

Chapter 10

NUTRITION

What You Will Learn

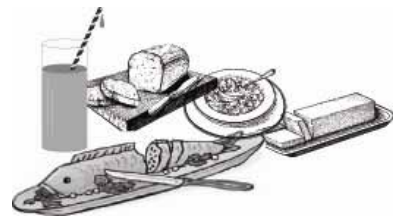
- The five categories of nutrients
- The importance of fiber and water in the diet
- Foods included in each of the food categories
- Foods from commonly seen diets
- Two methods of providing a nutritionally complete liquid diet
- The nutritional needs of the elderly client
- Age-related changes affecting the digestive system
- Age-related changes of the endocrine system
- Signs/symptoms of hyperglycemia and hypoglycemia

You need to have an understanding of the importance of diet for your clients as well as for yourself. If nutritional needs are not being met, problems will arise. Take note of the food you serve to the client and how it fits into a well-balanced diet. Also note what foods you should encourage clients to eat.

Five Categories of Nutrients

Foods are divided into Five Categories of Nutrients. Protein builds and repairs tissues, helps build blood, forms antibodies, and provides energy. If excess protein is taken in, the body changes it to fat and stores it as fat. Sources of protein include eggs, meat, fish, poultry, dairy products, nuts, and beans.

Carbohydrates provide the body with energy and roughage (fiber). Carbohydrates are broken down by the digestive process into simple sugars. The most important carbohydrate is glucose. If excess carbohydrates are taken in, the body stores them as fat. Sources of carbohydrates include breads, cereals, pasta, sugar, syrup, fruits and vegetables.



Fat is found in many foods including butter, cream, salad oil, whole milk, meat, fish, and nuts. The main function of fat is to be stored as energy for later use.

Vitamins are important for the proper breakdown and use of nutrients and the regulation of body processes. A well-balanced diet contains sufficient amounts of vitamins. Vitamins may be destroyed by overcooking or exposure to air. Vitamins are identified by letters such as A, B-complex, C, D, E, and K. Sources vary with each vitamin. For example, orange juice is a good source of vitamin C. Minerals regulate many body processes and build tissues, especially bones and teeth. Examples of minerals include calcium, phosphorus, sodium, and iron. Sources vary with each mineral. For example, milk and dairy products are a good source of calcium.

Water and Fiber

Water and fiber are important parts of a diet. Water is essential to life and makes up 60% of the human body. A person can live only a few days without water. It provides minerals but no other nutrients. Average oral fluid intake for an adult is 2,000 to 3,000 mL of fluid per day, which is approximately two to three quarts. As an In-Home Aide, one of your responsibilities is to make sure your clients have enough fluids. Water is contained in fruit juice, milk, etc.

Fluid intake must match what is lost. We eliminate fluids as perspiration (450-1050 mL/day), through breathing (250-500 mL/day), through feces (50-200 mL/day), and as urine (1,500 mL/day). Fluids are also lost through vomiting, drainage from wounds, hemorrhage, and extensive burns.

The physician may restrict or encourage fluid intake. It is the nurse's responsibility to know what has been ordered and to communicate this information to the In-Home Aide. Frequent fluids means taking in more than the usual number of drinks. Fluids should be offered at least every two (2) hours.

Elderly clients may drink fewer fluids. This may be due to a diminished sense of thirst. If fluids are not readily available or the client has difficulty holding a glass he may not drink as many fluids as he needs. Many elderly people are afraid of having to get up and go to the bathroom at night or of dribbling urine. They drink less in an attempt to avoid problems.

Illness may upset water balance. Dehydration is an excessive loss of water from body tissues. Symptoms may include the following:


- Thirst, although the elderly do not get thirsty often (which is why water should be offered frequently).
- Dryness of skin and mucous membranes (inside of nose and mouth).
- Constipation.
- Little or no urination.
- Loss of tissue elasticity.
- Dizziness and mental confusion.

Fiber is the non-nutritive and indigestible part of a plant. Fiber provides bulk to the stool. The softer the stool is, the easier it is to eliminate, thus preventing constipation. Sources

of fiber include whole wheat bran, outside of corn kernel, fruit and vegetable skins, prunes.

Box 10.1 lists the warning signs that a client may be at risk for dehydration.

Box 10.1: Warning signs of dehydration

<ul style="list-style-type: none">• Drinks less than six (6) cups of liquid per day• Has one or more of the following:<ul style="list-style-type: none">○ Dry mouth○ Cracked lips○ Sunken eyes○ Dark urine• Needs help drinking from a cup or glass• Has trouble swallowing liquids• Frequent vomiting, diarrhea, or fever• Is easily confused/tired	
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CAUTION: PRESSURE ULCERS OFTEN DEVELOP IF THE CLIENT DOES NOT HAVE ADEQUATE NUTRITION OR FLUID INTAKE.

The Basic USDA Food Categories

The U.S. Department of Agriculture (USDA) publishes guidelines for a balanced food intake. In 2005 a revised set of guidelines that focuses on how proper dietary habits can promote health and reduce risk for major chronic diseases was released. A healthy diet emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products. It includes lean meats, poultry, fish, beans, eggs, and nuts; and low in saturated fats, *trans* fats, cholesterol, salt (sodium), and added sugar. Foods are broken down into groups.

- Grain group – includes bread, rolls, biscuits, bagels, grits, oatmeal, rice, noodles, spaghetti, macaroni, and enriched cereals
- Vegetable group – includes dark green or yellow vegetables, leafy green or leafy yellow vegetables, asparagus, broccoli, carrots, celery, corn, eggplant, peas, pumpkin, and spinach
- Fruit group – includes apples, oranges, pears, bananas, strawberries, figs, cherries, and prunes
- Milk and dairy group – includes low fat milk, cheese, cottage cheese, and yogurt



- Meat, poultry, fish group – includes beef, eggs, lamb, veal, pork, turkey, chicken
- Nuts, seeds and legumes group – includes dried beans, dried peas, nuts, sunflower seeds and soybeans
- Fats and oils group – includes margarine, mayonnaise, salad dressings and vegetable oil
- Sweets group – includes syrups, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch sorbet, ices



The eating plan is based on 1,600, 2,000, 2,600, and 3,100 calories. The number of daily servings in a food group varies depending on caloric needs. Handout 3 lists information based on those needs (see Handout 3).

Diets

A client may be on a regular diet or a special diet. Special diets are used to treat some medical conditions and diseases. Some cultures and religions adhere to dietary restrictions. Check with the supervisor/nurse regarding any special needs or restrictions the client might have. Table 10.1 lists information about the most commonly used diets.

Table 10.1: Common Diets

Regular diet – well-balanced diet containing all essential nutrients and carbohydrates optimal growth and functioning. No food restrictions.
<p>Liquid diet – foods that are liquid primarily made up of water and carbohydrates. Frequently ordered for a client who has diarrhea.</p> <ul style="list-style-type: none"> • Clear liquids consist mainly of dissolved sugar and flavored fluids, no milk products. Examples include coffee, tea, clear broth, gelatin, ginger ale; apple juice, grape juice, water, popsicles, and ice chips. • Full liquids include strained semi liquid food and any liquid including milk products. Orange juice, milk, pudding, plain ice cream, strained creamed soups, strained cereals, yogurt, and clear liquids are permitted.
Soft/pureed/mechanical soft diet – foods that are easily chewed and digested such as tender chopped or ground meat and poultry, well-cooked peeled fruits and vegetables, toast, fish, cottage cheese. Fibrous, highly seasoned foods, rich pastries/desserts, raw fruits, and vegetables are eliminated from the diet.

Bland diet – foods that are nonirritating to digestive tract; usually restricts caffeine, alcohol and spicy foods.
Diabetic/no concentrated sweets (NCS) – the doctor determines the amount of carbohydrates, fats, proteins, and calories that a client should have. The calories and nutrients allowed are divided among three meals and between-meal nourishments. Individuals with diabetes must eat at regular intervals to maintain a certain blood sugar level. Meals must be served on time.
Sodium restricted, or no added salt (NAS) diet – sodium is a mineral that helps regulate the body's water balance. Salt occurs naturally in food. This diet eliminates salty foods and salt added to food. Processing may add sodium to foods that do not taste salty such as canned soups or lunch meats.
Low fat/low cholesterol diet – eliminates animal fats from diet but allows some types of vegetable fats; used for clients with heart, liver, or gallbladder disease.
Renal diet – limits intake of protein, salts, and fluids depending on individual condition.

Nutritionally Complete Liquid Diets

Oral supplements such as Ensure™ are given to client by mouth to drink. Oral supplements may be a supplement to regular diet or may be the only nutrition the client takes in. Tube feedings/internal feedings are commercially prepared liquid supplements given by a tube inserted into the nose that goes down the esophagus into the stomach (NG tube) or by a tube that goes directly into the stomach (G tube). Tube feedings may be a supplement to regular diet or the only nutrition the client takes in.

Nutritional Needs of the Elderly Client

Nutritional needs of the elderly are the same as for a middle-aged adult. Because the elderly client is not as physically active and has a lower metabolism, fewer calories are needed. Fats, desserts, and sweets should be served in smaller amounts to avoid excess calories. If the client's appetite is poor, offer smaller, more frequent meals.

The Digestive System

The aging process affects the digestive system and can cause health problems. Loss of teeth results in decreased dietary intake and weight loss. The need for calories decreases due to decreased activity level, but nutritional needs remain the same or increase. Slower peristalsis leads to intestinal gas (flatus), constipation, and possible fecal impaction. Saliva production may diminish, which results in an increased need to alternate solids and liquids at meals to facilitate swallowing.

The Endocrine System

The aging process also affects the endocrine system. Muscle weakness and decreased hormone production are two common effects of aging.

Diabetes is a disease of the endocrine system. When a person has diabetes, the pancreas does not produce enough of the hormone insulin or the body does not effectively use the insulin secreted. Insulin helps the body use sugar. If the body cannot make or use insulin, the sugar builds up in the blood and damages the blood vessels. The kidneys work hard to filter this unused sugar from the blood and remove it from the body through urine. The kidneys need water to dilute this large amount of sugar; so, thirst is the most frequent symptom. When the body cells are not nourished with sugar, fats are then broken down for energy. Acetone is a damaging by-product of fat break down. Diabetes can be controlled by diets, exercise, and medications.

People with diabetes can develop hyperglycemia (high blood sugar) or hypoglycemia (low blood sugar). If left untreated, both conditions can lead to coma and death. Table 10.2 lists signs of high and low blood sugar.

Table 10.2: Signs of high and low blood sugar

<i>Signs of hyperglycemia (high blood sugar)</i>	<i>Signs of hypoglycemia (low blood sugar)</i>
<ul style="list-style-type: none"> • Frequent urination (polyuria) • Weight loss • Headache • Constant hunger (polyphagia) • Fatigue • Frequent thirst (polydypsia) • Flushed face • Heavy breathing • Fruity breath 	<ul style="list-style-type: none"> • Headache • Dizziness • Hunger • Weakness, shakiness • Sweating • Disorientation

Hypoglycemia can begin quickly if a client who takes medications for diabetes does not eat a meal or vomits after eating. The In-Home Aide should observe the eating habits of the client with diabetes. If there is a change in eating habits, the supervisor/nurse should be notified immediately.

Clients with diabetes need special care including:

- Notify supervisor/nurse of need for toenail care
- Protect against injury to legs or feet
- Observe for signs of hyperglycemia or hypoglycemia
- Encourage client to follow prescribed diet and exercise program
- Notify supervisor/nurse if client is overeating or not eating each meal

Chapter Review

1. What are the five categories of nutrients?
2. What is the importance of fiber and water in the diet?
3. What foods are included in each of the USDA food categories?
4. What are some commonly seen diets?
5. What are two methods of providing a nutritionally complete liquid diet?
6. How do the nutritional needs of the elderly client differ from those of a younger adult?
7. What age-related changes affect the digestive system?
8. What age-related changes affect the endocrine system?
9. What are signs/symptoms of hyperglycemia and hypoglycemia?

Student Exercise

Complete the following short-answer questions.

1. List the five categories of nutrients.
 - a.
 - b.
 - c.
 - d.
 - e.

2. Name two non-nutrients. Identify the importance of each non-nutrient.
 - a.
 - b.

3. List the UDA basic food categories and give an example from each category.
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.

4. How do the elderly client's nutritional needs differ from those of a middle-aged adult?

5. List three items permitted on a clear liquid diet.
 - a.
 - b.
 - c.
6. List three items permitted on a full liquid diet.
 - a.
 - b.
 - c.
7. A sodium-restricted diet is low in ____.
8. What are two ways a nutritionally complete liquid diet can be provided?
 - a.
 - b.
9. Name two age-related changes affecting the digestive system.
 - a.
 - b.
10. Name two age-related changes affecting the endocrine system.
 - a.
 - b.
11. List three signs of hyperglycemia:
 - a.
 - b.
 - c.

12. List three signs of hypoglycemia:

a.

b.

c.

Circle the letter of the correct answer.

13. A chronic disease in which the pancreas does not produce sufficient insulin or the body does not effectively use the insulin secreted is called:

a. diabetes

b. hyperglycemia

c. hypoglycemia

d. peristalsis

CALORIC INTAKE TABLE

Food Groups	1,600	2,000	2,600	3,100	Serving Sizes	Examples and Notes	Significance of Each Food Group
Grains	6 servings	7-8 servings	10-11 servings	12-13 servings	1 slice bread, 1 oz dry cereal, ½ cup cooked rice, pasta, or cereal	Whole wheat bread, English muffin, pita, bread, bagel, cereals, grits, oatmeal, crackers, unsalted pretzels, and popcorn	Major sources of energy and fiber
Vegetables	3-4 servings	4-5 servings	5-6 servings	6 servings	1 cup raw leafy vegetable ½ cup cooked vegetable, 6 oz vegetable juice	Tomatoes, potatoes, carrots, green peas, squash, broccoli, turnip greens, collards, kale, spinach, artichokes, green beans, lima beans, sweet potatoes	Rich sources of potassium, magnesium, and fiber
Fruits	4 servings	4-5 servings	5-6 servings	6 servings	6 oz fruit juice 1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen, or canned fruit	Apricots, bananas, dates, grapes, oranges, orange juice, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, prunes, raisins, strawberries, tangerines	Important sources of potassium, magnesium, and fiber
Low-factor fat-free dairy foods	2-3 servings	2-3 servings	3 servings	3-4 servings	8 oz mil, 1 cup yogurt 1½ oz cheese	Fat-free or low-fat milk, fat-free or low-fat buttermilk, fat-free or low-fat regular or frozen yogurt, low-fat and fat-free cheese	Major sources of calcium and protein
Meat, poultry, fish	1-2 servings	2 or less servings	2 servings	2-3 servings	3 oz cooked meats, poultry, or fish	Select only lean; trim away visible fats; broil, roast, or boil instead of frying; remove skin from poultry	Rich sources of protein and magnesium
Nuts, seeds, legumes	3-4 servings/week	4-5 servings/week	1 serving	1 serving	1/3 cup or 1½ oz nuts 2 Tbsp or ½ oz seeds ½ cup cooked dry beans or peas	Almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds, kidney beans, lentils	Rich sources of energy, magnesium, potassium, protein, and fiber
Fat and oils	2 servings	2-3 servings	3 servings	4 servings	1 tsp soft margarine 1 Tbsp low-fat mayonnaise 2 Tbsp light salad dressing, 1 tsp vegetable oil	Soft margarine, low-fat mayonnaise, light salad dressing, vegetable oil (such as olive, corn, canola, or safflower)	DASH has 27 percent of calories as fat (low in saturated fat), including fat in or added to foods
Sweets	0 servings	5 servings/week	2 servings	2 servings	1 Tbsp sugar, 1 Tbsp jelly or jam, ½ oz jelly beans, 8 oz lemonade	Maple syrup, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch sorbet, ices	Sweets should be low in fat