IDAHO ACADEMY OF NUTRITION & DIETETICS

2015 Diet Manual

Eleventh Edition

The 2015 version of The Idaho Diet Manual is for use in health care facilities. It has been reviewed and approved by The Idaho Department of Health and Welfare Bureau of Facility Standards in accordance with changing dietary practices.

IDAHO DEPARTMENT OF
HEALTH & WELFARE

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February 23, 2015

Sue Linja, RD, LD
S&S Nutrition
P.O. Box 1504
Boise ID 83701

RE: Idaho Skilled Nursing Facilities

Dear Ms. Linja:

I have reviewed the **Idaho Diet Manual for Health Care Facilities, Eleventh Edition – 2015**, for use in facilities in the State of Idaho.

According to the Administrative Rules of the Idaho Department of Health and Welfare, Skilled Nursing and Intermediate Care Facilities, IDAPA 16, Title 03, Chapter 02,107.04.d., "A current diet manual, approved by the Department, ...shall be available in the kitchen and at each nursing station."

This ***diet manual*** is ***approved*** by the Department to be used in ***health care facilities*** in the State of Idaho. When the diet manual is revised, the manual will again need to be sent to the State for approval.

Please place a copy of this letter in the front of each diet manual in health care facilities in the State of Idaho. Additionally include in the diet manuals the enclosed "Addendum to Idaho Diet Manual for Health Care Facilities" indicating "the beverage offered as H.S. snack is to be 100% juice or milk, not punch or other drink mix... All Idaho facilities will adhere to this for their bulk snack distribution at H.S."

Sincerely,

Debby Ransom, RN, RHIT
Bureau Chief

/nm
Enclosed: Addendum
c: Lorene Kayser, LSW, QIPD, Long Term Care Supervisor
David Scott, RN, Long Term Care Supervisor
Nina Sanderson, LSW, Long Term Care Supervisor

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Dietitian Food Service Coordinator

_____ _____

Medical Director Administrator

_____ _____

Director of Nursing

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SECTION 1

INTRODUCTION

Introductions

We hope you enjoy using the eleventh (11th) edition of the *Idaho Diet Manual*. It has been planned primarily for the use in small health care facilities as a basic guide in planning nutritionally adequate meals for all patients/residents/clients. It is not intended to be a comprehensive nutrition reference and client education resource, such as the Academy of Nutrition and Dietetics on line *Nutrition Care Manual.*

The contents of this manual have been approved by the Idaho Diet Manual Review Committee of the Idaho Academy of Nutrition and Dietetics. The Idaho Department of Health and Welfare, Bureau of Facility Standards reviewed and approved this manual for content. The manual is reviewed every five years by Idaho Academy of Nutrition and Dietetics and the Idaho Department of Health and Welfare and updated in accordance with changing dietary practices.

The modified diets included in this manual are those most frequently used or recommended at the present time. Many of the diets are written with liberalization and promotion of quality of life for the older adult in mind. Any facility that routinely uses other diets may add additional sections describing those diets to the manual. These additions should be approved by the facility's medical director and dietitian, and should be placed in all copies of the diet manual in the facility.

This diet manual may be downloaded and stored in a PDF format on the facility computer and/or copied for use as Federal and/or State regulations direct. Single copies of diet descriptions in this manual may be duplicated for use in instructing patients.

The diet manual should be reviewed and approved by your facility medical staff on a yearly basis. Five manual approval forms have been included in the front of this publication.

The authors, reviewers and publishers of this manual shall not be held liable for any damages associated with the use of the manual, including but not limited to the content, errors or omissions, libel, infringement of rights, moral rights or the disclosure of confidential information. If the materials are used to provide nutritional care to aged, sick, or injured persons, the person's physician should be directing all medical and nutrition care. These materials are not intended to be a substitute for professional medical advice.

Acknowledgements

The following is a list of dietitians and other health professionals who volunteered their valuable time to write or update each section of this manual or contribute to the compilation/review of the manual. Your exceptional work and dedication to the field of dietetics is greatly appreciated.

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Idaho Academy of Nutrition and Dietetics Board for their enthusiasm and support of this project.

Front page photo credit: Free Food Photos.com

We would also like to recognize the Saint Alphonsus Regional Medical Center Boise, without whose help we would not have been able to meet the revision deadlines.

Kyle Kamp, RDN, LD
Idaho Diet Manual Revision Chair

General Information

Most of the diet descriptions in this manual will include the following:

- Purpose
- Indications for use
- Nutritional adequacy
- Foods allowed and/or foods to avoid

Average servings given in this manual, unless otherwise indicated, are:

Meat, fish, & poultry	1 ½ - 3 ounces, cooked weight
Macaroni, noodles, rice, & potatoes	½ cup cooked
Fruit & fruit juice	½ cup
Vegetables	½ cup
Bread	1 slice
Cereal	½ cup cooked or ¾ cup ready-to-eat
Butter or margarine	1 teaspoon

Use standard measuring cups and measuring spoons to ensure that correct portion sizes are provided.

Use the following recommendations when purchasing food and beverages:

Food/Beverage Item:	***Use:***
Milk, liquid	Pasteurized, grade A- whole, 2%, or nonfat
Dry powdered milk	Pasteurized, grade A- nonfat
Eggs, whole	Grade A or AA, Pasteurized shell eggs
Eggs, liquid or frozen	Pasteurized
Eggs, powdered	Pasteurized
Salt	Iodized
Bread, cereal, pasta, & rice	Whole grain or enriched

Liberalized Diet Orders

This guide provides direction for standardizing diet orders in a setting where liberalization of the patient/resident/client diets is desired, such as a long term care facility.

Physician Diet Order:	Clarify to Read:
1600, 1800, 2200, 2400, ADA, CHO Controlled, General Diabetic, Low/No Concentrated Sweets (LCS/NCS), Consistent Carbohydrate	Reduced Concentrated Sweets (RCS) [Attempt to provide a Regular Diet, if able]
1000, 1200, 1500 ADA	Reduced Concentrated Sweets with Small Portions
Cardiac, American Heart Association (AHA), Low Fat/Cholesterol/Sodium	No Added Salt (NAS) with Skim Milk
Low Sodium, Low Salt, Low Na+, 2 gm Na+, 3 gm Na+, 4 gm Na+	No Added Salt (NAS)
Low Sodium, Low Potassium, Low Phosphorus	Renal
1600-2400 ADA, Low Sodium, Low Potassium, Low Phosphorus	Renal Diabetic
1000-1500 ADA, Low Sodium, Low Potassium, Low Phosphorus	Renal Diabetic with Small Portions
Soft, Dental Soft, Dysphagia Mechanical Soft	Mechanical Soft
Blenderized, Dysphagia Puree	Puree
Liquid Puree, Drinkable Puree	Fortified Full Liquid

Resource:

"Liberalization of the Diet Prescription Improves Quality of Life for Older Adults in Long Term Care," Journal of the American Dietetic Association, Volume 105, Issue 12, Pages 1955-1065 (December 2005).

SECTION 2

REGULAR DIETS

Regular Diet

Purpose:
To provide adequate nutrients in an effort to promote good health and weight maintenance in individuals without special dietary requirements. This diet does not restrict any nutrient, but should be low in fat, cholesterol, and sodium as aligned by The Academy of Nutrition and Dietetics (NCM, 2014).

When To Use:
This diet may be used for patients that do not require special dietary modifications.

Nutritional Adequacy:
This diet is adequate for adults and teenagers who do not require any dietary modification or restriction.

For a 2,000 calorie diet, the amounts from each food group are listed below. Men may require more than is listed in servings per day.

Menu Planning Guidelines for a Regular Diet based on USDA's MyPlate:		
Food Group	**Servings Per Day**	**Serving Size**
Grains: One-Half should be whole grains.	6 oz every day.	1 slice bread; 1cup ready-to-eat cereal; ½ cup cooked cereal, rice, or pasta
Vegetables: Eat a variety. Emphasize dark-green, red, and orange colored choices.	2 ½ cups.	1 cup raw or cooked vegetables, 1 cup vegetable juice, 2 cups leafy greens.
Fruits:	2 cups.	1 medium piece fruit, 1 cup chopped, cooked, or canned fruit, 1 cup 100% fruit juice.
Milk & Milk Products:	3 cups.	1 cup milk or yogurt, 1 ½ oz natural cheese, 2 oz processed cheese, ½ cup ricotta cheese, 2 cups cottage cheese, 1 cup ice cream or frozen yogurt.
Meat & Beans:	5 ½ ounces	1 ounce cooked lean meat, poultry, fish or shellfish; ¼ cup cooked dry beans; 1 egg; 1 Tbsp. peanut butter; ½ ounce nuts or seeds; 2 ounces tofu.
Fats & Sweets:	As needed to enhance meal & supply additional calories	N/A

Regular Diet (continued)

Sample Meal Pattern for Regular Diet (Providing about 2,000 calories):

Breakfast	*Lunch*	*Dinner*	*Snack*
Whole grain cereal	Whole grain bread	Leafy green salad	Low fat
Fat free/low fat milk	Tuna fish	Salad dressing	Yogurt
Banana	Sliced tomato	Roast chicken breast	
Whole wheat toast	Romaine lettuce	Baked sweet potato	Dried fruit
Margarine or butter	Mayonnaise & mustard	Steamed broccoli	
Orange juice	Fresh or canned pears	Whole grain roll	
Coffee or tea	Fat free/low fat milk	Margarine or butter	
Cream & sugar		Coffee or tea	
		Cream & sugar	

Resource:

Academy of Nutrition and Dietetics Nutrition Care Manual. "Normal Nutrition" Academy of Nutrition and dietetics, Accessed 01 December 2014, http://www.nutritioncaremanual.org/category.cfm?ncm_category_id=1&ncm_heading=Normal%20Nutrition.

Regular Diet for Children

Purpose:
To provide guidelines for planning the individual daily food intake of children of various ages using the Dietary Reference Intakes Recommended for Individuals (DRI).

Indications for Use:
These guidelines are intended for use in children from 0-18 years of age.

Nutritional Adequacy:
The mineral, vitamin and protein content of these diets meet the DRIs. Additional servings of starches, sugars, and fats may be included as needed to meet the increased caloric needs of certain pediatric populations. The food served every day is similar to that of the normal diet, but the amounts of each food will vary with the age, size of the child and activity involvement.

Determining Caloric Needs for Children:

- Provide 1000 calories for the 1st year of life.
- Provide an extra 100 calories for each additional year of life.
- Provide an additional 100 calories for males and active females

Approximate Age	Calories Per kg*	Grams Protein Per kg*
0- 6 months	108	1.5
7- 12 months	98	1.0
1- 3 years	102	1.2
4- 5 years	90	1.0
5-11 years	70	1.0
11- 14 years	40-55	1.0
15- 18 years	35-50	0.8-0.9

* Using recommended weight for age

Diet for Children (continued)

Daily Recommended Food Intake			
Food Group:	**1 - 3 years (900-1300 Calories)**	**4 - 6 years (1200-1600 Calories)**	**12 - 17 years (1800-2100 Calories)**
Milk	2 cups*	2 - 3 cups**	3 – 4 cups**
Meat, poultry, fish, cheese, eggs	1 - 1 ½ oz	2 oz	2 oz
Dried beans, peas, lentils***	2 - 4 Tbsp.	½ cup	½ cup
Vegetables****	⅓ - ½ cup	1 cup	1 ½ cups
Fruits*****	½ - ¾ cup	1 cup	1 ½ cups
Bread, whole grain or enriched	½ - 1 ½ slices	3 slices	5 slices
Cereal, whole grain or enriched	¼ - ⅓ cup	½ cup	¾ cup
Fats and oils	½ - 1 Tbsp.	1 - 1.5 Tbsp.	2 Tbsp.
Desserts	¼ - ⅓ cup	½ cup	½ cup

* Children under two years of age should receive whole milk.
** Milk listed is fat free (except for children under two years of age).
*** May be served 2 - 3 times per week in place of meat, cheese, or eggs.
**** Provide at least one serving of leafy green or yellow vegetable or fruit per day.
***** Provide at least one serving of a high Vitamin C fruit per day, such as citrus fruit or fresh strawberries.

Resources:

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Pediatric Normal Nutrition Academy of Nutrition and Dietetics, Accessed 11 December 2014, https://www.nutritioncaremanual.org/category.cfm?ncm_category_id=12&n cm heading=

Regular Diet for Older Adult Nutrition

Purpose:
Requirements for protein, vitamins and minerals are the same as for other adults; only the calorie level is reduced. This means using less concentrated sweets, rich sauces, gravies and desserts and somewhat smaller servings of other foods, especially fats and carbohydrates.

When To Use:
The appropriate time to implement this diet is when adults begin to approach an age equal to or greater than 60 years of age.

Nutritional Adequacy:
A menu planned with approximately 1800 calories per day can be easily adjusted to supply extra calories for the few who require more by giving larger portions and/or additional bread and milk. Please use this principle in planning a menu similar to the above menu for regular diets.

Principles of Planning Menus for Older Adults:

- Serve foods in an attractive manner that will enhance the eating experience.
- Honor individual food preferences whenever possible.
- Provide foods with a variety of tastes, textures, colors, and appropriate temperatures at every meal.
- Use herbs and spices to enhance the flavor of foods for older adults who experience taste alteration.
- Ensure that texture altered diets are well seasoned and presented attractively with garnishes.
- For older adults with reduced appetite or early satiety, provide smaller, but more frequent meals and snacks throughout the day.
- Confer with the patient's dietitian and/or physician to determine if a multivitamin or mineral supplement is appropriate for the patient.
- Oral supplementation provided between meals rather than meals has been observed as beneficial for increasing nutrient intake and reduce risk of wounds (NCM, 2014).

Vegetarian Diets

Purpose:
A vegetarian diet replaces some or all animal food sources with plant sources. This diet may be followed for health, economical, ethical, religious, ecological, and/or philosophical reasons.

When To Use:
This diet is appropriate when a patient is pursuing a vegetarian lifestyle.

Nutritional Adequacy:
A vegetarian diet can meet current recommendations for all nutrients. Well-planned vegetarian diets are appropriate for individuals during all stages of the lifecycle.

Vegetarian diets may have lower intakes of iron, calcium, Vitamin B_{12}, Vitamin D, zinc and long chain fatty acids depending on food choices, but may be adequate with a careful selection of foods, including fortified foods or supplements.

Despite this diet being lower in fat and cholesterol than the traditional carnivorous diet, attention should be paid to minimize foods that are highly sweetened, high in sodium, and fat. The 2014 Nutrition Care Manual also promotes the utilization of a Vitamin B-12 sources and, if exposed to minimal sunlight, a source of Vitamin D (NCM, 2014).

The following chart summarizes the three most popular vegetarian diets:

Type of Vegetarian Diet	Avoids	Allows
Lacto-ovo vegetarian	Meat, poultry, fish	Dairy products, eggs
Lacto-vegetarian	Meat, poultry, fish, eggs	Dairy products
Vegan	Any product derived from animal origins, including meat, poultry, fish, eggs, dairy (including butter), honey, gelatin	Foods of plant origins

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Vegetarian Diets (Continued)

Lacto-Ovo Vegetarian Diet:

Type of Foods	**Foods to Include**	**Foods Not Allowed**
Grains – 6-11 servings.	All fortified ready to eat cereals, cooked cereals, enriched breads, tortillas, muffins, bagels, biscuits, rolls crackers, pasta, rice, oats, bulgur, quinoa, couscous, cornmeal.	Breads and cereals prepared with meats.
Legumes, nuts, and other protein rich foods – 5 servings.	Cooked beans, peas, lentils, tofu or tempeh, nuts, nuts and seed butter, meat analogs (soy or vegetable products), egg.	Meat, poultry, fish.
Vegetables – 4 servings.	All fresh and cooked vegetables, vegetable juice.	
Fruits – 2 servings.	All fresh and cooked fruits, dried fruits, fruit juice.	
Fats – 2 servings	Plant oils, margarine, mayonnaise.	
Calcium-rich foods – 8 servings (may be included as above food choices).	Milk, yogurt, cheese, fortified soy or almond or rice milk, tempeh and tofu, almonds, sesame tahini, soybeans, bok choy, broccoli, collards, Chinese cabbage, kale, mustard greens okra, fortified fruit or vegetable juice, fortified margarines.	
Source of Vitamin B_{12}.	Vitamin B_{12} fortified foods, such as fortified soy and rice beverages, some breakfast cereals and meat analogs, or Red Star Vegetarian Support Formula nutritional yeast; otherwise a daily Vitamin B_{12} supplement is needed.	

Vegetarian Diets (Continued)

Sample Meal Pattern for Lacto-Ovo Vegetarian Diet:

Breakfast	*Lunch*	*Dinner*	*HS Snack*
4 oz citrus juice	2 egg omelet	1 cup chili	1 small banana
¾ cup hot cereal	½ cup rice	½ cup broccoli	3 graham crackers
3 Tbsp. walnuts	½ cup green beans	1 slice bread	
1 slice toast	1 slice bread	2"x2" apple cobbler	
1 tsp margarine	1 tsp margarine	8 oz milk or soy milk	
8 oz milk or soy milk	½ cup strawberries	Coffee or Tea	
Coffee or tea	8 oz milk or soy milk		
	Coffee or Tea		

Useful Web sites concerning Vegetarian Diets:

1. Mayo Clinic:
   http://www.mayoclinic.com/health/vegetarian-diet/HQ01596

2. Medline Plus, Vegetarian Diet:
   http://www.nim.nih.gov/medlineplus/vegetariandiet.html

Resource(s)

1. Position Paper of American Dietetic Association: Vegetarian Diets, *Journal American Dietetic Association,* 2009; 109:1266-1282.

2. Messina V., Melina V., Mengels AR., A New Food Guide for North American Vegetarians, *Journal American Dietetic Association,* 2003; 103:771-775.

3. Academy of Nutrition and Dietetics Nutrition Care Manual. "Vegetarian Nutrition" Academy of Nutrition and dietetics, Accessed 03 December 2014, http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=111854&ncm_category_id=1

SECTION 3

Texture Modification and National Dysphagia Diet

Clear Liquid Diet

Purpose:
A diet made up of clear fluids and intended to be used for a short period only (24-48 hours). Tonsillectomy variation included in this diet (no reds). It should be noted other liquids may be provided only if ordered by the physician.

Indications for Use:
Immediate pre- or post-operative periods or whenever a minimal amount of residue in the intestinal tract is necessary.

Diabetic Patients: The primary source of energy in the clear liquid diet is sugar. Despite the presumed ill-association of "sugar" in a diabetic's diet, research has confirmed that a diabetic patient should not receive "sugar-free" clear liquids. They further suggest a diabetic patient should receive approximately 200g of carbohydrate spread equally throughout the day (NCM, 2014).

Nutritional Adequacy:
Inadequate in all respects. Supplies fluids and electrolytes only.

Foods to Choose	**Foods to Avoid**
Fat free broth or bouillon	All others
Coffee or tea (no milk or cream)	
Flavored gelatin	
Popsicles	
Hard candy	
Clear carbonated soft drinks	
Cranberry, grape and apple juice	
Other fruit juices and carbonated beverages	
Clear liquid high calorie, high protein nutrition supplement	
Sugar	

Sample Meal Pattern for Clear Liquid Diet:

Breakfast	***Lunch***	***Dinner***
Cranberry juice	Grape juice	Apple juice
Chicken broth	Vegetable broth	Beef broth
Lime gelatin	Lemon gelatin	Strawberry gelatin
Coffee or tea	Coffee or tea	Coffee or tea
Sugar	Sugar	Sugar

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Clear Liquids" Academy of Nutrition and Dietetics, Accessed 03 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&ncm_toc_id=255536&ncm_heading=Nutrition Care&ncm_content_id=110846#ClearLiquidDietInformation

Full-Liquid Diet

Purpose:
To provide liquid foods that are easily digested and contains minimal herbs, spices, and seasonings. As a rule of thumb, foods allowed on this diet typically become liquid if left at room temperature. The diet is generally used in the transition from a clear liquid to regular diet.

Indications for Use:
Any condition for which it is desired that liquid foods (or those that become liquid at body temperature) be served. It is not recommended for long-term use. The 2014 Nutrition Care Manual notes there is no current data supporting the use of full-liquid diets as a part of post-operative diet progression; however, it is traditionally ordered as a step in the transition to a regular or therapeutic diet. (NCM, 2014).

Nutritional Adequacy:
It is unlikely that this diet will provide 100% of a patient's needs. However, utilizing oil, butter, dry milk powder and other food ingredients will increase the caloric content of the diet. This may sometimes be referred to as a "fortified" or "enhanced" full-liquid diet. Below are suggestions on how to enhance/fortify a full-liquid diet.

In addition, a multivitamin/mineral supplement should be provided due to the deficit in several micronutrients. This diet is also low in iron. Unless foods can be taken in sufficient amounts, it will also be low in calories, protein, fiber, folic acid, niacin, and thiamine. The following chart summarizes foods allowed on this diet:

Food Group	Foods To Choose	Foods to Avoid
Milk:	Milk; buttermilk; whipped cream; yogurt without fruit chunks.	All others.
Eggs:	Eggnog; custard.	All others.
Vegetables:	Strained vegetable juice.	All others.
Fruits:	Fruit juice without pulp.	Prune juice; all other fruits.
Cereals & Bread:	Strained cream of wheat; cream of rice; cornmeal; blenderized oatmeal.	All others.
Soups:	Blenderized cream or broth-based soups.	Highly seasoned soups.
Fat:	Butter; margarine; whipping cream.	All others.

Full-Liquid Diet (Continued)

Fortification/Enhancement Suggestions

- May add dry powdered milk to cooked items such as cream soups, cereals, and desserts. Use of half and half instead of milk can also be beneficial if the patient is able to tolerate it.
- If indicated, add 1-2 oz pureed or finely ground meat to broths and soups.
- Extra butter, margarine, or oil may be used in soups, cereals, or pureed vegetables.
- High calorie, high protein liquid supplements may be provided in 4-8 oz servings throughout the day. *

Sample Meal Pattern for Full-Liquid Diet:

Breakfast	***Lunch***	***Afternoon Snack***	***Dinner***	***Evening Snack***
Strained hot cereal	Fruit juice	Nutrition Supplement	Fruit juice	Nutrition Supplement
Milk	Strained cream soup		Broth	
Citrus fruit juice	Ice cream		Custard	
Coffee or tea	Milk		Milk	
Cream and sugar	Coffee or tea		Coffee or tea	
	Cream and sugar			

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Full Liquid Diet Information" Academy of Nutrition and Dietetics, Accessed 03 December 2014, http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=110849&ncm_category id=1#FullLiquidDietInformation

Fortified Full Liquid Diet

Purpose:
To provide additional calories and protein above the amount normally provided on a full liquid diet, so that it is appropriate for long term use.

Indications for Use:
This diet can be used when a liquid diet is required for an extended period of time, as in wired jaw, burn cases, febrile states, etc. It may also be used in end-stage dementia when a person can no longer chew food. This diet may also be used for patients requiring a high calorie, high protein liquid diet temporarily. Like the full-liquid diet, the 2014 Nutrition Care Manual notes there is no current data supporting the use of this diet as a step in the diet progression to a regular diet (NCM, 2014).

Nutritional Adequacy:
This diet can be made adequate if the daily menu is carefully planned. This diet will provide approximately 2500 calories and 100 grams of protein per day. A multivitamin/mineral supplement should be provided due to the deficit in several micronutrients.

Foods Allowed

Milk
- May add dry powdered milk to cooked items such as cream soups, cereals, and desserts.
- Use half and half instead of milk, as tolerated.
- Use whole milk for drinking

Meat
- If indicated, add 1-2 oz pureed or finely ground meat to broths and soups.

Vegetables and Fruit
- Include pureed fruits and vegetables that have been thinned with fruit or vegetable juice to a pourable consistency.

Fats and Sweets
- Extra sugar may be used to sweeten beverages and cereals.
- Extra butter, margarine, or oil may be used in soups, cereals, or pureed vegetables.

Other
- High calorie, high protein liquid supplements may be provided in 4-8 oz servings throughout the day.

Fortified Full-Liquid Diet (continued)

Sample Meal Pattern for Fortified Full-Liquid Diet

Breakfast	***Lunch***	***Dinner***
8 oz cooked cereal thinned with half n' half	8 oz blenderized cream soup	8 oz blenderized cream soup
4 oz pureed fruit, thinned with fruit juice	4 oz pudding, custard or ice cream	4 oz pudding, custard or ice cream
8 oz whole milk	4 oz pureed fruit, thinned with fruit juice	4 oz pureed fruit thinned with fruit juice
4 oz fruit juice	4 oz vegetable juice	4 oz fruit or vegetable juice
4-8 oz liquid nutritional supplement*	4-8 oz liquid nutritional supplement*	8 oz whole milk
Hot chocolate, coffee, or tea (optional)	Hot chocolate, coffee, or tea (optional)	4-8 oz liquid nutritional supplement*
		Hot chocolate, coffee, or tea (optional)

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Full Liquid Diet Information" Academy of Nutrition and Dietetics, Accessed 03 December 2014,http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=110849 ncm_ category_id=1#FullLiquidDietInformation

Thickened Liquid Diet

Purpose:
For some patients/residents/clients, increasing the thickness of fluids decreases the likelihood of liquids entering a person's lungs which can lead to aspiration pneumonia.

Indications for Use:
Thickened liquids are prescribed to patients/residents/clients with swallowing problems.

Nutritional Adequacy:
This is not a diet per se, but rather a modality of thickening beverages to decrease the risk of aspiration. These orders should be used in conjunction with a patient's appropriate diet. Please refer to the section in this manual that discusses the patient's diet if needed.

General Guidelines:

Consistency	Description	Examples
Thin	Regular beverages.	Water, coffee, tea, soda, juices, milk
Nectar-Thick	Nectar-consistency Discontinuous "beads" when poured.	Fruit nectars – apricot, peach, pear. Vegetable juice.
Honey-Thick	Honey-consistency Continuous "string" when poured.	Commercial thickener or product needed to achieve Honey-thick consistency.
Pudding-Thick	Pudding-consistency "spoons" out of cup	Pudding. Commercial thickener or product needed to achieve Pudding-thick consistency.

- When using commercial thickeners, the manufacturer's guidelines must be followed to decrease the risk of incorrectly thickened beverages.

- Thin liquids would be considered anything that is liquid at room temperature. These include but aren't limited to malts, ice cream, yogurt, and jello.

- Foods or beverages that liquefy at body temperature, such as gelatin, milkshakes, ice cream, etc., are restricted for patients on thickened liquids.

- Fruits with high water content must be drained or have additional fluid thickened to the correct consistency. These fruits typically include watermelon, pineapple, and mandarin oranges.

Thickened Liquid Diet (continued)

- All liquids must be thickened to the correct consistency including soup, water, coffee, and liquid supplements.

- A Frazier or 'free water' protocol may be in use for a particular patient and must be ordered by the physician. Check individual facility policies as applicable.

- Refer patients/residents/clients requiring thickened fluids or with swallowing problems to a licensed speech pathologist.

Textured Altered Diets Introduction

Purpose:
Texture altered diets are prescribed for patients who have chewing problems and/or swallowing difficulties. These maladies can exist at any age or disease state; however, it is particularly prevalent among the aging population. The disruption of the swallowing mechanism at any point from chewing to the entry of the food into the stomach can raise red flags that a texture altered diet may be indicated for use. Signs and symptoms of existing swallowing disruptions that may include the following:

- Coughing frequently before, during, or after a swallow
- Frequent throat clearing
- Needing to swallow 3-4 times for each bite of food
- Pocketing foods in the mouth
- Taking a long time to begin a swallow
- Recurring to persistent pneumonia or repeated upper respiratory infections
- Rocking the tongue back and forth
- Sensation of food sticking in the throat
- Wet/gurgle voice.
- Runny nose

(Dorner, 2011)

Indications for Use:
A texture-altered diet may be indicated for patients that have chewing and/or swallowing problems due to a variety of health disparities (i.e. stroke, weakness with CHF, and poor dentition).

Nutritional Adequacy:
When a variety of foods are selected, the dysphagia diet will provide all nutrients required to meet the Dietary Reference Intakes Recommended for Individuals (DRI).

Explanation:
Dietary managers and registered dietitians may work with speech language pathologists to develop dietary guidelines for patients requiring these diets. The diet is best utilized with the guidance of a speech and language pathologist and typically includes a swallowing evaluation to assess the ability of a patient to swallow solids and liquids. Results of the evaluation should be communicated to the dietary service manager and/or the dietitian so the appropriate diet can be selected. The diet order should include both the thickness of the liquid as well as the consistency of the food.

The following pages highlight two of the most commonly ordered diets involving texture modification: purred and mechanical soft diets.

Resources

1. Dorner, Becky and Associates. *Becky Dorner and Associates Diet Manual*. 7th ed. 2011. Print.

Mechanical Soft Diet

Purpose:
The mechanical soft diet is designed to provide a texture modification of the regular diet for patients with chewing or swallowing difficulty. Meats are in the ground form. All raw and hard to chew foods are omitted. Spiced foods and foods high in fiber are not restricted unless the patient does not tolerate them.

Indications for Use:
The mechanical soft diet can be used for individuals who have difficulty chewing regular textures due to missing teeth or poor fitting dentures. This diet is generally us as a stepping-stone between the puree and more solid textures (Level 3).

Nutritional Adequacy:
When a variety of foods are selected, the mechanical soft diet will provide all nutrients required to meet the Dietary Reference Intakes Recommended for Individuals (DRI).

Food Group	Foods to Choose	Foods to Avoid
Soups:	Broth; bouillon; broth or cream soups made with allowed vegetables & meats	All others.
Meat & Meat Alternatives	Minced, ground, tender, and well-moistened meat prepared by any cooking method. Flaked fish is permitted, as is casseroles made with ground meat, cheese, and eggs. Casseroles should have the crust removed.	Whole, diced, or cut meat, fish, poultry; ground meat formed in a solid patty such as a hamburger; crunchy peanut butter.
Potatoes	All.	None.
Breads/Cereals	Whole grain, enriched or fortified bread & cereal products; soft baked products; soft steamed flour tortillas and soft, well-moistened pancakes.	Hard, crusted crackers, bread or rolls; bread containing nuts, seeds, or dried fruits; corn tortilla; potato or tortilla chips. Dry cereals that contain flaxseed, coconut, dry fruit, nuts, and seeds should also be avoided.
Fats	Butter; margarine; cream; lard; oil; vegetable shortening; mayonnaise; salad dressing.	

Mechanical Soft Diet (continued)

Food Group	Foods to Choose	Foods to Avoid
Vegetables	Tender cooked or canned vegetables; vegetable juice; finely chopped raw vegetables if tolerated.	Whole raw vegetables.
Vegetables (cont.)	All should be ½ inch in diameter.	
Fruit	All canned, cooked, or frozen fruits; fruit juices; soft fresh fruits including bananas, strawberries, ripe melon (no rind or seeds), peaches and pears (no skins), orange (no rind).	All raw fruit except for soft fruits listed in Foods to Choose list; fruit with tough membranes such as oranges & grapefruit (unless sectioned); dried fruit.
Milk and Milk Products	All	None.
Desserts and Sweets	Cakes; soft cookies; fruit cobbler; pie; pudding; custard; gelatin; ice cream; sherbet; & desserts made from allowed foods.	Difficult to chew cookie bars & squares; hard cookies; desserts prepared with nuts, seeds, or coconut.
Beverages	All.	None.
Miscellaneous	Sugar; honey; syrup; salt, black pepper; mustard; ketchup; herbs & spices; minced olives; pickle relish.	Whole olives; whole pickles; nuts, popcorn & seeds.

Sample Meal Pattern for Mechanical Soft Diet

Breakfast	*Lunch*	*Dinner*	*Afternoon Snack*
4 oz. Juice	3 oz. ground chicken	1 ground beef burrito	4 oz juice
¾ cup oatmeal	¼ cup gravy	1 slice tomato, chopped	3 graham crackers
¼ cup scrambled egg	½ cup rice	2 Tbsp. sour cream	
1 slice toast	½ cup green beans	½ cup fruit salad	
1 tsp margarine	1 slice bread	½ cup custard	
8 oz milk	1 tsp margarine	8 oz milk	
Coffee or tea	1 slice peach pie	Coffee or tea	
Jelly, salt, pepper	Coffee or tea	Salsa	
Sugar, cream	Jelly, salt, pepper	Jelly, salt, pepper	
	Sugar, cream	Sugar, cream	

Pureed Diet

Purpose:
The pureed diet is designed to provide a texture modification for persons with chewing and/or swallowing difficulty. Foods are altered by completely pureeing them without any lumps.

Indications for Use:
Situations that may require pureed texture for chewing or swallowing difficulty include accident or surgery, stroke, poor dentition, or loss of muscle control in the mouth or throat.

Nutritional Adequacy:
When a variety of food is selected, the pureed diet will provide all nutrients required to meet current Dietary Reference Intakes Recommended for individuals (DRI). The adequacy of the pureed diet will be equal to the regular or modified/therapeutic diet that is pureed.

Guidelines for Preparing Pureed Diets:

- Patients receiving pureed diets should always receive portions equivalent to those served on the regular or therapeutic diet ordered. Each facility should develop standardized procedures and recipes for preparing and serving pureed foods. Portion sizes for pureed diets should appear on the therapeutic diet menu. Pureeing affects volume***;*** therefore, the serving size will vary depending upon the amount of liquid and air that is incorporated in the pureeing process.

- Pureed items should be attractive and resemble the original product. The ideal puree consistency should resemble whipped topping or mashed potatoes. Occasionally, pureed foods must be of a thinner consistency to meet the individual needs of a patient. If needed, nourishing liquids such as gravies, milk, fruit juice, or broth should be used to thin pureed foods. Thinning pureed foods may result in decreased nutrient values, and may require further nutrient supplementation.

- Any diet can be successfully pureed. Therefore, refer to the individual diets for foods that are either allowed or disallowed on the pureed diet.

- Because the pureed diet tends to limit available food choices, it is strongly suggested to limit further therapeutic restrictions as much as possible. Restrictions that are appropriate to use with the pureed diet include reduced concentrated sweets/controlled carbohydrate and no added salt diets.

Pureed Diets (Continued)

Food Group	Foods to Choose	Foods to Avoid
Beverages	All.	None.
Bread/Cereal	Cooked cereal; pureed or slurried French toast, rolls, pancakes, muffins, tortillas, bread, waffles. All of these products should be homogeneous with liquid and pudding-like textures.	Bread with hard crusts; breads or muffins containing fruit, nuts or seeds.
Cheese	Pureed cheese without nuts or seeds; cheese sauce.	All others.
Desserts	Plain custard, pudding, gelatin, ice cream, sherbet; slurried cake, cookies, brownies.	Desserts containing coconut, dried fruit, decorative sprinkles, nuts or seeds.
Eggs	All eggs in pureed form.	None.
Fats	Butter; margarine; cream; sour cream; mayonnaise; smooth salad dressings; oil; gravy.	None.
Fruits	All fruit juices; applesauce; all other pureed fruits.	Dried fruit.
Meat & Meat Alternatives	All pureed meats.	Peanut Butter
Potatoes	Mashed potatoes; all other pureed potatoes; pureed pasta or noodles; pureed rice or cream of rice.	
Soups	Broth, bouillon, pureed and strained soups.	All others.
Vegetables	All vegetable juices; pureed vegetables***;*** corn & peas should be strained if not pureed smoothly.	All others.
Miscellaneous	Sugar; salt; pepper; ground spices; flavoring extracts; cocoa powder.	Whole herbs, spices, popcorn.

.

Pureed Diets (Continued)

Sample Meal Pattern for Purred Diets

Breakfast	*Lunch*	*Dinner*	*Snacks*
½ cup juice at appropriate consistency	1 cup strained or pureed cream soup	1 cup pureed chicken enchilada's	Pureed cottage cheese
1 cup lump-free hot breakfast cereal	½ cup pureed turkey with gravy	½ cup pureed refried beans	Pureed fruit
1 pureed scrambled egg	1 cup mashed lump-free mashed potatoes with gravy	½ cup ice cream	Lump-free yogurt
1 tsp butter	½ cup pureed peas	1 cup beverage at appropriate consistency	
1 cup milk at appropriate consistency	½ cup vanilla pudding		
	1 cup milk at appropriate consistency		

Resources:

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Pureed diet Information" Academy of Nutrition and Dietetics, Accessed 24 January 2015, https://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=22679 &lv2=255550&ncm_toc_id=255550&ncm_heading=Nutrition%20Care

National Dysphagia Diet (NDD) Introduction

Specific directives regarding each level of this diet are not included here. If these diets are used in your facility, please insert a description, following approval for their use by the Speech and Language Pathologist/therapist. Below are the various levels of the National Dysphagia Diet (NDD) as recommended by the Academy of Nutrition and Dietetics.

Level 1-Dysphagia Pureed/"Pureed":
Pureed, homogenous, cohesive, pudding-like textures.

Level 2- Dysphagia Mechanically Altered/"Dysphagia":
Cohesive, moist, semi-solid textures. Requires some chewing ability. Includes ground or minced meats with fork-mashable fruits & vegetables. Excludes most bread products, crackers, rice, and other dry foods.

Level 3-Dysphagia Advanced/"Mechanical Soft":
Soft-solid textures. Requires more chewing ability. Includes soft, chopped easy-to-cut meats, fruits, and vegetables. Excludes hard, crunchy fruits & vegetables, sticky foods, and very dry foods.

Level 4-Regular:
Any solid texture.

For more information on these diets, you may look in the Academy of Nutrition and Dietetics Nutrition Care Manual in the dysphagia diet section.

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Dysphagia Diets" Academy of Nutrition and Dietetics, Accessed 03 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&ncm_toc_id =255550&ncm_heading=NutritionCare&ncm_content_id=81249#ParenteralNutri tion

SECTION 4

MEDICAL NUTRITION THERAPY FOR DIABETES

Summary of Diabetes

What is Diabetes?
Diabetes occurs because the insulin produced by the beta cells of the pancreas is absent, insufficient or not used properly by the target cells. As a result, the body lacks the capacity to convert food to energy, thus leaving high levels of sugar in the individual's blood. Elevated sugar levels in the blood over long periods of time can lead to complications with the kidneys, eyes, and nerves.

Type I Diabetes (T1DM)
This form of diabetes historically was called juvenile-onset diabetes or insulin-dependent diabetes mellitus (T1DM). The person who has Type I diabetes requires daily injections of insulin to survive.

Type II Diabetes (T2DM)
Type II diabetes (T2DM) is also called non-insulin dependent diabetes mellitus. The person who has Type II diabetes can manage the disease with diet alone or by combining diet, oral medication, and exercise.

Purpose of a Diabetic Diet:
To provide adequate nutrition while managing blood glucose levels to remain within normal parameters. This is typically done by recommending a diet that includes moderate amounts of protein and fat while maintaining tighter control on carbohydrates.

When To Use:
This diet may be used for patients with a diabetes diagnosis and uncontrolled blood glucose levels.

Nutritional Adequacy:
This diet is adequate for adults and teenagers who do not require any dietary modification or restriction. The beverage offered at H.S. snack is to be 100% juice or milk, not punch or other drink mix. All Idaho facilities will adhere to this for their bulk snack distribution at H.S.

Summary of Diabetes (Continued)

Goal of Nutritional Therapy:
It should be noted that the American Diabetes Association has established there is no one diabetic or "ADA" diet. All diet recommendations should be based on nutrition assessment and treatment goals. Each patient's nutrition therapy should be individualized on his/her needs (ADA, 1994).

Nutritional care of the client with diabetes involves creating an individual dietary plan which is similar to the patient's usual eating habits while providing sufficient energy for activity and maintenance of an ideal weight. This diet should be adequate in carbohydrate, protein, fat, minerals, and vitamins. Blood glucose control can be attained with physical activity, maintenance of an ideal body weight, diet, and medical management. Calculated caloric prescriptions are no longer recommended, but may help the dietitian maintain tighter restriction on carbohydrate intake, thus aiding in blood glucose control.

Certain biomarkers can aid in evaluating the success of using nutrition as a modality of intervention in this patient population (i.e. BG, A1c).

Addressing Hypoglycemia:
Hypoglycemia can occur if too much insulin is given, an individual partakes in excessive exercise, has too little intake of carbohydrate, or has excessive alcohol intake. Hypoglycemia can be marked by a BG of <80 mg/d (1)l. Other physical signs include: shakiness, sweaty, vision changes, confusion, hunger, fatigue, unconsciousness.

Treatment: The Rule of 15:

- Give 4 oz. Juice, then check the BG 15 minutes later. If the BG still has not returned to normal, repeat the step and recheck 15 minutes later again. If the BG still has not returned to normal, call physician or 911.

Nutrition Recommendations and Guidelines

Calories – Adequate to achieve and maintain reasonable weight.
Carbohydrate- 45-65% of total calories with emphasis on consistency from day-to-day. **Protein** – 15-20% of total calories with normal renal function. Recommendations for renal decline are less than 1.0g/kg of body weight.
Total Fat - less than 35%, saturated fat less than 10%.
Fiber - high fiber diets may help in both glucose and lipid management.
Meal Times - meals spaced at regular intervals. A combination of meals and snacks can be used to distribute carbohydrate throughout the day.
(2)

Meal Planning Approaches

There are many different approaches for teaching nutrition principles to clients with diabetes. Meal Planning Approaches is the term we use to describe the tools that can be used by the nutrition counselor. When selecting an approach, consider the following:

- Food preferences
- Physical limitations
- Level of motivation
- Cognitive ability / psychological state
- Lifestyle
- Client's treatment goals
- Orientation to detail
- Age
- Stage of acceptance of diabetes.

In this manual, we have summarized the approaches most commonly used in Idaho. The terms **serving**, **exchange** and **portion** are used interchangeably in this text and refer to Exchange standards.

Matching the Approach to the Client:
No method will work for every patient every time. The best approach to treating a patient with diabetes is to consider their individual needs while considering their preferences.

Meal Planning Approach: Carbohydrate Counting

Carbohydrate (CHO) counting is a meal planning approach that calculates each gram of carbohydrate an individual consumes. Though tedious, it is arguably the most precise method used for blood glucose management and insulin dosing.

The carbohydrate content of a food can be obtained from the back of its package. There are some instances that will not list these (i.e. individual fruits, vegetables, etc). To find out the carbohydrate content of these food, one may use reference values found in books and other resources (i.e. CalorieKing website).

To carry this approach out clients are provided with a CHO budget for each meal. This budget is aimed at spreading CHO evenly throughout the day for those controlling their diabetes with diet and/or oral agents. The client is then allowed to determine which foods are combined to meet the CHO budget.

Encourage variety and moderation when meal planning. Discuss with the client the effects of fiber, protein, fat and mixed meals on BG control. Simple sugars are allowed within the CHO budget if eaten with meals.

Carbohydrate Counting

Advantages	*Disadvantages*
• Flexibility	• Limitation of fat and protein may not be given in
• More readily understood than exchanges.	
• Simplifies calculation process for RD.	• Nutritional balance becomes the individual's
• Matches CHO with insulin or oral agents.	
• Good BG control when followed.	• Requires basic math skills.

Meal Planning Approach: Exchanges/Choose Your Foods

Exchanges are the traditional diet approach for clients with diabetes. It was last updated in 2008 and is still used in practice at the time the edit for this manual was conducted. An appropriate caloric level is determined based on the individual's need to lose, maintain or gain weight. The registered dietitian (RD) then determines the number of servings to be eaten from each of the exchange categories. It should be noted that the 2014 Academy of Nutrition and Dietetics Nutrition Care Manual does not warrant the use of specific calorie restrictions (2).

Sample Distribution(s):

Kcal	CHO	Meat	Fat
1000	135 gm	6 oz	3 exch.
1200	165	7	3
1400	190	8	3
1500	205	8	4

Kcal	CHO	Meat	Fat
1600	220 gm	8 oz	4 exch.
1800	250	9	5
2000	275	9	6
2400	330	10	6

The RD then determines the number of servings to be eaten from each of the exchange categories using the following information:

	CHO (g)	Pro (g)	Fat (g)	Kcal
Milk	12	8	0-3 / 5 / 8	100/ 120/ 160
Vegetable (non-starchy)	5	2	0	25
Fruit	15	0	0	60
Bread / Starch	15	0-3	0-1	80
Meat	0	7	3 / 5 / 8	45 / 75 / 100
Fat	0	0	5	45

Diabetic Exchanges for Oral Nutritional Supplements

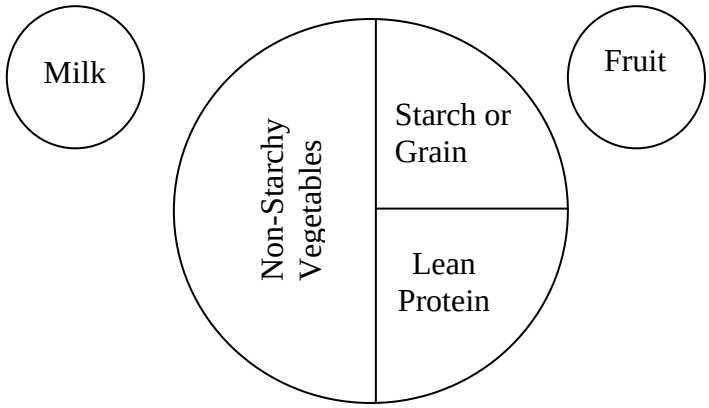
Supplement – 8 ounces	***Diabetic Exchanges***
Ensure	1 skim milk, 2 fruit, 2 fats
Ensure Plus	1 ½ skim milk, 3 fruit, 3 fats
Carnation Instant Breakfast (made with whole milk)	1 skim milk, 1 meat, 2 fruit, ½ fat
Glucerna Shake	1 skim milk, 1 bread, 2 fats

Advantages
- Nutritionally balanced.
- Good BG when followed.
- Simple to learn foods by categories.

Disadvantages
- Difficult for patients to determine exchanges of combination foods.
- Rigidity results in poor compliance.
- Takes time to calculate.
- Exchange terminology confusing to many patients.
- High potential for information overload in initial visit.
- Does not consider the use of simple sugars.

Meal Planning Approach: Idaho Plate Method

The premise of this diet is based on utilization of a 9" plate. The nutrition professional should advise the client/patient to divide their plate in one half. One of these halves should be used for non-starchy vegetables of limitless quantity. The other one-half should be dividing in half once more, thus making two, one-quarter segments of the plate. One of these should hold a lean protein while the other contains a starchy vegetable or grain component. The resulting plate will look like this:



Advantages
- No weighing or measuring
- Improved carbohydrate distribution
- Increased fiber intake
- Good for individuals with low literacy, elderly, and children.
- Easiest method to use

Disadvantages
- Variable CHO intake depending on plate size.

Reduced-Concentrated Sweets Diet

Purpose:
To reduce the caloric and/or carbohydrate (sugar) intake from patient's who require it. This diet is in large part a regular diet that aims to avoid concentrated sweets (i.e. cakes and ice cream) in large quantities. Other stipulations include an equal amount of carbohydrates distributed at each meal.

Indications for Use:
The Reduced Concentrated Sweets diet is designed for the person who needs a mild calorie restriction, and/or for persons with a stable diabetic condition who require minimal dietary restriction. The diet may also be known as Low Concentrated Sweets diet, Restricted Concentrated Sweets diet or No Concentrated Sweets diet, etc.

NOTE: Although the Reduced Concentrated Sweets diet is not recognized by the American Diabetes Association, it has been shown to be useful in the Idaho Facilities.

Nutritional Adequacy:
When a variety of food is selected, the Reduced Concentrated Sweets diet will provide all nutrients required to meet the current Dietary Reference Intakes Recommended for Individuals (DRI). The diet provides approximately 1800 to 2000 calories and 75 to 80 grams of protein.

Food Group	Foods to Choose	Foods to Avoid
Beverages:	Unsweetened or artificially sweetened coffee, tea, fruit drinks, carbonated beverages.	Sweetened beverages.
Bread and Cereal Products:	Whole grain enriched or fortified products, graham crackers, toast, pancakes, muffins, biscuits, waffles, French toast. Unsweetened hot and ready- to-eat cereals.	Sugar-coated or glazed bread and cereal products.
Cheese:	All types, prepared as desired.	None.
Desserts:	Artificially sweetened or diet gelatin, custard, pudding; ice cream, ice milk, sherbet, diet baked goods, vanilla wafers, gingersnaps, angel food cake, plain pound cake, cake with no icing, plain cookies.	All others.
Eggs:	Prepared as desired.	None.

Reduced-Concentrated Sweets Diet (continued)

Food Group	Foods to Choose	Foods to Avoid
Fats:	Butter, margarine, cream, oil, vegetable shortening, bacon, mayonnaise, salad dressings.	None.
Fruits:	Unsweetened or juice packed, canned, fresh, cooked, frozen, or dried fruits and fruit juices. Cranberry juice cocktail (limit to 4 oz daily).	Sweetened fruits or juices.
Meat, Fish, Poultry, Meat Substitutes:	Beef, lamb, veal, pork, poultry, ham, frankfurters, bologna, sausage, luncheon meat, all fish and shellfish.	None.
Milk:	All types.	None.
Potato/Potato Substitutes:	White or sweet potatoes, dried beans and peas, all types of macaroni, noodles, rice, and spaghetti.	Potatoes and potato substitute with sugar added; e.g. candies yams, sweet potato casserole, yam patties, baked beans.
Soup:	All types.	None.
Vegetables:	Fresh, canned, frozen or dried vegetables.	Vegetables with sugar added; e.g., Harvard beets.
Miscellaneous:	Diet syrup, diet jelly, artificial sweetener, pepper, salt, all condiments (except those listed as not allowed), herbs and spices.	Sugar, honey, syrup, jelly, candy, sweet relish. These items may be used in recipes, but are not to be served as condiments.

Reduced-Concentrated Sweets Diet (continued)

Sample Meal	**Size of Serving**
Breakfast	
Orange Juice	4 oz
Oatmeal	½ cup
Scrambled Eggs	¼ cup
Whole Wheat Toast	1 slice
Margarine	1 tsp
2% Milk	8 oz
Coffee or Tea	As desired
Diet jelly, salt, pepper, sugar substitute, creamer	As desired
Lunch	
Baked Chicken	2 oz
Rice	½ cup
Green Beans	½ cup
Whole Wheat Bread	1 slice
Margarine	1 tsp
Unsweetened Strawberries	½ cup
w/ Whipped Topping	1 Tbsp.
Coffee or Tea	As desired
Salt, pepper, sugar substitute, creamer	As desired
Dinner	
Roast Beef w/ Gravy	2 oz/1 oz
Baked Potato w/ Margarine	1 medium/1 tsp
Spinach	½ cup
Whole Wheat Bread	1 slice
Margarine	1 tsp
Unsweetened Apple Slices	½ cup
2% Milk	8 oz
Coffee or Tea	As desired
Salt, pepper, sugar substitute, creamer	As desired
Evening Snack	
Fruit Juice or 2% Milk	4 oz
Graham Crackers	3

Consistent Carbohydrate Diet

Purpose:
Consuming a consistent carbohydrate intake throughout the day is a key component to managing diabetes mellitus to attain and preserve blood glucose and lipid goals.

Indications for Use:
The consistent carbohydrate meal plan is indicated for all diabetic patients in health care facilities. This diet is most often ordered with a carbohydrate level. Diabetes diet guidelines highlighted prior to this page continue to be relevant in this diet as well.

Adequacy:
The consistent carbohydrate meal plan can be planned to meet the Reference Dietary Intakes (DRIs) for most nutrients. The need for additional nutrients should be identified on an individual basis.

General Guidelines:
Consistent carbohydrate content should be spread throughout the day's meals and snacks. Sweeteners such as sucrose or honey may be used as a carbohydrate source as long as it is calculated as part of the total intake for the day.

Note:
Use of meal plans such as no concentrated sweets, no added sugar, low sugar or liberal diabetic diets may no longer be appropriate. These diets unnecessarily restrict sucrose and do not reflect current evidence-based nutrition recommendations. (3, 4)

Consistent Carbohydrate Diet (continued)

This table should be used only as a guide in planning an 1800kcal diet.

	Total exchanges per day	*Breakfast*	*10 am snack*	*Lunch*	*Dinner*	*HS Snack*	*CHO g*	*Pro g*	*Fat g*	*kcal*
Carbohydrate Group										
Starches	8	2 (30g)	0	3 (45g)	2 (30g)	1 (15g)	120g	10g	8g	640 kcal
Fruit	3	1 (15g)	1 (15g)	0	1 (15g)	0	45g	0g	0g	180 kcal
Milk (Fat-free, Low-fat)	3	1 (15g)	0	0	1 (15g)	1 (15g)	45g	24g	0g	240 kcal
Vegetables (non starchy)	5	1 (5g)	0	2 (10g)	2 (10g)	0	25g	10g	0g	125 kcal
Meat & Meat Substitute Group										
Meat (lean)	6	1	1	2	2	0	0	42g	24g	270 kcal
Fat Group										
Fat	6	2	0	2	2	0	0	0	30g	270 kcal
Totals for day							235 g	86 g	62 g	1725 kcal

Exchange List of Foods for Meal Planning

Starch List

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

Breads and Tortillas	
Food Item	**15g Portion Size**
Biscuit, small	1 small (2 ½ inches)
Bread	1 Slice (1 oz.)
Hamburger/Hot Dog Bun	½ bun
Fry Bread	½
Muffin	1 Small (5 oz)
Pancake	1 (4" across)
Roll	1 small (1 oz)
Tortilla, (Corn or flour)	1 (6 inches across)
Waffle	1 (4-inch square)

Pasta/Rice/Cereals	
Food Item	**15g Portion Size**
Cereal, cooked (oatmeal, cream of wheat), Cereal, sugar-frosted	½ cup
Cereal, unsweetened, ready-to-eat	¾ cup
Cornmeal, dry Flour, white or whole wheat	3 Tablespoons
Pasta/Noodles, cooked Rice, Cooked	1/3 cup

Starchy Vegetables and Beans	
Food Item	**15g Portion Size**
Corn Hominy, cooked	½ cup
Corn-on-the-Cob	½ cob (about 3 inches).
Beans: Pinto, kidney, black, cooked lentils, and cooked lima beans Baked Beans	½ cup 1/3 cup
Green Peas	½ cup
Potato, (white, sweet, yam, or plantain);	½ cup boiled or mashed
Squash, winter (butternut, acorn, pumpkin varieties)	1 (4" across)
Waffle	1 (4-inch square)

Exchange List of Foods (continued)

Crackers/Snacks	
Food Item	**15g Portion Size**
Animal Crackers	8
Graham Cracker Square	3
Popcorn (popped without butter/oil)	3 cups
Pretzels	¾ oz
Rice Cakes,	2-4 inch cakes
Tortilla/potato chips (baked)	15-20 chips
Whole wheat crackers	2-5 crackers

Fruit	
Food Item	**15g Portion Size**
Apple	1 medium
Applesauce (without sugar added)	½ cup
Apricots, fresh; Apricots, dry	4 whole, 8 halves
Banana	½ large
Canned Fruit (in its own juice)	½ cup
Cantaloupe, small	1/3 whole melon
Cherries, fresh	12
Dates	3
Figs	1 ½
Grapefruit, large	½
Grapes, small	17-20
Juice	½ cup
Mango	½
Orange	1 small
Papaya	½ fruit
Peach (fresh)	1 medium
Pear (fresh)	1 large
Pineapple (fresh)	¾ cup
Plums	2 small
Raisins	2 Tbsp.
Strawberries (whole)	1 ¼ cup
Watermelon (cubed)	1 ¼ cup

Milk	
Food Item	**15g Portion Size**
Milk (any fat %)	1 cup
Yogurt (no added sugars)	2/3 cup
Milk Alt. (Soy and rice milk)	Varied-check the label.

Exchange List of Foods (continued)

Sweets	
Food Item	**15g Portion Size**
Brownie without frosting	1-2 inch
Cake with frosting	1-1 inch square
Cookies	2 small
Glazed Donut	½
Ice Cream (No extra sugar added)	½ cup
Fruit Pie	1/6 slice of a whole pie
Pudding (sugar-free)	½ cup
Regular Soft Drink	½ cup
Chips	¾ oz or about 15 chips
Electrolyte drink	1 cup
Sweeteners (sugar, jelly, honey, etc)	1 Tablespoon

Non-Starchy Vegetables (Patients may have 1 cup raw for 5g of carbohydrate)	
Asparagus	
Beans (Green)	Bean Sprouts
Beets	Broccoli
Brussels Sprouts	Cabbage
Carrots	Cauliflower
Celery	Cilantro
Cucumber	Eggplant
Garlic	Green Onions
Greens (i.e. kale, collard, etc.).	Jicama
Lettuce	Mixed Vegetables
Mushrooms	Okra
Onions	Snow Peas
Peppers	Radishes
Salsa	Spinach
Summer Squash	Fresh tomatoes and tomato sauce
Zucchini	

Exchange List of Foods (continued)

MEAT AND MEAT SUBSTITUTES LIST

Protein (1 oz servings)		
Lean (Less than 4g of fat)	**Medium-Fat (5-7g of fat)**	**High Fat (At least 8g of fat or more)**
Skinless poultry	Poultry with skin	Bacon
Fish/shellfish (including water-canned tuna)	Fried Fish	Bologna and Salami
Beef Cuts: tenderloin, filet mignon, round steak	Beef Cuts: Ground beef, prime-grades of meat	Sausage/chorizo
Pork Tenderloin	Pork chop, top-loin, Boston butt, cutlet	Hot dogs
Fat-free or low-fat cottage cheese	Cheese that is not low-fat	Ribs
Egg white or Egg substitute	Whole eggs	

Fat

Fat (1 tsp servings)		
Unsaturated	**Saturated**	**Trans**
Vegetable oils (olive, canola, peanut, etc.)	Butter	Prepackaged bakery items (cookies, cakes, pies, etc).
Avocado	Bacon	Shortening
Nuts: almonds, cashews, pecans, walnuts, etc.	Full-fat dairy	Restaurant-prepared fried foods.
Nut butters (peanut, etc.)	Lard	
Olives		
Mayonnaise		

Diabetes Resource(s)

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Diabetes Mellitus" Academy of Nutrition and Dietetics, Accessed 04 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5517&lv2=18469&ncm_toc_id=18469&ncm_heading=Nutrition%20Care

2. American Diabetes Association. "Standards of Medical Care in Diabetes-2015: Summary of Revision." *Diabetes Care*. Vol. 38 Supplement 1S4, 2015.

3. American Diabetes Association: Translation of the Diabetes nutrition recommendations for health care institutions (Position Statement). *Diabetes Care 27* (Suppl.1):S55-S57, 2004.

4. American Diabetes Association: Nutrition principles and recommendations in diabetes (Position Statement). *Diabetes Care 27* Suppl. 1):S36-S46, 2004

SECTION 5

Nutritional Management of Specific Disease States

Cardiac Diet

Purpose:
The diet is designed for patients who have any abnormalities of the heart. These abnormalities can include coronary heart disease, hyperlipidemia, or other cardiovascular diseases.
This patient population usually requires a diet with mild-to-moderate restrictions in fat and sodium.

Indications for Use:
This can include coronary heart disease, hyperlipidemia, or other cardiovascular disease.

Nutritional Adequacy:
Dietary modifications may include the regulation of dietary fat, saturated fat, cholesterol and sodium. It is otherwise nutritionally adequate. The 2014 Academy of Nutrition and Dietetics prefers using the ATP III TLC guidelines for patients to work towards heart care goals. These goals were established in 2011, but continue to be relevant. The goals are outlined in the following table:

Article I. NUTRIENT	**Article II. DIETARY GUIDELINE**
Total Fat	<35% of total calories; emphasis on omega-3's.
Saturated Fat	<7% of total calories
Trans Fats	Negligible
Polyunsaturated Fat	Up to 10% of total calories
Monounsaturated Fat	Up to 15% of total calories
Cholesterol	<200 mg/dl
Total Calories	To achieve or maintain desirable body weight
Sodium	1500-2300 mg/day

(ATP III, 2001)

Daily Recommended Food Intake	
Food Group	**Amount**
Skim Milk products	2-3 cups
Fruits	4-5 or more servings
Vegetables	4-5 or more servings
Bread & Cereals	7-8 or more servings
Lean Meat, Fish or Poultry	≤ 2ounces (cooked)
Eggs	3 egg yolks per week
Fats & Oils	3 teaspoons
Sugars & Sweets	1 low fat dessert a day
Nuts, Seeds, and Legumes	4-5 servings

(ATP III, 2001)

Cardiac Diet (continued)

Sample Cardiac Meal Plan

Breakfast	*Lunch*	*Snack Lunch Snack*	*Dinner*	*After Dinner Snack*
1/2 cup juice	2 Slices whole wheat bread	Trail mix or unsalted nuts	3 oz salmon	½ cup Low-fat frozen yogurt
1 cup cooked oatmeal	2 oz turkey breast		1 small baked potato	
	Vegetables		1 TB tsp margarine	
1 cup skim milk	1 cup skim milk		2 cups steamed vegetables (carrots and broccoli)	
1 apple				
1 TB peanut Butter	1 small banana			
Brewed Coffee				

Resources:

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Cardiac-TLC Nutrition Therapy.", Academy of Nutrition and dietetics, Accessed 11 December 2014, http://www.nutritioncaremanual.org/client_ed.cfm ?ncm_cliented_id=9

2. U.S. Department of Health and Human Services, Public Inst. Of Health. "ATP III Guidelines", Accessed 07 December 2014, http://www.nhlbi.nih.gov/files/docs/guidelines/atglance.pdf

No Added Salt Diet (Regular Diet with No Salt Packet(s))

Purpose:
No Added Salt Diet is designed for those who need a very mild sodium restriction. This usually means most all foods are allowed while eliminating the use of salt shakers and/or salt packets on trays. Any sodium or salt restricted diet that does not specify desired level of sodium restriction in milligrams will be ordered as a No Added Salt Diet.

Indications for Use:
This diet may be used in the elderly population when a liberalized approach to a sodium restricted diet is warranted or for patients who need only a mild restriction in their sodium intake.

Nutritional Adequacy:
When a variety of food is selected, the No Added Salt diet will provide all nutrients required to meet the current Dietary Reference Intakes (DRIs). It should be noted the 2014 AND Nutrition Care Manual does not indicate therapeutic effect for this diet (NCM, 2014).

Meal planning for this diet will be combined under the next topic (Moderate Sodium Restriction).

Resources:
1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Heart Failure" Academy of Nutrition and dietetics, Accessed 11 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5803&lv2=8585&ncm_toc_id=8585&ncm_heading=Nutrition%20Care

Moderate Sodium Restricted Diet (2 Gram (2,000mg) Sodium)

Purpose:
A 2-gram sodium restricted diet is used for those with a greater sodium restriction than is provided by the No Added Salt Diet. Salt is not added to food in cooking or at the table and high sodium foods are avoided. Milk products are generally limited to only 2 cups (or 16 fl. oz) per day.

Indications for Use:
This diet may be used in persons with hypertension (high blood pressure) or excess fluid retention (edema/ascites). This diet may also be ordered by physicians in patients with certain conditions such as liver failure, cardiovascular disease, and renal disease.

Nutritional Adequacy:
When a variety of food is selected, the 2-gram sodium restricted diet will provide. All nutrients required to meet the current dietary Reference Intake.

Food Group	Foods to Choose	Foods to Avoid
Beverages	Coffee, tea, water, carbonated beverages, etc	Electrolyte replacement drinks
Bread/Cereal	All. Consider sodium content of bread that may add over the course of a day.	Any pre-packaged instant cereals and products with salted tops.
Cheese	Low-sodium versions are appropriate for 2-gram diet.	All other cheeses
Desserts	Low-sodium varieties should be suitable. Read labels and calculate daily totals to determine if it fits in the patient's diet.	Desserts made from commercial mixes, or those made with salted nuts, canned pudding.
Eggs	Fresh	Egg beaters with added salt
Fats	All; use low-sodium versions where applicable.	Commercial gravy mixes, full-sodium salad dressings, salted nuts.

2g Sodium (continued)

Food Group	Foods to Choose	Foods to Avoid
Fruits	All	None
Meat, Fish	All fresh products; salt-free/low-sodium canned fish such as tuna and salmon.	Sausages and other cured meats (includes bacon), processes/smoked pork, commercially breaded-meats.
Milk	Limit all milk selections to approximately 2C daily.	Buttermilk
Vegetables	All fresh, frozen, and salt-free varieties.	Salted canned vegetables and vegetable juices. Sauerkraut.
Miscellaneous	Reduced-sodium/salt-free products such as soup and seasonings. Sugar, syrup, jelly, hard candies, vinegar, etc. Salt-free peanut butter	Salt, seasoning with salt (i.e. garlic salt), monosodium glutamate, and most commercially prepared sauces (read labels for more clarification).

Other Notes about Reduced-sodium Diets: The best way to accurately assess a patient's sodium intake is by reading the package labels in relation to their daily intake. Please refer to the appendix section for the sodium-content of certain foods. (page 151).

2-gram Sodium (continued)

Sample Menu for 2g Sodium-Restricted Diet:

Breakfast	***Lunch***	***Dinner***	***Snacks***
1 Hard Boiled egg	2 Taco's (meat with LS seasoning).	3 Oz LS Turkey with LS gravy.	1 Fresh banana
1 Apple	1 Small side-salad	1 Baked potato	2 TB LS peanut butter
1 oz unsalted almonds	2 TB LS salad dressing	1 C Cooked spinach (no salt added)	½ LS Turkey sandwich
1 Cup of coffee	1C Canned Peaches	1 Slice whole wheat bread	
1 Cup low-fat milk	1C Unsweetened tea	1/2C Baked apples	
Pepper, sugar, creamer, and salt-free seasoning as desired.	1C Low-fat milk	1C Unsweetened tea	
	Pepper, sugar, and salt-free seasoning as desired.	1C Low-fat milk	
		Pepper, sugar, and salt-free seasoning as desired.	

*LS= Low-Sodium.

Dietary Approaches to Stop Hypertension – DASH Diet

Purpose:
The adequacy of this diet will be dependent upon the selection of foods low in saturated fat, cholesterol and total fat and a diet that is rich in fruits and vegetables (8-10 servings) and low-fat dairy products (2-3 servings milk, cheese and yogurt). Lowering salt intake may help to further lower blood pressure.

Indications for Use:
Nutrition management is appropriate for residents or patients diagnosed with chronic high blood pressure. The NCM recognizes the DASH diet's capability to assist in reducing blood pressure by reducing sodium consumption, achieving appropriate weight loss, incorporating regular exercise, and reducing alcohol consumption (NCM, 2014). It is also one of the only eating patterns recommended by the 2010 US government dietary guidelines.

Nutritional Adequacy:
Dietary modifications may include the increase in intake of fruits, vegetables and low-fat dairy products (milk, cheese or yogurt) and the decrease in sodium intake. The purpose in care is to promote normal blood pressure. .

Additional changes that further may help to lower blood pressure:

- Weight reduction.
- Fitness improvement.
- Drink alcohol in moderation ($\leq$ 2 drinks per day for men and $\leq$ 1 for women).
- Don't smoke.

DASH Diet (Continued)

Principles of the Diet:

Food Group	**Daily Servings**	**One Serving Equals**
Fat-free or low-fat Milk and Milk products	2 – 3	8 oz fat-free (skim) or low-fat (1%) milk or buttermilk 1 cup fat-free or low-fat yogurt 1½ oz low fat cheese
Fruits	4 – 5	1 medium fruit ½ cup dried fruit ½ cup frozen or canned fruit 4 oz fruit juice
Vegetables	4 – 5	1 cup raw leafy vegetables ½ cup cooked vegetables 4 oz vegetable juice
Grain	6 – 8	1 slice bread ½ cup dry or hot cereal ½ cup cooked rice or pasta
Lean Meat, Fish, Poultry	6 or less ounces	Lean meat with fat trimmed away, poultry with skin removed, fresh fish or canned in water, unbreaded meat and fish. Broiled, roasted or poached.
Nuts, Seeds and Legumes	4 – 5 per week	⅓ cup nuts 2 Tbsp. seeds 2 Tbsp. peanut butter ½ cup cooked dry beans
Fats and Oils	2 – 3	1 tsp soft margarine 1 tsp oil 1 Tbsp. mayonnaise 2 Tbsp. salad dressing
Sweets and added sugars	5 or less a week	1Tbsp sugar 1 Tbsp. jelly or jam ½ cup sorbet, fat-free frozen yogurt

DASH Diet (Continued)

Sample Dash Menu

Breakfast		**Lunch**		**Dinner**	
Corn flakes	1 cup	Sliced turkey	2 oz	Lean beef grilled	3 oz
Sugar	1 tsp	Pita bread	1	Scallion rice	1 cup
Banana	1	Low fat mayonnaise	1Tbsp	Spinach salad	
Whole wheat toast	1 slice	Raw vegetable medley:		Raw spinach	½ cup
Jelly	1 Tbsp.	Carrot/celery sticks	3–4 ea.	Cherry tomatoes	2
Grapefruit	½	Radishes	2	Cucumber Slices	2
		Lettuce	2 leaves	Light Italian Dress	1Tbsp
		Fruit cocktail/light syrup	½ cup	Low fat choc milk	8 oz

Snack	
Dried apricots	¼ cup
Mixed nuts	⅓ cup
Low fat flavored yogurt	1 cup

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Hypertension" Academy of Nutrition and dietetics, Accessed 13 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&ncm_toc_id=8480&ncm_heading=Nutritioncare&ncm_content_id=72992#NutritionalIndicators

Renal Disease Diets

Purpose:
Dietary modifications may include the regulation of protein, phosphorus, sodium, potassium and fluid. Assessment of needs is based on the patient's clinical condition, laboratory values, fluid status, and type or frequency of dialysis.

Indications for Use:
Medical nutrition therapy is indicated for patients with acute renal failure or end-stage renal disease (ESRD) requiring hemodialysis or peritoneal dialysis.

Nutritional Adequacy:
This diet can be adequate in calories and most nutrients if the diet is selected from a wide variety of foods. Diets containing <60 g protein may be deficient in the B-vitamin complex, calcium, iron, and zinc.

The following recommendations have been cross-reference in the AND NCM (NCM, 2014). Best patient practice would be represented by conferring with the patient's physician to determine if the patients' needs are greater/lower than values recommended below.

Nutrient	Hemodialysis	Peritoneal Dialysis	Acute Renal Failure	Stage IV CKD (no dialysis)
Energy	30-35 kcal/kg if 60 yrs or older and 35 kcal/kg if less than 60 years	30-35 kcal/kg if 60 yrs or older. 35kcal/kg if less than 60 years (For CAPD and APD, use dialysate calories)	25-35 kcal/kg	25-35 kcal/kg/day if >60 years of age; 35 kcal/kg/day if <60 years of age
Protein	1.2 g/kg; at least 50% high biological value protein	1.3 g/kg; at least 50% high biological value protein	Without Dialysis: 0.8g/kg standard body weight, > 1.0g/kg standard body weight if malnourished. With Dialysis: 1.2-1.5g/kg standard body weight CRRT* 1.5-2.0g/kg standard body wt.	.60-.80 gm/kg/day if GFR <25 ml/min 0.90g/kg/day if neuropathy also present.

Renal Disease States (continued)

Nutrient	Hemodialysis	Peritoneal Dialysis	Acute Renal Failure	Stage IV CKD (no dialysis)
Phosphorus (PO_4) (May need phosphorus binders)	10-12mg/g of protein when serum levels are above 5.5mg/dl or <17 mg/kg	800-1000 mg/day when serum levels are above 5.5mg/dl or <17 mg/kg	8-15 mg/kg/day	No need to restrict until serum phosphorus >4.6 mg/dl. Restrict 800–1000 mg/day or 10mg/gm protein needs
Sodium (Na)	<2400 mg/day	Individualized based on blood pressure and weight, but 2000 mg/day would be a prudent recommendation.	2000-3000 mg/day	<2400 mg/day
Potassium (K)	<2400 mg/day	Approximately 3000-4000 mg/day	2000-3000 mg/day	Varies; usually unrestricted unless serum level is high
Fluid	1000 ml/day plus urine output	1000 ml/day plus urine output	24 hr urine output plus 500 ml for insensible losses; approximately 750-1500 ml/day	Usually no restriction unless edematous. Confer with MD.
Calcium (Ca)	Not to exceed 1500 mg/day from phosphate binders and 2000 mg/day total, including dietary sources	Not to exceed 1500 mg/day from phosphate binders and 2000 mg/day total, including dietary sources	Individualized per laboratory values	Maximum 2000 mg per day

NOTE: For Sodium, Potassium, Calcium and Phosphorus content in foods refer to the Sodium, Potassium, Calcium, Phosphorus Content of Selected Foods found in the Appendix.
*CRRT= continuous renal replacement therapy.

Renal Disease States (continued)

Sample Renal Disease (Pre-Dialysis) Diet Plan

Breakfast	*Lunch*	*Dinner*	*Snacks*
½ cup cranberry juice	Turkey sandwich:	2 oz stir-fry chicken	1 Apple
1 English muffin	2 slices of bread	½ cup cooked cabbage	
2 tsp margarine	1 oz deli meat	¼ cup cooked mushrooms 1 cup cooked rice	
½ cup yogurt	Lettuce	Gelatin	
1 cup hot coffee or tea	Mayonnaise	1 cup tea or coffee	
	1 cup watermelon 1 slice sponge cake		

Sample Renal Disease (Dialysis) Diet Plan

Breakfast	*Lunch*	*Dinner*	*Snacks*
4 oz cranberry juice	3 oz fish	3 oz chicken breast	1 hard-boiled egg
1 English muffin	2 cups salad mix (lettuce, onion, cucumber) with vinegar and oil	½ cup rice cooked	½ cup gelatin
2 oz lean ham	1 Dinner roll with margarine	½ cup green beans	½ cup blueberries
Scrambled egg whites	1 cup watermelon	1 cup salad mix (lettuce, onion, cucumber) with vinegar and oil	
1 apple	5 vanilla wafers	1 slice pound cake with ½ cup sliced strawberries	
	4 oz lemonade	4 oz tea	

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. “Kidney Disease” Academy of Nutrition and dietetics, Accessed 11 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5537&lv2=255347&ncm_toc_id=22389&ncm_heading=Nutrition%20Car

Liver Failure Disease Diet

Purpose:
Dietary modifications may include the regulation of protein, vitamins, minerals, electrolytes and fluids. The purpose in care is to promote positive nitrogen balance and promote liver regeneration via adequate energy, protein, and other micronutrients.

Indications for Use:
Oral nutrition management is appropriate for residents or patients with liver diseases such as hepatitis, biliary disease, and cirrhosis. Nutrition support is indicated for clients with severe liver disease whose needs cannot be met through oral intake.

Nutritional Adequacy:
The adequacy of this diet will be dependent upon the adjustments necessary for protein, fluid, electrolytes, vitamins and minerals.

The following table includes recommendations made by the Academy of Nutrition and Dietetics Nutrition Care Manual for patients with cirrhosis and hepatitis:

Nutrient	Dietary Guidelines[1]
Energy	30-35 kcal/kg body weight or add 20% to the BEE.
Protein	1.0-1.2 g/kg body weight;0.8-1/2g/kg in the presence of cirrhosis. Protein restrictions should be avoided, even in encephalopathy if able, to prevent breakdown of endogenous protein and further malnutrition. It is; however, recommended protein sources from animal flesh be avoided if a patient does have severe encephalopathy.
Carbohydrates	Liver dysfunction can lead to alteration in carbohydrate metabolism. Monitor serum glucose closely.
Fat	Not restricted unless steatorrhea exists, in which case only a minor restriction is recommended (~30% of daily kcal). Medium chain triglycerides (MCT's) may be added in the case where restrictions are needed.
Fluids	The AND NCM does not directly address restrictions of fluid in the presence of ascites. Despite this, fluid restrictions may be needed if a patient has low serum sodium lab values.
Electrolytes	Sodium restriction (2 g) may be necessary to alleviate fluid retention associated with edema or ascites. Serum electrolyte levels should be monitored carefully.

Liver Failure Disease Diet (continued)

Nutrient	**Dietary Guidelines[1]**
Vitamins/Minerals	Deficiencies are common in patients with liver disease, especially if it is alcohol induced. Give water soluble vitamins with emphasis on folic acid, B_{12}, thiamin and B_6 if the patient has a history of alcohol abuse. Fat-soluble vitamins should be supplemented in water-soluble forms if deficiency is suspected or if the patient has steatorrhea.
Enteral/Parenteral Support	The nutrition professional should consider standard enteral/parenteral nutrition support guidelines in this population first and foremost. Additionally, there are specialized hepatic tube feeding formulas that may be used if trials of standard formulas fail. Avoid overfeeding to prevent further liver damage.

Liver Disease (hepatitis) Sample Menu

Breakfast	***Lunch***	***Dinner***	***Snacks***
½ cup cooked cereal	1 cup soup	Chicken breast	Pudding cup
Brown sugar	2 slices whole-grain bread	Sweet baked potato	Popcorn
Whole milk	2 oz turkey	2 tsp margarines	Crackers with cheese
Toast	1 oz cheese	Stir-fry vegetables	Liquid supplement (Ensure or similar)
Margarine	Sliced fruit	Grapes	
Jam	Whole milk		
½ cup juice			

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Gastrointestinal Diseases-Cirrhosis" Academy of Nutrition and dietetics, Accessed 21 December 2014,https://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5522&lv2=145224&ncm_toc_id=18609&ncm_heading=Nutrition%20Care

2. Academy of Nutrition and Dietetics Nutrition Care Manual. "Gastrointestinal Diseases-Hepatisis" Academy of Nutrition and dietetics, Accessed 21 December 2014,https://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5522&lv2=145224&ncm_toc_id=18539&ncm_heading=Nutrition%20Care

Low Protein Diet

Purpose:
To reduce the amount of protein a patient receives.

Indications for Use:
Acute stages of liver and renal disease. Despite the fact that these diets are continually ordered in health care facilities; the AND NCM has found no evidence to support these diets (NCM, 2014). Instead, individualized guidelines for patients in their current disease state/severity are recommended. One example of this is a protein restriction of 0.8g/kg/day for undialyzed renal patients instead of 1.5g/kg/day for patients on dialysis

Nutritional Adequacy:
Most diets restricted in protein will be inadequate in vitamins, minerals and calories.

Total Food Choices and number of servings for each Food Group for the Day:

Food Group	**40 grams** (protein)	**60 grams** (protein)
Milk	2	2
Meat	2	5
Vegetable	2	2
Fruit	4	4
Bread	6	6
Fat	--------Any Amount--------	
Sweets	--------Any Amount--------	

Low-Protein Diet Sample Menu

Breakfast	***Lunch***	***Dinner***	***Snacks***
2 slices toast	1 baked potato	Cooked rice	Canned fruit
Margarine	1/2 cup beans	1 cup peas	Popcorn
Jam	Barbecue sauce	Mushrooms	Gelatin
Cooked cereal	Margarine	Stir-fry seasoning	
Sliced banana	Sour cream		
Juice	Cooked broccoli		
Coffee			

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Gastrointestinal Diseases" Academy of Nutrition and dietetics, Accessed 16 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5522&lv2=145224&ncm_toc_id=18539&ncm_heading=Nutrition%20Care

Parkinson's Disease Diet

Purpose:
The dietary goals in Parkinson's disease are to maintain desirable weight, prevent lessening of therapeutic effect of anti-Parkinson drugs, decrease swallowing difficulties resulting from disease and/or medication-induced dry mouth, and prevent constipation through provision of adequate sources of fiber and fluid and to maintain optimal hydration.

Indications for Use:
The vast majority of Parkinson patients do not require a special diet. Modifications must be individualized according to the patient's symptoms.

Nutritional Adequacy:
This diet is adequate in nutrients to meet the current Dietary Reference Intakes Recommended for Individuals (DRI). If the patient is unable to eat an adequate amount and variety, a multivitamin and mineral supplement that meets 100% of the DRI is advised.

Potential Drug-Nutrient Interaction:
- Amino acids (from dietary protein) can interfere with the uptake of levodopa into the brain. If you find (not everyone experiences this) that eating high-protein food (such as meat, fish, poultry and dairy products) decreases the effectiveness of levodopa, keep the meat portion of your meal to about the size of a deck of cards. Do not use a restricted-protein diet; the problem is usually with the timing of the protein intake, not its total quantity over the course of the day. Some research indicates benefit in taking most protein-containing meals subsequent to Levodopa intake. A lower protein intake during the day and a larger intake in the evening have been suggested in other research. It would be wise to confer with the patient's physician and/or pharmacist to coordinate care of the patient and potential drug-nutrient interactions.

- Protein modified diets for nutrient-drug interaction with Levodopa has varying degrees of efficacy that cannot be predicted for an individual patient. Therefore, the best general guideline for this patient population is to eat a majority of their protein-containing meals in the evening to avoid interaction. (NCM, 2014).

- There have been several supplements popularized in this demographic. The AND NCM has found no conclusive evidence to support the use of CoQ10, creatine, glutathione, vitamin E, or other antioxidants in this patient population (NCM, 2014).

- Provide adequate fiber and fluid to prevent constipation.

- Maintenance of bone health through adequate weight bearing exercise, Vitamin D calcium, magnesium and phosphorus.

- Special utensils may need to be considered to maintain independence with eating.

- Assess the patient to determine if thickened liquids are appropriate.

Parkinson's Disease Diet (Continued)

- In the presence of delayed gastric emptying, advise the patient to eat slowly, use small frequent meals, increase carbohydrate and decrease fat in the diet.

Resource:

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Parkinson's Disease" Academy of Nutrition and dietetics, Accessed 19 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5527&lv2=255270&ncm_toc_id=255270&ncm_heading=Nutrition%20Care

Nutritional Care of the Cancer Patient

Purpose:
Nutritional needs can change as result of the cancer itself or from the acute or long-lasting side effects of cancer treatment. Cancer patients are at risk for malnutrition and often experience unintended weight loss as a side effect of cancer treatments (surgery, chemotherapy, radiation, etc). Consequences of malnutrition and/or weight loss in patients with cancer include reduced response and tolerance to treatment, impaired wound healing and immune response, and decreased quality of life.

Indications for Use:
The disease itself may interfere with the body's ability to normally digest and absorb nutrients and fluid. Cancer treatments and medications may also cause side effects that alter the patient's ability to eat.

Nutritional Adequacy:
When a variety of foods are chosen, the diet can provide nutritional adequacy for the cancer patient.

Nutrition Considerations for the Cancer Patient

Neutropenia
Patients that experience neutropenia are susceptible to bacteria and food borne illness, which can be life-threatening. Attention to food safety is vital to help prevent infection and exposure to bacteria in food, water and to reduce the risk of food-borne illness. Food safety, hand washing, attention to food preparation and storage temperatures and avoidance of foods that can carry bacteria help to protect patients experiencing neutropenia.

Cancers of the Head and Neck, and GI Tract
Many head and neck cancer patients require a liquid diet and high calorie supplements during and after their cancer treatment as a result of treatment side effects. Patients diagnosed with cancer of the esophagus and stomach may experience difficulty with swallowing, esophageal reflux, nausea and vomiting. Some patients will need a temporary feeding tube placed in to allow adequate nourishment required for recovery.

General Management of Treatment Side Effects for Cancer Patients:
The Academy of Nutrition and Dietetics outlines recommendations for care of the cancer patients in two of its databases: (1) Evidence Analysis Library (EAL), specifically the 2013 Oncology Nutrition Evidence-Based Nutrition Practice Guidelines which is available at no cost for members of the Academy and (2) The Nutrition Care Manual, Cancer section. The recommendations in these databases focus on preventing weight loss (even in overweight patients), maintaining lean body mass, preventing unintended weight gain, improving quality of life and managing treatment-related side effects[1,2,3].

Nutritional Care of the Cancer Patient (continued)

Academy of Nutrition and Dietetics Nutrition Intervention Recommendations,[1,4]:

- Small frequent meals may be better tolerated than larger meals.
- Food choices should be easy to eat, chew, swallow, digest, and absorb.
- Liquid nutrition supplements and nutrient-dense nourishments should be considered to help patients maintain adequate nutrient intake.
- Encourage regular physical activity as able (i.e. walking, activities of daily living).

The Academy's Oncology Nutrition Evidence-Based Practice Guidelines outline the following recommendations when providing MNT in the cancer care setting: [2,3].

- The PG-SGA and the SGA assessment tools have been shown to be valid and reliable assessment tools in the inpatient and outpatient cancer care setting. (Strong, Imperative)
- Any weight loss that is unintended in adult oncology patients has potential significance. Assessment of height, weight, weight change and BMI is needed to effectively determine nutrition diagnoses and plan the nutrition interventions. (Consensus, Imperative)
- RDNs should use clinical judgment in interpreting nutrition assessment data to diagnose malnutrition in adult oncology patients. Early identification and diagnosis can positively impact clinical outcomes. (Consensus, Imperative)
- In adult oncology patients who have been identified to have pre-cachexia or cancer cachexia, prompt and aggressive intervention to address nutrition impact symptoms and preserve or prevent loss of lean body mass and weight should be initiated by the RDN. (Consensus, Conditional).
- Use enteral nutrition to increase calorie and protein intake for outpatients with stage III and IV head and neck cancer undergoing intensive radiation treatment. (Strong, Imperative).
- Parenteral nutrition should only be used in selected hematopoietic cell transplantation (HCT) patients due to increased risk of treatment complications, increased cost, and a lack of significant treatment outcomes (Fair, Imperative)
- If an oncology patient has neutropenia, the RDN should provide dietary counseling on safe food handling and foods that may pose infectious risks during the period of neutropenia. (Fair, Conditional).
- If an adult oncology patient is undergoing bone marrow transplant, the RDN should provide dietary counseling on safe food handling and foods that may pose infectious risks during the period of neutropenia. A neutropenic diet is not necessary. (Weak, Conditional).
- As a part of nutrition monitoring and evaluation, in patients with lung, pancreatic, head and neck, and GI cancers, or those at high risk for weight loss or have experienced unintended weight loss, the RDN should monitor and evaluate nutrition impact symptoms, markers of inflammation (eg. C-reactive protein, and other signs of wasting). (Consensus, Conditional)
- The RDN should collaborate with other healthcare professionals, administrators, and public policy decision makers to ensure that the evaluation of nutritional status is a component of cancer patients' care process. (Strong, Imperative)
- The Academy provides additional recommendations for the nutritional care of for cancer patients in their Nutrition Care Manual available online for subscribers at nutritioncaremanual.org

Nutritional Care of the Cancer Patient (continued)

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Oncology General Guidance." Academy of Nutrition and Dietetics, Available at http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=22938&lv2=255467&ncm_toc_id=255467&ncm_heading=Nutrition%20Care. Accessed on 20 December2014,

2. Academy of Nutrition and Dietetics Evidence Analysis Library. "Oncology (ONC) Guideline (2007 & 2013)." Academy of Nutrition and Dietetics, Available at http://andeal.org/topic.cfm?menu=5291&cat=5067. Accessed on 20 December 2014

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Celiac Disease and Gluten Management

Purpose:
To identify and eliminate sources of gluten that may exacerbate symptoms of intolerance experienced by those with an allergy or intolerance. This diet omits barley, oats, rye, wheat and food products containing them. Any food not listed in the allowed and the avoid list must be checked with the manufacturer for current ingredients.

Indications for Use:
This diet is used for treatment of patients with, celiac disease (nontropical sprue), gluten-sensitivity, Dermatitis Herpetiformis, microscopic colitis, gluten allergies, and others.

Nutritional Adequacy of:
This diet meets the DRI (Dietary Reference Intake) in every respect when planned with a variety of foods.

Food Group	Foods to Choose	Foods to Avoid
Beverages:	Bulk tea, instant or ground; coffee, regular or decaffeinated; soft drinks, pure juices.	Beer, malted beverages, and beverages made with excluded grains.
Milk:	Milk, cream, buttermilk, plain yogurt, cheese, cream cheese, processed cheese, cottage cheese cocoa.	Malted milk.
Grains:	Bread and baked products made with gluten-free sources of corn, cornstarch, potato starch, potato flour, rice, soybean, arrowroot, soy, whole bean flour, tapioca, sago, rice bran, buckwheat, wild rice, cassava, yucca, nuts, seeds, millet, kamut, flax, teff, sorghum, amaranth, quinoa.	Breads and baked goods with wheat, rye, triticale, barley, oats, wheat germ, wheat bran, graham flour, durum flour, wheat starch, oat bran, bulgur, farina, semolina, spelt, imported “gluten-free foods containing wheat starch.
Cereals:	Gluten-Free (GF) cereals. All others must be checked.	Cereals made from grains not allowed with added malt extract or malt flavoring or barley.
Pasta:	GF pasta.	Pasta made with excluded grains.

Gluten-Restricted Diet (continued)

Meat and substitute:	Plain fresh, frozen, canned, salted, smoked meat, fish, poultry. Lentils, chickpeas, peas, plain beans, nuts, seeds, tofu, eggs.	Meat, fish or poultry canned in or injected with vegetable broth containing hydrolyzed vegetable protein (HVP), or hydrolyzed plant protein (HPP) from ingredients not allowed. Processed nuts dusted in wheat or oat flour.
Vegetables:	Any plain fresh, canned, dried or frozen vegetable.	Batter dipped vegetables. Mixtures of frozen vegetables produced in facilities which also process excluded grains.
Potato or substitute:	White or sweet potato, yams, hominy. Plain white or brown rice.	Potatoes made with excluded grains. Rice that has been sprayed or dusted with excluded grains.
Fruits:	Any plain fresh, canned, or frozen fruit.	Mixtures of fruit containing flavorings or that may have been contaminated during processing. Dried fruit dusted in wheat or oat.
Fat:	Bacon fat, butter, cooking fats, margarine, mayonnaise, lard, vegetable oil, cream, shortening, homemade salad dressings with allowed foods.	Commercial salad dressings made from excluded grains, oils made with vitamin E from wheat germ.
Soups:	Homemade broth, soups, made with allowed foods.	Soups made with excluded grains. Bouillon and bouillon cubes containing HVP, HPP or excluded grains.
Desserts:	Homemade desserts using allowed foods, such as ice cream, custard, ices, gelatin desserts. GF cakes, cookies, pastries made with allowed foods.	Any made from foods to avoid, such as cakes, cookies, ice cream, pastries, pies, puddings, sherbet made with stabilizers.

Gluten-Restricted Diet (continued)

Sweets:	Homemade candy from allowed foods, honey, jam, jelly, molasses, sorghum, sugar, maple syrup.	Candy, jam and marmalade made from foods to avoid or produced in facilities which also process excluded grains.
Miscellaneous:	Salt, cider vinegar, plain single spices. Pure cocoa, pure baking chocolate, carob chips and powder, monosodium glutamate (MSG), cream of tartar, baking soda, yeast, aspartame, plain coconut, coconut milk, GF soy sauce (Tamari Sauce).	Spices mixed with excluded grains. Sauces and gravies made with excluded grains. Soy sauce made with wheat.

Preparation

It is impossible to have a guaranteed gluten free diet prepared in the same kitchen while preparing a gluten filled diet. Ideally, the best plan is to use a small galley, or other kitchen outside the regular kitchen for preparing this food.

Additional Resources:

1. www.celiac.com
2. http://celiac.ca - Canadian Celiac Association
3. Various pamphlets, some free, some cost, from The Celiac Sprue Association 402-558-600 http://www.csaceliacs.org/
4. Hospital Guide" from Gluten Intolerance Group (cost) 253-833-6655 or http://www.gluten.net/publications.phn

Gluten-Restricted Diet (continued)

Sample Menu for Gluten-Restricted Diet

Breakfast	***Lunch***	***Dinner***	***Snacks***
Orange juice	Roast beef	Roast chicken	Gluten free cereal with plain yogurt
Eggs	Mashed potato with milk, butter, salt	Sweet potato Carrots	Fresh banana with peanut butter
Bacon	Green beans	Lettuce/spinach salad	
GF rice bread with butter	Sliced tomato salad	Lemon wedge	
Milk	Vinegar and oil dressing	GF rice bread, butter	
Coffee	GF rice bread, butter	Homemade custard	
Creamer, sugar, jelly, salt	Peaches	Milk	
	Milk	Coffee or tea	
	Coffee or tea	Cream, sugar, salt	
	Cream, sugar, salt	Roast chicken	

Low-Lactose Diet

Purpose:
Lactose is the type of sugar found in milk and dairy foods. The low lactose diet is designed to alleviate symptoms associated with lactose intolerance. These symptoms include gas, diarrhea, and stomach cramping.

Indications for Use:
The low-lactose diet may be used for infants with primary lactase deficiency (i.e., a congenital abnormality) and in patients with intolerance to the primary sugar in milk (lactose).

Nutritional Adequacy:
The low-lactose diet is often inadequate in calcium, riboflavin and Vitamin D. Confer with patient's physician to determine if these are appropriate for your patient.

Dietary Guidelines
- Lactose-free milk and lactose-free products may be used. All other milk and milk products must be eliminated.
- Focus should be placed on education and supplementation with enzymes.
- The protein intake may be increased by adding meat, fish, poultry, eggs, lactose-free milk substitutes or breads and cereals from those allowed.

Food Group	Foods to Choose	Foods to Avoid
Beverage:	Coffee, tea, carbonated beverages, fruit drinks and cereal beverages. Lactose free milk (Lactaid milk), soy or rice milk.	Prepared drinks with milk or milk products, cocoa. Supplemental drinks with lactose.
Meat:	Meat, fish, poultry, eggs, peanut butter	Any prepared or processed with milk or milk products, cottage cheese.
Fat:	Lard, pure mayonnaise, vegetable oils, margarines without milk or butter added, and some cream substitutes.	Butter, margarine with milk solids added, salad dressings; sour, sweet and whipped creams.
Bread & Cereals:	Bread, rolls, crackers, cereals. Patients on the low-lactose diet may have cakes prepared with milk if tolerated.	None.
Vegetables:	Fresh, canned or frozen vegetables.	Vegetables processed or prepared with milk products.

Low-Lactose Diet (continued)

Foods Groups	**Foods To Choose**	**Foods to Avoid**
Fruits:	Any	Fruits that are canned, dried or frozen with milk products.
Soup:	Bouillon, broth, or soups made from allowed foods.	Cream soups, commercial soups made with milk or milk products.
Desserts:	Fruit ices, gelatin, cakes, cookies, pastries made without milk or milk products unless tolerated by the patient.	Any with milk or milk products; sherbet, ice cream, puddings and commercial mixes unless tolerated by the patient.
Sweets:	Pure sugar candy, honey, pure jams and jellies, sugar.	Cream or chocolate candies; commercial candies containing milk or milk products, molasses.

Sample Low-Lactose Diet Menu

Breakfast	***Lunch***	***Dinner***	***Snacks***
1 cup oatmeal with crushed walnuts, raisins, and brown sugar.	Mixed salad with black beans and corn.	2 Taco's in a corn tortilla (includes meat and sautéed vegetables).	Dairy alternative yogurt (soy, etc.)
½ dairy alternative milk	2 Tablespoons of vinegar and oil dressing	Rice and beans	½ peanut butter sandwich on wheat bread.
½ cup calcium fortified juice	3 oz grilled chicken	Popsicle	
	1 apple		

Nutrition Management of Person's with Phenylketonuria (PKU)

Purpose:
To reduce the intake of a particular amino acid called phenylalanine. PKU is an inherited metabolic disorder in which the amino acid phenylalanine (Phe) is not metabolized.

Indications for Use:
Patients with diagnosed PKU.

Nutritional Adequacy:
The diet should be nutritionally adequate when appropriate amounts of phenylalanine-free, tyrosine-supplemented formula is provided as essential vitamins, minerals, and fats are generally added to these formulas.

Diet therapy*:*
PKU requires a specially designed formula to provide all essential amino acids except Phe. Because there are a number of formula's available on the market, best practice would be to contact the representative your facility purchases nutrition supplements from to find what is available.

Infant formulas:
- PhenylFree1 (Mead Johnson)
- Phenex-1 (Abbott)
- Periflex

Adult formulas:
- PhenylFree2 (Mead Johnson)
- Phenex-2 (Abbott)
- PhenylAde Essential (Applied Nutrition)
- Periflex (Nutricia/SHS)

Diets are generally based around formula, fruits and vegetables and a variety of low-protein foods available through various companies. Many children will refer to themselves as "vegetarians," but remember that many other foods besides the typical protein foods contain Phe, i.e.: grains, packaged foods, sugar-free foods, etc.

Some key points to remember when developing diet therapy for an individual with PKU:
- Calculate estimated needs as with a typical patient; adjustments to kcal/pro will be made as the child grows. However, Phe tolerance rarely changes with age.
- In general, 1 gm pro = 50 mg Phe.
- Phe tolerance for newborns is determined primarily through trial and error. Therefore, frequent testing and dietary compliance is essential.
- Adults with PKU are at increased risk for lower bone density without adequate intake of phenyl-free formula or supplemented calcium.
- When planning a PKU patient's menu, general recommendations include excluding the intake of the following foods: meat, cheese, milk, eggs, legumes, and nuts. A one-day sample menu is on the following page.

PKU Diet (continued)

Sample PKU Diet

Breakfast	***Lunch***	***Dinner***	***Snacks***
Measured amount of cereal	Sandwich made with low-protein bread and filled with vegetables.	Salad with vegetables	Medical formula (food).
Fruit	Measured amount of potato chips	Low-protein pasta with tomato sauce	Banana
Medical formula (Food).	Fresh fruit	Low-protein dessert (cookie or cake)	Apple
	Medical formula (food).	Fruit	
		Medical formula (food).	

Bariatric Regular Diet

Purpose:
The Bariatric Regular diet has been developed to provide three to four small meals of high protein foods intended to maximize fullness with small amounts of food. It is a diet low in simple carbohydrates to reduce the incidence of dumping syndrome.

Indications for Use:
The Bariatric Regular diet is intended for patients who are post-gastric bypass surgery already tolerating bariatric clear liquid, bariatric full liquid and bariatric soft diets. It is used as the life-long diet after gastric bypass surgery.

Nutritional Adequacy:
The Bariatric Regular diet is nutritionally suboptimal for the patient in the early months after surgery. More nutritionally substantial foods are added as the patient's tolerance allows. The goal is to focus on high protein foods and add dairy, fruits vegetables and whole grains once the daily protein goal is met. Surgeon preference may dictate when certain fruits, vegetables and grain products are allowed. A multivitamin formulated for gastric bypass surgery (e.g. Bariatric Fusion or Optisource) is advised.

Miscellaneous:
The patient will require three meals with one snack if requested. Protein drinks may be used if protein intake from food is inadequate. Meals sizes will range from 4-8 oz or until full. Energy intake will be roughly 800-1200 calories per day and may be more depending on the patient's activity level. A life-long protein goal is 60-80 grams per day. It is highly encouraged that protein foods be eaten first.

Food Group	Foods to Choose
Milk and Dairy:	Skim milk, 1% milk, lactaid milk, soy milk, low sugar soft fruited yogurts, plain yogurt, fruit smoothies, SF (sugar free) Carnation Instant Breakfast® drink.
Meat, Fish, Poultry, Cheese, and Eggs:	All as tolerated.
Bread and Cereals:	Oatmeal, cream of wheat, whole wheat toast, soda or whole wheat crackers as tolerated.
Potato and Alternatives:	Mashed potatoes and pastas as tolerated.
Vegetables:	Tomato juice, V8 juice. Cooked and fresh vegetables as tolerated.

Bariatric Regular Diet (continued)

Food Group	**Foods To Choose**
Fruits:	All canned or fresh fruits as tolerated.
Fat:	Light margarine, light mayonnaise, fat-free cream.
Sweets and Desserts	Sugar free hard candy, sugar free gelatin, sugar free popsicles, sugar free pudding, sugar free custard.
Beverages:	Sugar-free, caffeine-free, non-carbonated liquids. y
Soups:	Bouillon, clear broth, soups.
Miscellaneous:	Salt, non-nutritive sweeteners, such as sucralose, aspartame, and saccharin. Whey protein isolate/whey protein concentrate such as Isopure, Nectar, Unjury, EAS whey protein or AnyWhey.

Sample Bariatric Regular Diet Menu:

Breakfast	***Lunch***	***Dinner***	***Snack***
1 egg	Tuna or egg salad made with mayonnaise.	Crockpot chicken cooked in tomato juice	Protein shakes, canned fruit, yogurt
1-2 oz cooked oatmeal	Calcium supplement	Calcium Supplement	

Remember to encourage multivitamins, calcium, vitamin B-12 and D supplements.

Bariatric Soft Diet

Purpose:
The Bariatric Soft diet has been developed to provide multiple small meals of soft foods intended to minimize irritation of the gastrointestinal tract during healing. It is a diet low in simple carbohydrates to reduce the incidence of dumping syndrome.

Indications for Use:
It is used as a step of postoperative oral intake and is not intended for long-term use (i.e. 2-6 weeks) in patients who are post-bariatric surgery.

Nutritional Adequacy:
The Bariatric Soft diet is nutritionally suboptimal and more nutritionally substantial foods should be added as soon as tolerated by the patient. The volume of food the patient tolerates early after surgery will not meet nutritional needs because of the nature of the surgery. The bariatric diet stages are progressive to encompass an increased variety and volume of food. A multivitamin formulated for gastric bypass surgery (e.g. Bariatric Fusion or Optisource) is advised.

Miscellaneous:
The patient will require three meals plus two to three 4 oz protein drinks per day. Meal sizes will range from 2-6 oz or until full. Energy intake will be roughly 600-1000 calories per day with a protein goal of 60-80 grams per day. It is highly encouraged that protein foods be eaten first.

Food Group	Foods to Choose
Milk and Dairy:	Skim milk, 1% milk, skim or 1% lactose free milk, soy milk, low-sugar fat-free soft fruit yogurts, plain yogurt, SF Carnation Instant Breakfast® drink.
Meat, Fish, Poultry, Cheese, and Eggs:	Scrambled eggs, tuna, salmon, low-fat cottage cheese, shrimp, cooked fish, canned turkey or chicken.
Bread and Cereals:	None.
Potato and Alternatives:	None.
Vegetables:	Tomato juice, V8 juice. Soft cooked vegetables.
Fruits:	Applesauce, banana, melon, strawberries, rinsed canned fruits except canned pineapple.

Bariatric Soft Diet (continued)

Food Group	**Foods to Choose**
Fat:	Light margarine, light mayonnaise, fat-free cream.
Sweets and Desserts	Sugar free hard candy, sugar free gelatin, sugar free popsicles, sugar free pudding, sugar free custard.
Beverages:	Sugar-free, caffeine-free, non-carbonated liquids.
Soups:	Bouillon, fat-free clear broth, blenderized soups.
Miscellaneous:	Salt, non-nutritive sweeteners, such as sucralose, aspartame, and saccharin. Whey protein isolate/whey protein concentrate such as Isopure, Nectar, Unjury, EAS whey protein or AnyWhey.

Sample Bariatric Soft Diet Menu

Breakfast	***Lunch***	***Dinner***	***Snacks***
8-10 ounces of protein-drink Slowly sip 8-10 oz of clear liquid beverage in between breakfast and lunch. Wait 1 hour and take two chewable "complete" multivitamins, vitamin B-12, and vitamin D. Slowly sip: 8-10 ounces of clear liquid in between breakfast and lunch	8-10 ounces of protein drink or 1-2 oz of tuna made with mayonnaise with soft-cooked vegetables. Slowly sip 8-10 oz of clear liquid in between lunch and dinner. .	Hearty bean soup Canned mixed fruit Slowly sip 8-10 oz of clear liquid beverage Take 1 calcium chew with dinner.	Protein Drinks

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Bariatric Full Liquid Diet

Purpose:
The Bariatric Full Liquid diet has been developed to provide a transition from clear liquid to solid foods that are liquid at room temperature. It is sugar-free to avoid dumping syndrome, limited in amounts and allows some foods that are not typically allowed on a regular Full Liquid diet. It also may include protein supplements.

Indications for Use:
The Bariatric Full Liquid diet is intended for patients who are progressing to solid foods post-gastric bypass surgery. It is used as a step of postoperative oral intake and is not intended for long-term use (i.e. 2-6 weeks).

Nutritional Adequacy:
The Bariatric Full Liquid diet is nutritionally suboptimal and a more nutritionally substantial diet should be initiated as soon as possible.

Food Group	Foods to Choose
Milk and Dairy:	Skim or 1% milk, skim or 1% lactose free milk, soy milk, rice milk.
Meat, Fish, Poultry, Cheese, and Eggs:	Thin and blended low-fat cottage cheese, ricotta cheese, low sugar fat-free yogurt.
Bread and Cereals:	None.
Potato and Alternatives:	None.
Vegetables:	Vegetable juice, broth.
Fruits:	None.
Fat:	Light margarine, light mayonnaise, fat-free cream.
Sweets and Desserts	Sugar free pudding, sugar free custard, sugar free gelatin, sugar-free popsicles.
Beverages:	Sugar-free, caffeine-free, non-carbonated liquids.
Soups:	Bouillon, fat-free clear broth, strained (broth, vegetables or cream based) soups; may puree soups if ordered.

Bariatric Full-Liquid Diet (**Continued**)

Food Group	**Foods Allowed**
Miscellaneous:	Salt, non-nutritive sweeteners, such as sucralose, aspartame, and saccharin. Whey protein isolate/whey protein concentrate such as Isopure, Nectar, Unjury, EAS whey protein or AnyWhey.

Created by: Jennifer Hosier, RD, LD and Kyle Kamp, RDN, LD

Sample Bariatric Full-Liquid Diet

Breakfast	***Lunch***	***Dinner***	***Snacks***
8-10 oz liquid beverage	8-10 oz liquid beverage	8-10 oz liquid beverage	8-10 oz liquid beverage
Slowly sip 8-10 oz of a clear liquid beverage between each meal.	Slowly sip 8-10 oz of a clear liquid beverage between each meal.	Slowly sip 8-10 oz of a clear liquid beverage between each meal.	Slowly sip 8-10 oz of a clear liquid beverage between each meal.

**Vitamin, mineral, and supplemental regimen should be followed accordingly. This usually includes a "complete" multivitamin, vitamin B-12, and vitamin-D tablet in the morning. One calcium chew is usually taken with lunch and one with dinner. The patient may take additional calcium if it is required to meet their needs. (NCM, 2014)

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Roux-En-Y Gastric Bypass/Sleeve Gastrectomy Discharge Nutrition Therapy." Academy of NutritionandDietetics,Accessed23December2014,http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id1&lv1=5546&lv2=255665&ncm_toc_id=255665&ncm_heading=Nutrition%20Care.

SECTION 6

Nutritional Management of General Disease States

Low-Cholesterol, Low-fat Diet

Purpose:
The low cholesterol, low fat diet is intended to slow or prevent the development of atherosclerosis. This diet restricts the amount and kind of fat. Total fat intake is restricted to less than 35 percent of total calories. Saturated fats are restricted to less than 7% of total calories. Recent evidence suggests fish intake should be encouraged. Soluble fiber, such as legumes, barley, oats, fruits, and vegetables should be encouraged.

Indications for Use:
The diet is intended for use with individuals that have or are at risk of cardiovascular disease. This diet may also be known as the TLC (Therapeutic Lifestyle Changes) diet.

Nutritional Adequacy:
This diet is adequate in all essential nutrients when variety is supplied.

Low-Cholesterol, Low-fat Diet Guidelines:

Food Group	*Food to Choose*	*Food to Avoid*
Soup:	Vegetable or broth based soup, soups made with skim milk.	Cream soups, soups made with whole milk.
Fish, Poultry, Meat, Dried Beans:	Fish at least twice a week, fresh, frozen, and canned in water.	Fish cooked in butter or high-fat sauce. Tuna or canned fish in oil. Fried fish. Pre-breaded fish sticks or patties.
	Lean trimmed cuts of meat including tenderloin, sirloin. Skinned chicken or turkey. Legumes and lentils, such as pinto, black or kidney beans. Peanut butter, trans free.	High fat meats such as sausage, bacon, ribs, hamburger (20%) or meat with visible fat or skin. High fat processed meats such as cold cuts, bologna, hot dogs or bacon. Pre-breaded meat patties.
Eggs:	3 whole eggs per week. Egg whites and egg substitute as desired.	Additional egg yolks.

Guidelines (continued)

Dairy products:	Fat-free (skim milk) or 1% milk.	Whole milk or reduced fat (2%) milk.
	Fat-free cheese or low-fat (part-skim) such as string, mozzarella or cheeses labeled as fat-free or low-fat.	Full-fat cheese such as Colby, Swiss, Cheddar.
	Fat-free cream cheese and sour cream.	Full-fat or light cream cheese and sour cream.
	Fat-free yogurt.	
	Fat-free ice cream and frozen yogurt.	Full-fat or low fat yogurt.
	Fat-free cottage cheese.	Full-fat or low fat ice cream or frozen yogurt.
	Fat-free ½ & ½.	Full-fat or low fat cottage cheese.
		½ & ½.
Potato, Rice, Pasta and Grains:	All potatoes when prepared with skim milk and allowed fat.	Potatoes cooked in fat or oil, such as baked potatoes made with butter and sour cream, au gratin potatoes. Potato chips. Pasta such as spaghetti, linguine made with butter or high-fat sauce.
	Pasta made with a marinara or tomato sauce and vegetables.	Fried rice or rice made with butter or high-fat sauce.
	Brown and white rice. Rice made with vegetables and spices.	
	Potato, macaroni or pasta salads made with fat-free or low-fat mayonnaise or dressing.	Potato, macaroni or pasta salads made with regular mayonnaise or dressings.
	Barley added to soups and casseroles.	
	Bulgur (cracked wheat) served plain or in pilaf.	
Vegetables:	All. Steamed vegetables without butter or high-fat sauces.	Vegetables cooked in fat or oil.
	Tossed salad with fat-free or low-fat salad dressing.	Tossed salad with full-fat dressing.
Fruits:	All.	None. (Count avocado as fat serving)

Guidelines (continued)

Breads, Cereals & Crackers:	Whole grain breads, muffins, rolls and bagels with low fat spreads.	White breads, rolls and bagels. Buttered garlic bread and bread sticks.
	Whole grain crackers, rye wafers and melba toast.	Snack crackers.
	Whole grain, corn & multigrain tortillas.	Crisp tortilla shells.
	Whole grain pretzels and bread sticks.	
	Low-fat biscuits muffins, cornbread pancakes and waffles using allowed kind oil or fat.	Commercial biscuits, donuts, muffins, sweet rolls, coffee cakes, pancakes, waffles
	Whole grain unsweetened cereals such as oatmeal, oat bran, shredded wheat.	Sweetened cereals.
	Unbuttered popcorn. Baked tortilla chips.	Buttered popcorn. Fried tortilla chips.
Beverages:	Non-fat (skim) or low-fat 1% milk. Low-fat buttermilk. Non-fat evaporated milk. Non-fat or low-fat cocoa. Coffee, coffee substitutes, tea without ½ & ½ or cream. Carbonated beverages. .	Whole milk, 2% milk. Whole evaporated milk. Beverages made with whole milk or powdered cream.
Fats:	Limit to 3 teaspoons a day. (Exception: if individual cannot maintain their weight, more fats are allowed.) • Low-fat soft margarines containing 5 gm or less fat per tablespoon is allowed. • Mono-unsaturated fats: Olive oil, canola oil, peanut oil	Avoid saturated fats: butter and dairy fat, lard, beef fat, chicken fat, palm oil, palm kernel oil, & coconut oil. Avoid trans fats: stick margarine, food made with hydrogenated vegetable shortening.

Guidelines (continued)	• Poly-unsaturated fats: Safflower oil, corn oil, sunflower oil, sesame oil • Omega-3 Fats: such as found in salmon, tuna, mackerel, sardines, herring & flaxseed oil • Foods with plant sterols: Vegetable spreads, orange juice and food containing stanol and sterol esters	
Sweets:	Limit sweets if overweight or elevated triglycerides. Low fats sweets such as hard candies, mints, gum drops. Sugar, honey, syrup, jelly and jam, marshmallows.	Candies made with chocolate, butter or cream or trans fats.
Desserts:	Low-fat desserts such as gelatin, sorbet, angel food cake, fat free cakes, fruits and fruit sauces, vanilla wafers, low-fat cookies.	Desserts containing egg yolk, whole milk, cream, chocolate or coconut. Pastries, ice cream, all commercial mixes.
Miscellaneous:	Herbs, spices, vinegar, catsup, relishes, flour, salt and pepper. Limit salt if hypertensive.	Coconut, sauces and gravies unless made with allowed fat and nonfat milk or fat free broth.

Guidelines (continued)

Sample Low-Cholesterol, Low-fat Meal Plan:

Breakfast	***Lunch***	***Dinner***	***Snacks***
½ cup orange juice	1 chicken pita-wrap: 2 oz skinless chicken breast, 2 TB hummus, sliced cherry tomatoes, shredded lettuce.	3 oz broiled salmon (or similar fish)	1 oz unsalted trail mix
1 cup cooked oatmeal	1 apple	1 cup cooked brown rice	½ cup nonfat frozen yogurt with berries
1 cup plain, nonfat yogurt	1 cup skim milk	1 cup cooked zucchini	3 cups unbuttered popcorn.
1 banana, sliced		1 tossed salad with black beans and salsa	
1 oz unsalted walnuts		1 cup of coffee or tea	
1 cup brewed coffee			

Potassium-Restricted Diet

Purpose:
Certain fruits and vegetables contain large amounts of potassium. The amount of the limitation of these foods depends on the allowed potassium intake. Vegetables may be soaked before cooking and soak water discarded to lower Potassium content. Please refer to appendix for potassium content of select foods.

Indications for Use:
Potassium is restricted primarily in renal disease. The potassium level prescribed corresponds to the individual's need.

Nutritional Adequacy:
The RDAs for niacin, riboflavin and thiamin are not met on the potassium restricted diet.

Levels of Potassium Restriction*:*

Description	***Daily Potassium Restriction***	***Medical Conditions Assoc.***
Mild Potassium Restriction	2000 mg (50 mEq)	Hemodialysis, mild hyperkalemia.
Moderate Potassium Restriction	1500 mg (40 mEq)	Acute hyperkalemia

Sample Potassium-Restricted Meal

Breakfast	***Lunch***	***Dinner***	***Snacks***
1 toasted English muffin	2 slices whole wheat bread	1 cup cooked pasta noodles	1 slice pound cake with 2 TB whip topping
2 tsp margarine	2 oz turkey breast meat	1 oz grated parmesan cheese	1/2cup sugar-free gelatin
½ cup raspberries	1 oz cheese	1 tsp olive oil	
2 large eggs	½ cup watermelon	½ cup applesauce with cinnamon	
1 cup brewed coffee	1 cup brewed tea		

Nutrition Care for Wound Healing

Purpose:
To adequately meet the energy, protein, and nutrient demands of patient's with open wounds.

Indications for Use:
Patients with the presence of open wounds; these wounds can present in the form of pressure ulcers, post-surgical incisions, and/or chronic wounds. It is possible for all three of these to present at the same time. The presence of these open wounds greatly increase the patients' needs for energy, protein, and nutrients.[1]

Nutritional Adequacy:
When offered foods from a variety of different groups; the recommendations made for wound care nutrition intervention is nutritionally adequate.

Current Recommendations for Pressure Ulcer Prevention and Treatment using Evidence Based Practices as Established by the AND[1,2] and the National Pressure Ulcer Advisory Panel (NPUAP)[3].

- Early nutrition screening and assessment to identify risk of under nutrition, PEM, and unintentional weight loss is best practice for treating this patient population. The assessment can take place upon admission to the facility, with a significant change in clinical condition, and/or when there is lack of progress towards pressure ulcer closure.
- Referral to a registered dietitian for thorough assessment and recommendations using the Nutrition Care Process should be conducted on patients to may be at risk for malnutrition and/or individuals with an existing pressure ulcer.
- Each patient should have their weight assessed within 24 hours of facility entrance. Any patient who has a history of significant weight loss ($\geq$ 5% in 30 days or $\geq$ 10% in 6 months) should referred to a registered dietitian for further pressure ulcer prevention steps and treatment of any existing pressure ulcers.
- Assess the ability of patients to eat independently as this can greatly affect their energy and nutrient intake.
- Assess adequacy of total nutrient intake. A complete assessment should include an evaluation and estimation of the individual's caloric, protein, and fluid requirements. If a patient has a pressure ulcer or is at risk of developing one, an individualized nutrition care plan should be developed for that person.
- Provide 30-35 calories per kilogram of body weight for patients assessed as being at risk for developing or currently having a pressure ulcer. In addition, energy needs should be adjusted based on weight change or level of obesity. Underweight adults or those who have had a significant unintended weight loss may need additional energy intake.
- Liberalize dietary restrictions of food and fluid recommendations when they result in limited oral food or drink intake.

Wound healing (continued)

- Provide fortified foods and/or high calorie, high protein oral nutritional supplements between meals if nutritional requirements cannot be achieved by dietary intake.
- Consider nutrition support using enteral or parenteral nutrition when oral intake is inadequate. It should be noted that enteral (tube) feeding is the preferred route when the GI tract is functional.
- Offer 1.25-1.50 grams of protein per kilogram body weight for individuals at risk of or with an existing pressure ulcer. The goal for protein intake should be to provide a positive nitrogen balance for this patient population. High calorie, high protein nutritional supplements may be offered in addition to the diet for those adults with pressure ulcer and/or nutrition risk.
- Assess renal function to ensure protein increases are appropriate.
- The use of a high protein, arginine, and micronutrient-enhanced supplement may be indicated for adults with a Stage III, IV, or multiple pressure ulcers when nutritional requirements cannot be met in totality with traditional high protein, high calorie supplements.
- Adequate fluid intake is a key component in wound and pressure ulcer healing. Special attention should be paid to ensure a patient at risk of or currently with a pressure ulcer has adequate daily fluid intake for hydration. The recommended amount of fluid should be consistent with the patient's co-morbid conditions. The nutrition professional should monitor for signs and symptoms of hydration. These markers include: reduction in weight, "tenting" skin turgor, reduced urine output, elevated sodium labs, and/or elevated serum osmolality.
- If a patient is found to be dehydrated, additional fluid should be provided in the following conditions: elevated temperatures, vomiting, excessive sweating, diarrhea, or wounds with high fluid output.
- Individuals at risk of developing a pressure ulcer and/or those with a current pressure ulcer should be encouraged to consume a balanced diet with good sources of vitamins and minerals. Patients with suspected or confirmed deficiencies should be encouraged to take a vitamin and mineral supplement.

Menu for Wound Healing:

Breakfast	***Lunch***	***Dinner***	***After-Dinner Snack***
½ cup juice	4 ounces spaghetti meat	4 oz chicken breast	Supplemental beverage (Ensure Muscle or similar)
2 slices whole-wheat toast	Pasta	Mashed potatoes	2 Chocolate chip cookies
Margarine & jam	Parmesan cheese	Gravy	8 ounces whole milk
2 eggs	Salad with dressing	Spinach cooked in olive oil	Graham crackers with peanut butter
1 ounce cheese	1 cup whole milk	1 dinner roll	
1 cup whole milk	1 piece chocolate cake	Margarine	
1 banana		Pudding with whipped topping	
Peanut butter		1 cup whole milk	

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Pressure Ulcers" Academy of Nutrition and Dietetics, Accessed 21 December 2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5546&lv2=16668&ncm_toc_id=16668&ncm_heading=Nutrition%20Care

2. Academy of Nutrition and Dietetics Nutrition Care Manual. "Surgical and Chronic Wounds." Academy of Nutrition and Dietetics, Accessed 21 December 2014,http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5546&lv2=255665&ncm_toc_id=255665&ncm_heading=Nutrition%20Care

3. National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014

High Calorie, High Protein Diet

Purpose:
This diet is designed to provide calories and protein above the standard regular diet.

Indications for Use:
The 2014 Nutrition Care Manual states added calories and protein is needed for conditions that require extensive healing (NCM, 2014). These include burns, malnutrition, cancer, and the post-operative state of surgery. To accomplish this, patients will need an average of 30-35kcal/kg of body weight. In addition, adequate protein; which is estimated at 1.5-2.0g/kg of body weight for those with chronic wounds, is also important to consider. Likewise, ample fluid intake is pivotal in the patient's recovery. It's estimated that about 2 liters of fluid for those on a 2,000 calorie diet is provides an appropriate amount. Remember that these are guidelines and each patient could need more or less than these suggestions.

Nutritional Adequacy:
Adequate in all nutrients if the diet is selected from a wide variety of foods that also includes fruits and vegetables. Some patients may benefit from six small meals to provide adequate energy and protein.

Food Group	Foods to Choose	Foods to Avoid
Milk:	Milk; flavored milk; milkshakes; eggnog; yogurt; half-n-half, cream, sour cream.	None
Vegetable:	All (select at least 1 deep green or yellow vegetable daily)	None
Bread & Starches:	All (include enriched or whole grain products daily)	None
Fruit:	All (include at least 1 citrus fruit serving daily)	None
Meat & Meat Alternatives:	All (2 Tbsp. peanut butter or 1 egg is equivalent to 1 oz meat)	None
Fat:	All – Use liberally.	None

High Calorie, High Protein Diet (continued)

Food Group	Foods to Choose	Foods to Avoid
Beverages:	All – High calorie, high protein liquid supplements (should provide a minimum of 30 calories and 1 gm protein per ounce).	None
Soups:	All – Cream based soups generally provide higher amounts of calories and protein.	None
Desserts & Sweets:	All - Use liberally.	None

Sample High Calorie, High Protein Sample Menu:

Breakfast	*Lunch*	*Dinner*
½ c. orange juice	1 c. cream soup	3 oz pork chop
½ c. cream of wheat with butter, brown sugar and half-n-half	3 oz turkey and cheese sandwich	½ c. mashed potatoes ¼ c. gravy
1 scrambled egg with cheese	½ c. macaroni salad	½ c. buttered green beans
2 slices toast	½ c. carrots, cooked	1 slice bread
8 oz whole milk	⅛ Banana Cream Pie	½ c. peaches and cream
Coffee or tea	8 oz whole milk	8 oz whole milk
Butter, cream, sugar, jelly	Butter, cream, sugar, jelly	Butter, cream, sugar, jelly

AM Snack	*PM Snack*	*HS Snack*
2 Tbsp. peanut butter	½ c. pudding	Tuna Salad sandwich
6 crackers	½ c. canned pears	8 oz whole milk
6 oz vegetable juice		

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Surgical and Chronic Wounds." Academy of Nutrition and Dietetics, Accessed 21 December2014,http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5546&lv2=255665&ncm_toc_id=255665&ncm_heading=Nutrition%20Care

Fortified Meal Program

Philosophy:

Residents in care facilities are at an increased risk of developing nutritional deficiencies. Inadequate intakes can lead to serious complications such as unplanned weight loss, skin breakdown and eventually death. The following is a list of some of the factors which may contribute to inadequate nutritional intakes in facility residents:

- The resident may be less active and/or may have a physical impairment which could limit their activity and could lead to a smaller appetite.
- The resident may be on a wide variety of medications with the potential for decreasing appetite or which may cause nausea/GI distress/constipation leading to decreased intakes.
- The resident may be overwhelmed by large portions of food.
- The resident may have a medical condition or skin impairment that increases the demand for calories and protein.
- The resident may have chewing or swallowing difficulties which limit their nutritional intakes.
- The resident may have cognitive factors such as depression, confusion or dementia which may result in inadequate food consumption.

Fortified meals can aide in improving nutritional status by increasing the caloric density of the food without increasing portion sizes. Fortifying the meals can be beneficial for those with limited intakes and/or increased nutritional demands.

Policy:

The policy of the facility shall be to provide a fortified meal program through the use of calorie enriched foods served at meals.

Procedure:

1. Upon identification of nutritional risk, the Fortified Meal Program shall be initiated by the Registered Dietitian, Dietary Manager, the Assistant Dietary Manager or the Interdisciplinary Nutritional Risk Review Team.
2. Communication for initiation of the Fortified Meal Program shall be made in writing to the Dietary Department.
3. Residents on the Fortified Meal Program shall be identified on their tray card.
4. The diet “High Calorie, High Protein” can be used interchangeably with the Fortified Meal Program.
5. Fortified meals shall be served to the residents identified on the program.
6. Discontinuation of the Fortified Meal Program shall be made in writing to the dietary department and can be initiated by the Registered Dietitian, Dietary Manager, the Assistant Dietary Manager or the Interdisciplinary Nutritional Risk Review Team.

Fortified Meal Program (continued)

7. These modifications may not be appropriate for use with some types of therapeutic diets. Consult your Registered Dietitian for further instruction.

The Fortified Meal Program should include:

- 8 oz. Whole milk per tray - 3x/day
- Fortified cereal at breakfast
- 1 Tbsp. extra margarine served on all vegetables, potatoes, pasta, rice and breads.
- 1 extra ounce of cheese, mayonnaise, gravy or whipped topping where appropriate

Breakdown of additional calories provided on the Fortified Meal Program (approximately 1250per day):

Regular Diet Increase	**Fortified Meal Program**	**Caloric Increase**
8 oz 2% milk bid = 240 calories	8 oz whole milk tid = 450 calories	210 calories
4 oz Hot cereal bid = 100 calories	8 oz Fortified cereal = 600 calories	500 calories
Extra butter, margarine or other fats = N/A	Average of 4 additional Tbsp butter/margarine per day = 540 calories	540 calories
		Total additional Calories = 1250 per day

*For individuals on a Renal diet, the whole milk intervention will not be used.
*For diabetic residents, sugar will not be used in the fortified cereal.

Nutritional STEP Protocol

Using Food First with the FATS Program

Philosophy:
The AND NCM does not specifically address this protocol for improving weight in any population; however, it may be beneficial to residents who are at risk for a decline in nutritional status due to inadequate nutritional intake. The STEP protocol may help maintain or improve their weight or protein stores while meeting their nutritional requirements. It is widely accepted that food is preferable over nutritional supplements. When a facility uses food first, they can help the resident obtain better nutrition through a varied diet, address individual food preferences and concerns and ultimately help with budget control.

Policy:
The policy of the facility shall be to follow the STEP Protocol and utilize the FATS (Fortified meals, Assess food preferences, Two calorie supplement, Shakes/snacks) program when it is determined a resident is at risk for a decline in nutritional status due to inadequate nutritional intake.

Procedure:

1. Upon identification of nutritional risk, the STEP Protocol and FATS program shall be initiated by the Registered Dietitian, Dietary Manager, the Assistant Dietary Manager or the Interdisciplinary Nutritional Risk Review Team.
2. The STEPs shall be initiated one at a time in the order of 1 - 4.
3. Adequate time shall be allowed between initiations of each STEP to evaluate effectiveness of the intervention. If the desired outcome is not achieved with the initiation of STEP 1, the addition of STEP 2 shall be made. If STEPS 1 and 2 do not produce the desired outcome, the addition of STEP 3 shall be made. If STEPS 1, 2 and 3 do not produce the desired outcome, STEP 4 shall be added.
4. The STEPs shall remain in place until the desired outcome is achieved. Once the resident's nutritional status is determined to be stable, a reduction in interventions shall be considered.

Step 1: **Fortified Meals**:

- Follow the high calorie, high protein diet extension on your menu or refer to the attached policy and procedure.

Step 2: **Address Food Preferences**:

- Consider portion size (small, large) and adjust as needed. If the resident is eating less than 50% of a meal, start on small portions for lunch and dinner. If the resident eats 100% of any meal consistently, increase portions to large.

Nutritional STEP Protocol (continued)

- Re-address food preferences using diet interview form. Provide the resident's favorite foods and beverages as often as possible. Use alternate foods for stated dislikes.

Step 3: **Two-Calorie Supplement:**

- Initiate with the medication pass.
- Start with 2 oz. Bid/Tid (two times per day/three times per day).

Step 4: **Shakes, Snacks, Between Meal Feedings:**

- Use as small a volume as possible (4oz vs. 6-8 oz)
- Try one per day and increase if indicated

If STEPs 1-4 have been implemented without success, team planning should evaluate need for specialized nutritional products and end of life decision-making.

Finger Food Diet

Purpose:
The finger food diet is intended for use patients who may not be able to appropriately use utensils. This includes patients who may need to lay down after surgery and patients with dementia.

Indications for Use/General Guidelines:

- Residents involved in restorative programs for self-feeding retraining and/or those with altered cognitive status (e.g. diagnosis of dementia, Alzheimer's) may not be able to consume all of the items on the regular diet. For these individuals, foods of a shape and size easily handled with the fingers may be substituted for some items on the menu.

- It is important to attempt to continue trying eating utensils at each meal, if possible. Promote dignity for the resident through staff supervision and assistance as needed.

- Attention should be paid to the consumption of liquids. If necessary, liquids should be supplied in special cups, cups with lids or handles to prevent the beverages from being spilled.

- A moist washcloth needs to be supplied after meal service to allow for the cleaning of sticky fingers.

- If the diet is to be used long-term, routine evaluation by a trained professional should occur to ensure the ongoing necessity of this diet.

Nutritional Adequacy:
Due to the limited selection of foods on this diet, it may be difficult to provide 100% of the all Dietary Reference Intakes Recommended for Individuals (DRI). If a variety of all foods on the Food Choices lists are used, the diet can meet the nutritional requirements of resident. These modifications may not be appropriate for some texture-altered diets and therapeutic diets. Meal planning can be used in conjunction with the cardiac diet above.

Finger Food Diet (continued)

Food Choices

Entrees

- Fish Nuggets/Shrimp Mate
- Chicken Nuggets
- Beef Nuggets
- Beef Fingers
- Chicken Legs
- Sausage Links
- Sausage Patties (1oz)
- Meatballs
- Corn Dog
- Hot Dogs, Brats, Chorizos (split down center)
- Hard-cooked Eggs (peeled & quartered)
- Burritos, Tacos, Taquitos, Quesadilla
- Fish sticks or small breaded fish patties
- Shrimp Cocktail
- Hot Dog on Bun
- Hamburger on Bun
- Pizza
- Pirogues or Meat Pockets
- Chicken Fingers (breaded/unbreaded)
- Sandwiches (cut in quarters or halves)
- Cheese Sticks
- Sausage Biscuit
- Any meat entrée without gravy (in pieces/strips)
- Meatloaf, ham or salmon loaf (strips/pieces)
- Kabobs (remove skewers)
- Hard Boiled or Deviled Eggs
- Omelets (cut in bite-sized pieces)
- Tortellini or Ravioli with sauce on side

Dips for meat or pasta may include BBQ sauce, gravy, honey mustard, tartar or cocktail sauce, au jus, sweet/sour sauce, marinara or Alfredo sauce

Soups

- All types in a cup with handle – May need to blenderize to make drinkable

Bread Products

- French Toast Sticks, Syrup on the side
- Bread sticks
- Muffin, Bagel, Doughnut (cut in halves or quarters)
- Biscuit, English Muffin, Danish
- Cheerios, Honey Oat Cereal, Shredded Wheat (Milk not served on cereal)
- Other Bite-size cereal
- Hot Cereal w/ Milk served in a mug
- Crackers
- Sliced bread
- Cornbread
- Scones, Shortcake, Quick Breads
- Pancakes or Waffles (Syrup on the side)
- Hushpuppies
- Bite-size macaroni (i.e. Rigatoni) without sauce
- Roll, bun, croissant, tortilla, pita bread

Finger Food Diet (continued)

Vegetables

- Asparagus
- Broccoli Florets
- Brussels Sprouts
- Cauliflower Florets
- Corn on the cob
- Drained Beets
- Tomato Wedges or Cherry Tomatoes
- Carrots Sticks or Carrot Coins
- Celery Sticks (with or without Peanut Butter or Cream Cheese)
- Cucumber Sticks
- Fried Okra
- Fresh or Fried Yellow squash
- Pieces of Lettuce or Fresh Spinach with Dressing on the side
- Fresh or Fried Zucchini
- Corn Fritters
- French Fries
- Tatar Tots
- Potato Wedges
- Super Chips (Criss Cross Fries)
- Green Beans
- Firm Sweet Potatoes
- Onion Rings
- Olives- drained
- Pea Pods
- Mixed Vegetables – Bite-sized
- Potato Pancakes
- Potatoes (other than Mashed)
- Mushrooms – fresh, fried, stuffed
- Dips for Vegetables could include: Salad Dressings, onion, ranch or clam dip, bean dip

Fruits.

- Grapes
- Banana
- Canned Fruit –drained in bite-sized pieces
- IQF Fruits – melon balls and small pieces
- Melons in wedges or small pieces
- Large berries (i.e. strawberries, raspberries, blackberries; avoid blueberries).
- Oranges – fresh or drained sections
- Whole Fruit such as Apples, Pears, Peaches – if able to handle
- Sliced Fresh Fruit, if not able to handle whole
- Dips for fruit – including sauces, yogurt or cream cheese dip

Desserts and Miscellaneous Snack Items

- Vanilla Wafers
- Graham Crackers
- Cookies
- Popsicles or Ice Cream Bars
- Ice Cream, Pudding, Mousse – Served in a cone/cup
- Brownies (e.g., Chocolate, Blonde)
- Snacking Cakes (e.g. Carrot, Applesauce)
- Baked Bars (e.g., Peanut Butter)
- Chips (Potato, Corn, Tortilla)
- Egg Rolls (mini)
- Cheese sticks
- Firm Jell-O Cubes
- Granola, Fruit or Protein Bar
- Mini Tarts or Pastries
- Fudge
- Cream Puffs
- Cake and Cupcakes

Finger Food Diet (continued)

Finger Food Diet Sample Menu

Breakfast	*Lunch*	*Dinner*	*After Dinner Snack*
Wheat Chex (dry)	Chicken Salad in Pita Bread	Canadian Bacon Pizza	Granola bar
			Milk
Hard Cooked Egg	Potato Chips	Drained Beets	
Sausage Links	Wax Beans	Peach Slices – drained	
Milk	Orange Sherbet in Cone	Oatmeal Cookies	
		Milk	
Juice	Fruit Punch		
Whole Wheat Toast			

High Fiber Diet

Purpose:
The purpose of the high fiber diet is to provide foods high in dietary fiber and decrease transit time and intraluminal pressure. The 2014 edition of the NCM recommends 6-10g beyond standard fiber recommendations to qualify as high fiber. This would be equal to ½ cup cooked beans, 1 large sweet potato, or 1 cup berries.

Indications for Use:
A high fiber diet is used in the treatment of constipation, hemorrhoids, and diverticulosis. Contraindications for this diet include a reduced fluid intake. An increase in fiber (apart from an increase in fluid intake) may result in more constipation, abdominal pain, bloating, and gas. (NCM, 2014),

Nutritional Adequacy:
This diet is nutritionally adequate when a variety of foods are consumed.

Food Group	Foods to Choose
Breads & Crackers:	Breads, buns, rolls, crackers, bagels, muffins, pasta made from 100% whole wheat flour, whole rye flour, corn or oats. Brown rice, 100% corn or wheat tortillas, graham crackers.
Cereals & Grains:	Cereals made with whole grain wheat, corn or oats. Bran cereals, shredded wheat, oatmeal. Brown or wild rice, barley, cracked wheat bulgur, quinoa, whole wheat spaghetti, popcorn, unprocessed bran.
Fruits:	All, especially raw with edible skins and seeds including pears, apples, figs, raspberries, blueberries. Limit use of fruit juice.
Vegetables:	All, including corn, winter squash, sweet potatoes, baked potatoes, broccoli, green peas, yams. Limit use of vegetable juices.
Legumes and Meat Alternatives:	Include legumes such as lentils, split peas, navy beans, pinto beans, black beans, lima beans, kidney beans, hummus, chili, baked beans, refried beans.
Miscellaneous:	Seeds and nuts including pumpkin seeds, walnuts, almonds.

High Fiber Diet (continued)

High Fiber Sample Menu

Breakfast	***Lunch***	***Dinner***	***Snack***
1 whole wheat bagel	Turkey sandwich: 3 oz lean turkey breast, 1 TB deli-mustard, 1 tsp mayonnaise, shredded lettuce, 2 tomato slices on 2 slices of whole wheat bread.	3 oz broiled fish.	1 oz almonds (with the skin)
1 tsp butter	1 apple (with skin).	1 cup cooked brown rice mixed with ¼ cup black beans and salsa	1 pear
1 tsp grape jam	1 cup skim milk	1 cup mixed salad green with ¼ fresh corn	½ bran muffin with margarine
1 TB peanut butter		2 TB light dressing	
2 eggs scrambled with spinach		1 cup brewed tea	
1 cup brewed coffee		½ cup frozen yogurt with ½ cup frozen berries	

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Diverticular Conditions."AcademyofNutritionandDietetics,Accessed23December2014, http://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5522&lv2=145209&ncm_toc_id=33991&ncm_heading=Nutrition%20Care

Low-Purine Diet

Purpose:
A low purine diet restricts foods high in purines to decrease elevated blood and urinary acid levels.

Indication for Use:
This diet is used for patients with gout and/or uric acid stones.

The following are a list of basic modifications recommended:

Concentrate on intake from:	**Decrease intake of:**
Dairy, tofu, eggs, and nut butters	Meat, fish, poultry
Bread, pasta, rice, popcorn, corn bread	Oatmeal, wheat bran, wheat germ
Dairy	Beer and other alcoholic beverages
Avocados, vegetable oils,	Products containing yeast.
Fruit and low-purine vegetables	Gravies and sauces made with meat.

Fluid intake should be increased slightly above the general population. Recommended intake is 8-16 cups of a non-alcoholic beverage daily.

Nutritional Adequacy:
This diet meets the Dietary Reference Intake (DRI), except may be inadequate in thiamin and iron if severe restriction of meat is necessary.

Food Group	Foods to Choose	Foods to Avoid
Milk:	Skim, 2% low fat milk, whole milk and milk products.	None.
Meat & Meat Alternatives:	All meats, poultry, fish, and shellfish except those listed under "Foods to Avoid," meat alternatives as desired, eggs, peanut butter, nuts and cheese.	Liver, bacon, wild game, kidney, heart, brains sweetbreads, tongue, anchovies, sardines, roe, mussels, mackerel, herring, goose, partridge, and meat extracts.
Breads, Cereals, and Grains:	All enriched bread and cereal products. All pastas, noodles, potatoes, and rice.	Limit breads prepared with a high fat content.
Vegetables/Fruits:	All fruits and vegetables.	Limit to 2 times a week: mushrooms, peas, spinach, asparagus, cauliflower.

Low-Purine Diet (Continued)

Food Group	Foods to Choose	Foods to Avoid
Fat:	All fats, oils, and nuts.	Meat gravies and meat sauces.
Desserts:	All.	Limit desserts high in fat.
Miscellaneous:	All, except those listed under "Foods to Avoid."	Products made with meat extract base, meat broth, bouillon, consommé, gravy, mincemeat, Bakers & Brewer's yeast. Alcohol (unless permitted by physician).

Sample Low-Purine Meal Plan

Breakfast	***Lunch***	***Dinner***	***Snacks***
Cereal with low-fat/non-fat milk	Peanut butter sandwich on whole wheat	Cheese enchilada's	Trail mix with peanuts, raisins, and chocolate pieces
Whole wheat toast butter, margarine, or jam as desired	Skim milk	Mixed salad (no spinach or mushrooms)	
	Sliced apple		
Orange juice		Salad dressing	
Coffee		Mixed fruit with low-fat yogurt	

Ostomy Diet

Purpose:
The purposes of the ostomy diet are to prevent blockage of the bowel or stoma, prevent watery bowel movements, and avoid items that cause unpleasant odor or gas. Each patient is highly individual, thus each patient is instructed to try all foods, one at a time, in small amounts to see how he or she will react to each one.

Indications for Use:
The ostomy diet can be used for patients that have an ileostomy or a colostomy.

Nutritional Adequacy:
This diet is adequate in all essential nutrients when the basic meal patterns of a general diet are followed.

General Guidelines

- Drink 8-10 cups of water or fruit juice a day.
- Avoid gas-forming foods and carbonated beverages. These may include beer, foods in the cabbage family and dried beans and peas.
- Avoid foods that cause diarrhea or constipation. These may vary with the individual and requires trial and error.
- Try all foods including fresh fruits, vegetables and dry cereals.
- Eat regularly. Chew food well and eat slowly. Avoid using straws to drink.
- Some foods may need to be restricted because of the size of the stoma. Particles of fiber, i.e., seeds, celery, corn, nuts, oranges, etc., may block the stoma. These foods may still be able to be eaten if chewed thoroughly and eaten only in small amounts.
- Advise patients to take small bites and chew thoroughly.
- Avoid spicy or fried foods.
- Applesauce, rice, pasta, and bananas can thicken stools if diarrhea occurs.

Colostomy Sample One Day Meal Plan

Breakfast	***Lunch***	***Dinner***	***Snacks***
Omelet made with 2 egg whites (includes grated cheese)	1 slice of lasagna	1 slice French bread with 1 tsp margarine/butter	Graham crackers
1 cup pulp-free juice	1 cup fresh melon	1 cup well-cooked vegetable soup (excluding odor causing vegetables mentioned above)	Peanut butter
	1 cup water	.	
	1 cup milk (if tolerated)	1 cup water	Milk (if tolerated)

Low-Residue/Surgical Transition Diet

Purpose:
The low-residue/surgical transition diet is intended to promote digestibility and minimize fecal output by providing foods low in fiber and foods that create very little residue after digestion.

Indications for Use:
The low-residue/surgical diet may be used with acute stages of inflammatory bowel disease, before or after lower bowel surgery, or in acute stages of diverticulitis. Most patients can slowly increase their fiber intake after acute onset of their original flare-up has subsided (NCM, 2014).

Nutritional Adequacy:
This diet is adequate in all nutrients if carefully planned.

Food Group	Foods to Choose	Foods to Avoid
Soups:	Broth or bouillon; cream soups made with allowed vegetables.	Any soup made with dried beans, peas, onions, or other vegetables not allowed.
Meat & Meat Alternatives:	Broiled, boiled, roasted, baked tender beef, veal, lamb, pork, chicken, turkey, fish, or liver; eggs.	Highly seasoned, smoked, or cured meats & cheeses; peanut butter.
Cheese:	Cream cheese, cottage cheese, natural or processed cheese.	Cheese products containing nuts, seeds, spices, or seasonings.
Potatoes & Alternatives:	White potato; plain enriched pasta or noodles; white rice; sweet potato.	Potato peel; whole grain pasta or noodles; brown rice; wild rice.
Breads & Starches:	Enriched white refined or rye bread or toast; crackers; melba toast; zwieback; waffles; pancakes; plain muffins.	Those with whole grains, bran, nuts or seeds, or dried fruit; potato chips; fried potatoes; popcorn; fruit or nut muffins, doughnuts.
Cereal:	Refined cereals (ready-to-eat or cooked) such as corn flakes, puffed rice, cornmeal, grits, cream of wheat, cream of rice.	Bran flakes; whole grain cereals; oatmeal.

Low-Residue/Surgical Transition Diet (continued)

Food Group	Foods to Choose	Foods to Avoid
Fats:	Butter; margarine; oil; mayonnaise, salad dressing, nuts and seeds without skins.	Nuts & seeds with skins; olives
Vegetables:	Soft cooked or canned asparagus tips, beets, winter squash, spinach, string beans, young peas, carrots, mushrooms, vegetable juice, finely chopped lettuce.	Raw vegetables (except lettuce), cabbage, cauliflower, radishes, onions, turnips, green peppers, corn, parsnips, rutabagas, Brussels sprouts, tomatoes, summer squash, cooked dried beans.
Fruit:	Fruit juices; soft cooked or canned fruits without peels-canned peaches, pears, apricots, baked or stewed apples, applesauce, ripe bananas, avocados, canned grapefruit or orange sections without the membranes, canned cherries.	All raw fruit, except ripe bananas & avocado; berries; kumquats; pineapple; rhubarb; grapes; cooked or canned fruit not listed on the Foods to Choose List.
Milk & Milk Products:	All.	None.
Desserts & Sweets:	Pudding, custard, junket, tapioca, cream pie, gelatin, fruit whip, plain ice cream, plain cake and plain cookies (without nuts or seeds), jelly.	Coconut; nuts or seeds; jam; marmalade; preserves.
Beverages:	Tea, coffee, fruit and vegetables juice without pulp, carbonated beverages.	None.
Miscellaneous:	Salt, vinegar, ketchup, mustard.	Lemons, pickles, olives, chili sauce.

Low-Residue/Surgical Transition Diet (continued)

Sample Low-Residue/Surgical Transition Diet Menu:

Breakfast	*Lunch*	*Dinner*
Citrus fruit juice	Broiled chicken	Cream soup
Refined cooked cereal	Mashed potato	Soda crackers
Egg	Steamed carrots	Meat and cheese casserole
White toast	White enriched roll	White enriched rice
Milk	Banana	Steamed string beans
Coffee or tea	Sugar cookie	Canned peaches
Butter, cream, sugar, jelly	Coffee or tea	Milk
	Butter, cream, sugar, jelly	Coffee or tea
		Butter, cream, sugar, jelly

Resources

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Diverticular Conditions" Academy of Nutrition and Dietetics, Accessed 04 December 2014, https://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=1&lv1=5522&lv2=145209&ncm_toc_id=33991&ncm_heading=Nutrition%20Care

Dietary Guidelines for Dumping Syndrome Following Gastrectomy

(Post-Gastrectomy Diet)

Purpose:
To reduce the intake of foods that increase risk of dumping syndrome.

Indications for Use:
This diet is for patients who have recently had surgical resection of any part of their gastrointestinal system.

Nutritional Adequacy:
This diet is nutritionally adequate when planned to include a variety of foods. A liquid multivitamin can be considered in conjunction with the patient's physician.

General Instructions:

- Food should be taken as six meals a day.
- Do not drink fluids at meals. Have liquids 45 to 60 minutes before or after meals.
- Use milk only as tolerated.
- Initially avoid all simple sugars.
- Lie down after eating
- Consider using a fiber supplement to delay gastric emptying
- Slowly progress to 5-6 small meals daily
- Be aware of products with ingredients such as sucrose, fructose, and sugar alcohols (xylitol, mannitol, sorbitol).
- Avoid gulping food; eat slowly and chew well.
- The AND makes the following recommendations regarding patient's with recent gastric surgery:
    - First meals should be composed of carbohydrates, protein, and fat. Introduce foods one or two foods at a time. Gradually increase intake to 5-6 meals each day
    - Confer with the patient's physician regarding a multivitamin/mineral supplement. This patient population can often have multiple deficiencies. Namely iron, folate, calcium, B-12, copper, thiamin, vitamin A, vitamin D.

Post-Gastrectomy Diet (continued)

Sample Gastrectomy Diet Menu:

Breakfast	***Lunch***	***Dinner***	***Snacks***
2 Scrambled Eggs	Chicken salad sandwich on white bread (no celery).	Mashed potatoes	Cheese and crackers, ½ peanut butter sandwich, sugar-free applesauce
1 Slice white toast with margarine and jam	1 ounce tortilla chips	Well-cooked skinned zucchini	
****No Drink. Drinks may be consumed 30-60 minutes after meals**	Sugar-free gelatin	5 oz roasted chicken with gravy	
		No-sugar-added yogurt	

Tyramine Restricted Diet

Purpose:
The purpose of this diet is to prevent serious side effects from the buildup of high levels of tyramine that may occur when MAO inhibitor medications are taken. Patients with cognitive dysfunction are most often prescribed these medications.

Indications for Use:
When taking an MAO inhibitor, it is important to restrict foods with high amounts of tyramine. If these foods are not restricted while on MAO inhibitors, the blood pressure may become severely elevated. If the medication is discontinued, the diet will need to be continued for an additional 4 weeks. Tyramine also may be restricted for some people with chronic headaches.

Nutritional Adequacy:
This diet can be adequate in all nutrients when a wide variety of foods are consumed.

Note: There is much disagreement in the research and literature about which foods to avoid. The following guideline shows which foods to limit and which to exclude.

Food Group	Foods to Choose	Foods to Limit[1]	Foods to Avoid
Meats, Fish, Eggs, Dry Beans, and Peas:	Fresh meats, eggs, egg substitutes, lentils, split peas, and dried beans.		All smoked, aged, pickled, fermented, or marinated meats and fish, caviar, processed meats (i.e. chorizo and pepperoni), non-fresh meats (i.e., leftovers), and fermented soybean products.
Milk, Yogurt, and Cheese:	Milk, cottage cheese, ricotta cheese, and cream cheese.	Processed cheese slices. Limit to ½ cup - buttermilk, sour cream, yogurt, and chocolate milk.	All aged and mature cheeses, cheese spreads, cheese casseroles, and dairy products from unpasteurized milk.

Tyramine Restricted Diet (continued)

Food Group	Foods to Choose	Foods to Limit[1]	Foods to Avoid
Fruit:	Apples, apricots, blueberries, cherries, cranberries, dates, grapes, huckleberries, melons, oranges, peaches, pears, strawberries, and tangerines.	Limit to ½ cup avocado, banana, canned figs, raisins, raspberries, and red plums.	Overripe fruits, banana peel.
Vegetables:	Asparagus, beets, green beans, broccoli, carrots, corn, cucumber, tomatoes, lettuce, cabbage, kale, mushrooms, onions, sprouts, potatoes, peas, squash, cauliflower.	Pickles.	Sauerkraut, fava or broad bean pods, including Italian beans and Chinese pea pods.
Breads, Cereals, Rice, and Pasta:	Cereals, rice, pasta, pancakes, waffles, crackers, popcorn, and breads except those listed in the AVOID section.		Sourdough bread, homemade yeast-leavened bread, Brewer's yeast.
Sweets, Condiments, and Beverages:	Desserts made with foods allowed, decaffeinated beverages.	Limit chocolate ice cream, cakes, puddings, and cookies to ½ cup. Limit soy sauce and teriyaki sauce to ¼ cup. Limit white wine to ½ cup. Limit caffeine containing beverages i.e., tea, colas, and coffee to 2 servings.	Meat and yeast extracts i.e., in bouillon cubes/powder, meat tenderizers, dry packaged and canned soups, gravy, sauces, stew mixes, and instant soup powders. Beer, red wines including Chianti and sherry, and vermouth.

Tyramine Restricted Diet (continued)

Sample Tyramine-restricted Diet

Breakfast	***Lunch***	***Dinner***	***Snack***
1 slice whole wheat toast with margarine	1 hamburger bun	1 cup cubed potatoes	3 cups popcorn
Wheat cereal with sliced strawberries	3 oz grilled chicken	1 cup cubed carrots	5 wheat crackers
1 cup skim milk	Lettuce, onion, tomato	3 oz lean beef	1 cup of yogurt
1 cup coffee or tea	Mixed green salad	½ cup reduced-fat ice cream	
	2 TB vinegar oil salad dressing	2 tsp margarine	
		1 cup coffee of tea	

Enteral Nutrition (Tube Feeding)

Purpose:
To provide nutrition via the gastrointestinal tract for persons who are unable to get adequate nutrition due to medical conditions or mechanical impairments.

Implications for use:
This may include patients who are in a coma or a semi-conscious state. Patient's with problems related to swallow issues, mechanical obstructions (i.e. gastroparesis), or disease processes that prevent the individual from receiving adequate calories may also benefit from enteral feedings.

Nutritional Adequacy:
Tube feedings provide complete nutrition when adequate calories and nutrients of enteral formula are provided. Commercial formulas are available that meet different calorie needs and disease conditions. Commercially prepared formulas provide safe feedings and ease of use.

Enteral Nutritional Guidelines
Each health care facility should have a formulary of commercial tube feeding formulas known as a standard house formula. In addition, each facility should have a tube feeding protocol in place for standardization of care. When a patient needing tube feeding is admitted to your healthcare facility, the Registered Dietitian Nutritionist should be notified.

Tube Feeding Orders should include the following Information
1. *Route of feeding* - Nasogastric, nasojejunal, or gastrostomy or other feeding route
2. *Type of formula* - ex: standard or high calorie or disease specific
3. *Rate of feeding* - ex: milliliters per hour or per feeding
4. *Frequency of feeding* – i.e. continuous, intermittent, bolus.
5. *Volume of feeding and total calories in a given time period* – ex: 24 hrs.
6. *Amount of free water required for 24 hrs.*

Monitoring the Tube Feeding Patient
1. Standard enteral feeding protocol attached to chart
2. Monitor for tolerance include diarrhea, emesis and distention Notify MD
3. Weigh – weekly
4. Lab orders
    a. Baseline and daily for first 3 days then 1-2 times/week or per MD orders: Serum sodium, potassium, chloride, bicarbonate, blood urea nitrogen (BUN), creatinine, calcium, magnesium
    b. Every 6-8 hours
        Blood glucose – stop when stabilized

Tube Feeding (continued)

5. Intake and Output records -
    a. Be sure to record tube feeding and free water separately
    b. Bowel movements – frequency, amounts and consistency.
    c. Notify MD if diarrhea
6. Keep head of bed elevated at least 30 degrees angle when patient is feeding
7. Oral care - plan
8. Bowel Care – plan

Tube Feeding Safety

1. Use commercial ready to use formulas designed for tube feeding
2. Ready to Hang containers are preferred for safety – follow manufacturer recommendations
3. If using cans hang no more than 8-12 hours of formula and do not mix anything with formula.

Enteral Nutrition Formulas -

These formulas are a representation of the two current manufacturers in the United States at time of publication. These are subject to change.
Please get specific information form the manufacturer.
Abbottnutrition.com
NestleNutrition.com/USA

Standard Feedings

Fiber Containing	***Without Fiber***	***High Protein***	***Elemental/Semi-Elemental***
Jevity 1.0, 1.2, 1.5	Osmolite 1.0, 1.2, 1.5	Promote	Vital 1.0, 1.2, 1.5
2 Cal HN	Nutrient 1.5	Replete	Peptamen
Fibersource HN			Peptamen 1.5
Nutren			Vivonex

****Pediasure 1.0, 1.5 available for the pediatric population***

Disease Specific

Diabetes	***Renal***	***Immune Enhancing***
Glucerna 1.0, 1.2, 1.5	Nepro	Pivot 1.5
Diabetisource	Suplena	Impact
	Renalcal	

ORAL NUTRITION SUPPLEMENTS – The following are not designed for long-term use as tube feedings: Ensure, Ensure Plus, Boost, and Boost Plus.

SECTION 7

APPENDICES

Dietary Reference Intakes (Vitamins, Minerals, Etc.)

DRI's (Recommended Intakes): Vitamins

Dietary Reference Intakes (DRIs): Recommended Intakes for Individuals, 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														
0–6 mo	400*	40*	5*	4*	2.0*	0.2*	0.3*	2*	0.1*	65*	0.4*	1.7*	5*	125*
7–12 mo	500*	50*	5*	5*	2.5*	0.3*	0.4*	4*	0.3*	80*	0.5*	1.8*	6*	150*
Children														
1–3 y	**300**	**15**	5*	**6**	30*	**0.5**	**0.5**	**6**	**0.5**	**150**	**0.9**	2*	8*	200*
4–8 y	**400**	**25**	5*	**7**	55*	**0.6**	**0.6**	**8**	**0.6**	**200**	**1.2**	3*	12*	250*
Males														
9–13 y	**600**	**45**	5*	**11**	60*	**0.9**	**0.9**	**12**	**1.0**	**300**	**1.8**	4*	20*	375*
14–18 y	**900**	**75**	5*	**15**	75*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	25*	550*
19–30 y	**900**	**90**	5*	**15**	120*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	30*	550*
31–50 y	**900**	**90**	5*	**15**	120*	**1.2**	**1.3**	**16**	**1.3**	**400**	**2.4**	5*	30*	550*
51–70 y	**900**	**90**	10*	**15**	120*	**1.2**	**1.3**	**16**	**1.7**	**400**	**2.4**[h]	5*	30*	550*
> 70 y	**900**	**90**	15*	**15**	120*	**1.2**	**1.3**	**16**	**1.7**	**400**	**2.4**[h]	5*	30*	550*
Females														
9–13 y	**600**	**45**	5*	**11**	60*	**0.9**	**0.9**	**12**	**1.0**	**300**	**1.8**	4*	20*	375*
14–18 y	**700**	**65**	5*	**15**	75*	**1.0**	**1.0**	**14**	**1.2**	**400**[i]	**2.4**	5*	25*	400*
19–30 y	**700**	**75**	5*	**15**	90*	**1.1**	**1.1**	**14**	**1.3**	**400**[i]	**2.4**	5*	30*	425*
31–50 y	**700**	**75**	5*	**15**	90*	**1.1**	**1.1**	**14**	**1.3**	**400**[i]	**2.4**	5*	30*	425*
51–70 y	**700**	**75**	10*	**15**	90*	**1.1**	**1.1**	**14**	**1.5**	**400**	**2.4**[h]	5*	30*	425*
> 70 y	**700**	**75**	15*	**15**	90*	**1.1**	**1.1**	**14**	**1.5**	**400**	**2.4**[h]	5*	30*	425*
Pregnancy														
14–18 y	**750**	**80**	5*	**15**	75*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
19–30 y	**770**	**85**	5*	**15**	90*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
31–50 y	**770**	**85**	5*	**15**	90*	**1.4**	**1.4**	**18**	**1.9**	**600**[j]	**2.6**	6*	30*	450*
Lactation														
14–18 y	**1,200**	**115**	5*	**19**	75*	**1.4**	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*
19–30 y	**1,300**	**120**	5*	**19**	90*	**1.4**	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*
31–50 y	**1,300**	**120**	5*	**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 (*). RDAs and AIs may both be used as goals for individual intake. RDAs are set to meet the needs of almost all (97 to 98 percent) individuals in a group. For healthy breastfed infants, the AI is the mean intake. The AI for other life stage and gender groups is believed to cover needs of all individuals in the group, 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 twofold 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] In the absence of adequate exposure to sunlight.

[d] As α-tocopherol. α-Tocopherol includes *RRR*-α-tocopherol, the only form of α-tocopherol that occurs naturally in foods, and the 2*R*-stereoisomeric forms of α-tocopherol (*RRR*-, *RSR*-, *RRS*-, and *RSS*-α-tocopherol) that occur in fortified foods and supplements. It does not include the 2*S*-stereoisomeric forms of α-tocopherol (*SRR*-, *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 B_{12}, it is advisable for those older than 50 years to meet their RDA mainly by consuming foods fortified with B_{12} or a supplement containing B_{12}.

[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 periconceptional 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); *and Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005). These reports may be accessed via http://www.nap.edu.

DRI's (Recommended Intakes): Elements

Dietary Reference Intakes (DRIs): Recommended Intakes for Individuals, Element
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															
0–6 mo	210*	0.2*	200*	0.01*	110*	0.27*	30*	0.003*	2*	100*	15*	2*	0.4*	0.12*	0.18*
7–12 mo	270*	5.5*	220*	0.5*	130*	**11**	75*	0.6*	3*	275*	20*	**3**	0.7*	0.37*	0.57*
Children															
1–3 y	500*	11*	**340**	0.7*	**90**	**7**	**80**	1.2*	**17**	**460**	**20**	**3**	3.0*	1.0*	1.5*
4–8 y	800*	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	1,200*	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 presents Recommended Dietary Allowances (RDAs) in **bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). RDAs and AIs may both be used as goals for individual intake. RDAs are set to meet the needs of almost all (97 to 98 percent) individuals in a group. For healthy breastfed infants, the AI is the mean intake. The AI for other life stage and gender groups is believed to cover needs of all individuals in the group, 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, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B_6, Folate, Vitamin B_{12}, 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); and *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005). These reports may be accessed via http://www.nap.edu.

DRI's (Tolerable Upper Intake Levels): Vitamins

Dietary Reference Intakes (DRIs): Tolerable Upper Intake Levels (UL[a]), Vitamins
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Vitamin A (µg/d)[b]	Vitamin C (mg/d)	Vitamin D (µg/d)	Vitamin E (mg/d)[c,d]	Vitamin K	Thiamin	Riboflavin	Niacin (mg/d)[d]	Vitamin B_6 (mg/d)	Folate (µg/d)[d]	Vitamin B_{12}	Pantothenic Acid	Biotin	Choline (g/d)	Carotenoids[e]
Infants															
0–6 mo	600	ND[f]	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7–12 mo	600	ND	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Children															
1–3 y	600	400	50	200	ND	ND	ND	10	30	300	ND	ND	ND	1.0	ND
4–8 y	900	650	50	300	ND	ND	ND	15	40	400	ND	ND	ND	1.0	ND
Males, Females															
9–13 y	1,700	1,200	50	600	ND	ND	ND	20	60	600	ND	ND	ND	2.0	ND
14–18 y	2,800	1,800	50	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–70 y	3,000	2,000	50	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
> 70 y	3,000	2,000	50	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
Pregnancy															
14–18 y	2,800	1,800	50	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–50 y	3,000	2,000	50	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND
Lactation															
14–18 y	2,800	1,800	50	800	ND	ND	ND	30	80	800	ND	ND	ND	3.0	ND
19–50 y	3,000	2,000	50	1,000	ND	ND	ND	35	100	1,000	ND	ND	ND	3.5	ND

[a] UL = 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 lack of suitable data, ULs could not be established for vitamin K, thiamin, riboflavin, vitamin B_{12}, pantothenic acid, biotin, and carotenoids. In the absence of ULs, extra caution may be warranted in consuming levels above recommended intakes.

[b] As preformed vitamin A only.

[c] As α-tocopherol; applies to any form of supplemental α-tocopherol.

[d] The ULs for vitamin E, niacin, and folate apply to synthetic forms obtained from supplements, fortified foods, or a combination of the two.

[e] β-Carotene supplements are advised only to serve as a provitamin A source for individuals at risk of vitamin A deficiency.

[f] ND = 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 B_6, Folate, Vitamin B_{12}, 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). These reports may be accessed via http://www.nap.edu.

DRI's (Tolerable Upper Intake Levels): Elements

Dietary Reference Intakes (DRIs): Tolerable Upper Intake Levels (UL[a]), Elements
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Arsenic[b]	Boron (mg/d)	Calcium (g/d)	Chromium	Copper (µg/d)	Fluoride (mg/d)	Iodine (µg/d)	Iron (mg/d)	Magnesium (mg/d)[c]	Manganese (mg/d)	Molybdenum (µg/d)	Nickel (mg/d)	Phosphorus (g/d)	Potassium	Selenium (µg/d)	Silicon[d]	Sulfate	Vanadium (mg/d)[e]	Zinc (mg/d)	Sodium (g/d)	Chloride (g/d)
Infants																					
0–6 mo	ND[f]	ND	ND	ND	ND	0.7	ND	40	ND	ND	ND	ND	ND	ND	45	ND	ND	ND	4	ND	ND
7–12 mo	ND	ND	ND	ND	ND	0.9	ND	40	ND	ND	ND	ND	ND	ND	60	ND	ND	ND	5	ND	ND
Children																					
1–3 y	ND	3	2.5	ND	1,000	1.3	200	40	65	2	300	0.2	3.0	ND	90	ND	ND	ND	7	1.5	2.3
4–8 y	ND	6	2.5	ND	3,000	2.2	300	40	110	3	600	0.3	3.0	ND	150	ND	ND	ND	12	1.9	2.9
Males, Females																					
9–13 y	ND	11	2.5	ND	5,000	10	600	40	350	6	1,100	0.6	4.0	ND	280	ND	ND	ND	23	2.2	3.4
14–18 y	ND	17	2.5	ND	8,000	10	900	45	350	9	1,700	1.0	4.0	ND	400	ND	ND	ND	34	2.3	3.6
19–70 y	ND	20	2.5	ND	10,000	10	1,100	45	350	11	2,000	1.0	4.0	ND	400	ND	ND	1.8	40	2.3	3.6
> 70 y	ND	20	2.5	ND	10,000	10	1,100	45	350	11	2,000	1.0	3.0	ND	400	ND	ND	1.8	40	2.3	3.6
Pregnancy																					
14–18 y	ND	17	2.5	ND	8,000	10	900	45	350	9	1,700	1.0	3.5	ND	400	ND	ND	ND	34	2.3	3.6
19–50 y	ND	20	2.5	ND	10,000	10	1,100	45	350	11	2,000	1.0	3.5	ND	400	ND	ND	ND	40	2.3	3.6
Lactation																					
14–18 y	ND	17	2.5	ND	8,000	10	900	45	350	9	1,700	1.0	4.0	ND	400	ND	ND	ND	34	2.3	3.6
19–50 y	ND	20	2.5	ND	10,000	10	1,100	45	350	11	2,000	1.0	4.0	ND	400	ND	ND	ND	40	2.3	3.6

[a] UL = 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 lack of suitable data, ULs could not be established for arsenic, chromium, silicon, potassium, and sulfate. In the absence of ULs, extra caution may be warranted in consuming levels above recommended intakes.

[b] Although the UL was not determined for arsenic, there is no justification for adding arsenic to food or supplements.

[c] The ULs for magnesium represent intake from a pharmacological agent only and do not include intake from food and water.

[d] Although silicon has not been shown to cause adverse effects in humans, there is no justification for adding silicon to supplements.

[e] Although 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.

[f] ND = 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 B_6, Folate, Vitamin B_{12}, 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); *and Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005). These reports may be accessed via http://www.nap.edu.

DRI's (EAR; Estimated Average Requirements): Nutrients

Dietary Reference Intakes (DRIs): Estimated Average Requirements for Groups
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	CHO (g/d)	Protein (g/kg/d)	Vit A (µg/d)[a]	Vit C (mg/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)	Magnes-ium (mg/d)	Molyb-denum (µg/d)	Phos-phorus (mg/d)	Sele-nium (µg/d)	Zinc (mg/d)
Infants																			
7–12 mo		1.0												6.9					2.5
Children																			
1–3 y	100	0.87	210	13	5	0.4	0.4	5	0.4	120	0.7	260	65	3.0	65	13	380	17	2.5
4–8 y	100	0.76	275	22	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	100	0.76	445	39	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	100	0.73	630	63	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	100	0.66	625	75	12	1.0	1.1	12	1.1	320	2.0	700	95	6	330	34	580	45	9.4
31–50 y	100	0.66	625	75	12	1.0	1.1	12	1.1	320	2.0	700	95	6	350	34	580	45	9.4
51–70 y	100	0.66	625	75	12	1.0	1.1	12	1.4	320	2.0	700	95	6	350	34	580	45	9.4
> 70 y	100	0.66	625	75	12	1.0	1.1	12	1.4	320	2.0	700	95	6	350	34	580	45	9.4
Females																			
9–13 y	100	0.76	420	39	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	100	0.71	485	56	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	100	0.66	500	60	12	0.9	0.9	11	1.1	320	2.0	700	95	8.1	255	34	580	45	6.8
31–50 y	100	0.66	500	60	12	0.9	0.9	11	1.1	320	2.0	700	95	8.1	265	34	580	45	6.8
51–70 y	100	0.66	500	60	12	0.9	0.9	11	1.3	320	2.0	700	95	5	265	34	580	45	6.8
> 70 y	100	0.66	500	60	12	0.9	0.9	11	1.3	320	2.0	700	95	5	265	34	580	45	6.8
Pregnancy																			
14–18 y	135	0.88	530	66	12	1.2	1.2	14	1.6	520	2.2	785	160	23	335	40	1,055	49	10.5
19–30 y	135	0.88	550	70	12	1.2	1.2	14	1.6	520	2.2	800	160	22	290	40	580	49	9.5
31–50 y	135	0.88	550	70	12	1.2	1.2	14	1.6	520	2.2	800	160	22	300	40	580	49	9.5
Lactation																			
14–18 y	160	1.05	885	96	16	1.2	1.3	13	1.7	450	2.4	985	209	7	300	35	1,055	59	10.9
19–30 y	160	1.05	900	100	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	160	1.05	900	100	16	1.2	1.3	13	1.7	450	2.4	1,000	209	6.5	265	36	580	59	10.4

NOTE: This table presents Estimated Average Requirements (EARs), which serve two purposes: for assessing adequacy of population intakes and as the basis for calculating Recommended Dietary Allowances (RDAs) for individuals. EARs have not been established for vitamin D, vitamin K, pantothenic acid, biotin, choline, calcium, chromium, fluoride, manganese, or other nutrients not yet evaluated via the DRI process.

[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 twofold greater than retinol equivalents (RE), whereas the RAE for preformed vitamin A is the same as RE.

[b] 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 (*SRR*-, *SSR*-, *SRS*-, and *SSS*-α-tocopherol), also found in fortified foods and supplements.

[c] As niacin equivalents (NE). 1 mg of niacin = 60 mg of tryptophan.

[d] 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.

SOURCES: *Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride* (1997); *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B_6, Folate, Vitamin B_{12}, 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), and *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005). These reports may be accessed via www.nap.edu.

DRI's (AMDR; Acceptable Macronutrient Distribution Ranges): Nutrients
DRI's (Recommended Intakes): Water and Macronutrient

Dietary Reference Intakes (DRIs): Acceptable Macronutrient Distribution Ranges
Food and Nutrition Board, Institute of Medicine, National Academies

	Range (percent of energy)		
Macronutrient	Children, 1–3 y	Children, 4–18 y	Adults
Fat	30–40	25–35	20–35
n-6 Polyunsaturated fatty acids[a] (linoleic acid)	5–10	5–10	5–10
n-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).

Dietary Reference Intakes (DRIs): Additional Macronutrient Recommendations
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	Limit to no more than 25% of total energy

SOURCE: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005).

Dietary Reference Intakes (DRIs): Recommended Intakes for Individuals, Total Water and Macronutrients
Food and Nutrition Board, Institute of Medicine, National Academies

Life Stage Group	Total Water[a] (L/d)	Carbo-hydrate (g/d)	Total Fiber (g/d)	Fat (g/d)	Linoleic Acid (g/d)	α-Linolenic Acid (g/d)	Protein[b] (g/d)
Infants							
0–6 mo	0.7*	60*	ND	31*	4.4*	0.5*	9.1*
7–12 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 y	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 presents Recommended Dietary Allowances (RDAs) in **bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). RDAs and AIs may both be used as goals for individual intake. RDAs are set to meet the needs of almost all (97 to 98 percent) individuals in a group. For healthy breastfed infants, the AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all individuals in the group, but lack of data or uncertainty in the data prevent being able to specify with confidence the percentage of individuals covered by this intake. The plus (+) symbol indicates a change from the prepublication copy due to a calculation error.

[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.

[c] Not determined.

SOURCES: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids* (2002/2005); *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate* (2005). These reports may be accessed via http://www.nap.edu.

Vitamins-Functions and Food Sources

Water Soluble:

VITAMIN/FUNCTION	FOOD SOURCES	CAUSES OF DEFICIENCY
B_1 (Thiamine) Essential for growth; normal appetite and digestion; healthy nerves.	Pork, Organ meats Whole grains Enriched breads and cereals Potatoes Legumes Yeast and wheat germ	Alcoholism Anorexia Prolonged vomiting, diarrhea Stomach cancer
B_2 (Riboflavin) Essential for growth and healthy eyes. Prevents fissures at corners of the mouth and around nose and ears. Prevents eye irritation and photophobia.	Enriched breads and cereals Green leafy vegetables Milk and dairy foods Organ meats Eggs	Inadequate diet Increased needs, e.g., pregnancy, lactation Surgery Chronic illness Malabsorption Cirrhosis Diabetes
B_3 (Niacin) Essential for mental and emotional health. Prevents pellagra, nervous depression and neuritis.	Meat, fish, liver, poultry Grains Peanuts and peanut butter Milk	Inadequate diet Chronic diarrhea Diabetes Prolonged fever Cirrhosis Isoniazid drug therapy
B_6 (Pyridoxine) Essential for central nervous system regulation. Prevents hypochromic anemia, seborrheic dermatitis, mucosal lesions and peripheral neuritis.	Pork, egg yolk Cereal bran and wheat germ Milk Oatmeal Legumes	Inadequate intake coupled with oral steroid contraceptive use Alcoholism Increased needs, e.g., pregnancy, lactation
Pantothenic Acid Functions in the synthesis and breakdown of many vital body compounds.	All plant and animal foods Eggs, organ meats, salmon and yeast are best sources	Deficiency has not been demonstrated in humans

Vitamins-Functions and Food Sources (continued)

Water Soluble (continued)

VITAMIN/FUNCTION	FOOD SOURCES	CAUSES OF DEFICIENCY
Biotin Involved in synthesis and breakdown of fatty acids and amino acids.	Liver, meat, egg yolk Mushrooms Peanuts Milk Vegetables Banana, grapefruit, tomato, watermelon, strawberries (Also synthesized in the intestinal tract)	Deficiency is rare and has only been produced with large ingestion of raw egg whites
Folate (Folic Acid) Essential for normal maturation of red blood cells.	Green leafy vegetables Beef, organ meats, eggs Fish Dried beans Asparagus Broccoli Wheat	Anorexia Vegan diet Malabsorption Increased needs; e.g., pregnancy, lactation Sickle Cell Disease Folate antagonists Anticonvulsants Oral contraceptive use Alcohol B_{12} deficiency
B_{12} (Cyanocobalamin) Essential for normal red blood cell formation and normal fat metabolism. Also maintains healthy nervous system. Essential for growth.	Liver, kidney, meat, eggs Milk and dairy foods	Inadequate intake Malabsorption; e.g., gastrectomy, sprue Drug therapy; e.g., Neomyene, Colchiene
C (Ascorbic Acid) Essential for growth, teeth and bone formation. Promotes healing of wounds and fractures. Important for iron absorption and resistance to infections, disease.	Citrus fruits Cabbage Guava Brussels sprouts Peppers Cauliflower Greens Broccoli Potatoes Melons (except watermelon) Strawberries	Alcoholism Chronic inflammatory disease Cigarette smoking Chronic infections Oral contraceptive use

Vitamins-Functions and Food Sources (continued)

Fat Soluble:

VITAMIN/FUNCTION	FOOD SOURCES	CAUSES OF DEFICIENCY
A (Retinol) Essential for normal growth, development, vision, bone and tooth formation. Essential for healthy skin.	Milk Butter Apricots Carrots Broccoli Sweet potatoes Yams Cantaloupe Pumpkin Winter squash Liver, kidney, egg yolk Dark green leafy vegetables	Alcoholism Malabsorption Obstructive jaundice Infections Cancer Diabetes Hyperlipidemia
D (Calciferol) Essential for normal growth and development; important for formation of normal bones and teeth.	Vitamin D – fortified milk Liver, egg yolk Fish (salmon, tuna, sardines)	Fat malabsorption Hepatic disease Renal disease Anticonvulsant therapy
E (Tocopherol) Important in red blood cell formation and reproduction. Is a strong antioxidant.	Wheat germ Vegetable oils Milk Egg yolk Nuts Green leafy vegetables Dried beans and peas	Uncommon, but can occur with: Malabsorption Protein-calorie malnutrition Malnutrition Pancreatic disease Drug therapy; e.g., antibiotics, mineral oil
K (Menadione) Essential for blood clotting.	Liver Vegetable oils Green leafy vegetables Tomatoes Cauliflower Wheat bran	Rare, but may occur with: Fat malabsorption Obstructive jaundice Liver disease Newborns Drug therapy

Minerals-Functions and Food Sources

MINERAL/FUNCTION	FOOD SOURCES	CAUSES OF DEFICIENCY
Calcium (Ca) Essential component of bones and teeth. Also important in iron metabolism, blood clotting and nerve tissue development.	Milk and milk products Clams, oysters, sardines Turnip and mustard greens Broccoli	Fat malabsorption Inadequate intake
Chlorine (Cl) Functions as a buffer and enzyme activator. Component of hydrochloric acid.	Table salt Seafood Milk Meat Eggs	Vomiting Diarrhea Profuse sweating
Iodine (I) Regulates thyroid function	Iodized table salt Seafood Water and vegetables/fruits grown in non-goitrous regions	Increased need in pregnancy and adolescence
Iron (Fe) Component of hemoglobin; important in oxygen transfer	Liver, meat, egg yolk Legumes Dark green vegetables Shrimp, oysters Whole enriched grains Dark molasses	Blood loss Parasites Malabsorption Inadequate intake
Magnesium (Mg) Functions as an enzyme activator and influences almost all bodily processes.	Whole-grain cereals Meat Milk Green vegetables Legumes Nuts	Alcoholism Surgery Malabsorption Renal disease
Phosphorus (PO_4) Important to pH regulation and involved in many metabolic reactions in the body. Component of every cell.	Cheese, milk Meat, fish, poultry Egg yolk Whole-grain cereals Legumes Nuts	Rickets Sprue Celiac disease Hyperparathyroidism

Minerals-Functions and Food Sources (continued)

MINERAL/FUNCTION	FOOD SOURCES	CAUSES OF DEFICIENCY
Potassium (K) Essential for carbohydrate and protein metabolism. Important for acid-base balance and water balance.	Milk Meat Cereals Fruits Vegetables	Kidney disease Excessive vomiting or diarrhea Diabetic acidosis
Sodium (Na) Regulates body fluid volume and pH.	Table salt Seafood Milk Eggs Abundant in most foods except fruit	Inadequate intake Diarrhea, vomiting Muscle wasting Steroid use Cushing's disease
Zinc (Zn) Component of many enzymes including insulin. Important in wound healing.	Milk Liver Shellfish Legumes Wheat germ Whole grains	Inadequate intake Malabsorption Surgery

My Plate Guidelines

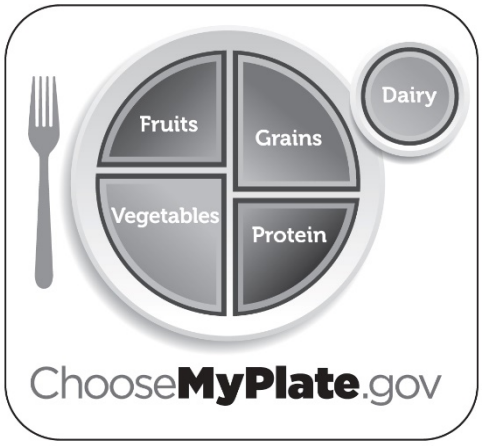
Purpose:
MyPlate is a food icon whose foundational purpose is to remind consumers to make good food choices and eat healthfully (1). The USDA accomplishes this by illustrating the five food groups in a familiar form, a place setting and plate. The five food groups also now have strategic messages for consumers to easily remember the benefits of having a well-rounded diet that includes each group. These strategic messages are as follows:

Fruits	Vegetables	Grains	Protein	Dairy
Focus on Fruit	Vary your vegetables	Make ½ of your grains whole	Go lean with protein	Get your calcium-rich foods.

To accompany these guidelines, the USDA has established a website at choosemyplate.gov. The website encases practical information and tips to help consumers build a healthier diet. It aids them in making adjustments to key areas of nutrition: (1) balancing calories, (2) foods to increase, (3) foods to reduce. A caloric balance should focus on enjoying food, while eating less. Choosemyplate.gov continues by advising consumers to monitor portion sizes in their appropriate amount. The website further admonishes its readers to increase certain foods by making ½ of their plate fruits and vegetables, switching to low-fat or fat-free milk, and making ½ of all grains whole. The site also highlights detrimental effects that a diet high in sodium and sugar may play in overall health by advising consumers to reduce foods high in these ingredients (1).

Indications for Use:
The USDA states "MyPlate is designed to *remind* Americans to eat healthfully; it is not intended to change consumer behavior alone" (1).

Nutritional Adequacy:
When a variety of foods are chosen, it is possible to provide a nutritionally adequate diet for all individuals using choosemyplate.gov and the MyPlate graphic (below) as a template.



MyPlate Guidelines (continued)

Another goal of the USDA is to relay information regarding recommended intakes of fruits, vegetables, grains, proteins, dairy, and oils needed for each gender and optimum health. The following table outlines these intake guidelines for adults:

Gender	Fruits	Vegetables	Grains	Proteins	Dairy	Oils
Male (Aged 19 and up)	2 cups	2.5-3cups	6-8 ounces	5.5-6.5 ounces	3 cups	6-7 tsp
Female (Aged 19 and up)	1.5-2.5 cups	2.0-2.5cups	5-6 ounces	5.0-5.5 ounces	3 cups	5-6 tsp

Resources

1) United States Department of Agriculture. "What is MyPlate" Choosemyplate, Accessed 26 January 2015, http://www.choosemyplate.gov/about.html.

Recommended Energy Intake Associated with Median Heights and Weights

Category	Age (years) or Condition	Wt. (kg)	Wt. (lb)	Ht. (cm)	Ht. (in)	REE[a] (Kcal/day)	Multiples of REE	Per kg	Per Day[c]
Infants	0.0-0.5	6	13	60	24	320		108	650
	0.5-1.0	9	20	71	28	500		98	850
Children	1-3	13	29	90	35	740		102	1,300
	4-6	20	44	112	44	950		90	1,800
	7-10	28	62	132	52	1,130		70	2,000
Males	11-14	45	99	157	62	1,440	1.70	55	2,500
	15-18	66	145	176	69	1,760	1.67	45	3,000
	19-24	72	160	177	70	1,780	1.67	40	2,900
	25-50	79	174	176	70	1,800	1.60	37	2,900
	51+	77	160	173	68	1530	1.50	30	2,300
Females	11-14	46	101	157	62	1,310	1.67	47	2,200
	15-18	55	120	163	64	1,370	1.60	40	2,200
	19-24	58	128	164	65	1,350	1.60	38	2,200
	25-50	63	138	163	64	1,380	1.55	36	2,200
	51+	65	143	160	63	1,280	1.50	30	1,900
Pregnant	1st Trimester								+0
	2nd Trimester								+300
	3rd Trimester								+300
Lactating	1st 6 months								+500
	2nd 6 months								+500

[a] Calculation of REE (Resting Energy Expenditure) based on FAO equations, then rounded.
[b] In the range of light to moderate activity, the coefficient of variation is ±20.
[c] Figure is rounded
* Reprinted with permission from (**Recommended Dietary Allowances: 10th Edition © (1989),** by the National Academy of Sciences, courtesy of the National Academies Press, Washington, D.C.

Guidelines for Calculating Fluid Requirements

These guidelines are for estimating fluid requirements for patients with euvolemia.

Method	**Estimated Water Required**
Caloric Intake	1 milliliter (ml or cc) water/Kilocalorie (Kcal)
Body Weight (actual)	
• Average	30 ml water/kilogram (kg)
• Lower range	20 ml water/kg
• Higher range	35 – 40 ml water/kg

As with energy requirements, water needs should be adjusted based on individualized conditions.

Water loss may be excessive during fever and may account for increased requirements of 200 ml per degree Celsius of fever. Diarrhea, vomiting, burns, hemorrhage, NG suction, GI fistulas and ostomies may increase water requirements further.

In calculating fluids available or consumed by a resident, it is important to recognize that nearly all foods contain water. Most fruits and vegetables contain up to 95% water and many meats and cheeses contain at least 50% water. Also, water is generated from the energy of nutrients in food during metabolism. With an intake of 75-100% of meals per day, foods will furnish approximately 700-1,000 ml liquids on the trays and in-between meals. Foods that are liquid at room temperature, i.e., gelatin, sherbet, etc. also offer extra hydration. Per facility policy, these liquids will be counted.

A normal regular diet furnishes:

Breakfast	**Lunch**	**Dinner**	**Bedtime**
8 oz water	8 oz water	8 oz water	6 oz juice
8 oz milk	8 oz C/T*	8 oz milk	---
6 oz juice	---	8 oz C/T*	---
8 oz C/T*	---	---	---

(900ml) + (480 ml) + (720 ml) + (180 ml) = 2,280 ml Total

*Decaffeinated – Coffee/Tea
Source: UNDERSTANDING NUTRITION, Whitney & Rolfes, Sixth Edition.

Guidelines for Calculating Fluid Requirements (**continued**)

To assess water requirements when a patient is receiving tube feeding:

1. Calculate the patient's caloric requirements.
2. Determine the water requirements.
3. Calculate volume of water in tube feeding.
4. Calculate volume of extra water to be given to the patient to meet the daily hydration requirements.

Example:

1. Patient requirement 1,800 kcal per day. Patient receives 1,700 cc of Jevity, 1 cal, per 24 hours.
2. Patient requires 1,800 ml water per day. Jevity is 83% free water.
3. Patient receives 1,700 cc Jevity x .83 = 1,411 cc water from the Jevity.
4. 1,800 - 1,411 = 389 ml extra water must be given to the patient to meet the daily hydration requirements.

Hamwi Heights and Weights for Adults

http://www.nafwa.org/hamwi.php

Height		Weights			
		Men		Women	
inches	Cm	lb	Kg	lb	Kg
58	147			95	43
59	149			97	44
60	152	106	48	100	45.5
61	155	112	51	105	48
62	158	118	54	110	50
63	160.5	124	56	115	52
64	163	130	59	120	54.5
65	165.5	136	62	125	57
66	168	142	64.5	130	59
67	170.5	148	67	135	61
68	173	154	70	140	64
69	175.5	160	73	145	66
70	178	166	75.5	150	68
71	180.5	172	78	155	70.5
72	183	178	81	160	73
73	185.5	184	84	165	75
74	188	190	86.5	170	77
75	190.5	196	89		
76	193	202	92		
77	195.5	208	94.5		
78	198	214	97		

REFERENCE: Pocket Resource Nutrition Assessment 7th Edition, 2009, Dietetics in Health Care Communities, a dietetic practice group of the American Dietetic Association, Chicago, Illinois.

Ideal Body Weight Calculator: Hamwi Method

Purpose:

The Hamwi method is a quick and easy way to determine optimal body weight. However, despite its efficacy in determining a roundabout mean weight for each patient, the AND NCM does not support its use. Dietitians and other nutrition professionals should use clinical judgment when assessing a patient's ideal body weight. This is carried out by factoring in circumstantial evidence (i.e. fluid accumulation for patients with kidney disease and an athlete with high amounts of lean body tissue).

Men

HAMWI METHOD: IDEAL BODY WEIGHT

Height _____ (inches)

IBW Small Frame _____ (pounds)

IBW Medium Frame _____ (pounds)

IBW Large Frame _____ (pounds)

Hamwi Formula for Men

106 pounds for the first 5 feet + 6 pounds for each inch over 5 feet (Medium frame)
Small frame (- 10%), Large frame (+10%)

Women

HAMWI METHOD: IDEAL BODY WEIGHT

Height _____ (inches)

IBW Small Frame _____ (pounds)

IBW Medium Frame _____ (pounds)

IBW Large Frame _____ (pounds)

Hamwi Formula for Women

100 pounds for first 5 feet + 5 pounds for each inch over 5 feet (Medium frame).
Small frame (-10%), Large frame (+10%)

Reference:

Pocket Resource Nutrition Assessment 7th Edition, 2009, Dietetics in Health Care Communities, a dietetic practice group of the American Dietetic Association, Chicago, Illinois.

Basal Caloric Needs, Protein Requirements Based on Activity and Injury Factors

Before a nutrition care plan can be developed, an assessment of energy needs must be completed. Nutritional needs can be determined by one of several methods. The American Dietetic Association (ADA) Evidence Analysis Team has completed an extensive literature search on the validity of predictive energy needs equations. These equations are used to predict resting metabolic rate (RMR). These equations can be found in various reference materials. The equations and calculations used in your facility should come from a documented credible source.

The Harris-*Benedict Equa*tion has been widely used by dietetics professionals. Although this equation was said to measure basal energy expenditure (BEE), in fact it measures RMR. The *Miffin-St. Joer Equation* has been found to be the most reliable predictive measure of RMR. Both are included below.

Contradictions and Lack of Evidence:
While both calculations can be beneficial in calculating a patient's energy needs, neither method is 100% accurate. Indirect calorimetry would be the gold standard and best tool to assess a patient's energy needs with the greatest accuracy (NCM, 2014).

Harris-Benedict Equation
The Harris Benedict equation uses age, height, and weight to estimate basal energy expenditure (BEE), the minimum amount of energy needed by the body at rest in a fasting state.

In Men: BEE (kcal/day) = 66.5 + (13.8 x W) + (5.0 x H) - (6.8 x A)

In Women: BEE (kcal/day) = 655.1 + (9.6 x W) + (1.8 x H) - (4.7 x A)

Where: W = weight in kilograms
H = height in centimeters
A = age in years

Mifflin-St. Jeor Equation

Men: RMR = (9.99 x weight) + (6.25 x height) – (4.92 x age) + 5

Women: RMR = (9.99 x weight) + (6.25 x height) – (4.92 x age) - 161

Energy Needs (**continued**)

The BEE (BMR = Basal Metabolic Rate) and RMR value is then multiplied by an activity factor and an injury factor to predict the total daily energy expenditure.

BMR x Activity Factor x Stress Factor

Activity Factor		***Stress Factor***	
In Bed	1.2	Surgery	1.2
Out of Bed	1.3	Trauma	1.5
		Sepsis	1.6
Sedentary: 1.40-1.69		Trauma	1.5
Active: 1-70-1.99		Burns <50%	1.8
Very Active: 2.00-2.40		Burns >50%	2.0+

Energy needs can also be calculated based on weight in kilograms and adjusted for activity level.

Activity and Injury Factors for Daily Energy Expenditure

Surgery	= Kg wt x 40
Trauma or Sepsis	= Kg wt x 45
Ventilator and <50% burns	= Kg wt x 50

To determine the protein requirement needed for a person having one of the various clinical states identified below, multiply person's body weight in kilograms by the grams of protein designated for that clinical state.

Protein Requirements in Patients

Clinical State	**Protein Requirement (g/kg Body Weight)**
Normal	0.8
Fever, fracture, infection, wound healing	1.25-2.0
Protein repletion	1.5-2.0
Burns	1.5-3.0

Energy Needs (**continued**)

References

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Equations" Academy of Nutritionanddietetics,Accessed30December2014,http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=255701&ncm_ategory_id=1

2. Pocket Resource Nutrition Assessment 7th Edition, 2009, Dietetics in Health Care Communities, a dietetic practice group of the American Dietetic Association, Chicago, Illinois.

Calculating BMI (Body Mass Index)

Purpose:

BMI calculations are generally used in practice to assess an individual's weight-to-height. The calculated number is then compared against a table of standards to determine an individual's healthy category. The following table outlines these standards:

Table 1- BMI Classification Table

BMI	BMI Classification
< 18.5	Underweight
18.5-24.9	Normal Weight
25.0-29.9	Overweight
30.0-34.9	Obesity (Class 1)
35.0-39.9	Obesity (Class 2)
> 40	Extreme (Morbid) Obesity (Class 3)

Table 2 is a synopsis of how to perform these calculations:

Table 2- BMI Calculations

METRIC	US
$\text{BMI} = \frac{\text{Body weight (kilograms) (kg)}}{\text{Height}^2 \text{ (meters}^2\text{) (m}^2\text{)}}$	$\text{BMI} = \frac{\text{Body weight (pounds) (lbs) * 703}}{\text{Height}^2 \text{ (inches}^2\text{) (in}^2\text{)}}$

Example: Patient weighs 140 pounds (lbs) and is 5 feet 4 inches (64 inches) (in)

To calculate a patient's BMI in METRIC:

1. *Convert pounds to kilograms by dividing the number of pounds by 2.2.*
   Example: $\frac{140 \text{ lbs}}{2.2} = 63.6 \text{ kg}$
2. *Convert inches to meters (m) by multiplying the inch figure by 0.025.*
   Example: 64 in x 0.025 = 1.6 m
3. *Square the figure of the height in meters.*
   Example: 1.6 m x 1.6 m = 2.56
4. *Divide the weight in kilograms by the square of the height in meters.*
   BMI= Example: $\frac{63.6 \text{ kg}}{2.56} = 24.9 \text{ kg/m}^2$

Calculating BMI (continued)

To calculate a patient's BMI in US:

1. *Square the figure of the height in inches.*
   Example: 64 in x 64 in = 4096

2. *Multiply the figure of the weight in lbs by 703.*
   Example: 140 lbs x 703 = 98420

3. *Divide the weight in pounds by the square of the height in inches.*
   BMI = Example: $\frac{98420 \text{ lbs}}{4096} = 24.0 \text{ lbs/in}^2$

For assistance, see calculator provided by National Heart Lung and Blood Institute.
http://nhlbisupport.com/bmi/

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Overweight and Obesity" Academy of Nutrition and Dietetics, Accessed 01 January,2015, http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=255701&ncm_ategory_id=1

Weight Calculations for Amputees

Purpose:
Weight calculations for energy needs in this population are generally different than those who have not lost a limb. This chart is to assist with finding their ideal body weight. Because amputee's have less body surface area, it is likely that they will require less energy (long-term) than if the limb were present. Despite this long-term goal; energy needs increase directly after the amputation. Recommendations for this increase are a stress factor of 1.2-1.35 to be used in energy needs calculations; protein recommendations include 1.2-2.0g/kg of body weight immediately after post-operative surgery (NCM, 2014).

Proportion Weight Chart

Body Part	*Percentage of Total Body Weight*
Arm	5.0
Upper Arm	3.0
Lower Arm	2.0
Hand	1.0
Lower Leg (BKA)	6.0
Upper Leg	10.1
Foot	1.5
Total Leg and Foot	16.0
Lower Body	32.0

Determining caloric needs for an Amputee:

1. *Determine ideal body weight according to patient's height before amputation.*
   Ex: If a 25 year old male patient is 5'6" and weighs 154lbs. He has no amputations. This patient's ideal body weight (IBW) would be 142lbs based on the Hamwi equation.

Amputee Calculations (continued)

2. *Using ideal body weight and factors for activity, age, gender and health status, calculate caloric needs.*

   Ex: Using the same male patient above with a lower leg amputation and no adjust for the amputation would require 2500 kcal

   2500 kcal X 0.06= 150 kcal. 2500kcal (original needs)- 150 (6% for loss of lower leg) = 2350kcal/day

3. *Using the percent of total body weight the amputated part represents, multiply the total caloric needs (step 2) by the percentage weight of the amputated part. Subtract this amount from the calculated caloric needs determined in Step 2.*

   Ex: If you take the base number calculated above and adjust for the loss of his lower leg (6.0%), his new estimated energy needs are about 2,350 kcal immediately following the amputation:

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Amputations" Academy of Nutrition and Dietetics, Accessed 01 January,2015, http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=255701&ncm_ategory_id=1

Food/Drug Interactions

There are multiple drugs/medications that interact with food and/or disease states. A Registered Dietitian and/or Pharmacist should address patients' individualized needs.

Foods and drugs may interact in many ways, producing one or more of the following effects:

- Changes in the absorption of the drug or food
- Alteration in nutrient intake
- Interference with the intended action of the drug
- Alteration in the metabolism and excretion of the drug or food

The following are medications, listed by drug class, that have known food-drug interactions:

- Oral Hypoglycemic Agents
- Antibiotics, such as Ciprofloxacin and Tetracycline
- Anticoagulants, such as Warfarin/Coumadin
- Anti-inflammatory (Prednisone and other common steroids)
- Bisphosphonate
- Drugs that are metabolized by the cytochrome P_{450} system
- Monoamine oxidase inhibitors (MAOIs)
- Potassium Sparing Diuretic (i.e. Spirandatone, Triamtenne) and Non-Potassium Sparing Diuretics (furosemide, chloro-hydrothiazide).
- Vitamin K

A more in-depth look at these interactions can be food in the Food-Medication Interaction reference resource by Pronsky (2008).

Reference:

1. Pronsky, Zaneta M., MS, RD, LDN, FADA, FOOD-MEDICATION INTERACTIONS 15th Edition, 2008, Birchrunville, Pa.

Drug/Medication Side-Effect Management

Problem	***Suggestions***
Altered taste perception, bitter taste or aftertaste	1. Try to mask taste of drug with pulpy fruit (applesauce) or other food. 2. Sugar tones down salty and acid taste. 3. Salt tones down sugar and acid taste. 4. Try using sugarless gum, water or lemon juice as a mouth rinse. 5. Try sucking on hard candy.
Diarrhea	1. Eat smaller, more frequent meals 2. Avoid foods high in fiber, milk products, alcohol and caffeine-containing beverages. 3. Drink plenty of fluids, especially those high in potassium (fruit juices). 4. If symptoms persist more than 48-72 hours, contact your physician.
Dry or Sore Mouth	1. Drink plenty of fluids 2. Moisten dry foods in beverages or swallow food with beverages. 3. Avoid eating dry or salty foods and snacks. Choose softer foods. 4. Avoid spicy, rough-textured or highly acidic foods. 5. Add sauces, gravies or syrups to foods. 6. Cold foods or beverages may soothe throat. 7. Try to suck or lick ice chips.
Heartburn	1. Eat smaller, more frequent meals. 2. Eat slowly. Avoid overeating. 3. Avoid fried, greasy, or heavily-spiced foods. 4. Limit alcohol, tea, coffee, soft drinks, decaffeinated beverages, chocolate, peppermint and pepper. 5. Avoid citrus juices and tomato products and any other acidic foods and beverages. 6. Avoid eating before bedtime.
Loss of Appetite	1. Eat small, more frequent meals. 2. Chew foods slowly. 3. Use seasonings and herbs to enhance food flavors 4. Drink liquids between meals. 5. Use a nutritional supplement if weight loss is a problem.
Nausea	1. Eat small, more frequent meals. 2. Chew thoroughly and slowly. 3. Try crackers or dry ready-to-eat cereals. 4. Avoid these: hot, spicy, strong-smelling or fried, greasy foods. 5. Sip cool, clear liquids between meals. 6. Try eating foods cold or at room temperature. 7. If symptoms persist for more than 48 -72 hours, contact your physician.

Laboratory Tests and Interpretations

TEST, ABREVIATION, DESCRIPTION	NORMAL RANGE*	SIGNIFICANCE OF VARIANCE	POSSIBLE NUTRITION IMPLICATION
Albumin – (Alb.)** Protein widely distributed in tissues and fluids.	3.4-5.4 gm/100ml	***Decreased***: Impaired digestion, burns, over hydration, congestive heart failure. ***Increased***: Dehydration.	It is important to note that a reduced intake of protein does not correlate with a decrease in serum albumin levels. Therefore, we can conclude that albumin is not an accurate biomarker of malnutrition. Provide fluids unless contraindicated.
Blood Urea Nitrogen – (BUN) Urea is the end product of protein breakdown.	6-20 mg/100 ml	***Decreased***: Liver disease, over hydration, low protein ingestion or absorption. ***Increased***: Renal disease, burns, gout, carcinoma, bleeding ulcer, fever, dehydration, CHF, GI Bleed, heart attack.	If related to over hydration, correct hydration status. If related to poor protein intake, increased consumption. If related to poor renal function, protein may need to be restricted. If related to dehydration, correct dehydration status (increase fluid intake unless contraindicated).
C-Reactive Protein (CRP) [Cytokine-Reactive Protein] Acute phase reactant protein which is a marker of inflammation in the human body.	<1.0 mg/dl	***Decreased***: Use of NSAIDS, steroids, salicylates may cause a low reading. If CRP is initially high and drops, it means the inflammation or infection is subsiding or responding to treatment. ***Increased***: Inflammatory processes; atherosclerosis; infections of any type, wound, urinary, upper respiratory; arthritis, pregnancy.	Higher levels are found in individuals who smoke, have high blood pressure, are overweight and don't exercise. During increasing acute phase reactant protein (i.e., CRP), visceral protein labs such as Albumin and Prealbumin are unreliable markers of protein status. Certain medication may cause unreliable high readings – such as oral contraceptives, IUD+.
Calcium – (Ca) Mineral stored in teeth and bones.	8.5-10.2 mg/dl	***Decreased***: Cirrhosis, chronic renal failure, Steatorrhea, poor Vitamin D absorption. ***Increased***: Excessive Vitamin D, hyperparathyroidism, malignancies.	Underlying cause needs to be determined. Dietary modifications (increased or decreased calcium intake) not indicated.

*Consult lab slips for normal values, as they vary. Additionally refer to: http://www.labtestsonline.org/.

**Values typically decreased in the elderly

Laboratory Tests and Interpretations (continued)

TEST, ABBREVIATION, DESCRIPTION	NORMAL RANGE*	SIGNIFICANCE OF VARIANCE	POSSIBLE NUTRITION IMPLICATION
Cholesterol – (CHOL) A fat stored in the liver and excreted (in modified form) in the blood.	<200 mg/dl (total) <100 mg/dl (LDL) >40 mg/dl (HDL)	***Decreased***: May reflect dietary habits, malnutrition, extensive liver disease, hypothyroidism, acute infection. ***Increased***: Hyperlipidemia, poorly controlled diabetes, chronic hepatitis, hypothyroidism.	Underlying disorder needs to be identified, corrected. Restriction of dietary cholesterol may be a prudent step. Reducing saturated fat intake how shown additional benefits in lowering cholesterol.
Creatinine – (Creat., Cr.) Related to lean body mass; found in skeletal muscle, excreted through the kidneys.	0.7-1.3 mg/dl (males) 0.6-1.1 mg/dl (females)	***Decreased***: May indicate inadequate protein, "wasting" disease, renal disease. ***Elevated***: Acute and chronic renal disease.	Increased protein intake unless contraindicated. Protein restriction may be indicated; if BUN is elevated may indicate renal disease.
Glucose, Fasting –(FBS)*** Primary sugar used by the body for energy; can be stored in the liver as glycogen.	70-100 mg/100 ml	***Decreased***: Excess insulin dosage (or poor dietary intake), Pituitary disease. ***Increased***: Diabetes, Cushing's disease, liver dysfunction, corticosteroid use	Evaluate insulin regimen, food consumption, carbohydrate replacement. Evaluate dietary compliance; consider carbohydrate restricted diet if not presently on one (such as Reduced Concentrated Sweets).
Hematocrit – (HCT) Represents % of whole blood that is made up of RBC	Female: 36-44% Male: 40-50%	***Decreased***: Hemorrhage, anemia, over hydration. ***Increased***: Dehydration, bone marrow disease	Medical evaluation is required to determine cause.

*Consult lab slips for normal values, as they vary. Additionally refer to: http://www.labtestsonline.org/
**Values typically decreased in the elderly.
***Values typically elevated in the elderly.

Laboratory Tests and Interpretations (continued)

TEST, ABBREVIATION, DESCRIPTION	NORMAL RANGE*	SIGNIFICANCE OF VARIANCE	POSSIBLE NUTRITION IMPLICATION
Hemoglobin –(Hgb)** Oxygen and carbon dioxide carrying component of the blood.	Female: 12-15 mg/dl Male: 14-17 mg/dl	***Decreased***: Hemorrhage, anemia, protein-calorie malnutrition.	Medical evaluation is required to determine cause. If related to low protein-calorie intake, increase protein-calorie intake (unless high protein intake is contraindicated). Nutritional therapy alone typically will not correct problem.
Potassium – (K+) electrolyte Essential nutrient required for biochemical reactions. Controls muscle contractions (including the heart).	3.7-5.2 mEq/L	***Decreased***: Renal disorders, diarrhea, vomiting, massive diuresis. ***Increased***: Renal malfunction or excessive K+ supplementation.	Underlying problem needs to be corrected; supplementation is usually required as increased dietary levels do not result in significant change. Look for supplementation and suggest lower dosage or discontinuation. Potassium restricted diet may be indicated.
Prealbumin – (PAB) Better indicator for dietary change than albumin. With adequate intake it can increase by 1 mg/dl/d.	19-38 mg/dl	***Decreased***: Acute catabolic stress, hepatic disease, trauma, ***Increased***: Chronic renal failure on dialysis, pregnancy.	**Because PAB is subject to a number of outlying factors (inflammation, metabolic stress, and Zinc deficiency). It is not considered an indicator of nutrition status. It is also important to note that a reduced intake of protein does not correlate with a decrease in PAB levels. Therefore, we can conclude that prealbumin is not an accurate biomarker of malnutrition.
Sodium - (Na+) electrolyte Important in controlling body fluids.	135-145 mEq/L	***Decreased***: Severe diarrhea, high fevers, renal insufficiency, vomiting, etc. ***Increased***: Loss of water in excess of sodium (sweating, fever, hyperventilation), hyper-calorie and high protein diets.	Underlying cause needs to be determined; dietary modifications not indicated.

*Consult lab slips for normal values, as they vary. Additionally refer to: http://www.labtestsonline.org/
**Values typically decreased in the elderly.
***Values typically elevated in the elderly.

Laboratory Tests and Interpretations (continued)

TEST, ABBREVIATION, DESCRIPTION	NORMAL RANGE*	SIGNIFICANCE OF VARIANCE	POSSIBLE NUTRITION IMPLICATION
Total Iron Binding Capacity - (TIBC) Measures transferring iron.	240-450 mg/dl	***Decreased***: Excess from ingestion, uremia, neoplasms, rheumatoid arthritis. Levels greater than 400 mcg/100 ml indicates iron deficiency.	Underlying cause needs to be determined; dietary modification alone is usually not effective in correcting iron deficiency.
Total Lymphocyte Count (TLC) = % Lymphocytes x WBC Measures T-cells circulating in immune systems; provides general guide to ability to respond to infection.	1500-4000 Per mm^3	Malnutrition associated with counts less than $1500/mm^3$. ***Decreased*:** HIV/AIDS, radiations therapy.	Correct nutritional status.
Total Protein – (TP) Measures the amount of albumin and globulin in blood.	6.0-8.3 mg/dl	***Decreased***: Liver disease and prolonged low protein intake. ***Increased*** levels: Dehydration.	If related to nutrition, decreased levels will improve with adequate energy and protein Correct fluid status (unless contraindicated).
Transferrin =(TIBC x .8)-43 Carrier protein involved in iron metabolism. Limitation: Many factors such as hepatic and renal disease, congestive heart failure and chronically draining wounds can modify transferrin.	200-350 mg % ***Mild deficit:*** 200-180 ***Moderate deficit:*** 180-160 ***Severe deficit:*** 160 and below.	***Decreased***: Calorie deficiency, protein deficiency, hepatic disease, renal disease, chronic blood loss, infection, inflammation, hypoxia, pregnancy.	If related to decreased nutritional intake; low levels will increase with adequate energy and protein intake.

*Consult lab slips for normal values, as they vary. Additionally refer to: http://www.labtestsonline.org/

Laboratory Tests and Interpretations (continued)

TEST, ABBREVIATION, DESCRIPTION	NORMAL RANGE*	SIGNIFICANCE OF VARIANCE	POSSIBLE NUTRITION IMPLICATION
Glycosylated Hemoglobin – Hgb A1C Hemoglobin bound to glucose in blood	<6.0%	**Increased**: Poor blood sugar control 2 – 4 months prior, newly diagnosed diabetes, pregnancy, non-diabetic hyperglycemia, lead poisoning, uremia, polycystic ovary syndrome	A 3-month window of how high a diabetic's glucose has been running.
Mean Corpuscular Volume - MCV **Function**:Measure of individual cell size: microcytic: <87, macrocytic: >103	80 –95 μm³	**Increased**: Magaloblastic anemias (B_{12} and folate deficiency), macrocytic anemia, aplastic and hemolytic anemias, chronic liver disease, hypothyroidism, acute blood loss, alcohol abuse, reticulocytosis, myelodysplasia sperocytosis **Decreased**: Microcytic anemia (iron deficiency anemia), thalassemia, anemia of chonic blood loss, malignancies, lead poisoning siderblastic anemia.	Increasing intakes of folate and vitamin B12 can improve MCV levels.

*Consult lab slips for normal values, as they vary. Additionally refer to: http://www.labtestsonline.org/

Dietary Procedures Prior to Test and Examinations

The following dietary procedures are general guidelines for commonly ordered diagnostic tests and may be used if physicians' orders do not specify otherwise. However, physicians' orders may vary slightly from these guidelines and should, of course, take precedence.

Barium Enema:

- Evening before test: clear liquid, then NPO after midnight.
- If commercial evacukits are used, product directions regarding diet should be followed.

Blood Chemistry:

- NPO after midnight.

Calcium Balance or Low Calcium Test Diet:

- 3-5 days prior to testing, patient should be on a low calcium diet, less than 137 mg. Ca (see the calcium restricted diet for particulars) then NPO after midnight the evening prior to the test.

Ewald Meal (Gastric Analysis):

9-12 Ounces tea or water
2 slices dry bread, toast or crackers
(No sugar or cream)

Gall-Bladder X-Ray Routine:

- The night before a gall-bladder X-ray is made, a fat free supper may be ordered. The following routine is followed:

- Fat Free Clear Liquid:

Tea or coffee, sugar		Fruit plate with gelatin
Clear fruit juice	OR	Dry toast with jelly
Gelatin dessert		Soft drinks

- NPO after midnight.

Dietary Procedures Prior to Test and Examinations (continued)

Glucose Tolerance Test:

- The GTT should be performed only on patients who have been on unrestricted diet and physical activity 3 days before testing. A 75-gram glucose load should be administered in the morning after a 10-hour fast.

IV Cholangiogram:

- Evening before test: clear liquid, then NPO.

IV Pyelogram:

- Evening before test: clear liquid, then NPO.

Myelogram:

- NPO after midnight.

Upper G.I.:

- NPO after midnight.

VMA (Vanillymandelic Acid) Test Diet:

- (Used for 3-7 days prior to test, some laboratories no longer require a test diet for the VMA test)

- **DO NOT EAT:**

Coffee, tea, decaffeinated coffee, postum	Apple
Cola beverages, wine	Banana
Chocolate	Citrus Fruit
Vanilla or flavoring	Pineapple
Licorice	Asparagus
Nuts	Tomato

High Pyridoxine Containing Foods

FOOD	PYRIDOXINE (mg/100gm)
Avocado	0.61
Lima Beans	0.55
Green Beans	0.56
Brussels Sprouts	0.67
Soybeans, Dried	0.64
Spinach (per lb)	0.83
Turnip Greens	0.98
Yeast, Baker's	1.20
Yeast, Brewer's	4.20
Walnuts	1.00
Oat Flakes	0.75
Wheat Germ	0.92
Beef, Round Steak	0.50
Liver, Beef	0.70
Liver, Calf	1.20
Liver, Chicken	0.80
Liver, Goose	0.90
Liver, Pork	0.85
Chicken	0.50
Goose	0.60
Rabbit	0.60
Mackerel	0.70
Salmon	0.98

*10-15 mg Pyridoxine/day can counteract L-Dopa (commonly used for Parkinson's disease).
Geigy Scientific Tables

Sodium, Potassium, Calcium and Phosphorus Content of Foods

Na= Sodium, K= Potassium, Ca= Calcium, P= Phosphorus

Item	Serving Size	Na (mg)[1]	K (mg)[2]	Ca (mg)[3]	P (mg)[4]
Beverages					
Beer	12 ounces	25	90	18	108
Carbonated beverages, cola-type, regular	12 ounces	20	7	11	62
Carbonated, all flavors, diet	12 ounces	76	6	14	15
Coffee, brewed	6 ounces	2	117	13	4
Tea, brewed	8 ounces	19	58	5	10
Bread/Cereal Products					
Biscuit, from mix	1,2" diameter	272	32	19	65
Bread, White	1 slice	142	29	24	27
Bread, Whole Wheat	1 slice	148	72	24	71
Cornbread, from mix	1, 2 ½"x 2 ½ " diameter	263	61	133	209
Pancakes, from mix	1 large	431	17	96	191
Cereals, Cooked Cream of Wheat, quick Farina, enriched, quick Oatmeal, regular, quick	 ¾ cup ¾ cup ¾ cup	 104 1 1	 35 22 99	 38 3 15	 75 21 133
Cereals, ready-to-eat All Bran® Corn Flakes Shredded Wheat	 1/3 cup 1 ¼ cup 1 ounce	 320 351 3	 350 26 102	 23 1 11	 264 18 100
Crackers Graham Saltines	 2 squares 5	 95 156	 55 17	 6 42	 21 182

Sodium, Potassium, Calcium and Phosphorus Content of Foods (continued)

Item	Serving Size	Na (mg)[1]	K (mg)[2]	Ca (mg)[3]	P (mg)[4]
Cheese					
American Cheese	1 ounce	322	23	198	219
Cheddar Cheese	1 ounce	198	23	213	136
Cheese Spread	1 ounce	461	68	160	248
Cottage Cheese	1 ounce	65	24	262	160
Desserts					
Cake, yellow with chocolate icing, from mix	1, 2½"diameter cupcake	79	38	32	64
Cookies, Vanilla Wafers	5	38	11	6	10
Gelatin	½ cup	55	1	0	54
Ice Cream	1 cup	84	241	194	153
Pie, Apple, commercial	1/8 cut	355	94	9	26
Pudding, Vanilla, from mix	½ cup	422	189	148	314

Sodium, Potassium, Calcium and Phosphorus Content of Foods (continued)

Item	Serving Size	Na (mg)[1]	K (mg)[2]	Ca (mg)[3]	P (mg)[4]
Eggs					
Egg, Boiled	1 large	61	65	27	103
Fats					
Bacon	1 slice	77	18	1	32
Butter or Margarine	1 teaspoon	46	1	1	1
Cream. Half-and-Half	1 tablespoon	7	19	16	13
Creamer, powdered	1 teaspoon	2	18	Trace	8
Mayonnaise	1 tablespoon	84	5	3	4
Salad Dressing	1 tablespoon	219	13	2	2
Sour Cream	1 tablespoon	6	17	14	10
Fruits					
Apple, raw	1,2½" diameter	1	116	10	10
Apple Juice	4 ounces	1	124	15	21
Apricots	3	1	301	4	11
Banana	½ small	1	176	13	16
Blueberries, frozen	1 cup	14	494	17	21
Cantaloupe	1 cup	19	402	22	26
Fruit Cocktail	½ cup	1	206	7	112
Grapefruit	½ small	1	163	14	9
Grapes	10	2	87	13	22
Orange	1 small	1	173	36	20
Peaches, canned	½ cup	3	167	5	14
Pears, canned	½ cup	2	107	11	15
Pineapple, canned	½ cup	2	152	14	7
Raisins	1 tablespoon	2	69	25	45
Rhubarb, diced, cooked	1 cup	4	230	211	41
Strawberries	1 cup	1	244	33	41
Meat, Fish, and Poultry					
Beef, Fish (fresh)	1 ounce	23	117	3	40
Hot Dogs	1	461	71	9	39
Ham	1 ounce	227	71	3	50

Sodium, Potassium, Calcium and Phosphorus Content of Foods (continued)

Item	Serving Size	Na (mg)[1]	K (mg)[2]	Ca (mg)[3]	P (mg)[4]
Peanut Butter	1 tablespoon	97	100	9	61
Pork	1 ounce	23	117	3	73
Poultry	1 ounce	23	117	3	75
Salmon, canned	¼ cup	326	215	73	98
Sardines, canned	1 ounce	233	167	124	141
Tuna, canned	1 ounce	136	68	2	66
Item	Serving Size	Na (mg)	K (mg)	Ca (mg)	P (mg)
Milk					
Whole Milk	8 ounces	122	351	288	227
2% Milk	8 ounces	150	431	352	276
Skim Milk	8 ounces	126	406	296	233
Buttermilk	8 ounces	319	343	285	219
Chocolate Milk	8 ounces	149	417	284	254
Potatoes and Substitutes					
Dried Beans, Great Northern	1 cup	4	692	90	266
Macaroni, Noodles, Spaghetti	½ cup	1	43	6	35
Potatoes, White, baked	1 small	6	782	14	101
Rice	½ cup	0	29	11	29
Soups					
Tomato	8 ounces	932	450	13	34
Vegetables					
Asparagus, canned	½ cup	0	0	23	63
Beans, Green or Wax:					
Fresh, frozen	½ cup	3	95	31	16
Canned	½ cup	160	64	18	13
Broccoli, chopped, frozen	½ cup	14	196	50	52
Brussels Sprouts, frozen	½ cup	18	254	16	48
Cabbage:					
Chopped, raw	1 cup	14	163	34	20
Chopped, cooked	½ cup	10	118	32	15
Cauliflower, fresh, cooked	½ cup	6	129	14	23
Greens:					
Collard, chopped, frozen	½ cup	14	201	150	44
Mustard, chopped, frozen	½ cup	19	104	78	33
Spinach, chopped, frozen	½ cup	54	342	116	45
Turnip, chopped, frozen	½ cup	12	184	98	32
Lettuce, chopped	1 cup	5	96	12	12
Okra, frozen	½ cup	3	215	87	40

Sodium, Potassium, Calcium and Phosphorus Content of Foods (continued)

Peas: Fresh, cooked Frozen	½ cup ½ cup	1 92	157 108	22 19	94 72
Sauerkraut	½ cup	878	165	36	23
Tomatoes: Raw Canned	 1 small ½ cup	 4 157	 290 262	 8 42	 29 25
Tomato Juice	4 ounces	243	276	12	30

Sodium and Potassium Content of Miscellaneous Items

Item	Serving Size	Na (mg)	K(mg)
Baking Powder	1 teaspoon	329	
Catsup	1 tablespoon	156	
Olives, Green	10 small	686	
Pickles, Dill	1 medium	928	
Salt	1 teaspoon	2132	
Soy Sauce	1 tablespoon	1319	
Salt Substitute	1 teaspoon		1950-2535

Resource

1. Academy of Nutrition and Dietetics Nutrition Care Manual. "Nutrient Lists; Sodium" Academy of Nutrition and Dietetics, Accessed 01 January,2015, http://www.nutritioncaremanual.org/vault/2440/web/files/NutrientList_SodiumContent.pdf
2. Academy of Nutrition and Dietetics Nutrition Care Manual. "Nutrient Lists; Potassium" Academy of Nutrition and Dietetics, Accessed 01 January, 2015, http://www.nutritioncaremanual.org/vault/2440/web/files/NutrientList_PotassiumContent.pdf
3. Academy of Nutrition and Dietetics Nutrition Care Manual. "Nutrient Lists; Calcium" Academy of Nutrition and Dietetics, Accessed 01 January, 2015, http://www.nutritioncaremanual.org/vault/2440/web/files/NutrientList_CalciumContent.pdf
4. Academy of Nutrition and Dietetics Nutrition Care Manual. "Nutrient Lists; Phosphrous" Academy of Nutrition and Dietetics, Accessed 01 January, 2015, http://www.nutritioncaremanual.org/vault/2440/web/files/NutrientList_PhosphorusContent.pdf

Vitamin A Contents of Foods

Food	mcg RAE/svg	IU/svg	% DV
Sweet potato, baked in skin, 1 whole	1,403	28,058	561
Beef liver, pan fried, 3 ounces	6,582	22,175	444
Spinach, frozen, boiled, ½ cup	573	11,458	229
Carrots, raw, ½ cup	459	9,189	184
Pumpkin pie, commercially prepared, 1 piece	488	3,743	249
Cantaloupe, raw, ½ cup	135	2,706	54
Peppers, sweet, red, raw, ½ cup	117	2,332	47
Mangos, raw, 1 whole	112	2,240	45
Black-eyed peas (cowpeas), boiled, 1 cup	66	1,305	26
Apricots, dried, sulfured, 10 halves	63	1,261	25
Broccoli, boiled, ½ cup	60	1,208	24
Ice cream, French vanilla, soft serve, 1 cup	278	1,014	20
Cheese, ricotta, part skim, 1 cup	263	945	19
Tomato juice, canned, ¾ cup	42	821	16
Herring, Atlantic, pickled, 3 ounces	219	731	15
Ready-to-eat cereal, fortified with 10% of the DV for vitamin A, ¾–1 cup (more heavily fortified cereals might provide more of the DV)	127–149	500	10
Milk, fat-free or skim, with added vitamin A and vitamin D, 1 cup	149	500	10
Baked beans, canned, plain or vegetarian, 1 cup	13	274	5
Egg, hard boiled, 1 large	75	260	5
Summer squash, all varieties, boiled, ½ cup	10	191	4
Salmon, sockeye, cooked, 3 ounces	59	176	4
Yogurt, plain, low fat, 1 cup	32	116	2
Pistachio nuts, dry roasted, 1 ounce	4	73	1
Tuna, light, canned in oil, drained solids, 3 ounces	20	65	1
Chicken, breast meat and skin, roasted, ½ breast	5	18	0

Provided by: http://ods.od.nih.gov: The Web site of the Office of Dietary Supplements at http://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional/

Vitamin C Contents of Food

Food	Milligrams (mg) per serving	Percent (%) DV*
Red pepper, sweet, raw, ½ cup	95	158
Orange juice, ¾ cup	93	155
Orange, 1 medium	70	117
Grapefruit juice, ¾ cup	70	117
Kiwifruit, 1 medium	64	107
Green pepper, sweet, raw, ½ cup	60	100
Broccoli, cooked, ½ cup	51	85
Strawberries, fresh, sliced, ½ cup	49	82
Brussels sprouts, cooked, ½ cup	48	80
Grapefruit, ½ medium	39	65
Broccoli, raw, ½ cup	39	65
Tomato juice, ¾ cup	33	55
Cantaloupe, ½ cup	29	48
Cabbage, cooked, ½ cup	28	47
Cauliflower, raw, ½ cup	26	43
Potato, baked, 1 medium	17	28
Tomato, raw, 1 medium	17	28
Spinach, cooked, ½ cup	9	15
Green peas, frozen, cooked, ½ cup	8	13

Provided by: http://ods.od.nih.gov: The Web site of the Office of Dietary Supplements at http://ods.od.nih.gov/factsheets/VitaminC-HealthProfessional/

Table of Weights and Measures

Note: For conversion from liquid to dry: 1 milliliter = 1 gram

Item	***Serving Size***	
	Liquid	Dry
1 teaspoon	5 milliliters	5 grams
1 tablespoon = 3 teaspoons	15 milliliters	15 grams
1 ounce = 2 tablespoons	30 milliliters	30 grams
	(Actual 28.35 milliliters	(Actual 28.35 grams)
1 cup = 8 ounces	240 milliliters	240 grams
1 pint = 2 cups = 16 ounces	480 milliliters	480 grams
1 quart = 2 pints = 32 ounces	960 milliliters	960 grams
1 gallon = 4 quarts	3.785 liters	
1 inch		2.54 centimeters
1 pound = 16 ounces		0.454 kilograms

Conversions:

To Convert	***To***	
Inches	Centimeters	Multiply by 2.54
Centimeters	Inches	Divide by 2.54
Pounds	Kilograms	Divide by 2.2
Kilograms	Pounds	Multiply by 2.2
Kilograms	Grams	Multiply by 1000
Grams	Milligrams	Multiply by 1000
Milligrams	Micrograms	Multiply by 1000
Ounces	Grams	Multiply by 30
Grams	Ounces	Divide by 30
Milligrams	Milliequivalents	See the following page for conversion chart.
NaCl (table salt)	Na (sodium)	Multiply by 0.393
Na	NaCl	Multiply by 2.54

Milligrams to Milliequivalent Conversions

$$\frac{\text{Number of Milligrams X Valence}}{\text{Atomic Weight}} = \text{milliequivalent (mEq)}$$

$$\frac{\text{Milliequivalent X Atomic Weight}}{\text{Valence}} = \text{milligrams (mg)}$$

Mineral	Atomic Weight	Valence
Sodium (Na)	23.0	1
Potassium (K)	39.1	1
Calcium (Ca)	40.0	2
Chloride (Cl)	35.5	1
Phosphorus (P)	31.0	2
Magnesium (Mg)	24.3	2

Conversion of milligrams to milliequivalents:

Example: 1000 mg sodium = $\frac{1000 \times 1}{23}$ = 43.5 mEq sodium

Conversion of milliequivalents to milligrams:

Example: 60 mEq Na = $\frac{60 \times 23}{1}$ = 1380 mg sodium

Salt conversion:

1 tsp. Salt weighs 5 grams and contains 2000 milligrams sodium
(Note: Salt is 40 % sodium and 60% chloride).

Adult TPN Calculation Guide[1]

Facility _____ Patient _____ Age_____ Date _____
Body Weight *_____lbs./2.2=_____kg. Estimated kcal needs: _____kcal/day

Lipid	
Daily energy needs x 0.3 (30% kcal from fat) 60% kcal from fat max 15% kcal from fat to prevent deficiency	_____kcal/day x ____% fat = kcal from fat ÷ 10 kcal/gm = _____g lipid/day
_____g lipid ÷_____ (0.1 for 10%, 0.15 for 15% etc) = _____ml ≈ ____ of _____% lipid ____ml lipid x ____(0.1 for 10%, 0.15 for 15% etc)=____g lipid x 10kcal/gm = ____kcal from lipid	

Protein	
Actual weight (kg) x 0.8-1.0 g/kg/day (maintenance) 1.2-2.5 g/kg/day (critically ill)	____kg x ____g/kg/day = ____g protein/day
____g protein/day ÷ ____(0.07 for 7%, 0.1 for 10% etc) =_____ml ≈_____of _____% amino acids _____ml AA x _____(0.07 for 7%, 0.1 for 10% etc) = _____g AA x 4 kcal/g = _____kcal from AA	

Fluid (if no fluid restriction required)	
Weight (kg) x 35 ml/kg/day (>55 years) 30 ml/kg/day (55-75 years) 25 ml/kg/day (75+ years) 40 ml/kg/day (young active)	_____kg x _____ml/kg/day = _____ml fluid/day ÷ hrs of infusion = _____ ml/hr
_____ml fluid/day ÷ hrs of infusion = ____ml/hr ≈ ____ml/hr x ____hrs of infusion = ____ml infused/day	

Dextrose
Calories from dextrose = total daily kcal needs – kcal from lipid – kcal from AA _____kcal - _____kcal from lipid - _____ kcal from AA = _____kcal from dextrose ____kcal from dextrose ÷ 3.4 kcal/g dextrose = _____g dextrose Fluid from dextrose = total daily fluid needs - volume from lipid – volume from AA ml daily fluid - _____ ml from lipid - _____ ml from AA = _____ ml dextrose = _____L dextrose _____g dextrose ÷ _____ L dextrose = _____ g/L dextrose ÷ 10 = ____% solution ≈ _____% dextrose

Adult TPN Calculation Guide (continued)

* Use actual, adjusted or ideal body weight per facility standards

Electrolytes (for normal renal function)			
Electrolyte	**Recommendation**	**Forms**	
PO_4	12-24 mmol/day	$NaPO_4$ (3 mmol PO_4 provides either 4 mEq Na or 4.4 mEq K)	____mmol/day ÷ ____L total fluid ____mmol/L ≈____**mmol/L____PO_4**
Na	60-150 mEq/day	NaCl, NaAC	(consider Na from **PO_4**) _____mEq/day ÷ _____L total fluid = ____mEq/L ≈ ____**mEq/L Na____**
K	30-100 mEq/day	KCl, KAC	(consider K from **PO_4**) _____mEq/day ÷ _____L total fluid = _____mEq/L ≈ _____**mEq/L K____**
Ca	4.5-16 mEq/DAY	CaGlu	_____mEq/day ÷ _____L total fluid = ____mEq/L ≈ ____mEq/L **CaGlu**
Mg	8-20 mEq/day	$MgSO_4$	_____mEq/day ÷ _____L total fluid = ____mEq/L ≈ ____mEq/L **$MgSO_4$**

Osmolarity **DO NOT EXCEED 900 mOsm/L for peripheral line**
_____ g AA ÷ _____L (of total solution) x 10 = _____ **mOsm/L**
_____ g dextrose ÷ _____L (of total solution) x 5 = _____ **mOsm/L**
_____ g lipid ÷ _____ L (of total solution) x 1.5 = _____ **mOsm/L**
____mEq/LNa +____mEq/L K +____mEq/L Ca +____mEq/L Mg =____mEq/L total x 2 = ____mOsm/L

Adult TPN Calculation Guide (continued)

TPN SUMMARY					
Component	**Volume**	Strength	**Total Provided**	**kcals**	**% total kcal**
Lipid	_____ml	_____%	_____ g x 10 kcal/g =	_____ kcal	_____ %
Protein	_____ml	_____%	_____ g x 4 kcal/g =	_____ kcal	_____ %
Dextrose	_____ml	_____%	_____ g x 3.4 kcal/g =	_____ kcal	_____ %
TOTAL	**_____ml**	**-**	**-**	**_____ kcal**	**-**

[1] TPN = Total Parenteral Nutrition
Parenteral nutrition (PN) is the provision of macronutrients, vitamins, minerals, electrolytes and fluids via a central or peripheral vein. The route of administration depends on the length of therapy, nutrient requirements, available intravenous access and fluid requirements. Parenteral nutrition may be infused via central venous access (primary indications include: chemotherapy, antibiotic administration or TPN) or via peripheral catheters (including standard peripheral cannulas, midline catheters, and midclavicular catheters)

Monitoring: Careful monitoring of PN is essential to prevent complications. Electrolyte, weight, fluid intake and output and vital signs should be monitored daily.

Total Parenteral Nutrition, Pocket Nutrition Resource for Nutrition Assessment 7th Edition, 2009, Dietetics in Health Care Communities, a Dietetic Practice Group of the American Dietetic Association, Chicago, Illinois.

General Management of Treatment Side Effects for Cancer Patients

Problem	Nutrition and Supportive Care Intervention Strategies
Anorexia	1. Identify symptoms and side effects related to cancer and its treatment that negatively affect appetite (eg, fatigue, pain, nausea) and treat appropriately. 2. Counsel the patient to try the following: • Eat small, frequent meals and snacks. • Eat nutritious foods such as yogurt, sandwiches, eggs, milkshakes, casseroles, hearty soups and cheese and crackers. • Be as physically active as able. • Take advantage of times when feeling good. • Eat nutrient-dense foods such as milk, juice and liquid medical food supplements.
Alterations in Taste Sensation	1. Identify the cause of taste alterations affecting nutritional status (eg. chemotherapy, medications, oral infection, poor oral hygiene) and treat appropriately. 2. Counsel the patient to try the following: • Perform good oral hygiene by rinsing the mouth with a bland rinse and keeping teeth and oral cavity clean. • Avoid mouthwashes or mouth rinses containing alcohol. • Eat cooler foods rather than warm or hot foods. • Use plastic utensils if metallic tastes are a problem. Avoid foods that come from a can or a metal container. • Use marinades and spices/herbs to mask strange tastes.
Nausea and Vomiting	1. Identify the cause and type of nausea and vomiting affecting nutritional status (eg. chemotherapy-induced, radiation therapy-induced, medication-induced) and treat appropriately. 2. Counsel the patient to try the following: • Avoid greasy or fried foods. • Consume dry foods i.e., crackers or toast to control nausea. • Eat slowly and chew food completely. • Drink small amounts of fluids with meals; only cold, clear drinks i.e., soft drinks and juices should be given. Sip beverages slowly. • Eat six small meals instead of three large ones. • Emphasize bland, easy-to-digest foods on scheduled treatment days.

Management of Cancer Treatment Side Effects (continued)

Problem	Nutrition and Supportive Care Intervention Strategies
Diarrhea	1. Identify the type and cause(s) of diarrhea (eg. chemotherapy-induced) and treat appropriately. 2. Counsel the patient to try the following: • Decrease the roughage (insoluble fiber) in the diet. Food rich in insoluble fiber include whole-grain cereals and breads, raw vegetables and fruits, popcorn, bran, nuts and seeds. • Eat foods high in soluble fiber such as applesauce, bananas, white rice and pasta, cooked and peeled potatoes. • Eat foods at room temperature. • Avoid gas-forming foods i.e., cauliflower, broccoli, cabbage, beans, carbonated drinks, and chewing gum. • Sip on or eat clear liquids such as water, clear juices, broth, gelatin, sports drinks throughout the day. • Rest after eating.
Constipation	1. Indentify the causes of constipation affecting nutritional status (eg. pain medications, antiemetics, poor oral food/fluid intake) and treat appropriately. 2. Counsel the patient to try the following: • Eat foods high in insoluble fiber i.e., whole grain breads and cereals, raw fruits and vegetables, bran, nuts, prune juice, etc. • Drink plenty of liquids, at least 6-8 cups daily. • Consume probiotic-containing foods such as yogurt, keiffer, or acidophilus milk. 3. Be as physically as active, as able.
Dry Mouth	1. Identify the cause of xerostomia affecting nutritional status (eg. chemotherapy, radiation therapy to the head and neck, medications) and treat appropriately. • Sip on liquids throughout the day to help moisten the oral cavity. 2. Eat soft, bland foods served cold or at room temperature. 3. Moisten foods with gravy, sauces, broth, butter, margarine and syrup. 4. Encourage “dunking” foods i.e., cookies, bread, crackers, etc., in liquids like juice, broth or milk. 5. Try chilled foods such as frozen fruits, popsicles, and shakes or smoothies can be soothing. 6. Avoid spicy, acidic, hard or rough textured foods.

Management of Cancer Treatment Side Effects (continued)

7. Avoid citrus, tomato, pineapple, vinegar and pickles.

References

1. Grant BL. *Academy of Nutrition and Dietetics Pocket Guide to the Nutrition Care Process.* Chicago, IL: Academy of Nutrition and Dietetics, pages 135-144, 2015.

2. Elliott L, Chapter 12: Symptom management of cancer therapies. *In:* Leser M, Ledesma N, Bergerson S, Trujillo E, (eds). *Oncology Nutrition for Clinical Practice.* Chicago, IL: Academy of Nutrition and Dietetics/Oncology Nutrition Dietetic Practice Group, pages 115-121, 2013.

3. Grant BL, Bloch AS, Hamilton KK, Thomson CA. American Cancer Society's Complete Guide to Nutrition for Cancer Survivors, 2nd ed., Atlanta, GA: American Cancer Society, 2011.

Nutrition Guidelines for Patients with Bezoars

Purpose:
Avoid foods that lead to phytobezoar formation.

Indications for Use:
Patients who have undergone surgery for vagotomy, pyloroplasty, peptic ulcer disease or stomach cancer or who for other reasons i.e., diabetic gastroparesis, have a loss of normal pyloric function and decreased gastric acidity and are prone to form phytobezoars.

Nutritional Adequacy:
This diet is nutritionally adequate when a balanced diet is followed.

Foods to Avoid

Celery	Berries	Orange pulp
String beams	Prune pits	Grapefruit pulp
Cabbage	Figs	Pineapple pulp
Brussels sprouts	Apple skins	Persimmon pulp
Sauerkraut	Potato peels	Coconut

STRAINED ORANGE, GRAPEFRUIT, AND PINEAPPLE JUICES ARE ALLOWED.

Sample Bezoar Diet Menu:

Breakfast	*Lunch*	*Dinner*	*Snacks*
Strained orange juice	Green salad with	Split pea soup	Graham crackers
Poached egg	Tomato & cucumber	Broiled fish	Peanut butter
Slice toast	Salad dressing	Mashed potato	Milk
Oatmeal	Turkey sandwich	Broccoli	
Milk	Peeled sliced apple	Roll w/ margarine	
	Coffee		

References
UptoDate, Inc. Phytobezoars: http://www.utdol.com/online/index.do
Accessed September 1, 2009.

Nutrition Management for Patients with Psychiatric Disorders

Purpose:
The objectives of nutrition intervention for the patient with psychiatric disorders are to prevent or correct nutritional deficiencies, to identify and correct disturbed eating patterns, and to prevent or minimize drug-nutrient interactions. The promotion of optimal health through the provision of healthful meals and nutrition education is an essential component of treatment and of preparing the patient for independent living.

Indications for Use:
Nutrition management is used to stabilize physiologic status, optimize medication effectiveness, and enable the patient to function at the highest level of independent living, preferably in an outpatient environment. Illnesses common to the psychiatric setting where nutrition intervention may be indicated include: schizophrenia, mood or personality disorders, attention deficit/hyperactivity disorder (ADHD), eating disorders, substance abuse, and depression and anxiety disorders.

Nutritional Adequacy:
The diet should be individualized based on the patient's psychiatric illness, pre-existing medical conditions, nutritional status, eating habits, and preferences. All patients should be screened and a comprehensive nutrition assessment should be completed on patients found to be at nutritional risk. This diet can be nutritionally adequate when a variety of foods are chosen.

For patient(s) with psychiatric disorders, the following factors should be considered carefully when assessing nutritional status and the need for intervention.

- Pre-existing medical conditions and current psychiatric diagnosis.
- Height, weight, usual weight and recent weight changes.
- Eating habits and preferences.
- Alcohol, drug and tobacco use.
- Hydration status.
- Liver function.
- Nutritional anemia's.
- Vitamin and mineral deficiencies.
- Drug-nutrient interactions.
- Nutritional risk behaviors. (see table below)

A nutrition care plan should be developed based on results of the assessment and may include:

- Diet-nutrient recommendations.
- Target weight/weight goals.
- Food-drug interaction with significant side effects.
- Anticipated compliance.
- Recommended treatment strategies with goals and objectives.

Psychiatric Disorders (continued)

- Incorporation of the nutrition care plan into various individual and group modalities of the patient's overall treatment plan. Possible behaviors associated with Psychiatric disorders that may have nutrition implications include:

Behavior	-- Potential Changes in Oral Intake.
Anxious	-- Over or under eating. -- Rigid eating patterns. -- Food selection. -- Hiding or sneaking food.
Depressed	-- Over or under eating. -- Feels unworthy to eat. -- Somatic delusions of not being able to eat or physically too ill to eat.
Mania	-- Under eating. -- Overactive; unable to find time to eat or drink.
Suspicious	-- Under eating. -- Fear of food or fluids being poisoned or unsafe to consume. -- Under eating possibly due to confusion or forgetting to eat or under eating possibly due to lack of interest.
Withdrawal (as seen with schizophrenia)	-- Delusions regarding food and fluid.
Change in eating environment	-- Over or under eating due to confusion or change of staff assisting with food or fluid.

Nutrition Management of Persons with Developmental Disabilities

Purpose:
The objectives of nutrition intervention for persons with Developmental Disabilities (DD) are based on a general Heart Healthy diet that follows the current ADA dietary guidelines to maintain an overall healthy lifestyle, to prevent or correct nutritional deficiencies, to prevent or minimize drug-nutrient interactions, to allow the person to continue to eat orally for as long as possible and to maintain self-feeding and/or participate in feeding. Potential decline of oral skill(s), resulting in varying degrees of dysphagia, may also occur, therefore consultation with a Speech and Language Pathologist is recommended whenever possible. To maintain self-feeding or need for adaptive equipment, consultation with an Occupational Therapist should be utilized.

Indications for Use:
Potential nutritional concerns for persons with DD that may require intervention are those based on the patient's diagnosis, medication regime and ability to consume food orally. Nutrition intervention often includes preventing constipation, ensuring adequate hydration and minimizing deficiencies that may be caused by side effects of medications such as anticonvulsants, psychotropic medications, anti-anxiety medications and anti-depressant medications. Some common conditions, which may require nutrition intervention, are quadriplegia, Downs Syndrome, Mental Retardation, Cerebral Palsy, Spina Bifida, Total Brain Injury, and Prader Willi. These conditions may contribute to dysphagia and weight management.

Nutritional Adequacy:
This diet is adequate in all nutrients when a variety of foods are consumed.

Modifications:
A general Heart Healthy diet should be modified for all patients based on a complete nutritional assessment. Special diet consideration should be based on the specific diagnosis, oral ability, and cognitive ability of the individual. The following should be evaluated before making dietary recommendations and educating the patient and/or care provider:

1. Medication classes that have potential significant side effects – psychotropic, anticonvulsants, antidepressants, antianxiety.
    - All medications should be reviewed for drug nutrient interactions. Best resources for review are the clinical pharmacists and *Food Medications Interactions*.

2. Height, weight or usual weight, past weight pattern.

Developmental Disabilities (continued)

3. Eating habits and preferences.

4. Literacy level, cognition, hearing, speech, and swallowing ability.

5. Bowel function.

6. Ability to feed self or participate in feeding.

7. Varying degrees of Dysphagia
    - Refer to Speech and Language Pathologist (SLP) if increased choking or coughing while eating or drinking.
    - Refer to the SLP if choking after every bite of food.
    - Refer to SLP if choking after every sip/drink of fluid.
    - Proper timing of feeding tube placement based on SLP evaluation with confirmation by video fluoroscopy.

Commonly Used Medical Abbreviations [1]

ā	before	Al	aluminum
abd	abdomen	Alb	albumin
ABG	arterial blood gas	ALP	alkaline phosphate
abs	absorption	ALS	amyotropic lateral sclerosis
ac	before meals	AM	morning
ACE	Agiotensin converting enzyme	AMA	against medical advice
ACVD	arteriosclerotic cardiovascular disease	amb	ambulatory
ad lib	as desired	AMI	acute myocardial infarction
ADD	attention deficit disorder	amt	amount
ADHF	attention deficit hyperactivity disorder	APAP	acetaminophen
ADL	activities of daily living	approx	approximately
adm	admitted or admission	as tol	as tolerated
afib	atrial fibrillation	ASA	aspirin
AIDS	Acquired immunodeficiency syndrome	ASAP	as soon as possible
AIR	acute inflammatory response	ASBS	ateriosclerotic brain syndrome
AKA	above knee amputation	ASHD	ateriosclerotic heart disease
		ATP	adenisontriphosphate
BEE	basal energy expenditure	BMR	basal metabolic rate
bid	twice daily	BP	blood pressure
bil	bilateral	BPH	benign prostatic hypertrophy
BKA	below knee amputation	BRP	bathroom privileges
BLE	bilateral lower extremity	BUE	bilateral upper extremity
bm	bowel movement	BUN	blood urea nitrogen
BMI	body mass index	bx	biopsy
C	centigrade, Celsius	CBR	Complete bed rest
C&S	culture and sensitivity	CBW	current body weight
c/o	complains of	CC	chief complaint
Ca	calcium	CCPD	Continuous Cycler Peritoneal Dialysis
CA	cancer	CCU	coronary/critical care unit
CABG	coronary artery bypass graft	CHD	coronary heart disease
CAD	coronary artery disease	CHF	congestive heart failure
cal	calorie	CHO	carbohydrate
cap	capsule	Chol	cholesterol
CAPD	Continuous Ambulatory Peritoneal Dialysis	Cl	chloride
CAT/CT	computerized axial tomography		
CBC	complete blood count		

Commonly Used Medical Abbreviations (continued).

CMP	complete metabolic profile	CRF	Chronic renal failure
CNS	central nervous system	CTS	Carpal tunnel syndrome
CO_2	carbon dioxide	Cu	copper
conc	concentrate	cu	Cubic
COPD	chronic obstructive pulmonary disease	CVA	cerebrovascular accident (stroke)
CP	cerebral palsy	CVD	cardiovascular disease
CPR	Cardiopulmonary resuscitation	CVI	cerebrovascular insufficiency
cps	centipoise		
D	day	DM	diabetes mellitus
d/t	due to	DNR	do not resuscitate
D/W	dextrose in water	DO	Doctor of Osteopathy
DAT	diet as tolerated (also Dementia, Alzheimer's Type)	DOB	date of birth
		DON	director of nursing
def	deficiency	DPI	dietary protein intake
DIC	disseminated intravascular coagulation	DVT	deep vein thrombosis
DJD	degenerative joint disease	Dx	diagnosis
DKA	diabetic ketoacidosis		
dL	deciliter		
ec	enteric coated (eg – ec asa = enteric coated aspirin)	ER	emergency room
		ERT	estrogen replacement therapy
ECG		ESA	essential fatty acids
(EKG)	electrocardiogram	ESRD	end stage renal disease
eg	for example	et	and
EGCG	Epigallocatechin gallate	ETOH	ethanol
EPO	erythropoietin	exam	examination
EPS	extra pyramidal symptoms		
F	Fahrenheit	fld	fluid
F/C	Foley catheter	Fol	folic acid or folate
FBS	fasting blood sugar	Fr	French (catheter size)
Fe	iron	func	function
ff	force fluids	FUO	fever of unknown orgin
FH	family history	Fx	fracture
G6PD	glucose-6-phosphate dehydrogenase	GLA	gamma linloenic acid
GAS	generalized arteriosclerosis	Glu	glucose
GB	gallbladder	gm or g	gram
GBE	Gingko Biloba extract	gtt	drops
GERD	gastroesophageal reflex disease	GTT	glucose tolerance test
GFR	Glomerular filtration rate	g-tube	gastrostomy tube
GI	gastrointestinal		

Commonly Used Medical Abbreviations (continued).

h or hr	hour(s)	HD	hemodialysis
H&P	history and physical	HDL	high density lipoprotein
H_2O	water	HEENT	head, eye, ears, nose, throat
HBP	high blood pressure	Hgb	hemoglobin
HCl	Hydrochloric acid, hydrochloride	HRT	hormone replacement therapy
Hct	hematocrit	HTN	hypertension
HCTZ	hydrochlorothiazide	Hx	history
HCVD	hypertensive cardiovascular disease	hyper-	above, excessive
Hcy	homocysteine	hypo-	less than, below
I&O	intake and output	IM	intramuscular
IBD	irritable bowel disease	Inj	injection
IBW	ideal body weight	-itis	inflammation of
IDDM	insulin dependent diabetes mellitus	IV	intravenous
jt	joint	j tube	jejunostomy tube
K	potassium	kg	kilogram
kCal	kilocalorie		
L	liter	liq	liquid
lab	laboratory	LLE	left lower extremity
lat	lateral	LLL	left lower lobe
lb	pound	LLQ	left lower quadrant
LCT	Long chain triglycerides	LOS	Length of Stay
LD	liver disease	lt or L	left
LDL	low density lipoprotein	LT	long term
LFT	Liver function tests	LUE	left upper extremity
LH	Luteinizing hormone	LUQ	left upper quadrant
MAOI	monoamine oxidase inhibitor	Mg	magnesium
mcg	micrograms	mg	milligram
MCH	mean corpuscular hemoglobin	MI	myocardial infarction (heart attack)
MCHC	mean corpuscular hemoglobin concentration	min	minute(s)
MCT	medium chain triglyceride	mL	milliliter
MCV	mean corpuscular volume	MMA	methylamalonic acid
MD	medical doctor, muscular dystrophy	Mn	manganese
MDS	Minimum Data Set	MNT	medical nutrition therapy
meds	medication	mo	month
meq or mEq	milliequivalent (23 mg Na = 1mEq)	mod	moderate
		MOM	milk of magnesia

Commonly Used Medical Abbreviations (continued).

mOsm	milliosmole	MSDS	Materials Safety Data Sheets
MRI	magnetic resonance imaging	MVI	multi-vitamin
MS	multiple sclerosis		
N & V	nausea and vomiting	NIDDM	non-insulin-dependent diabetes mellitus
N	nitrogen	NIH	National Institute of Health
n/c	no complaint	NKA	no known allergies
N/V	nausea/vomiting	NKFA	no known food allergies
Na	sodium	nl	normal
NaCl	sodium chloride	noc	night
neg	negative	NPO	nothing by mouth
ng	nanogram	NSAI	nonsteroidal anti-inflammatory
NG	nasogastric	NSAID	nonsteroid anti-inflammatory drug
NGT	nasogastric tube	NSS	normal saline solution
Nia	niacin	NWB	non-weight bearing
O_2	oxygen	ORIF	open reduction internal fixation
OA	osteoarthritis	OSHA	Occupational Safety & Health Administration
OBS	organic brain syndrome		
OCD	obsessive-compulsive disorder	Osm	osmolarity
od	once a day	OT	occupational therapy
OD	overdose	OTC	over the counter, non-prescription
OOB	out of bed (also out of building)	oz	ounce
P	phosphorus	ppm	parts per million
PAB	prealbumin	PPN	peripheral parenteral nutrition
pc	after meals	preop	preoperative, meaning before surgery
PCM	protein calorie malnutrition	prep	preparation
PCR	protein catabolic rate	prn	as necessary
PD	peritoneal dialysis	Pro	protein
PEG	percutaneous endoscopic gastrostomy	PT	physical therapy
PEJ	percutaneous endoscopic jejunostomy	pt	pint
PEM	protein-energy malnutrition	Pt	prothrombin time (also seen Pro time used)
Perria	Pupils equal, round, react to light and accommodation	PUD	peptic ulcer disease
PGE	Prostaglandin	PVI,PVD	peripheral vascular insufficiency or disease
PKU	phenylketonuria	PWB	partial weight bearing
PM	afternoon	pwd	powder
po	by mouth (per os)	Pyr	pyridoxine (vit B_6)
postop	postoperative		

Commonly Used Medical Abbreviations (continued).

q q(x) qh	every every (x) hours (x = number of hours) Every hour	qhs qid qt	every night at bed 4 times daily quarts
R/T RA RAPs RBC RBP RDA RDI re REE RLE	related to rheumatoid arthritis Resident Assessment Protocols red blood cells retinal binding protein recommended dietary allowances recommended dietary intake regarding resting energy expenditure right lower extremity	RLL RLQ RML ROM RQ RRT RUE RUL RUQ Rx	right lower lobe right lower quadrant right middle lobe range of motion respiratory quotient renal replacement therapy right upper extremity right upper lobe right upper quadrant treatment, therapy, prescription
s S/P S+Sx SC SIADH SLE SNS SOB soln	without status post sign and symptoms (also S&S) subcutaneous syndrome of inappropriate antidiuretic hormone Systemic lupus erythematosus sympathetic nervous system shortness of breath solution	SOS sp gr spec SR SS SSRI stat Susp	if necessary Specific gravity specimen sustain release form soap suds selective serotonin reuptake inhibitor immediately or at once suspension
T Pro T tab TB temp TF TG Thi TIA	total protein (also TP) tablespoon tablet caplet Tuberculosis temperature tube feeding triglycerides thiamin transient ischemic attacks (small strokes)	TIBC tid TLC TO TPN TPR tr TSH tsp	total iron binding capacity three times daily total lymphocyte count telephone order total parenteral nutrition temperature, pulse, respiration trace Thyroid-stimulating Hormone teaspoon
UA UBW	urinalysis usual body weight	UE UQ URI UTI	upper extremities upper quadrant upper respiratory infection urinary tract infection

Commonly Used Medical Abbreviations (continued).

via Vit VLDL	by way of vitamin very low density lipoprotein	VO VS	verbal order vital signs
w/c w/n w/o WBAT	wheelchair well-nourished without weight bearing as tolerated	WBC wk WNL wt	white blood count week within normal limits (levels) weight
x	times		
yo	year old	yr or y	year
Zn	zinc		

Commonly Used Symbols[1]

-	negative, minus, deficiency	=	Equal
+	positive	≠	not equal
>	greater than	#	number, pound
<	less than	♂	male
↓	decrease	♀	female
↑	increase	1º	primary
º	degree	2º	secondary

Joint Commission Official Do Not Use List[2]

Do Not Use	Potential Problems	Use Instead
U, u (unit)	Mistaken for zero, the number four, or "cc"	Write Unit
IU (International Unit)	Mistaken for IV (intravenous) or the number 10 (ten)	Write "International Unit"
Q.D, QD, q.d., qd (daily) Q.O.D., QOD, q.o.d, qod (every other day)	Mistaken for each other Period after the Q mistaken for "I" and "O" mistaken for "I"	Write "daily" Write "every other day
Trailing zero (X.0 mg)* Lack of leading zero (.X mg)	Decimal point is missed	Write X mg Write 0.X mg
MS MSO_4 and $MgSO_4$	Can mean morphine sulfate of magnesium sulfated Confused for one another	Write "morphine sulfate" Write "magnesium sulfate"

Commonly Used Medical Abbreviations (continued).

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- MEDIAN HEIGHTS AND WEIGHTS AND RECOMMENDED ENERGY INTAKE

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NOTE: Other references, resources and resource web sites may be found throughout the various sections of the Diet Manual.