon removal. Tablet dissolves rapidly in saliva and may be swallowed with or without liquid.
Paliperidone (Invega)	May be taken without regard to meals. Do not chew, crush, or break tablet; swallow whole with liquids.
Quetiapine (Seroquel)	<u>Dietary Considerations</u> : Immediate-release tablet may be taken without regard to meals. Extended release tablet should be taken without food or with a light meal (≤ 300 calories).
Risperidone (Risperdal)	Dilute solution with water, milk, or orange juice; do not dilute with beverages containing tannin or pectinate (e.g., colas, tea).
Ziprasidone (Geodon)	<u>Food</u> : Administration with food increases serum levels twofold. Grapefruit juice may increase serum concentration of ziprasidone. <u>Patient Education</u> : May cause drowsiness, lightheadedness, impaired coordination, dizziness, blurred vision; dry mouth, GI upset; postural hypotension; urinary retention; constipation.

BETA BLOCKERS:

Propranolol (Inderal)	Tablets (immediate release) should be taken on an empty stomach; capsules (extended release) may be taken with or without food, but should always be taken consistently (with food or on an empty stomach).
Carvedilol (Coreg)	Should be taken with food to minimize the risk of orthostatic hypotension.

DRUG**FOOD INTERACTIONS**

Metoprolol (Lopressor,
Toprol XL)

Lopressor: regular tablets should be taken with food.
Toprol XL: Extended release tablets may be taken without regard to meals.

Atenolol (Tenormin)
Bisoprolol (Zebeta)
Nadolol (Corgard)
Sotalol (Betapace)

May be taken without regard to meals.

DIURETICS:

Hydrochlorothiazide
(HCTZ, Microzide)

May be taken with food or milk.
Patient Education: Follow prescriber's instructions for diet and lifestyle changes. Take with meals early in the day to avoid nocturia. Your physician may prescribe a potassium supplement or recommend eating foods high in potassium. Do not change your diet on your own while taking this medication, especially if you are taking potassium supplements or medications to reduce potassium loss. May cause dizziness, postural hypotension, or photosensitivity. Report palpitations, muscle cramping, or skin rash.

Furosemide (Lasix)

May cause potassium loss; potassium supplement or dietary changes may be required.
Patient education: For daily administration, may be taken with food or milk early in the day to reduce GI distress; if taken twice daily, take last dose in early afternoon in order to avoid sleep disturbance and to achieve maximum therapeutic effect. Follow dietary advice of prescriber; include potassium-rich foods in daily diet. Weigh yourself each day at the same time when beginning therapy; weekly for long-term therapy.

Spirinolactone
(Aldactone)

Food: Should be taken with food to decrease gastrointestinal irritation and to increase absorption.
Herb/Nutraceutical: Avoid natural licorice (due to mineralocorticoid activity)
Patient education: Take with meals. Avoid any potassium supplements (vitamin/mineral products), potassium-containing salt substitutes, natural licorice, or extra dietary intake of potassium. Weigh yourself weekly and report weight loss. May cause dizziness, drowsiness, confusion, headache, nausea, vomiting, dry mouth, or gynecomastia.

DRUG**FOOD INTERACTIONS****ANTIDIABETICS:**

Patient Education: This medication is used to control diabetes; it is not a cure. Monitor glucose as recommended by prescriber. Other important components of treatment plan may include prescribed diet and exercise regimen (consult prescriber or diabetic educator). If you experience hypoglycemic reaction, contact prescriber immediately. Always carry quick source of sugar with you. Avoid alcohol while taking this medication; could cause severe reaction (hypoglycemia, disulfiram-like reaction).

Monitoring Parameters: Blood glucose, Hgb A1c; monitor for signs and symptoms of hypoglycemia (fatigue, sweating, and numbness of extremities).

Individualized medical nutrition therapy (MNT) based on ADA recommendations is an integral part of therapy.

Herb/Nutraceutical: Herbs with hypoglycemic properties may enhance the hypoglycemic effect of chlorpropamide. This includes alfalfa, aloe, bilberry, bitter melon, burdock, celery, damiana, fenugreek, garcinia, garlic, ginger, ginseng (American), gymnema, marshmallow, stinging nettle

Chlorpropamide
(Diabinese); Tolbutamide
(Orinase)

1st generation sulfonylureas:
Food: May cause GI upset; take with food.

Glipizide (Glucotrol)

2nd generation sulfonylureas:
Food: Take immediate release tablets 30 min before meals; extended release tablets should be taken with breakfast.

Glyburide (DiaBeta,
Micronase)

2nd generation sulfonylureas:
Should be taken with meals at the same time each day.

Metformin (Glucophage)

May cause GI upset; take with food (to decrease GI upset). Take at the same time(s) each day. Dietary modification based on ADA recommendations is a part of therapy. Monitor for signs and symptoms of vitamin B₁₂ and/or folic acid deficiency; supplementation may be required. Do not chew or crush extended release tablets. Parts of extended-release tablets may be excreted in the stool (normal).

Alogliptin (Nesina)
Linagliptin (Tradjenta)
Saxagliptin (Onglyza)
Sitagliptin (Januvia)

May be taken with or without food.
Individualized medical nutrition therapy (MNT) based on ADA recommendations is an integral part of therapy.

GI DRUGS:

Donnatal

Should be taken 30-60 minutes before meals unless otherwise directed.

DRUG**FOOD INTERACTIONS**

Metoclorpramide
(Reglan)

Oral: Take 30 minutes prior to eating. Avoid alcohol; may increase adverse effects. May cause dizziness, drowsiness, insomnia, or blurred vision.

H2 Antagonists:
Cimetidine (Tagamet);
Famotidine (Pepcid);
Ranitidine (Zantac)

May be taken without regard to meals.
Take Tagamet with meals
Alcohol: Avoid Alcohol (may cause gastric mucosal irritation).

Proton Pump Inhibitors
(PPIs)
AcipHex, Dexilant,
Nexium, Prevacid,
Protonix, Prilosec

May be taken without regard to meals; some patients may benefit from pre-meal administration if symptoms do not adequately respond to post-meal dosing.

BISPHOSPHONATES

Actonel, Fosamax,
Boniva

Patient Education

Take first thing in the morning, at least 30 minutes before the first food or beverage of the day. Take tablets with a full 6- to 8-ounce glass of water; follow solution with 2 ounces of water. Wait at least 30 minutes after taking alendronate before eating or drinking anything else. Stay in sitting or standing position for 30 minutes following administration and until after the first food of the day to reduce potential for esophageal irritation.
Ensure adequate calcium and vitamin D intake; women and men >50 years of age should consume 1200-1500 mg/day of elemental calcium and 800-1000 int. units/day of vitamin D.

CORTICOSTEROIDS:

Hydrocortisone,
Prednisone,
Dexamethasone,
Methylprednisolone

Take with food. May cause GI upset, peptic ulcer.

OTHER/MISC. DRUGS:

Digoxin (Lanoxin)

Maintain adequate amounts of potassium in diet to decrease risk of hypokalemia (hypokalemia may increase risk of digoxin toxicity).

DRUG**FOOD INTERACTIONS**

Theophylline
(Elixophyllin,
Theo-24)

Should be taken with water 1 hour before or 2 hours after meals.
Food: Food does not appreciably affect the absorption of liquid, fast-release products, and most sustained release products; however, food may induce a sudden release (dose-dumping) of once-daily sustained release products resulting in an increase in serum drug levels and potential toxicity. Avoid excessive amounts of caffeine. Avoid extremes of dietary protein & carbohydrate intake. Changes in diet may affect the elimination of theophylline; charbroiled foods may increase elimination, reducing half-life by 50%.

Levothyroxine
(Levothroid, Levoxyl,
Synthroid)

Patient Education: Thyroid replacement therapy is generally for life. Do not take antacids or iron preparations within 4 hours of thyroid medication. Should be taken on an empty stomach, in the morning, at least 30 minutes before food.

Multivitamins/
Minerals

May take with food to decrease stomach upset. Some products may contain phenylalanine.

Calcium Carbonate
(Oscal, Oysco, Tums)

Some products may contain phenylalanine and/or sodium. Food may increase calcium absorption. Calcium may decrease iron absorption. Bran, foods high in oxalates, or whole grain cereals may decrease calcium absorption. Management: Administer preferably with food.

Iron Supplements
(Ferrous Sulfate)

Should be taken with water or juice on an empty stomach; may be administered with food to prevent irritation; however, not with cereals, dietary fiber, tea, coffee, eggs, or milk. Elemental iron content of iron salts in ferrous sulfate is 20% (i.e., 300 mg ferrous sulfate is equivalent to 60 mg ferrous iron) Dietary sources of iron include beans, cereal (enriched), clams, beef, lentils, liver, oysters, shrimp, and turkey. Foods that enhance dietary absorption of iron include broccoli, grapefruit, orange juice, peppers and strawberries. Foods that decrease dietary absorption of iron include coffee, dairy products, soy products, spinach, and tea.

Tamsulosin
(Flomax)

Fasting increases bioavailability by 30% and peak concentration 40% to 70%.
Management: Administer 30 minutes after the same meal each day.

ALZHEIMER'S

Donepezil
(Aricept)
Memantine (Namenda)

May take with or without food.

DRUG**FOOD INTERACTIONS****HYPNOTIC/SLEEP**

Zolpidem (Ambien)

Maximum plasma concentration and bioavailability are decreased with food; time to peak plasma concentration is increased; half-life remains unchanged. Grapefruit juice may decrease the metabolism of zolpidem.

Management: Do not administer with (or immediately after) a meal. Avoid grapefruit juice.

Eszopiclone
(Lunesta)

Onset of action may be reduced if taken with or immediately after a heavy meal. Management: Take immediately prior to bedtime, not with or immediately after a heavy or high-fat meal

ANTILIPEMIC AGENTS:**HMG-CoA Reductase Inhibitors "Statins"**

Atorvastatin(Lipitor)

Fluvastatin(Lescol)

Lovastatin(Mevacor)

Pravastatin(Pravachol)

Rosuvastatin(Crestor)

Simvastatin(Zocor)

Dietary considerations: May take with food if desired; may take without regard to time of day. Before initiation of therapy, patients should be placed on a standard cholesterol-lowering diet for 3 to 6 months and the diet should be continued during drug therapy. Red yeast rice contains variable amounts of several compounds that are structurally similar to HMG-CoA reductase inhibitors, primarily monacolin K (or mevinolin) which is structurally identical to lovastatin; concurrent use of red yeast rice with HMG-CoA reductase inhibitors may increase the incidence of adverse and toxic effects.

Food interactions: Atorvastatin, Lovastatin and Simvastatin serum concentrations may be increased by grapefruit juice

Management: Avoid concurrent intake of large quantities of grapefruit juice (>1 quart/day) with Atorvastatin, Lovastatin and Simvastatin.

Note: Fluvastatin, Pravastatin and Rosuvastatin have little or no interaction with grapefruit juice.

Miscellaneous Antilipemic Agents:Niacin
(Niaspan,
Slo-Niacin)

Should be taken with meal; low-fat meal if treating hyperlipidemia. Avoid hot drinks around the time of niacin dose.

DRUG**FOOD INTERACTIONS**

Gemfibrozil
(Lopid)

Before initiation of therapy, patients should be placed on a standard cholesterol-lowering diet for 3 to 6 months and the diet should be continued during drug therapy.

Management: Administer 30 minutes prior to breakfast and dinner.

Fenofibrate and
Derivatives
(Antara; Fenoglide;
Fibracor; Lipofen; Lofibra;
Tricor; Triglide; Trilipix)

Fenoglide, Lipofen, Lofibra micronized:
Administer with meals.

Antara, Fibracor, Lofibra tablets, Tricor, Triglide, Trilipix: Administer with or without food.

ANTICOAGULANTS:

Apixaban
(Eliquis)

Grapefruit juice may increase levels/effects of apixaban.
Management: Advise patients who consume grapefruit juice during therapy to use caution; monitor for increased effects (e.g., bleeding).

Dabigatran
(Pradaxa)

Food has no effect on the bioavailability of dabigatran, but delays the time to peak plasma concentrations by 2 hours.
Management: Administer without regard to meals.

Rivaroxaban
(Xarelto)

Grapefruit juice may increase levels/effects of rivaroxaban.
Management: Use caution.

Warfarin (Coumadin)

Patient Education: If dose is missed, take as soon as possible; do not double dose. Laboratory tests will be required. Follow prescriber's recommended diet and activity. Avoid excessive alcohol. Do not make major changes in your dietary intake of vitamin K (green vegetables). You will have a tendency to bleed easily while taking this drug. Report unusual bleeding or bruising, skin rash or irritation, unusual fever, persistent nausea or GI upset, pain in joints or back, swelling or pain at injection site, or unhealed wounds.

Dietary Considerations: Foods high in vitamin K (e.g., beef liver, pork liver, green tea, and leafy green vegetables) inhibit anticoagulant effect. Do not change dietary habits once stabilized on warfarin therapy. A balanced diet with a consistent intake of vitamin K is essential. Avoid extra amounts of alfalfa, asparagus, broccoli, Brussels sprouts, cabbage, cauliflower, green teas, kale, lettuce, spinach, turnip greens, and watercress; decreased efficacy of warfarin. It is recommended that the diet contain a CONSISTENT vitamin K content of 70-140 mcg/day. Check with healthcare provider before changing diet. Vitamin E may increase warfarin effect. Cranberry juice may increase warfarin effect.

DRUG

Warfarin (Coumadin)
(Continued)

FOOD INTERACTIONS

How does it work if I like a lot of Vitamin K rich food?
Count and total how many (½ cup) servings of Vitamin K rich food you consume each week, and divide it by 7. Make sure you are consistent in consuming the same amount of Vitamin K rich food each day and your physician knows about this practice in order to adjust your Coumadin dose need.

Alcohol: Avoid Alcohol. Acute Alcohol ingestion (binge drinking) decreases the metabolism of warfarin and increases PT/INR. Chronic daily Alcohol use increases the metabolism of warfarin and decreases PT/INR.

Herb/Nutraceutical: Fenugreek, ginkgo biloba, glucosamine, may enhance bleeding or increase warfarin's effect. Ginseng, coenzyme Q₁₀, and St John's Wort may decrease warfarin levels & effects. Avoid alfalfa, anise, bilberry, bladder wrack, bromelain, cat's claw, celery, chamomile, coleus, cordyceps, dong quai, evening primrose oil, fenugreek, feverfew, garlic, ginger, ginkgo biloba, ginseng (American), ginseng (Panax), ginseng (Siberian), grapeseed, green tea, guggul, horse chestnut seed, horseradish, licorice, omega-3-acids, prickly ash, red clover, reishi, S-AdoMet (s-adenosylmethionine), sweet clover, turmeric, and white willow (all have additional antiplatelet activity).

***Updated: February, 2015

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References: Lexicomp Online. www.crlonline.com

Micromedex Online. www.thomsonhc.com

Dietary Reference Intakes (DRIs): Estimated Average Requirements
 Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Calcium (mg/d)	CHO (g/d)	Protein (g/kg/d)	Vit A (µg/d) ^a	Vit C (mg/d)	Vit D (µg/d)	Vit E (mg/d) ^b	Thiamin (mg/d)	Ribo-flavin (mg/d)	Niacin (mg/d) ^c	Vit B ₆ (mg/d)	Folate (µg/d) ^d	Vit B ₁₂ (µg/d)	Copper (µg/d)	Iodine (µg/d)	Iron (mg/d)	Magnesium (mg/d)	Molybdenum (µg/d)	Phosphorus (mg/d)	Selenium (µg/d)	Zinc (mg/d)
Infants																					
0 to 6 mo																					
6 to 12 mo			1.0													6.9					2.5
Children																					
1–3 y	500	100	0.87	210	13	10	5	0.4	0.4	5	0.4	120	0.7	260	65	3.0	65	13	380	17	2.5
4–8 y	800	100	0.76	275	22	10	6	0.5	0.5	6	0.5	160	1.0	340	65	4.1	110	17	405	23	4.0
Males																					
9–13 y	1,100	100	0.76	445	39	10	9	0.7	0.8	9	0.8	250	1.5	540	73	5.9	200	26	1,055	35	7.0
14–18 y	1,100	100	0.73	630	63	10	12	1.0	1.1	12	1.1	330	2.0	685	95	7.7	340	33	1,055	45	8.5
19–30 y	800	100	0.66	625	75	10	12	1.0	1.1	12	1.1	320	2.0	700	95	6	330	34	580	45	9.4
31–50 y	800	100	0.66	625	75	10	12	1.0	1.1	12	1.1	320	2.0	700	95	6	350	34	580	45	9.4
51–70 y	800	100	0.66	625	75	10	12	1.0	1.1	12	1.4	320	2.0	700	95	6	350	34	580	45	9.4
> 70 y	1,000	100	0.66	625	75	10	12	1.0	1.1	12	1.4	320	2.0	700	95	6	350	34	580	45	9.4
Females																					
9–13 y	1,100	100	0.76	420	39	10	9	0.7	0.8	9	0.8	250	1.5	540	73	5.7	200	26	1,055	35	7.0
14–18 y	1,100	100	0.71	485	56	10	12	0.9	0.9	11	1.0	330	2.0	685	95	7.9	300	33	1,055	45	7.3
19–30 y	800	100	0.66	500	60	10	12	0.9	0.9	11	1.1	320	2.0	700	95	8.1	255	34	580	45	6.8
31–50 y	800	100	0.66	500	60	10	12	0.9	0.9	11	1.1	320	2.0	700	95	8.1	265	34	580	45	6.8
51–70 y	1,000	100	0.66	500	60	10	12	0.9	0.9	11	1.3	320	2.0	700	95	5	265	34	580	45	6.8
> 70 y	1,000	100	0.66	500	60	10	12	0.9	0.9	11	1.3	320	2.0	700	95	5	265	34	580	45	6.8
Pregnancy																					
14–18 y	1,000	135	0.88	530	66	10	12	1.2	1.2	14	1.6	520	2.2	785	160	23	335	40	1,055	49	10.5
19–30 y	800	135	0.88	550	70	10	12	1.2	1.2	14	1.6	520	2.2	800	160	22	290	40	580	49	9.5
31–50 y	800	135	0.88	550	70	10	12	1.2	1.2	14	1.6	520	2.2	800	160	22	300	40	580	49	9.5
Lactation																					
14–18 y	1,000	160	1.05	885	96	10	16	1.2	1.3	13	1.7	450	2.4	985	209	7	300	35	1,055	59	10.9
19–30 y	800	160	1.05	900	100	10	16	1.2	1.3	13	1.7	450	2.4	1,000	209	6.5	255	36	580	59	10.4
31–50 y	800	160	1.05	900	100	10	16	1.2	1.3	13	1.7	450	2.4	1,000	209	6.5	265	36	580	59	10.4

NOTE: An Estimated Average Requirement (EAR) is the average daily nutrient intake level estimated to meet the requirements of half of the healthy individuals in a group. EARs have not been established for vitamin K, pantothenic acid, biotin, choline, chromium, fluoride, manganese, or other nutrients not yet evaluated via the DRI process.

^aAs retinol activity equivalents (RAEs). 1 RAE = 1 µg retinol, 12 µg β-carotene, 24 µg α-carotene, or 24 µg β-cryptoxanthin. The RAE for dietary provitamin A carotenoids is two-fold greater than retinol equivalents (RE), whereas the RAE for preformed vitamin A is the same as RE.

^bAs α-tocopherol. α-Tocopherol includes RRR-α-tocopherol, the only form of α-tocopherol that occurs naturally in foods, and the 2R-stereoisomeric forms of α-tocopherol (RRR-, RSR-, RRS-, and RSS-α-tocopherol) that occur in fortified foods and supplements. It does not include the 2S-stereoisomeric forms of α-tocopherol (SRR-, SSR-, SRS-, and SSS-α-tocopherol), also found in fortified foods and supplements.

^cAs niacin equivalents (NE). 1 mg of niacin = 60 mg of tryptophan.

^dAs dietary folate equivalents (DFE). 1 DFE = 1 µg food folate = 0.6 µg of folic acid from fortified food or as a supplement consumed with food = 0.5 µg of a supplement taken on an empty stomach.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B₆, Folate, Vitamin B₁₂, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Vitamins

Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Vitamin A (µg/d) ^a	Vitamin C (mg/d)	Vitamin D (µg/d) ^{b,c}	Vitamin E (mg/d) ^d	Vitamin K (µg/d)	Thiamin (mg/d)	Riboflavin (mg/d)	Niacin (mg/d) ^e	Vitamin B ₆ (mg/d)	Folate (µg/d) ^f	Vitamin B ₁₂ (µg/d)	Pantothenic Acid (mg/d)	Biotin (µg/d)	Choline (mg/d) ^g
Infants														
0 to 6 mo	400*	40*	10	4*	2.0*	0.2*	0.3*	2*	0.1*	65*	0.4*	1.7*	5*	125*
6 to 12 mo	500*	50*	10	5*	2.5*	0.3*	0.4*	4*	0.3*	80*	0.5*	1.8*	6*	150*
Children														
1–3 y	300	15	15	6	30*	0.5	0.5	6	0.5	150	0.9	2*	8*	200*
4–8 y	400	25	15	7	55*	0.6	0.6	8	0.6	200	1.2	3*	12*	250*
Males														
9–13 y	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14–18 y	900	75	15	15	75*	1.2	1.3	16	1.3	400	2.4	5*	25*	550*
19–30 y	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
31–50 y	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
51–70 y	900	90	15	15	120*	1.2	1.3	16	1.7	400	2.4 ^h	5*	30*	550*
> 70 y	900	90	20	15	120*	1.2	1.3	16	1.7	400	2.4 ^h	5*	30*	550*
Females														
9–13 y	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14–18 y	700	65	15	15	75*	1.0	1.0	14	1.2	400 ⁱ	2.4	5*	25*	400*
19–30 y	700	75	15	15	90*	1.1	1.1	14	1.3	400 ⁱ	2.4	5*	30*	425*
31–50 y	700	75	15	15	90*	1.1	1.1	14	1.3	400 ⁱ	2.4	5*	30*	425*
51–70 y	700	75	15	15	90*	1.1	1.1	14	1.5	400	2.4 ^h	5*	30*	425*
> 70 y	700	75	20	15	90*	1.1	1.1	14	1.5	400	2.4 ^h	5*	30*	425*
Pregnancy														
14–18 y	750	80	15	15	75*	1.4	1.4	18	1.9	600 ⁱ	2.6	6*	30*	450*
19–30 y	770	85	15	15	90*	1.4	1.4	18	1.9	600 ⁱ	2.6	6*	30*	450*
31–50 y	770	85	15	15	90*	1.4	1.4	18	1.9	600 ⁱ	2.6	6*	30*	450*
Lactation														
14–18 y	1,200	115	15	19	75*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
19–30 y	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
31–50 y	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*

NOTE: This table (taken from the DRI reports, see www.nap.edu) presents Recommended Dietary Allowances (RDAs) in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). An RDA is the average daily dietary intake level; sufficient to meet the nutrient requirements of nearly all (97–98 percent) healthy individuals in a group. It is calculated from an Estimated Average Requirement (EAR). If sufficient scientific evidence is not available to establish an EAR, and thus calculate an RDA, an AI is usually developed. For healthy breastfed infants, an AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all healthy individuals in the groups, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake.

^a As retinol activity equivalents (RAEs). 1 RAE = 1 µg retinol, 12 µg β-carotene, 24 µg α-carotene, or 24 µg β-cryptoxanthin. The RAE for dietary provitamin A carotenoids is two-fold greater than retinol equivalents (RE), whereas the RAE for preformed vitamin A is the same as RE.

^b As cholecalciferol. 1 µg cholecalciferol = 40 IU vitamin D.

^c Under the assumption of minimal sunlight.

^d As α-tocopherol. α-Tocopherol includes *RRR*-α-tocopherol, the only form of α-tocopherol that occurs naturally in foods, and the *2R*-stereoisomeric forms of α-tocopherol (*RRR*-, *RSR*-, *RRS*-, and *RSS*-α-tocopherol) that occur in fortified foods and supplements. It does not include the *2S*-stereoisomeric forms of α-tocopherol (*SSR*-, *SSR*-, *SRS*-, and *SSS*-α-tocopherol), also found in fortified foods and supplements.

^e As niacin equivalents (NE). 1 mg of niacin = 60 mg of tryptophan; 0–6 months = preformed niacin (not NE).

^f As dietary folate equivalents (DFE). 1 DFE = 1 µg food folate = 0.6 µg of folic acid from fortified food or as a supplement consumed with food = 0.5 µg of a supplement taken on an empty stomach.

^g Although AIs have been set for choline, there are few data to assess whether a dietary supply of choline is needed at all stages of the life cycle, and it may be that the choline requirement can be met by endogenous synthesis at some of these stages.

^h Because 10 to 30 percent of older people may malabsorb food-bound B₁₂, it is advisable for those older than 50 years to meet their RDA mainly by consuming foods fortified with B₁₂ or a supplement containing B₁₂.

ⁱ In view of evidence linking folate intake with neural tube defects in the fetus, it is recommended that all women capable of becoming pregnant consume 400 µg from supplements or fortified foods in addition to intake of food folate from a varied diet.

^j It is assumed that women will continue consuming 400 µg from supplements or fortified food until their pregnancy is confirmed and they enter prenatal care, which ordinarily occurs after the end of the periconceptual period—the critical time for formation of the neural tube.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B₆, Folate, Vitamin B₁₂, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Elements
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Calcium (mg/d)	Chromium (µg/d)	Copper (µg/d)	Fluoride (mg/d)	Iodine (µg/d)	Iron (mg/d)	Magnesium (mg/d)	Manganese (mg/d)	Molybdenum (µg/d)	Phosphorus (mg/d)	Selenium (µg/d)	Zinc (mg/d)	Potassium (g/d)	Sodium (g/d)	Chloride (g/d)
Infants															
0 to 6 mo	200*	0.2*	200*	0.01*	110*	0.27*	30*	0.003*	2*	100*	15*	2*	0.4*	0.12*	0.18*
6 to 12 mo	260*	5.5*	220*	0.5*	130*	11	75*	0.6*	3*	275*	20*	3	0.7*	0.37*	0.57*
Children															
1-3 y	700	11*	340	0.7*	90	7	80	1.2*	17	460	20	3	3.0*	1.0*	1.5*
4-8 y	1,000	15*	440	1*	90	10	130	1.5*	22	500	30	5	3.8*	1.2*	1.9*
Males															
9-13 y	1,300	25*	700	2*	120	8	240	1.9*	34	1,250	40	8	4.5*	1.5*	2.3*
14-18 y	1,300	35*	890	3*	150	11	410	2.2*	43	1,250	55	11	4.7*	1.5*	2.3*
19-30 y	1,000	35*	900	4*	150	8	400	2.3*	45	700	55	11	4.7*	1.5*	2.3*
31-50 y	1,000	35*	900	4*	150	8	420	2.3*	45	700	55	11	4.7*	1.5*	2.3*
51-70 y	1,000	30*	900	4*	150	8	420	2.3*	45	700	55	11	4.7*	1.3*	2.0*
> 70 y	1,200	30*	900	4*	150	8	420	2.3*	45	700	55	11	4.7*	1.2*	1.8*
Females															
9-13 y	1,300	21*	700	2*	120	8	240	1.6*	34	1,250	40	8	4.5*	1.5*	2.3*
14-18 y	1,300	24*	890	3*	150	15	360	1.6*	43	1,250	55	9	4.7*	1.5*	2.3*
19-30 y	1,000	25*	900	3*	150	18	310	1.8*	45	700	55	8	4.7*	1.5*	2.3*
31-50 y	1,000	25*	900	3*	150	18	320	1.8*	45	700	55	8	4.7*	1.5*	2.3*
51-70 y	1,200	20*	900	3*	150	8	320	1.8*	45	700	55	8	4.7*	1.3*	2.0*
> 70 y	1,200	20*	900	3*	150	8	320	1.8*	45	700	55	8	4.7*	1.2*	1.8*
Pregnancy															
14-18 y	1,300	29*	1,000	3*	220	27	400	2.0*	50	1,250	60	12	4.7*	1.5*	2.3*
19-30 y	1,000	30*	1,000	3*	220	27	350	2.0*	50	700	60	11	4.7*	1.5*	2.3*
31-50 y	1,000	30*	1,000	3*	220	27	360	2.0*	50	700	60	11	4.7*	1.5*	2.3*
Lactation															
14-18 y	1,300	44*	1,300	3*	290	10	360	2.6*	50	1,250	70	13	5.1*	1.5*	2.3*
19-30 y	1,000	45*	1,300	3*	290	9	310	2.6*	50	700	70	12	5.1*	1.5*	2.3*
31-50 y	1,000	45*	1,300	3*	290	9	320	2.6*	50	700	70	12	5.1*	1.5*	2.3*

NOTE: This table (taken from the DRI reports, see www.nap.edu) presents Recommended Dietary Allowances (RDAs) in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). An RDA is the average daily dietary intake level; sufficient to meet the nutrient requirements of nearly all (97-98 percent) healthy individuals in a group. It is calculated from an Estimated Average Requirement (EAR). If sufficient scientific evidence is not available to establish an EAR, and thus calculate an RDA, an AI is usually developed. For healthy breastfed infants, an AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all healthy individuals in the groups, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B₆, Folate, Vitamin B₁₂, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); and *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Tolerable Upper Intake Levels, Vitamins
 Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Vitamin A (µg/d) ^a	Vitamin C (mg/d)	Vitamin D (µg/d)	Vitamin E (mg/d) ^{b,c}	Vitamin K	Thiamin	Riboflavin	Niacin (mg/d) ^e	Vitamin B ₆ (mg/d)	Folate (µg/d) ^e	Vitamin B ₁₂	Pantothenic Acid	Biotin	Choline (g/d)	Carotenoids ^d
Infants															
0 to 6 mo	600	ND ^f	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6 to 12 mo	600	ND	38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Children															
1–3 y	600	400	63	200	ND	ND	ND	10	30	300	ND	ND	ND	1.0	ND
4–8 y	900	650	75	300	ND	ND	ND	15	40	400	ND	ND	ND	1.0	ND
Males															
9–13 y	1,700	1,200	100	600	ND	ND	ND	20	60	600	ND	ND	ND	2.0	ND
14–18 y	2,800	1,800	100	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–30 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
31–50 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
51–70 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
> 70 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
Females															
9–13 y	1,700	1,200	100	600	ND	ND	ND	20	60	600	ND	ND	ND	2.0	ND
14–18 y	2,800	1,800	100	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–30 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
31–50 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
51–70 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
> 70 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
Pregnancy															
14–18 y	2,800	1,800	100	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–30 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
31–50 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
Lactation															
14–18 y	2,800	1,800	100	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–30 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
31–50 y	3,000	2,000	100	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND

NOTE: A Tolerable Upper Intake Level (UL) is the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects to almost all individuals in the general population. Unless otherwise specified, the UL represents total intake from food, water, and supplements. Due to a lack of suitable data, ULs could not be established for vitamin K, thiamin, riboflavin, vitamin B₁₂, pantothenic acid, biotin, and carotenoids. In the absence of a UL, extra caution may be warranted in consuming levels above recommended intakes. Members of the general population should be advised not to routinely exceed the UL. The UL is not meant to apply to individuals who are treated with the nutrient under medical supervision or to individuals with predisposing conditions that modify their sensitivity to the nutrient.

^aAs preformed vitamin A only.

^bAs α-tocopherol; applies to any form of supplemental α-tocopherol.

^cThe ULs for vitamin E, niacin, and folate apply to synthetic forms obtained from supplements, fortified foods, or a combination of the two.

^dβ-Carotene supplements are advised only to serve as a provitamin A source for individuals at risk of vitamin A deficiency.

^eND = Not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B₆, Folate, Vitamin B₁₂, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamine E, Selenium, and Carotenoids* (2000); *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Tolerable Upper Intake Levels, Elements
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Arsenic ^a	Boron (mg/d)	Calcium (mg/d)	Chromium	Copper (µg/d)	Fluoride (mg/d)	Iodine (µg/d)	Iron (mg/d)	Magnesium (mg/d) ^b	Manganese (mg/d)	Molybdenum (µg/d)	Nickel (mg/d)	Phosphorus (g/d)	Selenium (µg/d)	Silicon ^c	Vanadium (mg/d) ^d	Zinc (mg/d)	Sodium (g/d)	Chloride (g/d)
Infants																			
0 to 6 mo	ND ^e	ND	1,000	ND	ND	0.7	ND	40	ND	ND	ND	ND	ND	45	ND	ND	4	ND	ND
6 to 12 mo	ND	ND	1,500	ND	ND	0.9	ND	40	ND	ND	ND	ND	ND	60	ND	ND	5	ND	ND
Children																			
1-3 y	ND	3	2,500	ND	1,000	1.3	200	40	65	2	300	0.2	3	90	ND	ND	7	1.5	2.3
4-8 y	ND	6	2,500	ND	3,000	2.2	300	40	110	3	600	0.3	3	150	ND	ND	12	1.9	2.9
Males																			
9-13 y	ND	11	3,000	ND	5,000	10	600	40	350	6	1,100	0.6	4	280	ND	ND	23	2.2	3.4
14-18 y	ND	17	3,000	ND	8,000	10	900	45	350	9	1,700	1.0	4	400	ND	ND	34	2.3	3.6
19-30 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
31-50 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
51-70 y	ND	20	2,000	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
> 70 y	ND	20	2,000	ND	10,000	10	1,100	45	350	11	2,000	1.0	3	400	ND	1.8	40	2.3	3.6
Females																			
9-13 y	ND	11	3,000	ND	5,000	10	600	40	350	6	1,100	0.6	4	280	ND	ND	23	2.2	3.4
14-18 y	ND	17	3,000	ND	8,000	10	900	45	350	9	1,700	1.0	4	400	ND	ND	34	2.3	3.6
19-30 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
31-50 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
51-70 y	ND	20	2,000	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	1.8	40	2.3	3.6
> 70 y	ND	20	2,000	ND	10,000	10	1,100	45	350	11	2,000	1.0	3	400	ND	1.8	40	2.3	3.6
Pregnancy																			
14-18 y	ND	17	3,000	ND	8,000	10	900	45	350	9	1,700	1.0	3.5	400	ND	ND	34	2.3	3.6
19-30 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	3.5	400	ND	ND	40	2.3	3.6
61-50 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	3.5	400	ND	ND	40	2.3	3.6
Lactation																			
14-18 y	ND	17	3,000	ND	8,000	10	900	45	350	9	1,700	1.0	4	400	ND	ND	34	2.3	3.6
19-30 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	ND	40	2.3	3.6
31-50 y	ND	20	2,500	ND	10,000	10	1,100	45	350	11	2,000	1.0	4	400	ND	ND	40	2.3	3.6

NOTE: A Tolerable Upper Intake Level (UL) is the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects to almost all individuals in the general population. Unless otherwise specified, the UL represents total intake from food, water, and supplements. Due to a lack of suitable data, ULs could not be established for vitamin K, thiamin, riboflavin, vitamin B₁₂, pantothenic acid, biotin, and carotenoids. In the absence of a UL, extra caution may be warranted in consuming levels above recommended intakes. Members of the general population should be advised not to routinely exceed the UL. The UL is not meant to apply to individuals who are treated with the nutrient under medical supervision or to individuals with predisposing conditions that modify their sensitivity to the nutrient.

^aAlthough the UL was not determined for arsenic, there is no justification for adding arsenic to food or supplements.

^bThe ULs for magnesium represent intake from a pharmacological agent only and do not include intake from food and water.

^cAlthough silicon has not been shown to cause adverse effects in humans, there is no justification for adding silicon to supplements.

^dAlthough vanadium in food has not been shown to cause adverse effects in humans, there is no justification for adding vanadium to food and vanadium supplements should be used with caution. The UL is based on adverse effects in laboratory animals and this data could be used to set a UL for adults but not children and adolescents.

^eND = Not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B₆, Folate, Vitamin B₁₂, Pantothenic Acid, Biotin, and Choline* (1998); *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids* (2000); *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc* (2001); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005); and *Dietary Reference Intakes for Calcium and Vitamin D* (2011). These reports may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Total Water and Macronutrients

Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Total Water ^a (L/d)	Carbohydrate (g/d)	Total Fiber (g/d)	Fat (g/d)	Linoleic Acid (g/d)	α-Linolenic Acid (g/d)	Protein ^b (g/d)
Infants							
0 to 6 mo	0.7*	60*	ND	31*	4.4*	0.5*	9.1*
6 to 12 mo	0.8*	95*	ND	30*	4.6*	0.5*	11.0
Children							
1–3 y	1.3*	130	19*	ND ^c	7*	0.7*	13
4–8 y	1.7*	130	25*	ND	10*	0.9*	19
Males							
9–13 y	2.4*	130	31*	ND	12*	1.2*	34
14–18 y	3.3*	130	38*	ND	16*	1.6*	52
19–30 y	3.7*	130	38*	ND	17*	1.6*	56
31–50 y	3.7*	130	38*	ND	17*	1.6*	56
51–70 y	3.7*	130	30*	ND	14*	1.6*	56
> 70 y	3.7*	130	30*	ND	14*	1.6*	56
Females							
9–13 y	2.1*	130	26*	ND	10*	1.0*	34
14–18 y	2.3*	130	26*	ND	11*	1.1*	46
19–30 y	2.7*	130	25*	ND	12*	1.1*	46
31–50 y	2.7*	130	25*	ND	12*	1.1*	46
51–70 y	2.7*	130	21*	ND	11*	1.1*	46
> 70 y	2.7*	130	21*	ND	11*	1.1*	46
Pregnancy							
14–18 y	3.0*	175	28*	ND	13*	1.4*	71
19–30 y	3.0*	175	28*	ND	13*	1.4*	71
31–50 y	3.0*	175	28*	ND	13*	1.4*	71
Lactation							
14–18	3.8*	210	29*	ND	13*	1.3*	71
19–30 y	3.8*	210	29*	ND	13*	1.3*	71
31–50 y	3.8*	210	29*	ND	13*	1.3*	71

NOTE: This table (take from the DRI reports, see www.nap.edu) presents Recommended Dietary Allowances (RDA) in bold type and Adequate Intakes (AI) in ordinary type followed by an asterisk (*). An RDA is the average daily dietary intake level; sufficient to meet the nutrient requirements of nearly all (97-98 percent) healthy individuals in a group. It is calculated from an Estimated Average Requirement (EAR). If sufficient scientific evidence is not available to establish an EAR, and thus calculate an RDA, an AI is usually developed. For healthy breastfed infants, an AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all healthy individuals in the groups, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake.

^a Total water includes all water contained in food, beverages, and drinking water.

^b Based on g protein per kg of body weight for the reference body weight, e.g., for adults 0.8 g/kg body weight for the reference body weight.

^cNot determined.

SOURCE: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005) and *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005). The report may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Acceptable Macronutrient Distribution Ranges

Food and Nutrition Board, Institute of Medicine, National Academies

Macronutrient	Range (percent of energy)		
	Children, 1–3 y	Children, 4–18 y	Adults
Fat	30–40	25–35	20–35
<i>n</i> -6 polyunsaturated fatty acids ^a (linoleic acid)	5–10	5–10	5–10
<i>n</i> -3 polyunsaturated fatty acids ^a (α -linolenic acid)	0.6–1.2	0.6–1.2	0.6–1.2
Carbohydrate	45–65	45–65	45–65
Protein	5–20	10–30	10–35

^a Approximately 10 percent of the total can come from longer-chain *n*-3 or *n*-6 fatty acids.

SOURCE: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005). The report may be accessed via www.nap.edu.

Dietary Reference Intakes (DRIs): Acceptable Macronutrient Distribution Ranges

Food and Nutrition Board, Institute of Medicine, National Academies

Macronutrient	Recommendation
Dietary cholesterol	As low as possible while consuming a nutritionally adequate diet
Trans fatty Acids	As low as possible while consuming a nutritionally adequate diet
Saturated fatty acids	As low as possible while consuming a nutritionally adequate diet
Added sugars ^a	Limit to no more than 25 % of total energy

^aNot a recommended intake. A daily intake of added sugars that individuals should aim for to achieve a healthful diet was not set.

SOURCE: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005). The report may be accessed via www.nap.edu.

Dietary Reference Intakes (DRI)

Estimated Energy Requirements (EER), Recommended Dietary Allowances (RDA), and adequate Intakes (AI) for Energy, and the Energy Nutrients

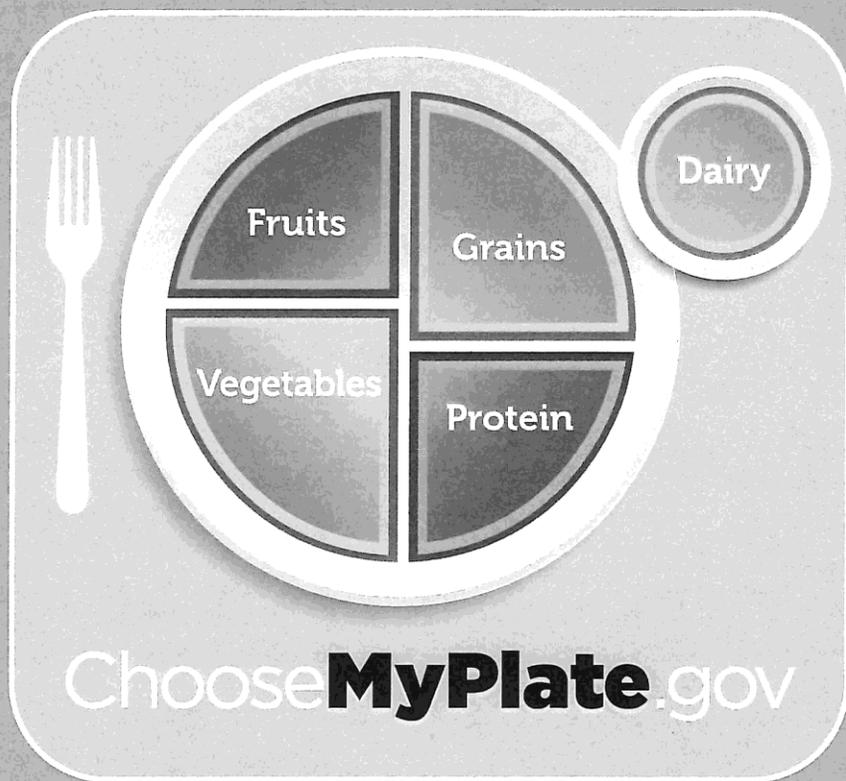
Age (yr)	Reference BMI	Reference height (cm(in))	Reference weight, Kg (lb)	Energy EER ^b (kcal/day)	Carbohydrate RDA (g/day)	Protein RDA (g/day)	Total Fat AI (g/day)	Total Fiber AI (g/day)	Water Ai (L/day)
Males									
0-0.5	—	62 (24)	6 (13)	570	60	9.1	31	—	0.7
1.5-1	—	71 (28)	9 (20)	743	95	13.5	30	—	0.5
1-3	—	86 (34)	12 (27)	1046	130	13	—	19	1.3
4-8	15.3	115 (45)	20 (44)	1742	130	19	—	25	1.7
9-13	17.2	144 (57)	36 (79)	2279	130	34	—	31	2.4
14-18	20.5	174 (68)	61 (134)	3152	130	52	—	38	3.3
19-30	22.5	177 (70)	70 (156)	3067	130	56	—	38	3.7
21—50				3067	130	56	—	38	3.7
>50	—			3067	130	56	—	30	3.7
Females									
0-0.5	—	62-(24)	6 (13)	570	60	9.1	31	—	0.7
1.5-1	—	71 (28)	9 (20)	676	95	13.5	30	—	0.5
1-3	—	86 (34)	12 (27)	992	130	13	—	19	1.3
4-8	15.3	115 (45)	20 (44)	1642	130	19	—	25	1.7
9-13	17.4	144 (57)	36 (79)	2071	130	34	—	26	2.1
14-18	20.4	153 (64)	54 (119)	2368	130	46	—	26	2.3
19-30	21.5	164 (64)	57 (126)	2403	130	46	—	21	2.7
21—50				2403	130	46	—	21	2.7
>50				2403	130	46	—	21	2.7
Pregnancy									
1st Trimester				+0	175	28	—	28	3.0
2 nd Trimester				+340	175	28	—	28	3.0
3 rd Trimester				+452	175	28	—	28	3.0
Lactation									
1 st 6 months				+330	210	29	—	29	3.8
2 nd 6 months				+400	210	29	—	29	3.8

NOTE: For all nutrients, values for infants are AI. Dashes indicate that values have not been determine.

^b The Estimated Entergy Requirement (EEF) represents the average dietary energy intake that will maintain energy balance in a healthy person of a given gender, age, weight, height and physical activity level. The values listed are based on an 'active' person at the reference ht and wt and at the midpoint ages for each group until 19.

SOURCE: Adapted from the Dietary Reference Intakes series, National Academies Press. Copyright 1997,1998,2000,2001,2004 by the National Academies of Sciences.

What's on your plate?



Before you eat, think about what and how much food goes on your plate or in your cup or bowl. Over the day, include foods from all food groups: vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods.



Make half your plate fruits and vegetables.



Make at least half your grains whole.



Switch to skim or 1% milk.



Vary your protein food choices.

Vegetables	Fruits	Grains	Dairy	Protein Foods
<p>Eat more red, orange, and dark-green veggies like tomatoes, sweet potatoes, and broccoli in main dishes.</p> <p>Add beans or peas to salads (kidney or chickpeas), soups (split peas or lentils), and side dishes (pinto or baked beans), or serve as a main dish.</p> <p>Fresh, frozen, and canned vegetables all count. Choose “reduced sodium” or “no-salt-added” canned veggies.</p>	<p>Use fruits as snacks, salads, and desserts. At breakfast, top your cereal with bananas or strawberries; add blueberries to pancakes.</p> <p>Buy fruits that are dried, frozen, and canned (in water or 100% juice), as well as fresh fruits.</p> <p>Select 100% fruit juice when choosing juices.</p>	<p>Substitute whole-grain choices for refined-grain breads, bagels, rolls, breakfast cereals, crackers, rice, and pasta.</p> <p>Check the ingredients list on product labels for the words “whole” or “whole grain” before the grain ingredient name.</p> <p>Choose products that name a whole grain first on the ingredients list.</p>	<p>Choose skim (fat-free) or 1% (low-fat) milk. They have the same amount of calcium and other essential nutrients as whole milk, but less fat and calories.</p> <p>Top fruit salads and baked potatoes with low-fat yogurt.</p> <p>If you are lactose intolerant, try lactose-free milk or fortified soymilk (soy beverage).</p>	<p>Eat a variety of foods from the protein food group each week, such as seafood, beans and peas, and nuts as well as lean meats, poultry, and eggs.</p> <p>Twice a week, make seafood the protein on your plate.</p> <p>Choose lean meats and ground beef that are at least 90% lean.</p> <p>Trim or drain fat from meat and remove skin from poultry to cut fat and calories.</p>

For a 2,000-calorie daily food plan, you need the amounts below from each food group.
 To find amounts personalized for you, go to ChooseMyPlate.gov.

Eat 2½ cups every day	Eat 2 cups every day	Eat 6 ounces every day	Get 3 cups every day	Eat 5½ ounces every day
<p>What counts as a cup? 1 cup of raw or cooked vegetables or vegetable juice; 2 cups of leafy salad greens</p>	<p>What counts as a cup? 1 cup of raw or cooked fruit or 100% fruit juice; ½ cup dried fruit</p>	<p>What counts as an ounce? 1 slice of bread; ½ cup of cooked rice, cereal, or pasta; 1 ounce of ready-to-eat cereal</p>	<p>What counts as a cup? 1 cup of milk, yogurt, or fortified soymilk; 1½ ounces natural or 2 ounces processed cheese</p>	<p>What counts as an ounce? 1 ounce of lean meat, poultry, or fish; 1 egg; 1 Tbsp peanut butter; ½ ounce nuts or seeds; ¼ cup beans or peas</p>

Cut back on sodium and empty calories from solid fats and added sugars



Look out for salt (sodium) in foods you buy. Compare sodium in foods and choose those with a lower number.

Drink water instead of sugary drinks. Eat sugary desserts less often.

Make foods that are high in solid fats—such as cakes, cookies, ice cream, pizza, cheese, sausages, and hot dogs—occasional choices, not every day foods.

Limit empty calories to less than 260 per day, based on a 2,000 calorie diet.

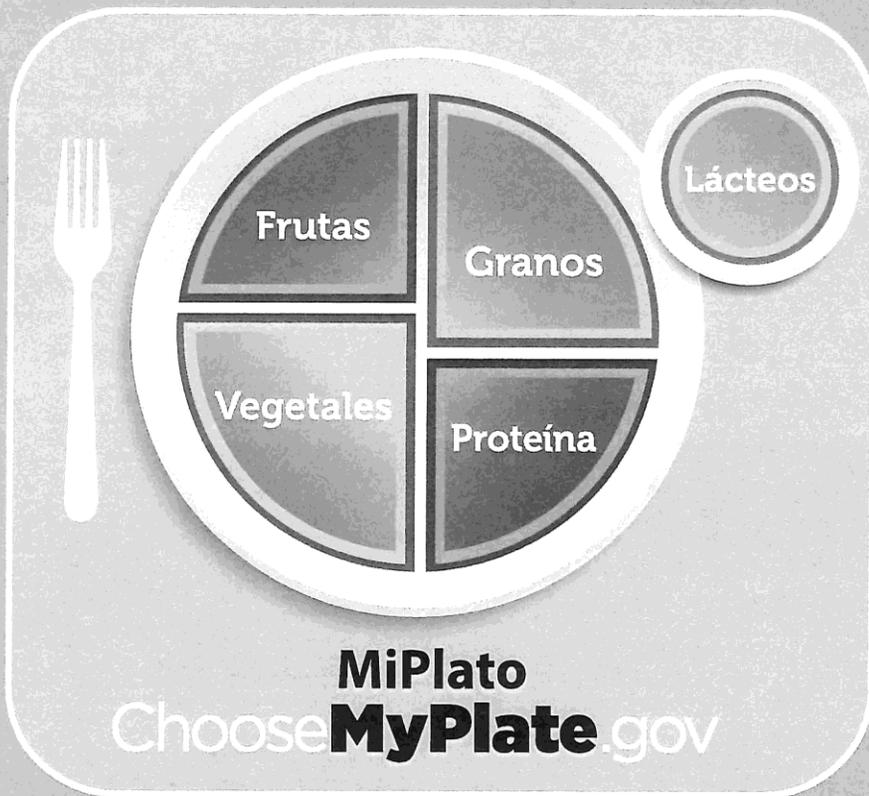
Be physically active your way

Pick activities you like and do each for at least 10 minutes at a time. Every bit adds up, and health benefits increase as you spend more time being active.

Children and adolescents: get 60 minutes or more a day.

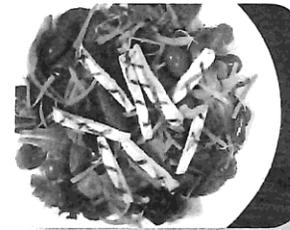
Adults: get 2 hours and 30 minutes or more a week of activity that requires moderate effort, such as brisk walking.

¿Qué hay en su plato?



Section T : Appendix

Antes de comer, piense qué y cuánto va a servir en el plato, tazón o vaso. Durante el transcurso del día, incluya alimentos de todos los grupos: vegetales, frutas, granos integrales, lácteos bajos en grasa y alimentos que contengan proteína y sean bajos grasas.



Haga que la mitad de su plato contenga frutas y vegetales.



Asegúrese de que por lo menos la mitad de los granos consumidos sean integrales.



Cambie a leche descremada o con 1% de grasa.



Varíe sus fuentes de proteína.

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Vegetales	Frutas	Granos	Lácteos	Proteínas
<p>Coma más vegetales rojos, anaranjados y verde oscuro como tomates, camotes (batatas) y brócoli como parte de los platos principales.</p> <p>Agregue legumbres a las ensaladas (frijoles o garbanzos), sopas (guisantes o lentejas) y a los platos de acompañamiento (frijoles pintos o cocidos en salsa dulce), o sívalos como plato principal.</p> <p>Considere todo tipo de vegetales: frescos, congelados y enlatados. Elija vegetales enlatados con "sodio reducido" o "sin sal agregada" ("reduced sodium" o "without added salt").</p>	<p>Use frutas como bocadillos, en ensaladas y postres. En el desayuno agregue bananas o fresas a su cereal; agregue arándanos a sus panqueques.</p> <p>Compre frutas secas, congeladas o enlatadas (en agua o 100% jugo), así como frutas frescas.</p> <p>Al seleccionar jugos, elija jugos 100% de fruta.</p>	<p>Elija opciones de panes, roscas de pan, panecillos, cereales para el desayuno, galletas, arroz, y fideos y tallarines hechos de granos integrales en lugar de granos refinados.</p> <p>Busque en la lista de ingredientes de las etiquetas de los productos por las palabras "integral" o "grano integral" ("whole grain") antes del nombre del ingrediente.</p> <p>Elija productos que incluyan algún grano integral como el primer ingrediente de la lista.</p>	<p>Beba leche descremada (sin grasa) o de 1% de grasa (baja en grasa). Esta contiene la misma cantidad de calcio y otros nutrientes esenciales que la leche entera, pero con menos grasa y calorías.</p> <p>Use yogur bajo en grasa como aderezo para ensaladas de fruta y papas.</p> <p>Si no tolera la lactosa, pruebe leche sin lactosa o leche de soja enriquecida (bebida de soja).</p>	<p>Coma variedad de alimentos del grupo de la proteína cada semana, como: pescado, mariscos, legumbres y nueces; así como carnes magras de res y ave, y huevos.</p> <p>Haga que la proteína en su plato provenga de pescado y mariscos, dos veces por semana.</p> <p>Elija carnes magras y carne molida que sea por lo menos 90% magra.</p> <p>Recorte o escurra la grasa de las carnes y quíteles el pellejo a las carnes de ave para reducir la grasa y las calorías.</p>

Para llevar un plan de alimentación de 2,000 calorías al día, usted necesita las cantidades indicadas de los siguientes grupos de alimentos. Para encontrar las cantidades indicadas para usted, visite ChooseMyPlate.gov.

<p>Consuma 2½ tazas al día</p> <p>¿Cómo se calcula una taza? 1 taza de vegetales crudos o cocidos, o de jugo de vegetales; 2 tazas de vegetales de hoja crudas</p>	<p>Consuma 2 tazas al día</p> <p>¿Cómo se calcula una taza? 1 taza de frutas crudas o cocidas, o de jugo 100% de fruta; ½ taza de frutas secas</p>	<p>Consuma 6 onzas al día</p> <p>¿Cómo se calcula una onza? 1 rebanada de pan; ½ taza de arroz, cereal, o fideos o tallarines cocidos; 1 onza de cereal listo para comer</p>	<p>Consuma 3 tazas al día</p> <p>¿Cómo se calcula una taza? 1 taza de leche, yogur, o leche de soja fortificada; 1½ onzas de queso natural; 2 onzas de queso procesado</p>	<p>Consuma 5½ onzas al día</p> <p>¿Cómo se calcula una onza? 1 onza de carne de res o ave magra, pescado o mariscos; 1 huevo; 1 cucharada de mantequilla de cacahuete (maní); ½ onza de nueces o semillas; ¼ de taza de legumbres</p>
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Reduzca el sodio y las calorías sin valor nutritivo provenientes de las grasas sólidas y los azúcares agregados



Vea cuánta sal (sodio) contienen los alimentos que compra. Compare el sodio en los alimentos y elija los que tengan menos.

Beba agua en lugar de bebidas con azúcar. Coma alimentos azucarados con menos frecuencia.

Haga que las comidas con grandes cantidades de grasas saturadas, como pasteles, galletas dulces, helado, pizza, queso, chorizo y salchichas, sean opciones ocasionales y no comidas diarias.

Limite las calorías sin valor nutritivo a menos de 260 al día, para una dieta de 2,000 calorías al día.

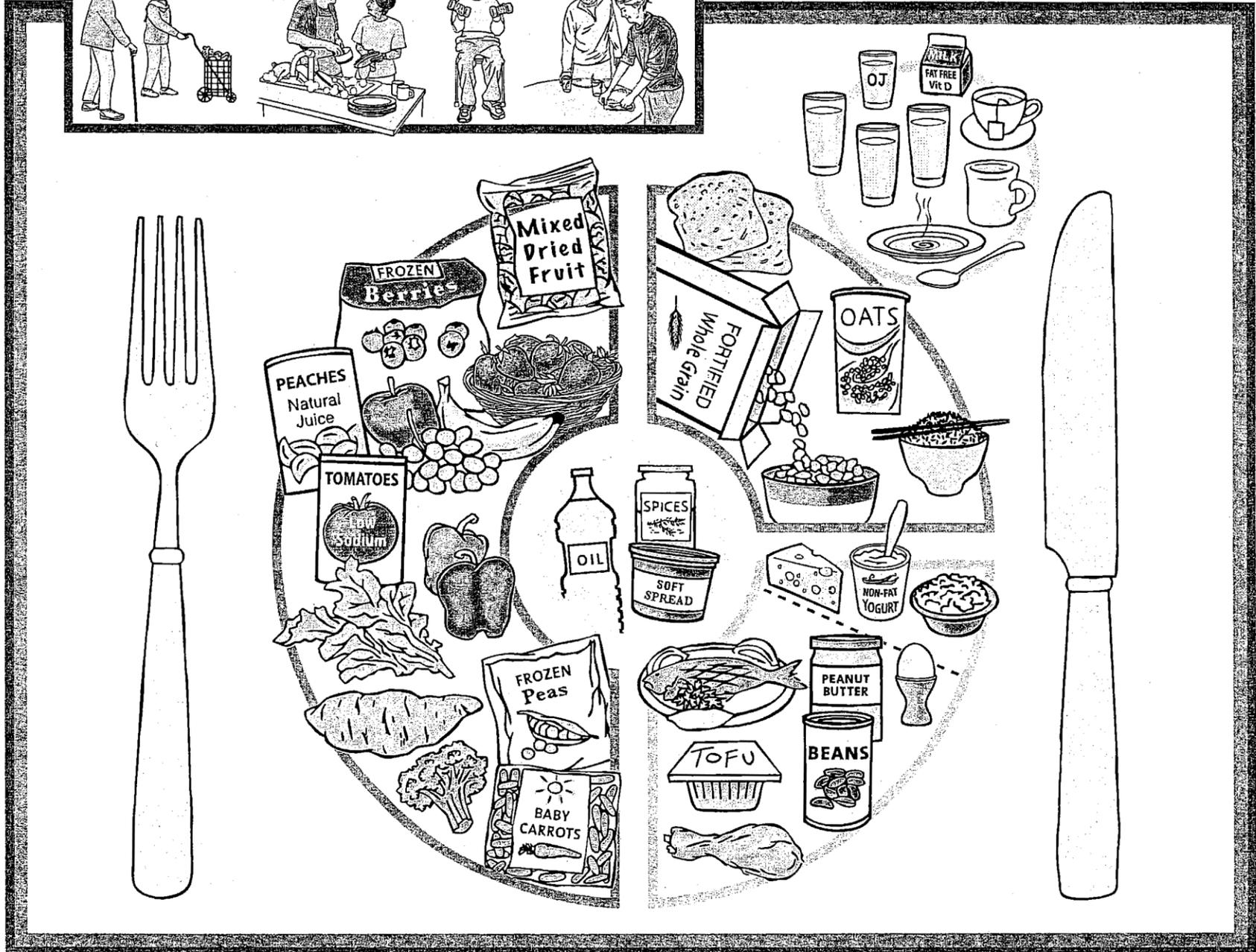
Esté físicamente activo a su manera

Elija actividades que le gusten y haga cada una de ellas por lo menos durante 10 minutos por vez. Todo ello se acumula y los beneficios de salud aumentan a medida que dedica más tiempo a estar activo.

Niños y adolescentes: 60 minutos o más al día.

Adultos: 2 horas y 30 minutos o más por semana de una actividad que requiera esfuerzo moderado, como caminar a paso rápido.

MyPlate for Older Adults



Translating Guidelines into Daily Eating for Older Adults

Food Group	What's a senior to Do every day~	Best choices (each is equal to one serving)
Bread, fortified Cereal, Rice & Pasta	Strive for 6 servings of high fiber, unrefined whole grains.	1 slice whole grain bread ½ cup cooked brown rice 1 oz. fortified cereal
Vegetables	Munch on 3 servings of bright-colored vegetables each day; look for dark green, red, orange, and yellow – these are the best sources of valuable nutrients.	1 cup raw spinach ½ cup mashed squash ¾ cup 100% vegetable juice *Note: if you boil vegetables, use the cooking water in sauces, soups, or stews, many vitamins and minerals are in there.
Fruits	Snack on 2 servings of brightly colored fruits.	1 medium orange, banana, apple ½ cup berries ¼ cup raisins or dried prunes ¾ cup 100% juice, select juice with calcium
Milk, Yogurt and Cheese	Eat 2-3 servings of low fat or nonfat dairy foods. These are great sources of calcium and vitamin D.	1 cup low fat milk or yogurt 1 ½ oz low fat natural cheese Note: if you have trouble digesting milk products, try lactose-free dairy products, yogurt or add lactose enzymes to milk.
Meat, Poultry, Fish, Dried beans, (legumes), eggs, and nuts	Eat 2 servings of these high protein foods. Fish is great – its Omega-3 fatty acids have many health benefits. Beans provide fiber and nutrients as well as protein, and are less expensive than meat.	½ cup cooked lentils or other legumes (these come dried or canned) 1 egg or 2 egg whites 2-3 oz fish, lean meat, or skinless poultry.
Fats, Oils and Sweets	Choose these foods sparingly. Use oils, tub margarine and tub butter instead of solids (shortening, stick, butter and margarine).	1 teaspoon oil; olive, canola, peanut, safflower, sunflower, corn, cottonseed, or flaxseed.

Pay Special Attention to:

Fluid - Drink 8 eight-ounce glasses per day whether you feel thirsty or not. Don't count alcohol or caffeine containing fluids in the 8 glasses per day.

Fiber – Dietary fiber may help to relieve constipation. Whole grains, fruits and vegetables are best sources.

Supplements – It's tough for people over 70+ to get enough calcium, vitamin B₁₂, and vitamin D in their diets. Consider supplements of these 3 nutrients regularly. Check with your physician.

PROPOSED DIETARY GUIDELINE FOR AMERICANS 2015

(Excerpt Scientific Report of the 2015 Dietary Guidelines Advisory Committee)

TOPIC-SPECIFIC FINDINGS AND CONCLUSIONS*Food and Nutrient Intakes, and Health: Current Status and Trends*

The DGAC conducted data analyses to address a series of questions related to the current status and trends in the Nation's dietary intake. The questions focused on: intake of specific nutrients and food groups; food categories (i.e., foods as consumed) that contribute to intake; eating behaviors; and the composition of various dietary patterns shown to have health benefits. These topics were addressed using data from the What We Eat in America dietary survey, which is the dietary intake component of the ongoing National Health and Nutrition Examination Survey. Food pattern modeling using the USDA Food Pattern food groups also was used to address some questions. In addition, the DGAC examined the prevalence and trends of health conditions that may have a nutritional origin, or where the course of disease may be influenced by diet.

The DGAC found that several nutrients are underconsumed relative to the Estimated Average Requirement or Adequate Intake levels set by the Institute of Medicine (IOM) and the Committee characterized these as shortfall nutrients: vitamin A, vitamin D, vitamin E, vitamin C, folate, calcium, magnesium, fiber, and potassium. For adolescent and premenopausal females, iron also is a shortfall nutrient. Of the shortfall nutrients, calcium, vitamin D, fiber, and potassium also are classified as nutrients of public health concern because their underconsumption has been linked in the scientific literature to adverse health outcomes. Iron is included as a shortfall nutrient of public health concern for adolescent females and adult females who are premenopausal due to the increased risk of iron-deficiency in these groups. The DGAC also found that two nutrients—sodium and saturated fat—are overconsumed by the U.S. population relative to the Tolerable Upper Intake Level set by the IOM or other maximal standard and that the overconsumption poses health risks.

In comparison to recommended amounts in the USDA Food Patterns, the majority of the U.S. population has low intakes of key food groups that are important sources of the shortfall nutrients, including vegetables, fruits, whole grains, and dairy. Furthermore, population intake is too high for refined grains and added sugars. The data suggest cautious optimism about dietary intake of the youngest members of the U.S. population because many young children ages 2 to 5 years consume recommended amounts of fruit and dairy. However, a better understanding is needed on how to maintain and encourage good habits that are started early in life. Analysis of data on food categories, such as burgers, sandwiches, mixed dishes, desserts, and beverages, shows that the composition of many of these items could be improved so as to increase population intake of vegetables, whole grains, and other underconsumed food groups and to lower population intake of the nutrients sodium and saturated fat, and the food component refined grains. Improved beverage selections that limit or remove sugar-sweetened beverages and place limits on sweets and desserts would help lower intakes of the food component, added sugars.

The U.S. population purchases its food in a variety of locations, including supermarkets, convenience stores, schools, and the workplace. The DGAC found that although diet quality varies somewhat by the setting where food is obtained, overall, no matter where the food is obtained, the diet quality of the U.S. population does not meet recommendations for vegetables, fruit, dairy, or whole grains, and exceeds recommendations, leading to overconsumption, for the nutrients sodium and saturated fat and the food components refined grains, solid fats, and added sugars.

Obesity and many other health conditions with a nutritional origin are highly prevalent. The Nation must accelerate progress toward reducing the incidence and prevalence of overweight and obesity and chronic disease risk across the U.S. population throughout the lifespan and reduce the disparities in obesity and chronic disease rates that exist in the United States for certain ethnic and racial groups and for those with lower incomes.

The DGAC had enough descriptive information from existing research and data to model three dietary patterns and to examine their nutritional adequacy. These patterns are the Healthy U.S. style Pattern, the Healthy Mediterranean-style Pattern, and the Healthy Vegetarian Pattern. These patterns include the components of a dietary pattern associated with health benefits.

Dietary Patterns, Foods and Nutrients, and Health Outcomes

A major goal of the DGAC was to describe the common characteristics of healthy diets, and the Committee focused on research examining dietary patterns because the totality of diet—the combinations and quantities in which foods and nutrients are consumed—may have synergistic and cumulative effects on health and disease. The Committee focused on providing a qualitative description of healthy dietary patterns based on scientific evidence for several health outcomes.

The DGAC found remarkable consistency in the findings and implications across its conclusion statements for the questions examining dietary patterns and various health outcomes. When reviewing the evidence, the Committee attempted to adhere to the language used by the study authors in describing food groupings. There was variability across the food groupings, and this was particularly apparent in the meat group. For example, “total meat” may have been defined as “meat, sausage, fish, and eggs,” “red meat, processed meat, and poultry,” or various other combinations of meat. Similarly, “vegetables” seemed to most often exclude potatoes, but some studies included potatoes, yet those that mentioned potatoes rarely provided information on how the potatoes were consumed (e.g., fried versus baked). When reported in the studies, the Committee considered these definitions in their review. However, the Committee provided a general label for the food groupings in its conclusion statements.

The overall body of evidence examined by the 2015 DGAC identifies that a healthy dietary pattern is higher in vegetables, fruits, whole grains, low- or non-fat dairy, seafood, legumes, and

nuts; moderate in alcohol (among adults); lower in red and processed meat;¹ and low in sugars sweetened foods and drinks and refined grains. Vegetables and fruit are the only characteristics of the diet that were consistently identified in every conclusion statement across the health outcomes. Whole grains were identified slightly less consistently compared to vegetables and fruits, but were identified in every conclusion with moderate to strong evidence. For studies with limited evidence, grains were not as consistently defined and/or they were not identified as a key characteristic. Low- or non-fat dairy, seafood, legumes, nuts, and alcohol were identified as beneficial characteristics of the diet for some, but not all, outcomes. For conclusions with moderate to strong evidence, higher intake of red and processed meats was identified as detrimental compared to lower intake. Higher consumption of sugar-sweetened foods and beverages as well as refined grains was identified as detrimental in almost all conclusion statements with moderate to strong evidence.

Regarding alcohol, the Committee confirmed several conclusions of the 2010 DGAC, including that moderate alcohol intake can be a component of a healthy dietary pattern, and that if alcohol is consumed, it should be consumed in moderation and only by adults. However, it is not recommended that anyone begin drinking or drink more frequently on the basis of potential health benefits, because moderate alcohol intake also is associated with increased risk of violence, drowning, and injuries from falls and motor vehicle crashes. Women should be aware of a moderately increased risk of breast cancer even with moderate alcohol intake. In addition, there are many circumstances in which people should not drink alcohol, including during pregnancy. Because of the substantial evidence clearly demonstrating the health benefits of breastfeeding, occasionally consuming an alcoholic drink does not warrant stopping breastfeeding. However, women who are breastfeeding should be very cautious about drinking alcohol, if they choose to drink at all.

Following a dietary pattern associated with reduced risk of CVD, overweight, and obesity also will have positive health benefits beyond these categories of health outcomes. Thus, the U.S. population should be encouraged and guided to consume dietary patterns that are rich in vegetables, fruit, whole grains, seafood, legumes, and nuts; moderate in low- and non-fat dairy products and alcohol (among adults); lower in red and processed meat; and low in sugar sweetened foods and beverages and refined grains. These dietary patterns can be achieved in many ways and should be tailored to the individual's biological and medical needs as well as socio-cultural preferences.

The dietary pattern characteristics being recommended by the 2015 DGAC reaffirm the dietary pattern characteristics recommended by the 2010 DGAC. Additionally, these characteristics align with recommendations from other groups, including the American Institute for Cancer Research (AICR) and the American Heart Association (AHA). The majority of evidence considered by the Committee focused on dietary patterns consumed in adulthood. Very little evidence examined dietary patterns during childhood. However, the healthy dietary pattern

¹ As lean meats were not consistently defined or handled similarly between studies, they were not identified as a common characteristic across the reviews. However, as demonstrated in the food pattern modeling of the Healthy U.S.-style and Healthy Mediterranean-style patterns, lean meats can be a part of a healthy dietary pattern.

components described above also apply to children and are reaffirmed with the USDA Food Patterns, which are designed to meet nutrient needs across the lifespan.

Individual Diet and Physical Activity Behavior Change

The individual is at the innermost core of the social-ecological model. In order for policy recommendations such as the *Dietary Guidelines for Americans* to be fully implemented, motivating and facilitating behavioral change at the individual level is required. This chapter suggests a number of promising behavior change strategies that can be used to favorably affect a range of health-related outcomes and to enhance the effectiveness of interventions. These include reducing screen time, reducing the frequency of eating out at fast food restaurants, increasing frequency of family shared meals, and self-monitoring of diet and body weight as well as effective food labeling to target healthy food choices. These strategies complement comprehensive lifestyle interventions and nutrition counseling by qualified nutrition professionals.

For this approach to work, it will be essential that the food environments in communities available to the U.S. population, particularly to low-income individuals, facilitate access to healthy and affordable food choices that respect their cultural preferences. Similarly, food and calorie label education should be designed to be understood by audiences with low health literacy, some of which may have additional English language fluency limitations. Although viable approaches are available now, additional research is necessary to improve the scientific foundation for more effective guidelines on individual-level behavior change for all individuals living in the United States, taking into account the social, economic, and cultural environments in which they live.

The evidence reviewed in this chapter also indicates that the social, economic, and cultural context in which individuals live may facilitate or hinder their ability to choose and consume dietary patterns that are consistent with the Dietary Guidelines. Specifically, household food insecurity hinders the access to healthy diets for millions of Americans. In addition, immigrants are at high risk of losing the healthier dietary patterns characteristic of their cultural background as they acculturate into mainstream America. Furthermore, preventive nutrition services that take into account the social determinants of health are largely unavailable in the U.S. health system to systematically address nutrition-related health problems, including overweight and obesity, cardiovascular disease, type 2 diabetes, and other health outcomes.

This chapter calls for: a) stronger Federal policies to help prevent household food insecurity and to help families to cope with food insecurity if it develops, b) food and nutrition assistance programs to take into account the risk that immigrants have of giving up their healthier dietary habits soon after arriving in the United States, and c) efforts to provide all individuals living in the United States with the environments, knowledge, and tools needed to implement effective individual- or family-level behavioral change strategies to improve the quality of their diets and reduce sedentary behaviors. These goals will require changes at all levels of the social-ecological model through coordinated efforts among health care and social and food systems from the national to the local level.

Cross-cutting Topics of Public Health Importance

The *2010 Dietary Guidelines* included guidance on sodium, saturated fat, and added sugars, and the 2015 DGAC determined that a reexamination of the evidence on these topics was necessary to determine whether revisions to the guidance were warranted. These topics were considered to be of public health importance because each has been associated with negative health outcomes when overconsumed. Additionally, the Committee acknowledged that a potential unintended consequence of a recommendation on added sugars might be that consumers and manufacturers replace added sugars with low-calorie sweeteners. As a result, the Committee also examined evidence on low-calorie sweeteners to inform statements on this topic.

The DGAC encourages the consumption of healthy dietary patterns that are low in saturated fat, added sugars, and sodium. The goals for the general population are: less than 2,300 mg dietary sodium per day (or age-appropriate Dietary Reference Intake amount), less than 10 percent of total calories from saturated fat per day, and a maximum of 10 percent of total calories from added sugars per day.

Sodium, saturated fat, and added sugars are not intended to be reduced in isolation, but as a part of a healthy dietary pattern that is balanced, as appropriate, in calories. Rather than focusing purely on reduction, emphasis should also be placed on replacement and shifts in food intake and eating patterns. Sources of saturated fat should be replaced with unsaturated fat, particularly polyunsaturated fatty acids. Similarly, added sugars should be reduced in the diet and not replaced with low-calorie sweeteners, but rather with healthy options, such as water in place of sugar-sweetened beverages. For sodium, emphasis should be placed on expanding industry efforts to reduce the sodium content of foods and helping consumers understand how to flavor unsalted foods with spices and herbs.

Reducing sodium, saturated fat, and added sugars can be accomplished and is more attainable by eating a healthy dietary pattern. For all three of these components of the diet, policies and programs at local, state, and national levels in both the private and public sector are necessary to support reduction efforts. Similarly, the Committee supports efforts in labeling and other campaigns to increase consumer awareness and understanding of sodium, saturated fats, and added sugars in foods and beverages. The Committee encourages the food industry to continue reformulating and making changes to certain foods to improve their nutrition profile. Examples of such actions include lowering sodium and added sugars content, achieving better saturated fat to polyunsaturated fat ratio, and reducing portion sizes in retail settings (restaurants, food outlets, and public venues, such as professional sports stadiums and arenas). The Committee also encourages the food industry to market these improved products to consumers.

Physical Activity

This chapter provides strong evidence supporting the importance of regular physical activity for health promotion and disease prevention in the U.S. population. Physical activity is important for all people—children, adolescents, adults, older adults, women during pregnancy and the

postpartum period, and individuals with disabilities. The findings further provide guidance on the dose of physical activity needed across the lifecycle to realize these significant health benefits.

Future Physical Activity Guidelines Advisory Committees will be asked to carefully review the most recent evidence so that the Federal government can fully update the *2008 Physical Activity Guidelines for Americans*. Given the exceedingly low physical activity participation rates in this country, it will be critically important for the next Committee to identify proven strategies and approaches to increase population-level physical activity across the lifespan.

Physical Activity Guidelines

Age/Group	Guidelines
6-17 years	<p>Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily.</p> <ul style="list-style-type: none"> • Aerobic: Most of the 60 or more minutes a day should be either moderate^a or vigorous^b intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week. • Muscle-strengthening^c: As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week. • Bone-strengthening^d: As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week. • It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.
18 to 64 years	<ul style="list-style-type: none"> • All adults should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits. • For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week. • For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount. • Adults should also include muscle-strengthening activities that involve all major muscle groups on 2 or more days a week.
65 years and older	<ul style="list-style-type: none"> • Older adults should follow the adult guidelines. When older adults cannot meet the adult guidelines, they should be as physically active as their abilities and conditions will allow. • Older adults should do exercises that maintain or improve balance if they are at risk of falling. • Older adults should determine their level of effort for physical activity relative to their level fitness. • Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.

a. Moderate-intensity physical activity: Aerobic activity that increases a person's heart rate or breathing to some extent. On a scale relative to a person's capacity, moderate-intensity activity is usually a 5 or 6 on a 0 to 10 scale. Brisk walking, dancing, swimming or bicycling on a level terrain are examples.

b. Vigorous-intensity physical activity: Aerobic activity that greatly increases a person's heart rate and breathing. On a scale of relative to person's capacity, vigorous-intensity activity is usually a 7 or 8 on a 0 to 10 scale. Jogging singles tennis, swimming continuous laps, or bicycling uphill are examples.

c. Muscle-strengthening activity: Physical activity, including exercise, that increases skeletal muscle strength, power, endurance, and mass. It includes strength training, resistance training, and muscular strength and endurance exercises.

d. Bone-strengthening activity: Physical activity that produces an impact or tension force on bones, which promotes bone growth and strength. Running, jumping rope, and lifting weights are examples.

Source: Adapted from U.S. Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington (DC) U.S. Department of Health and Human Services; 2008. ODPHP Publication No. U0036. <http://www.health.gov/paguidelines>. Accessed August 12, 2012.

Healthy People 2020

The Mission, Vision, and Goals of Healthy People 2020

Vision – A society in which all people live long, healthy lives.

Mission – Healthy people 2020 strives to:

- Identify nationwide health improvement priorities
- Increase public awareness and understanding of the determinants of health, disease, and disability and the opportunities for progress
- Provide measurable objectives and goals that are applicable to the national, state and local levels.
- Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge
- Identity critical research, evaluation, and data collection needs

Overarching Goals	Foundation Measures Category	Measures of Progress
Attain high quality, longer lives free of preventable disease, disability, injury and premature death	General Health Status	<ul style="list-style-type: none"> • Life expectancy • Healthy life expectancy • Physical and mental unhealthy days • Self-assessed health status • Limitation of activity • Chronic disease prevalence • International comparisons (when available)
Achieve health equity, eliminate disparities and improve the health of all groups	Disparities and inequity	Disparities/inequity to be assessed by: <ul style="list-style-type: none"> • Race • Gender • Socioeconomic status • Disability status • Lesbian, gay, bisexual and transgender status • Geography
Create social and physical environments that promote good health for all	Social Determinants of Health	Determinants can include: <ul style="list-style-type: none"> • Social and economic factors • Natural and built environments • Policies and programs
Promote quality of life, healthy development and healthy behaviors across all the stages	Health-Related quality of Live and Well-Being	<ul style="list-style-type: none"> • Well-being/satisfaction • Physical, mental, and social health-related quality of life • Participation in common activities

Important Food Sources of Some Vitamins

Nutrient	Function	Deficiency Symptoms	Food Sources
Fat-Soluble			
Vitamin A	Helps the eyes see normally in the dark; Promotes the growth and health of cells and tissues; Maintaining normal epithelial structures; Works as an antioxidant in the form of carotenoids.	Night blindness; other eye problem; dry scaly skin, problems with reproduction.	Liver, fish oil, eggs, milk fortified with vitamin A; sweet mashed potatoes, carrots, kale, mango, turnip greens, spinach, papaya, red bell peppers, apricot cantaloupe.
Vitamin D	Promotes the absorption of calcium and phosphorus; helps deposit these minerals in the bone and teeth.	In older years, greater loss of bone mass (osteoporosis), softening of the bones (osteomalacia). Children -rickets or defective bone growth.	Milk, all types fortified with vitamin D, canned sardines, egg, salmon with bones
Vitamin E	Works as an antioxidant to prevent body cells from oxidation.	Deficiency is rare; exceptions are premature very low birth weight infants.	Almonds, wheat germ, vegetable oils, margarine
Vitamin K	Makes proteins that cause the blood to coagulate or clot; helps the body makes some other body proteins for your blood, bones and kidneys.	Blood doesn't coagulate normally.	Raw spinach, raw broccoli, large egg, wheat bran, wheat germ
Water-Soluble			
Thiamin (B₁)	Metabolize fats, proteins, and nucleic acids; strongly linked to carbohydrate metabolism.	Fatigue, weak muscles, and nerve damage.	Beef liver, pork, enriched corn tortilla, enriched rice, whole-grain bread.
Riboflavin (B₂)	Helps produce energy in all cells of your body; helps change the amino acid called tryptophan in your food into niacin.	Eye disorders (including cataracts), dry and flaky skin, sore, red tongue.	Beef liver, yogurt, skim milk, egg, whole grain bread.
Niacin	Helps the body use sugars and fatty acids; helps enzymes function normally; helps produce energy in all the cells of your body.	Pellagra – significant niacin deficiency. Symptoms – diarrhea, mental disorientation, skin problems.	Poultry, fish, beef, peanut butter, legumes, fortified cereals.

Important Food Sources of Some Vitamins (Continued)

Nutrient	Function	Deficiency Symptoms	Food Sources
Water-Soluble			
Folic Acid	Plays an essential role in making new body cells; essential for the formation of red, white blood cells in the bone marrow.	Affects normal cell division and protein synthesis. Anemia caused by malformed blood cells.	Leafy vegetables, legumes, liver, yeast bread, fortified cereals, avocado, orange, peanuts.
Pyridoxine (vitamin B₆)	Helps turn the amino acid called tryptophan into niacin and serotonin; helps produce other body chemicals, including insulin, hemoglobin and antibodies that fight infection.	Can cause mental convulsions among infants, depression, nausea, and flaky skin.	Chicken, fish, pork organ meats, peanut butter, legumes: black beans, whole grain products, nuts.
Vitamin B₁₂ (Cobalamin)	Essential for normal function in the metabolism of all cells, especially for those of the gastrointestinal tract, bone marrow, and nervous tissue; helps your body use fatty acids and some amino acids.	May result in anemia, fatigue, nerve damage, smooth tongue or very sensitive skin.	Beef liver, fish, shellfish, poultry, egg, milk, other dairy products such as yogurt.
Pantothenic Acid	Helps your body produce energy in your cells; helps metabolize protein, fat and carbohydrate from food.	Rarely a problem for people who consume a healthy diet.	Lean meat, poultry, fish, egg yolk, whole grain cereals, legumes, yeast, kidney, liver.
Vitamin C (Ascorbic acid)	Helps produce collagen; helps form and repair red blood cells, and bones; helps the body absorb iron from plant sources of food; helps keep the gums healthy; promotes resistance to infection and is involved in healing wounds.	Severe deficiency leads to scurvy.	Citrus fruits – orange, grapefruit, tangerine, guava, cantaloupe, strawberries, papaya, mango, red and green bell peppers, broccoli, spinach, collard greens, tomato, potato with skin.
Biotin	Helps the body produce energy in the cells; helps metabolize protein, fat, and carbohydrate from food; it is closely related metabolically to folic acid, pantothenic acid and vitamin B ₁₂ .	Rarely a problem for healthy people who eat a healthy diet.	Eggs, liver, yeast breads, cereals, pancakes.

Important Food Sources of Some Minerals

Nutrient	Function	Deficiency Symptoms	Food Sources
Calcium	Build bones; help bones remain strong; helps muscles contract and the heart beat; plays a role in normal nerve function; helps the blood clot.	For children – may interfere with growth; it can affect bone density and bone loss, increasing the risk for osteoporosis or brittle bone disease.	Milk, cheese, turnip and mustard greens, collards, kale, broccoli, sardines and salmon with bones.
Chloride	Helps regulate fluids in and out of body cells; helps transmit nerve impulses or signals.	Usually accompanied by sodium depletion.	Sodium chloride.
Chromium	Works with insulin to help utilize glucose or blood sugar.	A deficiency can look like diabetes because it works closely with insulin.	Meat, egg, cheese, whole grain products, liver.
Copper	Helps make hemoglobin; helps produce energy in the cells; serves as a part of many body enzymes; helps your body produce energy in the cells.	Deficiency rarely comes from a lack of copper in the diet, but instead from genetic problems or consuming too much zinc.	Beef liver, salmon, sunflower seeds, peanuts, mushrooms.
Fluoride	Helps harden tooth enamel.	Tooth enamel may be weak.	Fluoridated water, tea, and salmon.
Iodine	Serves as part of a thyroid hormone called thyroxin which regulates the rate at which your body uses energy.	Slows down the rate at which the body burns energy; weight gain may become a problem; Goiter, an enlarged thyroid gland is the deficiency disease.	Iodized salt, saltwater fish.
Iron	Serves as an essential part of hemoglobin, which carries oxygen in the blood from lungs to body cells.	Anemia along with fatigue and infections.	Heme iron sources – liver, beef, pork chicken, fish. Non-heme iron sources – fortified cereals, spinach, soybean, nuts, bran, prune juice, raisins, legumes, molasses.
Magnesium	Serves as an important part of body enzymes; helps maintain body cells in nerves and muscles and serves as a component of bones.	Irregular heartbeat, nausea, weakness, and mental derangement.	Legumes, nuts, whole grain products, avocados, green vegetables.

Important Food Sources of Some Minerals (Continued)

Nutrient	Function	Deficiency Symptoms	Food Sources
Manganese	Serves as part of many enzymes.	Not very common.	Whole grain products.
Molybdenum	Works with riboflavin to incorporate the iron stores in the body into hemoglobin.	With a normal diet, no need to worry about deficiency.	Milk, legumes, grain products, wheat germ.
Phosphorus	Helps generate energy in the body cells; acts as a regulator of energy metabolism, serves as a part of DNA and RNA for cell growth and repair.	Deficiency is quite rare.	Milk, meat, poultry, fish, egg, tofu, legumes- kidney beans, nuts, peanut butter.
Potassium	Helps regulate fluids and mineral balance of body cells; maintain normal blood pressure; helps muscles contract.	For healthy people deficiency is rare. If taking a high blood pressure medication, potassium supplement may be necessary.	Fruits, vegetables, fish, meat, poultry.
Selenium	Works as an antioxidant with vitamin E to protect cells from damage which may lead to cancer or other health problems; aids cell growth.	It may affect the heart muscle.	Seafood, liver, kidney, seeds, grain products.
Sodium	Regulates the body fluids in and out of body cells; helps muscles relax and regulates blood pressure.	It is rare but if that happens, symptoms might include nausea, dizziness, and muscle cramps.	Process meats, cheddar cheese, salt, whole wheat bread, whole milk.
Zinc	Promotes cell reproduction and is essential for growth; helps body use carbohydrate, protein and fat.	Childhood – retarded growth; during pregnancy – birth defect. Other symptoms – skin changes, appetite loss, reduced resistance to infections.	Beef, wheat germ, canned crab, black-eyed peas, wheat bran, tofu, sunflower seeds, whole milk.

Calculation of Total Daily Fluid Requirement²

Formula 1 = 30 mL fluid per kilogram actual body weight.³

Formula 2 = 30 mL fluid per kilogram actual body weight with a minimum of 1,500 mL.⁴

Formula 3 = 1 mL fluid per kilocalorie energy consumed.⁵

Formula 4 = 100 mL water per kg for first 10 kg body weight;
50 mL water per kg for the next 10 kg body weight;
15 mL water per kg for the remaining kg body weight.⁶

ie. Minimum of 1500 mL per day for all persons (first 20 kg) then 15 mL per kg over 20 kg.

Example: 61 kg body weight = 1500 for first 20 kg; 41 kg x 15 mL = 615 mL. Total fluid requirement for a 61 kg person = 1500 +615= 2115 mL per day.

Notes Regarding Fluid Requirements for Elderly:

1. The minimum recommendation of 1,500 mL fluid per day, according to formula 2 appears to be adequate for preventing dehydration among elderly without acute illness who reside in long-term care facilities.
2. Formula 1 appears to be adequate when used cautiously in elders who are extremely underweight or overweight.
3. Formula 4 should be used with caution, especially in those who are extremely overweight, as it may overestimate needs.
4. Formula 3 should be used carefully in residents who routinely consume inadequate energy. Further studies that include laboratory data for all participating residents are needed.

² Halben D, Hassell J, Williams J, Helle B, *Fluid Intake compared with established standards and symptoms of dehydration among elderly residents of a long-term care facility*. J Am Diet Assoc. 1999;90:1447-1449.

³ Grant A, DeHoag S. *Nutritional assessment and Support* 4th ed. Seattle, Wash: Anne Grant/Susan DeHoag; 1999:239.

⁴ Chernoff R. Meeting the nutritional needs of the elderly in the institutionalized setting. *Nutr.Rev.* 1994;52: 132-136.

⁵ Food and Nutrition Board: *Recommended Dietary Allowance*, 10th ed. Washington, DC: National Academy Press; 2001.

⁶ Skipper A, ed: *Dietitian's Handbook of Enteral and Parenteral Nutrition*. Rockville, Md: Aspen Publishers; 1993.

Determination of Reasonable Body Weight for Adults

Method I. Use the BMI (see BMI on next page).

The body mass index (BMI)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (cm)}}$$

	Male	Female
Emaciated	<15	<15
Underweight	15-18.9	15-18.9
Normal weight	19-24	19-24
Overweight	25-29	25-29
Obese	>30	>30

Method II. The “Rule of Thumb” determines the ideal body weight. (Hamwi formula)⁷

Female (Adult)

For Medium Frame: Allow 100 pounds for the first five feet of height. Add or subtract five pounds for each inch over or under five feet.

For Small Frame: Subtract 10%

For Large Frame: Add 10%

Example: A female patient with a medium frame who is 5’6” tall would have an ideal weight of 130 pounds.

Male (Adult)

For Medium Frame: Allow 106 pounds for first five feet of height. Add or subtract six pounds for each additional inch over or under five feet.

For Small Frame: Subtract 10%

For Large Frame: Add 10%

Example: A male patient with a medium frame who is 6’ tall would have an ideal body weight of 178 pounds.

⁷ Hamwi G. Changing dietary concepts. In: Danowski TS, ed. *Diabetes Mellitus: Diagnosis and Treatment*. New York, NY: American Diabetes Association.

Method II -BMI Chart

Table T-11 BODY MASS INDEX Chart

Weight in Lb																			
HT. inches	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	40	50
	NORMAL						OVERWEIGHT					OBESE						EXTREME OBESITY	
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	191	239
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	198	247
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	204	255
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	211	264
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	218	273
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	225	282
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	232	291
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	240	300
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	247	309
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	255	319
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	262	328
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	270	338
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	278	348
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	286	358
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	294	368
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	302	378
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	311	389
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	319	399
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	328	410

Adapted from Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults The Evidence Report.

Risk of Associated Disease According to BMI and Waist Size			
BMI		Waist less than or equal to 40 in. (men) or 35 in. (women)	Waist greater than 40 in. (men) or 35 in. (women)
18.5 or less	Underweight	--	N/A
18.5 – 24.9	Normal	--	N/A
25.0 – 29.9	Overweight	Increased	High
30.0 – 34.9	Obese	High	Very High
35.0 – 39.9	Obese	Very High	Very High
40 or greater	Extremely Obese	Extremely High	Extremely High

BMI formula = $\frac{\text{weight (kg)}}{\text{height}^2 \text{ (cm)}}$

Method III: Suggested Weights for Adults⁸

Height	19-34 yrs	35 yrs and older
5'0"	97-128	108-138
5'1"	101-132	111-143
5'2"	104-137	115-148
5'3"	111-146	122-157
5'4"	114-150	126-162
5'5"	118-155	130-167
5'6"	121-160	134-178
5'7"	125-164	138-178
5'8"	129-169	142-183
5'9"	132-174	146-188
5'10"	136-179	151-194
5'11"	140-184	155-199
6'0"	144-189	159-209
6'1"	148-195	164-210
6'2"	152-200	168-216
6'3"	156-205	173-222
6'4"	160-211	177-228
6'5"	164-216	182-234

Method IV: The Metropolitan Height and Weight Tables⁹**To Approximate Your Frame Size**

Bend forearm upward at 90° angle. Keep fingers straight and turn the inside of your wrist toward your body. Place thumb and index finger of other hand on the two prominent bones on either side of the elbow. Measure space between your fingers on a ruler. Compare with tables below listing elbow measurements for medium framed men and women. Measurements lower than those listed indicate small frame. Higher measurements indicate large frame.

Elbow Measurements for Medium Frame

Height in 1" heels	Elbow Breadth	Height in 1" heels	Elbow Breadth
MEN		WOMEN	
5'2" – 5'3"	2½" - 2 7/8"	4'10" – 4'11"	2 ¼" - 2 ½"
5'4" – 5'7"	2 5/8" - 2 7/8"	5'0" – 5'3"	2 ¼" - 2 ½"
5'8" – 5'11"	2 ¾" - 3"	5'4" – 5'7"	2 3/8" - 2 5/8"
6'0" – 6'3"	2 ¾" - 3 3/8"	5'8" – 5'11"	2 3/8" - 2 5/8"
6'4"	2 1/8" - 3 1/4"	6'0"	2 ½" - 2 ¾"

⁸ Reference: JAMA, 1960, 172:658-662. "Copyright 1960, American Medical Association".

⁹ Source of basic data: 1978 Build Study, Society of Actuaries and Association of Life Insurance Medical Directors of America, 1989. Copyright 1983. 1983 Metropolitan Life Insurance Company.

Section T: Appendix

Metropolitan Life Height and Weight Tables at ages 25-59 based on lowest mortality. Weight in pounds according to frame (in indoor clothing weighing 5 lbs. for men and 3 lbs. for women; shoes with 1" heels).

Men				Women			
Height Ft. inches	Small Frame	Medium Frame	Large Frame	Height Ft. inches	Small Frame	Medium Frame	Large Frame
5 2	128-134	131-141	138-150	4 10	102-111	109-121	118-131
5 3	130-136	133-143	140-153	4 11	103-113	111-123	120-134
5 4	132-138	135-145	142-156	5 0	104-115	113-126	122-137
5 5	134-140	137-148	144-160	5 1	106-118	115-129	125-140
5 6	136-142	139-151	146-164	5 2	108-121	118-132	128-143
5 7	138-145	142-154	149-168	5 3	111-124	121-135	131-147
5 8	140-148	145-157	152-172	5 4	114-127	124-138	134-151
5 9	142-151	148-160	155-176	5 5	117-130	127-141	137-155
5 10	144-154	151-163	158-180	5 6	120-133	130-144	140-159
5 11	146-157	154-166	161-184	5 7	123-136	133-147	143-163
6 0	149-160	157-170	164-188	5 8	126-139	136-150	146-167
6 1	152-164	160-174	168-192	5 9	129-142	139-153	149-170
6 2	155-168	164-178	172-197	5 10	132-145	142-156	152-173
6 3	158-172	167-182	176-202	5 11	135-148	145-159	155-176
6 4	162-176	171-187	181-207	6 0	138-151	148-162	158-179

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Requirements for Patients with Paraplegia and Quadriplegia

Ideal body weight for patients with paraplegia and quadriplegia may be estimated using the Dallas-Hall Method:

Ideal Body Weight

Method 1

Males = 106 pounds for the first five feet in height + 6 pounds per inch over five feet

Females = 100 pounds for the first five feet in height + 5 pounds per inch over five feet

To make adjustment for paraplegics, subtract: 5-10% from calculated ideal body weight

To make adjustment for quadriplegic, subtract: 10-15% from calculated ideal body weight

Method 2

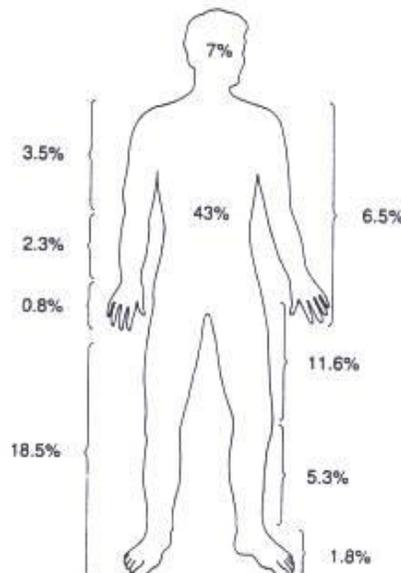
Determine weight range using BMI table
Page T- 28
Make adjustment as per method 1

To make adjustment for paraplegics, subtract: 5-10% from calculated ideal body weight

To make adjustment for quadriplegic, subtract: 10-15% from calculated ideal body weight

Basal energy requirements may be calculated using the Harris-Benedict formula and adjusted weight.

Percentage of Total Body Weight Contributed by individual Body Parts



DETERMINE YOUR NUTRITIONAL HEALTH*

The Warning Signs of poor nutritional health are often overlooked. Use this checklist to find out if you or someone you know is at nutritional risk.

READ THE STATEMENTS BELOW. Circle the number in the Risk Score box for those that apply to you or someone you know. Total your Nutritional score.

	Risk Score
I have an illness or condition that made me change the kind and/or amount of food I eat.	2
I eat fewer than 2 meals per day	3
I eat few fruits or vegetables or milk products.	2
I have 3 or more drinks of beer, liquor or wine almost every day.	2
I have tooth or mouth problems that make it hard for me to eat.	2
I don't always have enough money to buy the food I need.	4
I eat alone most of the time.	1
I take 3 or more different prescribed or over-the-counter drugs a day.	1
Without wanting to, I have lost or gained 10 pounds in the last months.	2
I am not always physically able to shop, cook and/or feed myself.	2
TOTAL	

Total Your Nutritional Score. If it's

0-2 Good! Recheck your nutritional score in 6 months.

3-5 You are at moderate nutritional risk. See what can be done to improve your eating habits and lifestyle. Your office on aging, elderly nutrition program, senior citizens center or health department can help. Recheck your nutritional score in 3 months.

6 or more

You are at high nutritional risk. Bring this checklist the next time you see your doctor, dietitian or other qualified health or social service professional. Talk with them about any problems you may have. Ask for help to improve your nutritional health.

*Source: The Nutrition Screening Initiative

The Nutrition Checklist is based on the Warning Signs described below.*

Use the word DETERMINE to remind you of the Warning Signs.

DISEASE – Any disease, illness or chronic condition which causes you to change the way you eat, or makes it hard for you to eat, puts your nutritional health at risk. Four out of five adults have chronic diseases that are affected by diet. Confusion or memory loss that keeps getting worse is estimated to affect one out of five or more of older adults. This can make it hard to remember what, when or if you've eaten. Feeling sad or depressed, which happens to about one in eight older adults, can cause big changes in appetite, digestion, energy level, weight and well-being.

EATING POORLY – Eating too little and eating too much both lead to poor health. Eating the same foods day after day or not eating fruit, vegetables, and milk products daily will also cause poor nutritional health. One in five adults skip meals daily. Only 13% of adults eat the minimum amount of fruit and vegetables needed. One in four older adults drink too much alcohol. Many health problems become worse if you drink more than one or two alcoholic beverages per day.

TOOTH LOSS/MOUTH PAIN – A healthy mouth, teeth and gums are needed to eat. Missing, loose or rotten teeth or dentures which don't fit well or cause mouth sores make it hard to eat.

ECONOMIC HARDSHIP – As many as 40% of older Americans have incomes of less than \$6,000 per year. Having less or choosing to spend less than \$35-55 per week (depending on where you live) for food makes it very hard to get foods you need to stay healthy.

REDUCED SOCIAL CONTACT – One-third of all older people live alone. Being with people daily has a positive effect on morale, well-being and eating.

MULTIPLE MEDICINES – Many older Americans must take medicines for health problems. Almost half of older Americans take multiple medicines daily. Growing old may change the way we respond to drugs. The more medicines you take, the greater the chance for side effects such as increased or decreased appetite, change in taste, constipation, weakness, drowsiness, diarrhea, nausea, and others. Vitamins or minerals when taken in large doses act like drugs and can cause harm. Alert your doctor to everything you take.

INVOLUNTARY WEIGHT LOSS/GAIN – Losing or gaining a lot of weight when you are not trying to do so is an important warning sign that must not be ignored. Being overweight or underweight also increases your chance of poor health.

NEEDS ASSISTANCE IN SELF CARE – Although most older people are able to eat, one of every five have trouble walking, shopping, buying and cooking food, especially as they get older.

ELDER YEARS ABOVE AGE 80 – Most older people had full and productive lives, but as age increases, risk of frailty and health problems increase. Checking your nutritional health regularly makes good sense.

Level I Screen

Body Weight

Measure height to the nearest inch and weight to the nearest pound. Record the values below and mark them on the Body Mass Index (BMI) scale to the right. Then use a straight edge (ruler) to connect the two points and circle the spot where this straight line crosses the center line (body mass index). Record the number below.

Healthy older adults should have a BMI between 22 and 27.

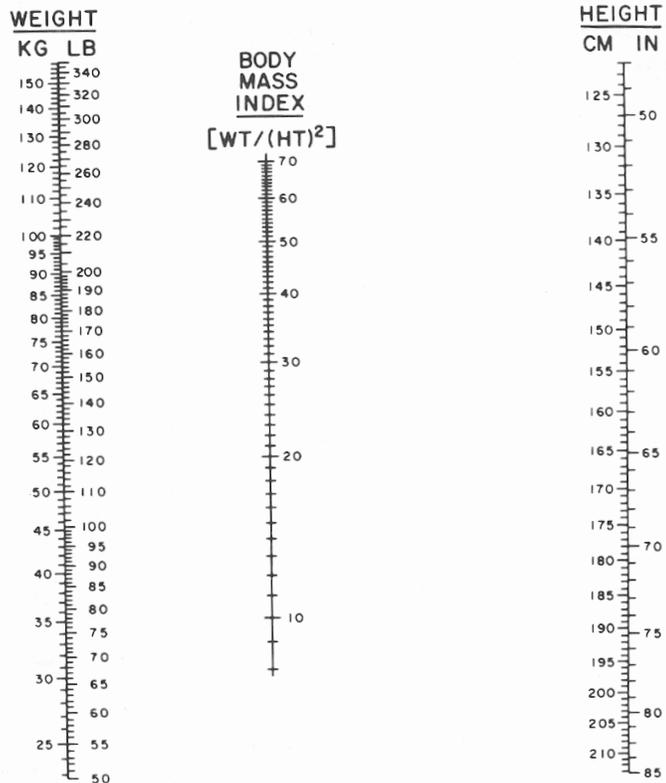
Height (in): _____
 Weight (lbs): _____
 Body Mass Index: _____
 (number from center column)

Check any boxes that are true for the individual:

- Has lost or gained 10 pounds (or more) in the past 6 months.
- Body mass index <22
- Body mass index >27

For the remaining sections, please ask the individual which of the statements (if any) is true for him or her and place a check by each that applies.

NOMOGRAM FOR BODY MASS INDEX



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Eating Habits

- Does not have enough food to eat each day
- Usually eats alone
- Does not eat anything on one or more days each month
- Has poor appetite
- Is on a special diet
- Eats vegetables two or fewer times daily
- Eats milk or milk products once or not at all daily
- Eats fruit or drinks fruit juice once or not at all daily
- Eats breads, cereals, pasta, rice, or other grains five or fewer times daily
- Has difficulty chewing or swallowing
- Has more than one alcoholic drink per day (if woman); more than two drinks per day (if man)
- Has pain in mouth, teeth, or gums

Source: Nutrition Screening Initiative

Dietary Supplements and Herbal Products

Dietary supplements and herbal products are available over the counter. While they do provide a Supplement Facts panel that lists active ingredients, dietary supplements are not regulated like drugs are and therefore require the consumer to educate themselves on the safety and health risks of taking supplements.

List of organizations, websites and articles that provide information on dietary supplements:

Dietary Supplements: What You Need to Know

Dietary Supplements Safety Alerts & Advisories

FDA 101: Dietary Supplements

[Food and Drug Administration \(www.fda.gov\)](http://www.fda.gov)

Using Dietary Supplements Wisely

[National Center for Complementary and Integrative Health \(http://nccih.nih.gov\)](http://nccih.nih.gov)

[Federal Trade Commission \(www.ftc.gov\)](http://www.ftc.gov)

Dietary Supplement Label Database (DSLDB)

Multivitamin/Mineral Supplements

[National Institutes of Health, Office of Dietary Supplements \(http://ods.od.nih.gov\)](http://ods.od.nih.gov)

MedlinePlus Herbs and Supplements

[National Library of Medicine MedlinePlus \(www.nlm.nih.gov/medlineplus/druginfo\)](http://www.nlm.nih.gov/medlineplus/druginfo)

[U.S. Pharmacopia \(www.usp.org\)](http://www.usp.org)

[ConsumerLab \(www.ConsumerLab.com\)](http://www.ConsumerLab.com)

Jewish Dietary Law

The laws of Kashruth "Kosher" or "Kasher", are a discipline of the Jewish faith set forth in the Bible. The laws are concerned with the fitness of food for the Jewish table.

Traditionally, spiritual health, not physical, is the sole reason for observance of the laws. The Kashruth laws help keep the Jewish people aware of their obligations to God, to their fellow men and to themselves.

Jewish dietary laws divide all food into three classifications;

1. Those which are inherently Kosher and may be eaten in their natural state: grain, fruit, vegetables, tea, coffee, etc.
2. Those which require some form of processing to Kosher: meat, poultry and cheese.
3. Those which are inherently not Kosher: pork and pork products, shell fish, fish without scales and fins.

Kosher meat is defined as meat which;

1. Comes only from cloven-hoofed animals which graze and chew their cud: cows, sheep, goats.
2. Is completely healthy.
3. Is quickly and painlessly slaughtered by an ordained "Shocket".
4. Is thoroughly cleaned (Koshered)

"Koshered" meat is soaked in water for one-half hour, salted and left to stand for one hour to drain off the prohibited blood, and then completely rinsed to remove the salt which has soaked up the blood, in preparation for cooking.

Laws

1. All animal products must be kosher.
2. Meat and milk products cannot be cooked together or consumed at the same meal.
3. Milk may be used before a meat meal or six hours after that meat meal.
4. Only those fish that have fins and scales are permitted: i.e. cod, halibut, salmon, sole, tuna.
5. During Sabbath, no cooking or heating of food is permissible.
6. During Passover, no edible fermented grain or related food products are allowed. Unleavened bread (Matzo) or cake using Matzo or potato starch is allowed. No salt is allowed. Products labeled (U)P or (U)K are used for Passover.

No product that is processed can be considered Kosher unless the symbol of certification appears on the sealed package. Such a symbol is the insignia (U) which is the copyrighted symbol for the Union of Orthodox Jewish Congregation of America, who certify that the product is Kosher.

This is provided to the Nutrition Practitioner for information only. Patients requesting "Kosher" diets or special preparation should be interviewed for specific information.

What is the WIC Program?

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) is a federally funded program which serves pregnant, breastfeeding and postpartum women, infants and children under the age of five who are low to moderate income (up to 185% of the federal poverty level) and at nutrition risk. WIC is a short-term intervention program designed to influence lifetime nutrition and health behaviors in a targeted, high-risk population.

The purpose of the WIC Program is to prevent anemia, poor birth outcomes, such as infant mortality and low birth weight, childhood obesity and to improve the nutrition and health of participants. WIC Core Services include client-centered individual and group education, breastfeeding promotion and education, monthly food checks and referrals to community services.

WIC participants receive prescriptive supplemental foods along with nutrition education, breastfeeding support and referrals to attain life-long benefits of good nutrition and healthy lifestyles.

Qualifications / Requirements to be Eligible for the WIC Program

WIC Eligibility Requirements

Applicants must meet all of the following eligibility requirements:

- Categorical
- Residential
- Income
- Nutrition Risk

Categorical Requirement

The WIC program is designed to serve certain categories of women, infants, and children. Therefore the following individuals are considered categorically eligible for WIC:

Women	--pregnant (during pregnancy and up to 6 weeks after the birth of an infant or the end of the pregnancy) --Postpartum (up to six months after the birth of the infant or the end of the pregnancy) --breastfeeding (up to the infant's first birthday)
Infants	(up to infant's first birthday)
Children	(up to child's fifth birthday)

Residential Requirement

Applicants must live in the State in which they apply. Applicants served in areas where WIC is administered by an Indian Tribal Organization (ITO) must meet residency requirements established by the ITO. At State agency option, applicants may be required to live in the State or local service area for a certain amount of time in order to meet the WIC residency requirement.

Income Requirement

To be eligible for WIC, applicants must have income at or below an income level or standard set by the State agency or be determined automatically income-eligible base on participation in certain programs.

Income Standard	The State agency's income standard must be 100 percent of the Federal poverty guidelines (issued each year by the Department of Health and Human Services), but cannot be more than 185 percent of the Federal poverty income guidelines.
Automatic Income Eligibility	<p>Certain applicants can be determined income-eligible for WIC based on their participation in certain programs. These are included individuals:</p> <ul style="list-style-type: none"> ➤ Eligible to receive SNAP benefits, Medicaid, for Temporary Assistance for Needy families (TANF, formerly known as AFDC, AID to Families with Dependent Children), ➤ In which certain family members are eligible to receive Medicaid or TANF, or ➤ at State agency option, individuals that are eligible to participate in certain other State-administered programs.

Nutrition Risk Requirement

Applicants must be seen by a health professional such as a physician, nurse, or nutritionist who must determine whether the individual is at nutrition risk. In many cases, this is done in the WIC clinic at no cost to the applicant. However, this information can be obtained from another health professional such as the applicant's physician.

"Nutrition risk" means that an individual has medical-based or dietary-based conditions. Examples of medical-based conditions include anemia (low blood levels), underweight, or history of poor pregnancy outcome. A dietary-based condition includes, for example, a poor diet.

At minimum, the applicant's height and weight must be measured and blood work taken to check for anemia.

Client's expectation after qualification?

WIC Provides:

1. Nutrition Education
2. Breastfeeding support
3. Referrals for health care, social services and other community programs
4. Checks to buy healthy food like:
 - Fruit and Vegetables
 - Whole Grain Foods
 - Cereal
 - Peanut Butter
 - Dry Beans
 - Milk
 - Cheese
 - Eggs
 - Juice
 - Soymilk and Tofu
 - Canned Fish
 - Baby Foods
 - Baby Formula

How to Contact the WIC Program

For more information about the WIC Program and to locate the WIC Program in your area, go to:

<http://www.fns.usda.gov/wic>

To find necessary websites and phone number

WIC information provided by:

Robin G. Evans, RD, MPH
Director, PHFE-WIC Dietetic Internship

Weight and Measure Equivalents

1 gram = 1 cc = 1 ml = 1/30 of an ounce

1 fluid ounce = 2 tablespoons

1 cup = 8 ounces = 16 tablespoons

5 grams = 1 teaspoon = 5 cc

15 grams = 1 tablespoon = 15 cc

1 kilogram = 1000 grams = 2.2 pounds

1 liter (L) = 1000 cc = 1 quart plus 3 ounces

1 degree centigrade (C) = 1.8 degrees Fahrenheit (F)

ppm = parts per million

ppb = parts per billion

Mg or mgm = milligram

mEq = milliequivalent

1 pound = 16 ounces

To change F° to C°: $F^{\circ} - 32 \times \frac{5}{9} = C^{\circ}$

To change C° to F°: $C^{\circ} \times \frac{9}{5} + 32 = F^{\circ}$

To change mEq Na⁺ to Mg Na⁺: $1 \text{ mEq Na}^+ = 23 \text{ Mg Na}^+$

To change Mg Na⁺ to mEq Na⁺: $\text{Mg Na}^+ \div 22.79 \times 1 = \text{mEq Na}^+$

To change ounces to grams: Multiply ounces by 30

To change pounds to kilograms: Divide pounds by 2.2

To change mEq K⁺ to Mg K⁺: $1 \text{ mEq K}^+ = 39 \text{ Mg K}^+$

To change Mg K⁺ to mEq K⁺: $\text{Mg K}^+ \div 39 \times 1 = \text{mEq K}^+$

ABBREVIATIONS AND TERMS (Commonly Used) *

Abbreviation	Meaning	Abbreviation	Meaning
Abd	abdomen	DASH	Dietary Approaches to Stop Hypertension
Ac	before meals	DAT	diet as tolerated
ad lib	As desired	db	Diabetic
ADL	activities of daily living	DC	discontinue
Adm	admission	dL	deciliter
Alb	albumin	Dx	diagnosis
A/G	Albumin/globulin ratio	DRI	Dietary Reference Intake
AMA	against medical advice	ea	Each
amt	amount	ECG or EKG	Electrocardiogram
Aq	Water	EEG	Electroencephalogram
Approx	approximately	ESRD	End stage renal disease
as tol	As tolerated	eg	for example
ASHD	arterioclerotic heart disease	equiv	Equivalent
		excl	Exclude
BEE	basal energy expenditure		
Bid	twice daily	FBS	fasting blood sugar
Bkfst	breakfast	F	Fahrenheit
BKA	below-knee amputation	ff	force fluid
BM	bowel movement	fld	Fluid
BMI	body mass index	fl oz	fluid ounce
BMR	basal metabolic rate	fdg	Feeding
BP	blood pressure	Fx	Fracture
BUN	blood urea nitrogen		
		g or gm	Gram
C	With	gtt	Drops
C	centigrade, Celsius	g-tube	gastrostomy tube
c/o	complains of		
Ca	calcium	h or hr	hour (s)
CA	Cancer	hs or HS	hour of sleep
CAD	coronary artery disease	Hx	History
CBC	Complete blood count	hyper	above, excess
cc	cubic centimeter	hypo	less than, below
CHD	coronary heart disease		
CHF	congestive heart failure	I & O	intake and output
CHO	Carbohydrate	IADL	Instrumental activities of daily living
Chol	cholesterol		
COPD	chronic obstructive pulmonary disease	IBW	Ideal body weight
		in or"	Inch
CRF	Chronic renal failure	Incl	Include

ABBREVIATIONS AND TERMS (Commonly Used)

Abbreviation	Meaning	Abbreviation	Meaning
CVA	cerebrovascular accident (Stroke)	ICU	intensive care unit
IV	Intravenous	Pro	Protein
IU	International unit	Pt	Pint
		PTA	prior to admission
K	potassium		
kcal	kilocalorie	q	Every
kg	kilogram	q4th	every 4 hours
		qd	every day
L	Liter	qh	every hour
lb	pound	qid	4 times daily
liq	Liquid	qod	every other day
		qt	Quart
m ²	meter(s) squared		
meds	Medication	RBC	Red blood cell
meq or mEq	milliequivalent	re	regarding
mg	milligram	RD	registered dietitian
MI	myocardial infarction	RDA	Recommended Dietary Allowance
		RDN	Registered Dietitian Nutritionist
mL	Milliliter	REE	Resting energy expenditure
mOsm	Milliosmole	red	Reduction
MOM	milk of magnesia	RQ	respiratory quotient
MVI	multivitamin		
		s	Without
n/c	no complaint	S/P	status post
N & V	nausea and vomiting	SOB	shortness of breath
Na	Sodium	stat	immediately or at once
NKA	no known allergies	svg	Serving
NaCl	sodium chloride or salt		
noc	Night	T	Tablespoon
NPO	nothing by mouth	TF	tube feeding
npn	non protein nitrogen	tid	three times daily
od	Once a day	TP	total protein
OD	overdose	UBW	Usual body weight
OGTT	Oral glucose tolerance test	UA	Urinalysis
oz	ounce	via	by the way of
P	phosphorus	Vit	Vitamin
pc	after meals	vs	vital sign
po	by mouth	WBC	White Blood Cell
pm	as necessary		

ABBREVIATIONS AND TERMS (Commonly Used)

Abbreviation	Meaning
wk	week
WNL	within normal limits
wt	weight
x	Times
yr or y	year
Zn	zinc
@	at
÷ or /	divided
=	equal
-	negative
+	positive
>	Greater than
<	less than
#	Number
x	times or by
↑	high, increase
↓	low, decrease
°	Degree
Δ	Change
q	Every
♂	Male
♀	Female

* Check with your healthcare facility for list of acceptable abbreviation.

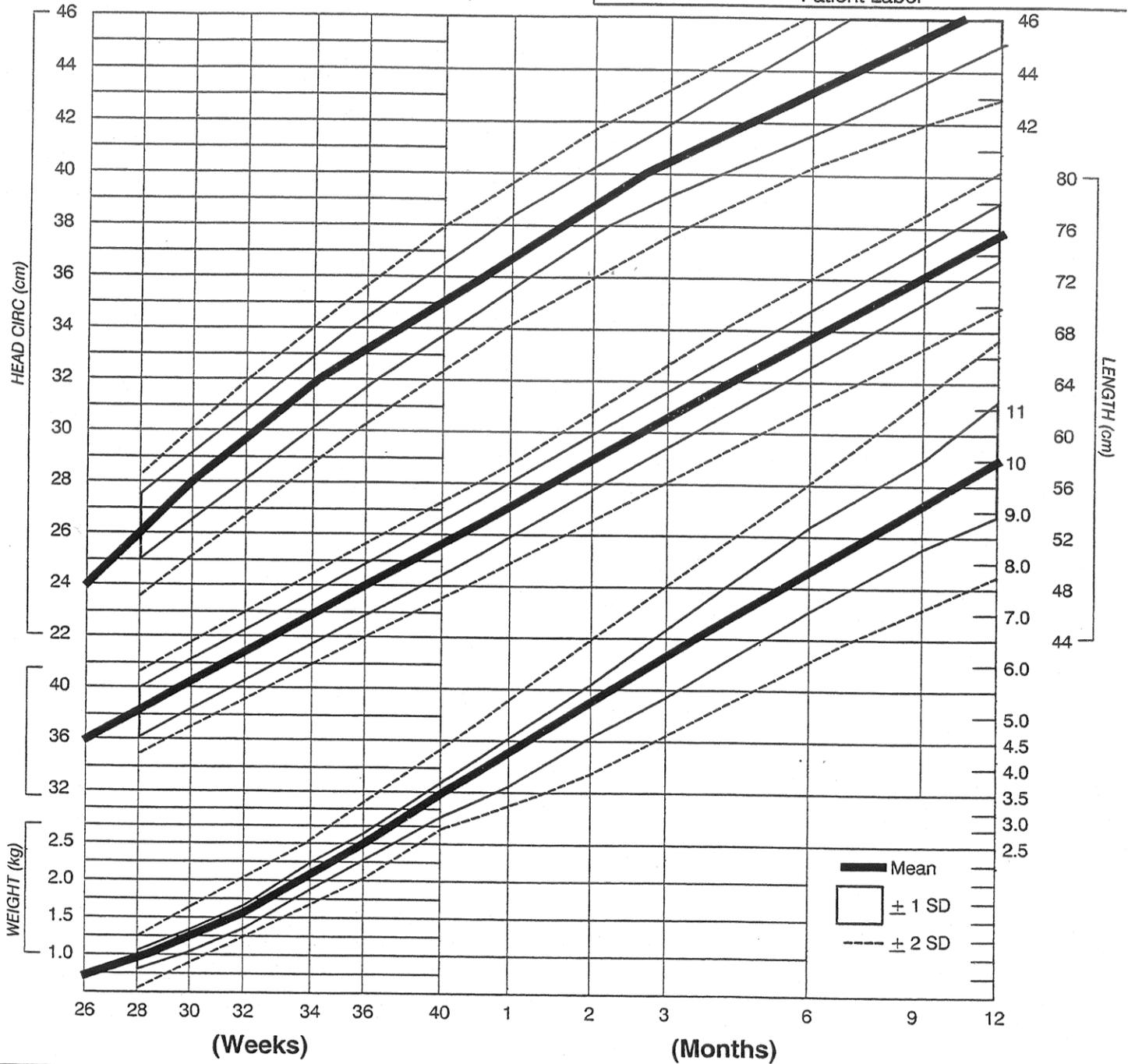
Foods High in Iron (More than 1.5 mg per serving)

Food	Weight (GM)	Approximate Measure	Mg of Iron Per Serving
Artichokes, cooked	120	1 medium	1.55
Apricots, dried	35	10 halves	1.55
Bagels – Cinnamon-raisin	71	3 ½ “	2.70
Bagels – egg	71	3 ½ “	2.83
Baking chocolate, unsweetened	28.4	1 square	1.79
Barley, pearled, cooked	157	1 cup	2.09
Beans, black, cooked	172	1 cup	3.61
Beans, kidney, cooked	177	1 cup	5.20
Beef, bottom round	85	3 oz	2.94
Beef, cured, corned beef	85	3 oz	1.77
Beef, by products, liver	85	3 oz	5.34
Beets, canned	170	1 cup	3.09
Brauschweiger (liver sausage)	56.7	2 slices	5.31
Bread, pita, white, enriched	60	6- ½”	1.57
Brussels sprouts	156	1 cup	1.87
Cereals RTE – Apple cinnamon cheerios	30	¾ cup	4.50
Cereals RTE – Raisin Bran	55	1 cup	18.0
Collards, frozen, chpd, cooked	170	1 cup	1.90
Cookies, molasses	32	1 large	2.06
Crustaceans, shrimp, canned	85	3 oz	2.33
Duck, cooked roasted meat only	110	¼ duck	2.98
Finfish, sardine, canned in oil	85	3	2.48
Lamb, leg, cooked, roasted	85	3 oz	1.80
Lima beans, cooked	180	1 cup	3.51
Macaroni, cooked, enriched	140	1 cup	1.96
Molasses, blackstrap	20	1 tbsp	3.50
Mollusks, clam, mixed species, canned	85	3 oz	23.77
Mollusks, Oyster, raw	84	6 medium	5.59
Mushrooms, canned, drained	156	1 cup	2.71
Nuts, cashew nuts, dry roasted	28.4	1 oz	1.70
Nuts, pine nuts, dried	28.4	1 oz	2.61
Plums, canned purple, heavy syrup	258	1 cup	2.17
Peaches, dried	39	3 halves	1.58
Potatoes, baked flesh and skin	202	1 potato	2.75
Prune juice, canned	256	1 cup	3.02
Raisins, seedless	145	1 cup	3.02
Rice, white long grain, cooked	158	1 cup	1.90
Soybeans, mature cooked, boiled	172	1 cup	8.84
Spaghetti, cooked	140	1 cup	1.96
Spinach, cooked, boiled	180	1 cup	6.43
Sweet potato, cooked in skin	255	1 cup	2.27
Turkey, giblets, cooked	145	1 cup	9.73

Source: USDA Nutrient Database for Standard Reference; Release 14.

GROWTH RECORD FOR PREMATURE INFANTS*
BIRTH TO 1 YEAR, SEXES COMBINED

Patient Label



DATE	AGE	LENGTH	WEIGHT	HEAD CIRC.

DATE	AGE	LENGTH	WEIGHT	HEAD CIRC.

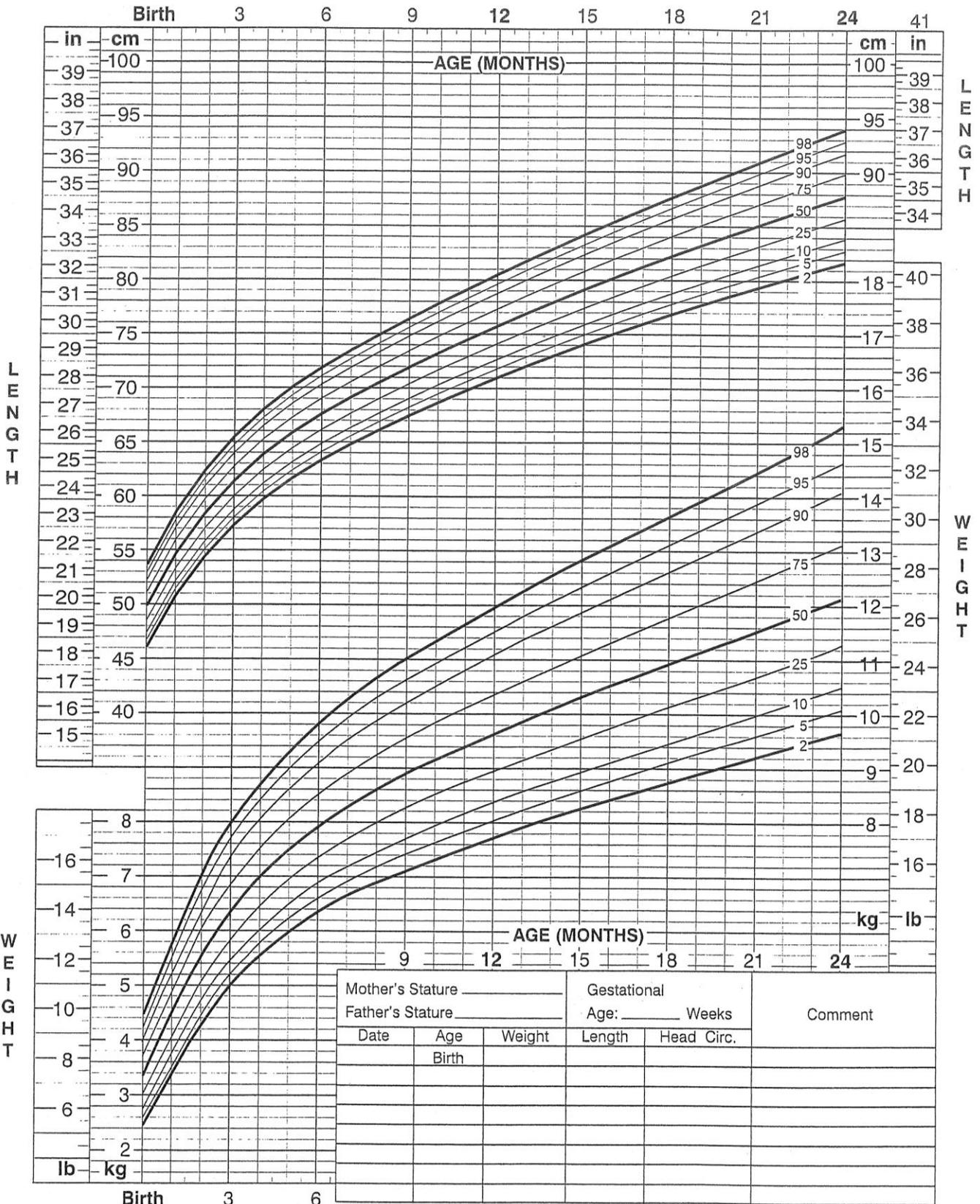
*Adapted with permission: Babson SG Benda
GI Growth graphs for the clinical assessment of
infants of varying gestational age *J Pediatr*
89-814-820-1976.

Mother's stature: _____
Father's stature: _____

Birth to 24 months: Boys
Length-for-age and Weight-for-age percentiles

NAME _____

RECORD # _____



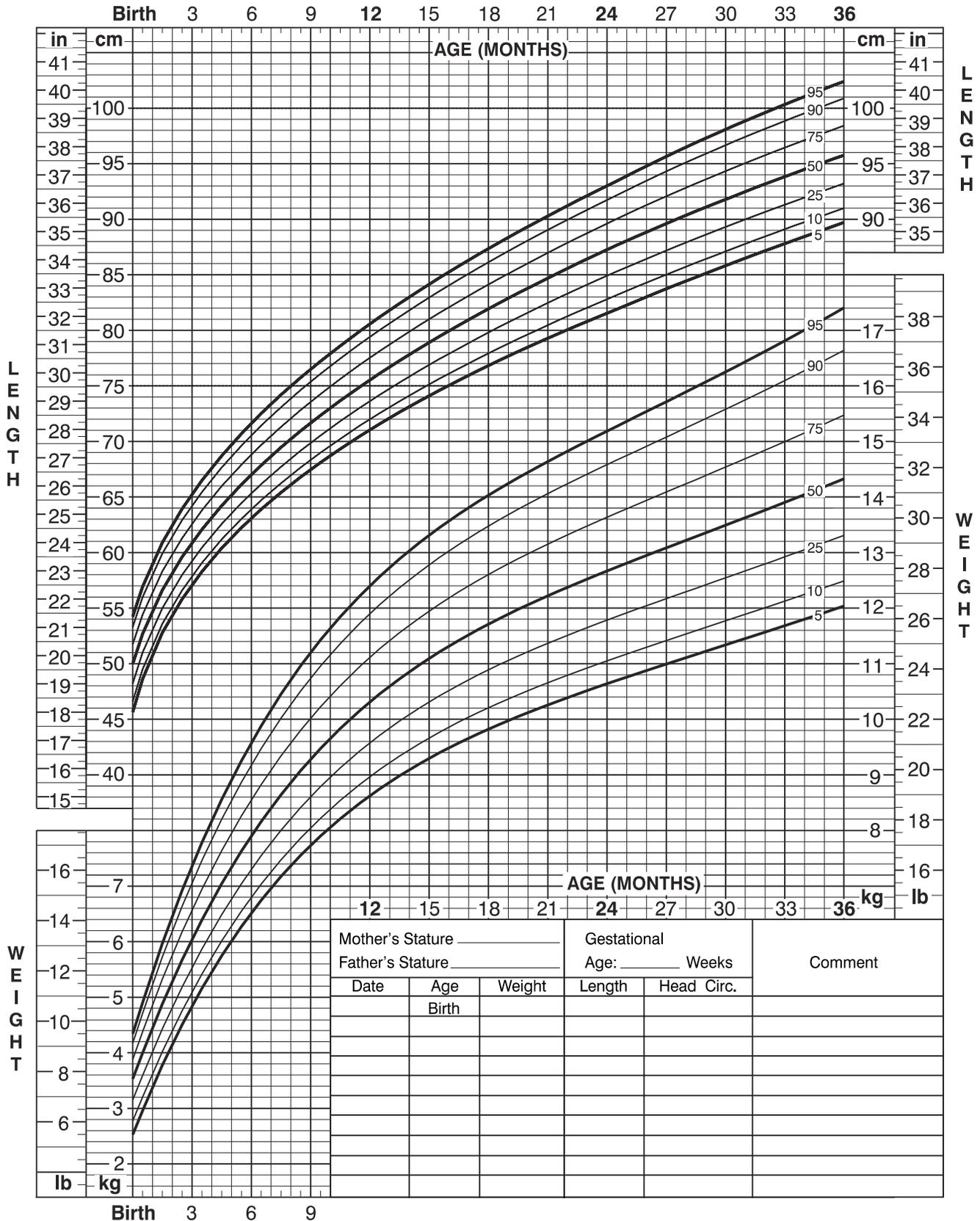
Published by the Centers for Disease Control and Prevention, November 1, 2009
SOURCE: WHO Child Growth Standards (<http://www.who.int/childgrowth/en>)



Birth to 36 months: Boys
Length-for-age and Weight-for-age percentiles

NAME _____

RECORD # _____



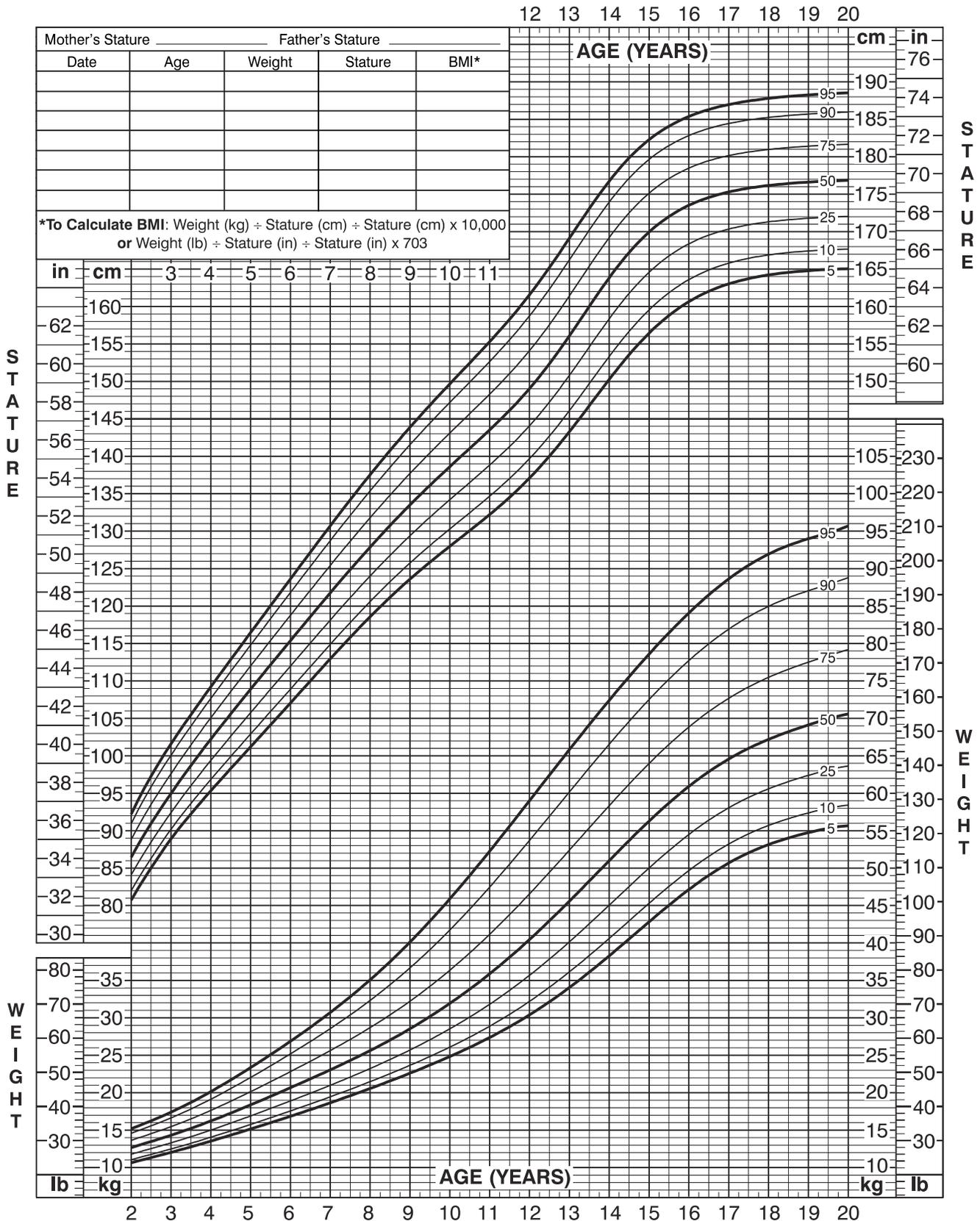
Published May 30, 2000 (modified 4/20/01).
 SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



2 to 20 years: Boys
Stature-for-age and Weight-for-age percentiles

NAME _____

RECORD # _____



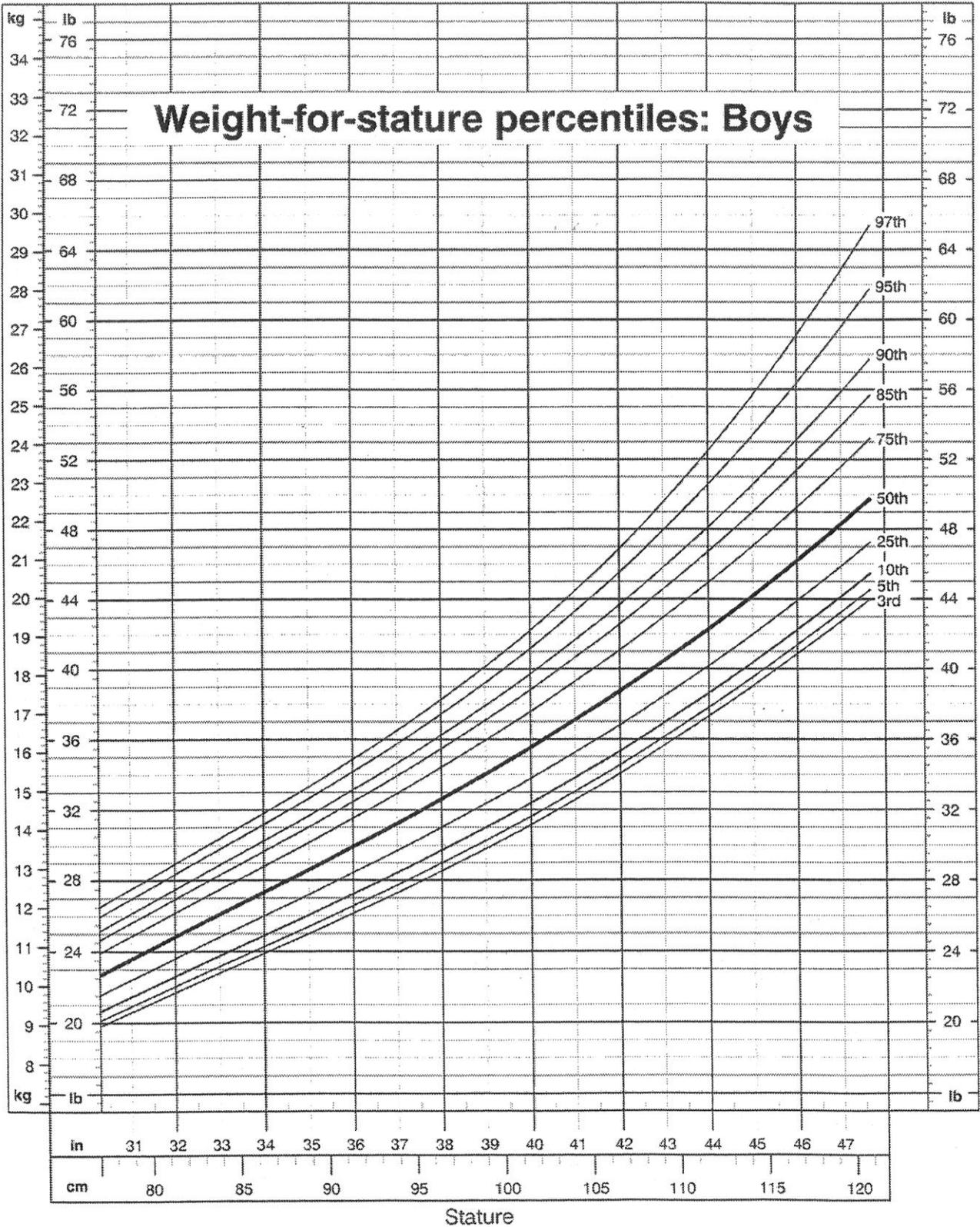
Published May 30, 2000 (modified 11/21/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



CDC GROWTH CHARTS: UNITED STATES

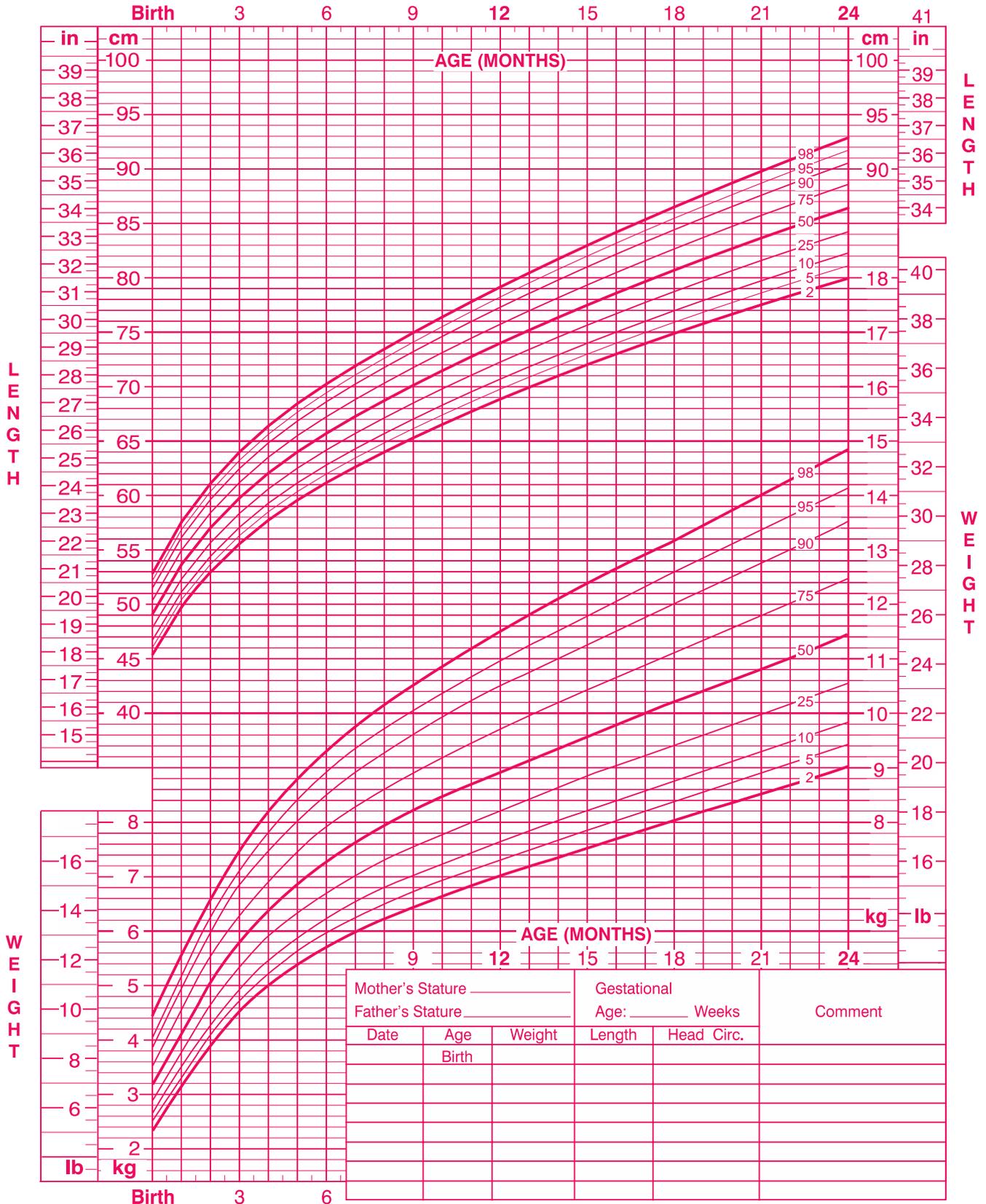
Patient Label



Birth to 24 months: Girls
Length-for-age and Weight-for-age percentiles

NAME _____

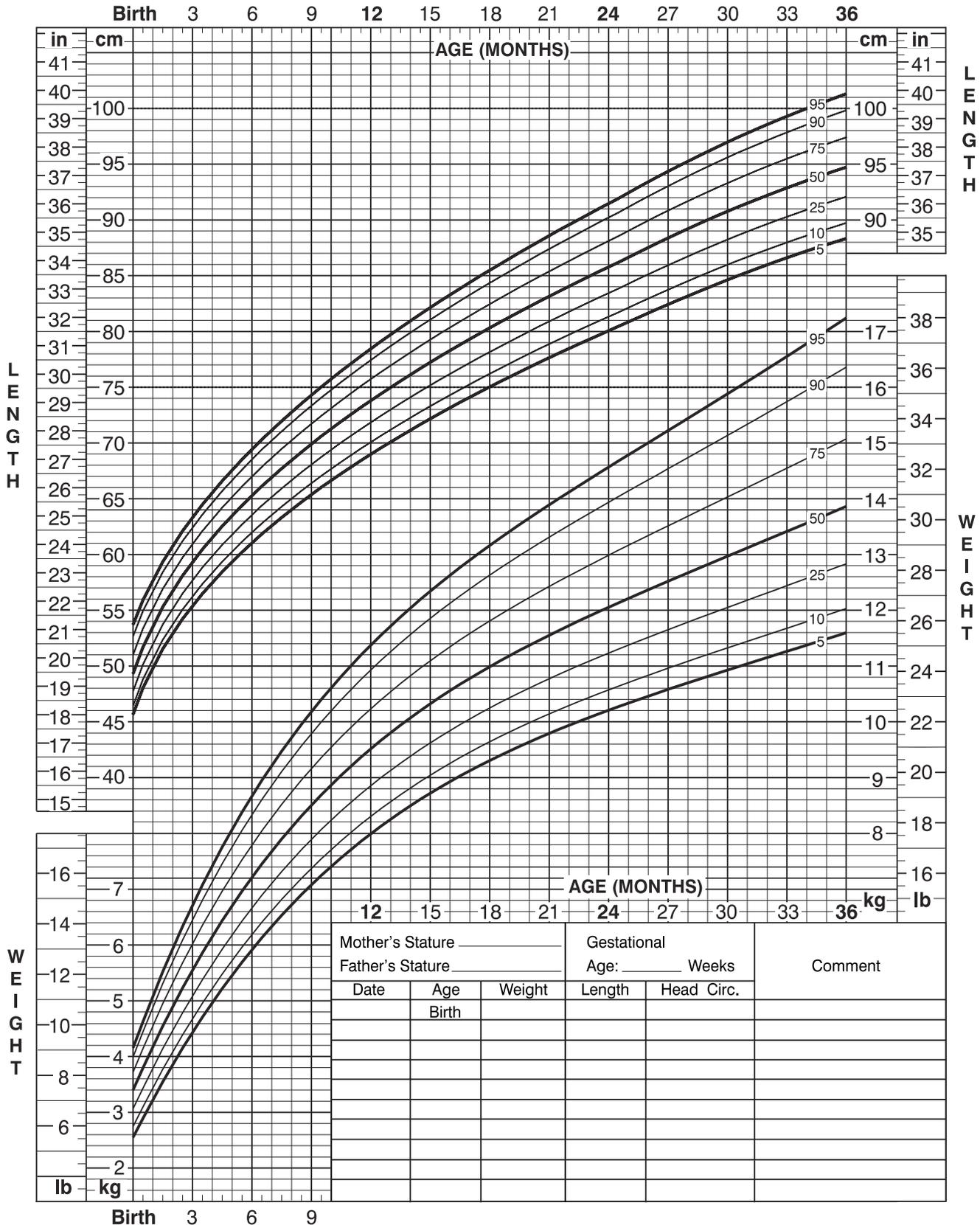
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Birth to 36 months: Girls
Length-for-age and Weight-for-age percentiles

NAME _____

RECORD # _____



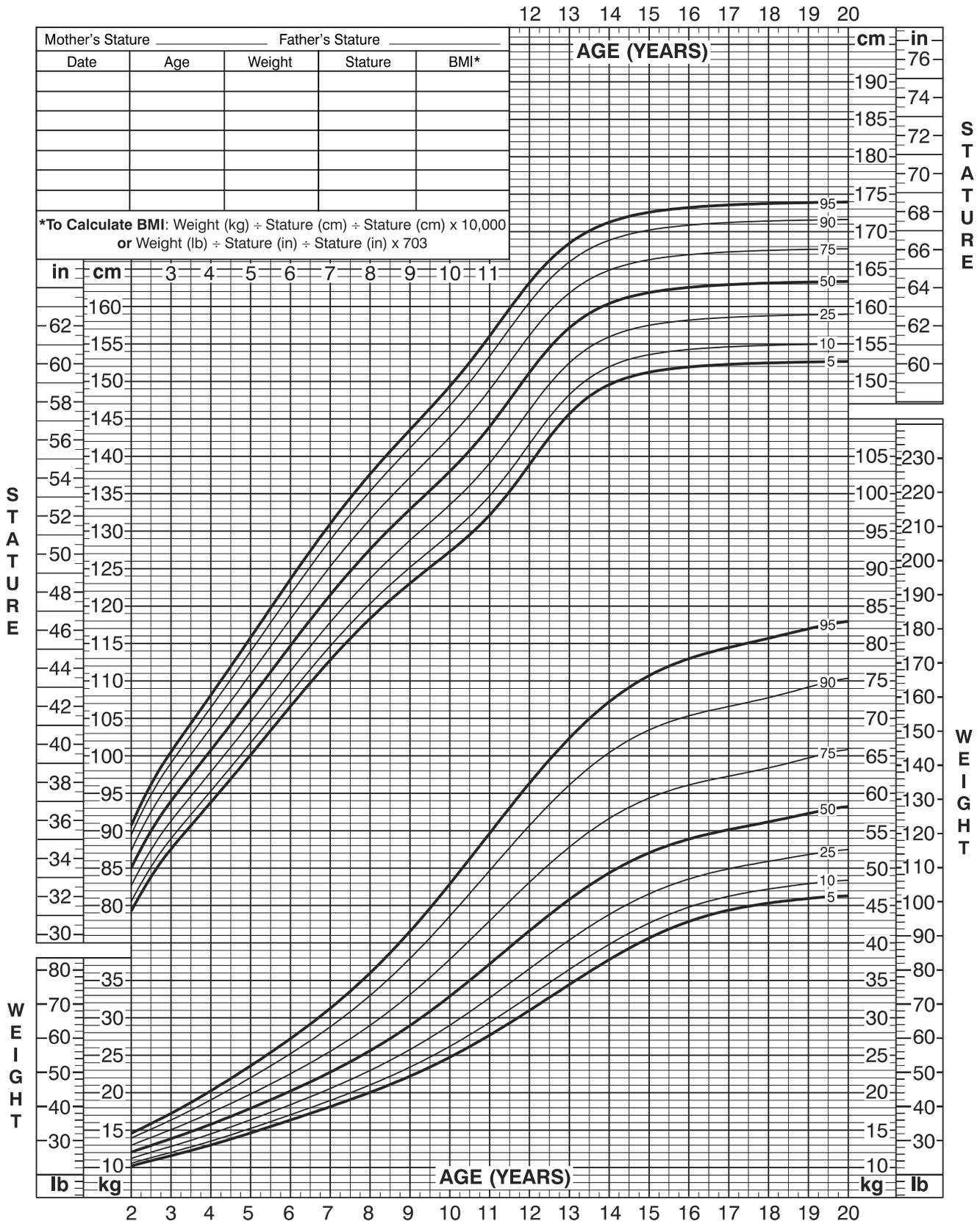
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 SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



2 to 20 years: Girls
Stature-for-age and Weight-for-age percentiles

NAME _____

RECORD # _____



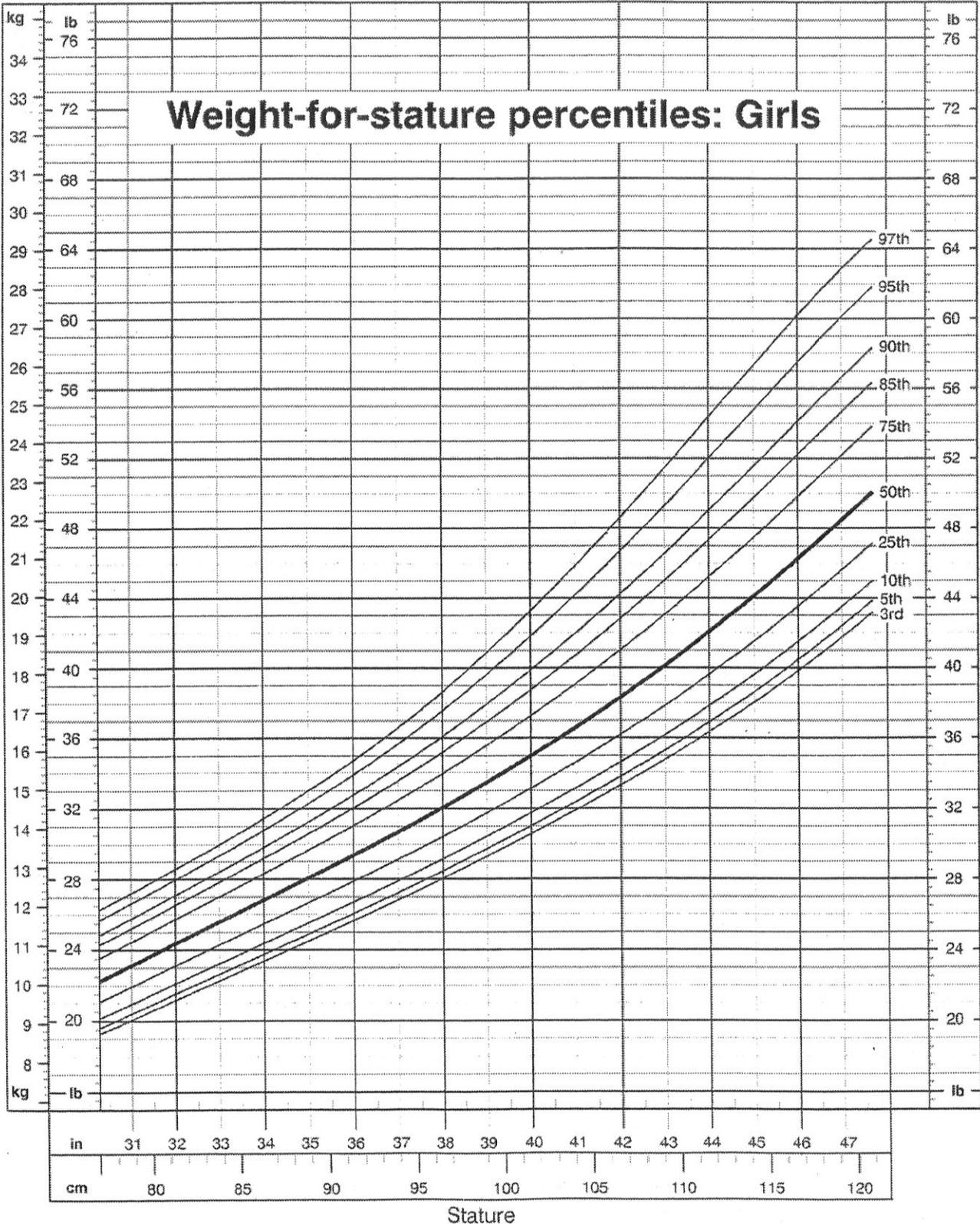
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SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



CDC GROWTH CHARTS: UNITED STATES

Patient Label



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