

Module A:

BASIC NUTRITION

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OVERVIEW

Introduction

This module contains basic nutrition information you will need at WIC.

The module does NOT cover everything about nutrition. As Trainer you may want to learn more. For more information on nutrition you may want to take a college course, refer to websites EatRight.org or MyPlate.gov and review a college textbook on basic nutrition. Ask your agency's dietitian for suggestions.

Learning Objectives

After completing this module the Trainee will be able to:

- Describe the role of nutrition in health and well being
 - Describe the major functions of food in the body
 - Describe how the body digests foods
 - List the six major nutrient groups and common food sources of each
 - List the five WIC “targeted nutrients” and
 - their roles in the body,
 - good food sources of each, and
 - the WIC foods which provide them.
 - Describe the six food groups and assign foods to them
 - Use MyPlate.gov
 - Describe factors influencing food habits and choices
 - Describe food safety procedures to prevent food borne illness
 - Refer to 2015 Dietary Guidelines for Americans
-

THE ROLE OF NUTRITION

Definition

Nutrition is the process by which humans take in and use food.

Why Is Nutrition Important?

Healthy eating is important during all stages of life.

Healthy eating is especially important for:

- Growth and development.
 - Preventing health problems such as iron-deficiency anemia, tooth decay, and obesity.
 - Lowering the risk of developing diseases such as heart disease, certain cancers, diabetes, and osteoporosis.
-

Nutritional Status

Nutritional status is the health condition of the body as influenced by diet.

Good nutritional status results when the person's diet meets her/his body's needs for energy, maintenance, and/or growth.

Poor nutritional status results when the person's diet does not meet her/his body's needs for energy, maintenance, and/or growth.

The three essential macronutrients are carbohydrates, proteins and lipids (fats), and all should be included in the diet in adequate amounts.

Over-nutrition occurs with an excessive intake of food and can become a danger to a person's health.

FOOD

Definition

Food is anything consumed helping to meet the body's need for energy, growth, maintenance, repair, and regulation of body functions.

Sources

Food comes from plants and animals.

Plant sources include:

- Grains
- Fruits
- Vegetables
- Seeds
- Nuts
- Beans

Animal sources include:

- Meat
 - Poultry
 - Seafood
 - Eggs
 - Milk and milk products (such as yogurt)
-

Functions

The human body needs food for:

- Energy
- Growth
- Maintenance and repair
- Regulation of body functions

These functions are described in more detail in the chart on the next page.

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FOOD (continued)**Major Functions of Food**

Function	Description
Energy	<p>Food contains calories which give the body energy to do such activities as:</p> <ul style="list-style-type: none"> • Breathing • Digesting food • Standing • Walking • Any movement in which your muscles are used
Growth	<p>Food helps our bodies develop, gain weight, and grow taller (through childhood).</p>
Maintenance & Repair	<p>Food is needed to keep the body healthy.</p> <p>Almost all cells in our body eventually die and must be replaced with new cells. Food is needed to rebuild cells such as:</p> <ul style="list-style-type: none"> • Red blood cells • Cells lining our intestines • Cells in our skin • Muscles
Regulation	<p>Nutrients found in food are needed for regulation of body functions such as:</p> <ul style="list-style-type: none"> • Control of body temperature • Balance of fluids • Blood clotting

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DIGESTION

Definition

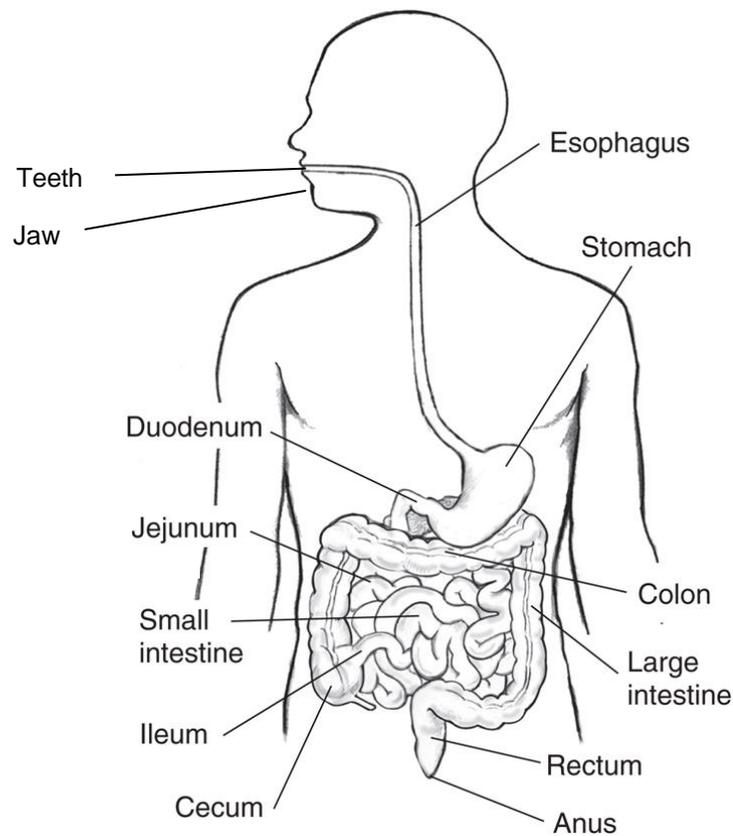
Digestion is the process in which the body breaks down food and absorbs nutrients into the bloodstream and into the cells.

Digestive Process

Digestion takes place in the digestive tract.

Diagram of Digestive Tract

The diagram below shows the parts of the digestive tract.



From:
NIDDK

Chart of Digestion

The chart on the next page describes the parts of the digestive system.

Continued on next page

DIGESTION (continued)**Description of Digestion**

Part	Description
Mouth	<ul style="list-style-type: none"> • Digestion starts here • Teeth break the food into small pieces • Saliva mixes with the food and breaks down some starches
Esophagus	<ul style="list-style-type: none"> • Passageway from the mouth to the stomach • Food goes through this after being swallowed
Stomach	<ul style="list-style-type: none"> • Breaks food down into smaller pieces with acids and with muscle contractions
Small Intestine	<ul style="list-style-type: none"> • Digestive enzymes break down foods: <ul style="list-style-type: none"> ○ Carbohydrates are broken down into simple sugars ○ Proteins are broken down into amino acids ○ Fats are broken down into fatty acids • Nutrients are absorbed into the bloodstream
Pancreas	<ul style="list-style-type: none"> • Makes and releases digestive enzymes into the small intestine • Makes and releases insulin into the blood stream to regulate blood sugars
Liver	<ul style="list-style-type: none"> • Makes bile to help the small intestine digest fat
Gall Bladder	<ul style="list-style-type: none"> • Stores bile to release into the small intestine when we eat fat
Large Intestine	<ul style="list-style-type: none"> • Absorbs water and some minerals into the bloodstream • Eliminates undigested fiber foods, bacteria and waste materials

NUTRIENT GROUPS

Nutrient

A nutrient is a substance needed by the body for energy, growth, maintenance, repair, and/or regulation.

Major Nutrient Groups

There are six major nutrient groups. They are:

- Proteins
 - Carbohydrates
 - Fats
 - Vitamins
 - Minerals
 - Water
-

PROTEIN

Proteins

Protein is a substance needed by the body to build, maintain, and repair cells.

Where is Protein Found in the Body?

Every cell in our body contains protein.

Blood, skin, bones, muscles, teeth, brain, and hair all are made up mostly of protein.

Functions

Protein is needed to:

- Build, maintain, and repair cells of the body
 - Regulate body functions
 - Regulate body fluids
 - Fight infection
 - Provide energy
-

Charts

The charts on the next two pages list:

- The functions of protein
 - Some food sources of protein
-

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PROTEIN *(continued)***Functions of Protein**

Function	Description
Build, Maintain, and Repair Cells of Body	<p>The body builds new cells:</p> <ul style="list-style-type: none"> • In a pregnant or breastfeeding woman or growing child • When wounds heal • When hair and nails grow • When new blood is made <p>Protein is also needed to replace worn-out cells such as:</p> <ul style="list-style-type: none"> • Red blood cells which are replaced about every three months • Cells in the intestinal lining which are replaced every week
Regulate Body Processes	<p><u>Enzymes</u>: Are proteins which help chemical reactions take place in the body.</p> <p><u>Hormones</u>: Are messenger proteins which help direct certain body activities, including growth and development. Examples include insulin and oxytocin.</p>
Regulate Body Fluids	Proteins in the cell wall have the unique ability to regulate the amount of fluid within a cell.
Fight Infection	Certain proteins called antibodies defend the body by destroying or weakening harmful germs such as bacteria or viruses.
Provide Energy	<ul style="list-style-type: none"> • Limiting or restricting food will cause our bodies to use protein for energy. • Using protein for energy limits its other more important functions in the body. • Eating excess amounts of protein leads to increased fat stores.

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PROTEIN (continued)**Food Sources of Protein**

Protein	Food Source
Animal Protein	<ul style="list-style-type: none"> • Poultry • Seafood • Meat • Eggs • Milk products (such as milk, cheese, and yogurt)
Plant Protein	<p>Legumes such as:</p> <ul style="list-style-type: none"> • Pinto beans • Garbanzo beans • Kidney beans • Split peas • Lentils • Black-eyed peas • Lima beans • Soy beans (including tofu) <p>Nuts such as:</p> <ul style="list-style-type: none"> • Peanuts (including peanut butter) • Walnuts • Cashews • Almonds <p>These foods contain small amounts:</p> <p>Grains such as:</p> <ul style="list-style-type: none"> • Oats • Wheat • Rice • Corn <p>Seeds such as:</p> <ul style="list-style-type: none"> • Sunflower seeds • Sesame seeds

CARBOHYDRATES

Carbohydrates

Carbohydrates are substances containing sugar, starch, or fiber.

Functions

Carbohydrates are needed by the body for:

- Energy
 - Fuel for the brain
 - Adding sweetness to foods
 - Regulates bowel movements (Fiber portion of carbohydrates)
-

Sugar

Sugars are also called simple carbohydrates.

Common sugars are:

- Lactose (found in milk)
- Fructose (found in fruit and some vegetables)
- Sucrose (table sugar)

During digestion, sugars are broken down into glucose. Glucose is absorbed into the blood and is carried to the body cells to be used for energy.

Refined sugar has been purified from plants (such as beets, sugar cane, and corn) until only the sugar remains.

- It is added to foods such as jam, jelly, candy, soda, and desserts.
 - Avoid or limit refined sugar, especially from sugary drinks. It can lead to dental cavities and weight gain.
 - Excess body weight can lead to diabetes and heart disease.
-

Starch

Starches are also called complex carbohydrates because of the long chains of multiple glucose molecules linked together.

During digestion, starch is first broken down to simple carbohydrates and then to glucose.

Continued on next page

CARBOHYDRATES *(continued)*

Fiber

Fiber is also a type of complex carbohydrate.

Fiber is the part of plant foods the body cannot digest.

SOURCES OF FIBER
Fruits
Vegetables
Cereals
Whole grains

Benefits of Dietary fiber:

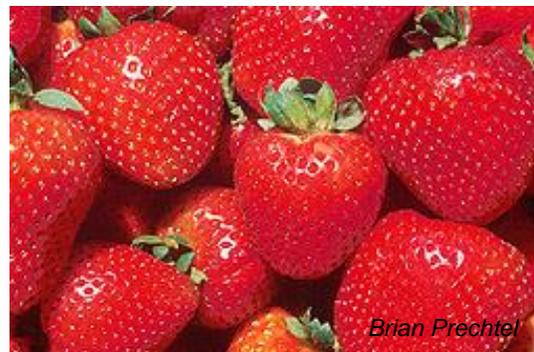
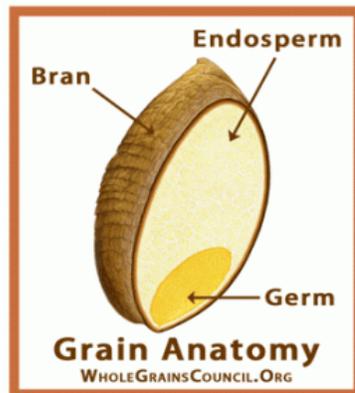
- Regular bowel movements
- Feel full after eating
- Slows digestion, which helps control blood glucose
- Lowers blood cholesterol levels
- Reduces risk for certain types of cancer and/or chronic diseases

Chart of Food Sources

The chart on the next page lists some food sources of sugars, starches, and fiber.

Where is the Fiber?

The following pictures show the fiber parts of plants. The fiber is in the bran of the wheat kernel and the seeds of the strawberries.



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CARBOHYDRATES *(continued)***Sources for Carbohydrates**

Carbohydrate	Food Source
Fructose	Fruit: <ul style="list-style-type: none"> • Fresh fruit • Dried fruit (such as raisins, apricots, dates, figs, and prunes) Fruit Juice
Glucose	Grains Beans and Lentils Vegetables Nuts and Seeds
Lactose*	Dairy Foods

WHAT IS LACTOSE INTOLERANCE?**What is lactose?**

Lactose is a sugar found in dairy products. The amounts of lactose vary by food. Lactose intolerance is a condition caused by low levels of the digestive enzyme lactase. Therefore the body cannot break down lactose resulting in symptoms such as diarrhea, abdominal cramps, nausea, bloating and excess gas. People who do not consume dairy products may be at a higher risk of low calcium intake.

Recommendations

Avoid: Milk, Ice Cream, and Processed Cheeses

Eat/Drink: Hard Cheeses, Cottage Cheese, Cream Cheese, and Low lactose Milk

Lactose Free: Lactose-free Dairy Products, Soy milk, Almond Milk, and Tofu fortified with calcium

Refer to WIC pamphlet [Lactose or Dairy Intolerance](#).

FATS

Definition

Fats in foods provide flavor, energy, essential fatty acids, a feeling of fullness after eating and carry nutrients throughout the body.

Functions

Fats are needed by the body to:

- Provide energy
 - Provide the essential fatty acids
 - Help our body store nutrients such as the fat-soluble vitamins A, D, E, and K
 - Give satiety (a feeling of fullness) and flavor to food
-

Types of Fats

There are three kinds of fats:

- Saturated
- Unsaturated
- Trans Fats

Saturated fats are usually **solid** at room temperature and are found in animal sources and coconut and palm oil.

Unsaturated fats are usually **liquid** at room temperature and come from plant sources. They can be monounsaturated or polyunsaturated. Monounsaturated fats help decrease the risks of heart disease.

Omega 3 fats are unsaturated fats. They are essential to the body. This means you need to consume them through food sources because the body does not manufacture them and humans will not survive without them.

Trans fats are formed by adding hydrogen to vegetable oils through a process called hydrogenation, i.e. shortening. This makes the fat more solid and less likely to spoil. Trans fats are found in processed foods.

Limit Intake of Saturated and Avoid Trans Fats

Saturated fats and trans fats **can increase a person's risk for coronary heart disease.**

Chart of Food Sources

The chart on the next page identifies food sources of fats.

Continued on next page

FATS (continued)**Sources of Fats**

Type of Fat	Food Source
Unsaturated Fats	Monounsaturated <ul style="list-style-type: none"> • Avocado, Olive, Pistachios, Almonds, Walnuts, Peanuts, and Canola Oil • Salad dressings made with these oils
	Polyunsaturated <ul style="list-style-type: none"> • Safflower, Sunflower, Corn, Cottonseed, Soybean, and Sesame Oils • Salad dressings made with these oils • Fish such as Mackerel, Salmon, Tuna, and Herring • Special margarines containing a high percentage of liquid oil
	Omega 3 Fats <ul style="list-style-type: none"> • Fatty Fish: Mackerel, Salmon, Tuna and Herring • Walnuts, Pumpkin, and Flax Seed • Soy Beans and Tofu • Any Omega 3 fortified foods
Saturated Fats	<ul style="list-style-type: none"> • Butter and Cream • Whole milk • Cheese • Egg yolks • Meat and Meat fat (such as bacon, lard, and chicken fat) • Coconut and Palm oil • Products made with any of the above items
Trans Fats (AVOID)	<ul style="list-style-type: none"> • Cookies • Snack foods • Shortening • Stick margarine • Butter • Fast foods (i.e. fries) • Read food labels

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VITAMINS AND MINERALS

Definition

Vitamins are substances needed by the body in tiny amounts to assist in body processes and functions.

Minerals are substances needed by the body in small amounts to form part of the body’s structure or regulate chemical reactions in the body.

Important Vitamins and Minerals for WIC

There are numerous vitamins/minerals important for health. However, the following vitamins and minerals are the focus for WIC. The WIC program was developed and funded to prevent deficiencies. The diets of low-income women, infants, and children were found to be low in these nutrients.

Vitamins	Minerals
Vitamin A Vitamin C Folic acid (Folate)	Calcium Iron

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VITAMINS AND MINERALS *(continued)*

Function, Deficiency, Excess & Sources of WIC Targeted Vitamins

VITAMIN A

Function	Deficiency & Excess	Food Sources
<p>1. Two forms of Vitamin A</p> <p>Retinol: The active form found in fortified and animal sources of foods as well as supplements.</p> <p>Carotenoids: found in plant sources of foods. Example - Beta carotene which helps prevent cancer.</p> <p>2. Develops healthy eyes (makes night vision possible), skin, and mucous membranes</p> <p>3. Helps prevent infections</p> <p>4. Helps develop bones and teeth</p>	<p>Deficiency:</p> <ul style="list-style-type: none"> Night blindness and eye changes leading to blindness Greater chance for infections Dry, scaly skin <p>Excess: (Retinol)</p> <ul style="list-style-type: none"> Birth defects Miscarriage Severe headaches Nausea, loss of appetite Itchy skin <p><i>Excess cannot be caused by food intake alone</i></p>	<p>Orange-red vegetables:</p> <ul style="list-style-type: none"> carrots peppers sweet potatoes <p>Dark green vegetables:</p> <ul style="list-style-type: none"> spinach greens (collards, kale) broccoli <p>Dark orange fruits:</p> <ul style="list-style-type: none"> mango papaya apricot cantaloupe <p>Milk Cheese Egg yolk</p>

VITAMIN C

Function	Deficiency & Excess	Food Sources
<p>1. Increases iron absorption</p> <p>2. Helps heal wounds</p> <p>3. Develops healthy gums and teeth</p> <p>4. Helps prevent infection</p> <p>5. Strengthens blood vessels</p>	<p>Deficiency:</p> <ul style="list-style-type: none"> Scurvy Weakness Poor wound healing Easily bruised Loss of appetite Poor growth Bleeding gums Painful joints Depression <p><i>Excess cannot be caused by food intake alone</i></p>	<p>Citrus fruits and vitamin C juices</p> <p>Strawberries</p> <p>Kiwi</p> <p>Cantaloupe</p> <p>Guava</p> <p>Mango</p> <p>Papaya</p> <p>Broccoli</p> <p>Brussels Sprouts</p> <p>Cabbage</p> <p>Snow peas</p> <p>Peppers (hot, sweet, and/or chili)</p>

Folic Acid (Folate)

Function	Deficiency & Excess	Food Sources
<p>1. Helps make new cells, including blood cells</p> <p>2. Aids in the formation of genetic material within every body cell</p> <p>3. Allows nerves to function properly</p>	<p>Deficiency:</p> <ul style="list-style-type: none"> Birth defects, such as spina bifida (due to deficiency before or during pregnancy) Anemia Sore tongue Diarrhea <p>Excess:</p> <p>Masks vitamin B12 deficiency</p>	<p>Green leafy vegetables</p> <p>Organ meats</p> <p>Oranges and orange juice</p> <p>Whole grains</p> <p>Enriched grains and cereals</p> <p>Beans</p> <p>Nuts</p> <p>Asparagus</p> <p>Broccoli</p> <p>Spinach</p>

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VITAMINS AND MINERALS *(continued)*

Function, Deficiency, Excess & Sources of WIC Targeted Minerals

Calcium

Function	Deficiency & Excess	Food Sources
<ol style="list-style-type: none"> 1. Forms bones and teeth 2. Helps blood to clot 3. Helps nerves send messages 4. Helps muscles contract 	<p>Deficiency:</p> <ul style="list-style-type: none"> • Poor bone and tooth development • Bone Weakening (Leads to Osteoporosis) <p>Excess:</p> <ul style="list-style-type: none"> • Constipation • Kidney stones <p><i>Excess cannot be caused by food intake alone.</i></p>	<p>Calcium-fortified foods:</p> <ul style="list-style-type: none"> • cereal • corn tortillas <p>Dairy products</p> <p>Canned salmon and canned/dried small fish (calcium in bones)</p> <p>Greens:</p> <ul style="list-style-type: none"> • Collards • Mustard Greens • Kale <p>Broccoli</p> <p>Legumes</p> <p>Tofu and soy milk (fortified)</p>

Iron

Function	Deficiency & Excess	Food Sources
<ol style="list-style-type: none"> 1. Part of hemoglobin in red blood cells 2. Part of myoglobin in muscle cells 3. Carries oxygen in blood to all cells of body 	<p>Deficiency:</p> <ul style="list-style-type: none"> • Anemia • Weakness, tiredness • Irritability, headache • Loss of appetite • High risk for infections • Decreased attention span • Poor Growth (with an extended deficiency) • Confusion • Decreased ability to learn <p>Excess:</p> <ul style="list-style-type: none"> • Infections • Liver injury • Acidosis • Bloody stools • Shock <p><i>Excess cannot be caused by food intake alone.</i></p>	<p>Meats, poultry, and fish</p> <p>Dried beans/peas</p> <p>Dried fruit</p> <p>Green leafy vegetables</p> <p>Iron-fortified cereals</p> <p><i>Iron Supplements should be stored out of the reach of children to avoid accidental overdose.</i></p>

WATER

Water

Water is the body's most important nutrient.

Our bodies are about 50 to 70% water. The percent of water in adults is related to the amount of muscle. More muscle mass = higher amounts of water. (Average amounts for Infants 70% and Adults 50%)

Functions

Water is needed by our bodies:

- To regulate body temperature
 - As the major component of:
 - blood
 - fluid inside the cells
 - fluid lubricating the joints, eyes and mucous membranes
-

Loss of Water

Our bodies lose water through:

- Urine
 - Stools
 - Vomit
 - Skin
 - Lungs (Breathing)
-

Intake of Water

The amount of water a person needs depends on:

- Body size
- Temperature and humidity of the environment
- Level of physical activity
- Health status

(need more water = pregnant or lactating women & those with a fever)

Adults lose about 2 to 3 quarts of water each day. Drinking about 6 to 8 cups of water per day, in addition to the foods we eat will usually replenish this loss.

Sources

Besides consuming water as a beverage, it is also available in:

- Other Beverages (milk, tea, coffee, sodas, energy drinks)
 - Soups/Broths
 - Foods (especially fruits and vegetables)
-

WATER *(continued)*

Dehydration

When the body loses too much water it becomes dehydrated.

During dehydration, the body overheats more easily leaving the person feeling weak or dizzy and maybe a headache. These symptoms can progress rapidly to delirium and end in death if not treated quickly.

Dehydration occurs more often in:

- Infants and young children since they:
 - Have a greater portion of their body weight as water
 - Require relatively more water than adults to excrete waste products
- The elderly since their thirst sensation is less reliable.
- Sick people if they have frequent vomiting, diarrhea, and/or sweating.
- Pregnant women experiencing morning sickness

Note: Pregnant women and young children with frequent vomiting are at great risk for dehydration and should seek medical attention.

CAFFEINE

Caffeine

Caffeine is a stimulant found in many foods, beverages and some medications.

- Caffeine is naturally produced by a variety of plants and is added to some foods and beverages.
 - Women who are pregnant or breastfeeding are recommended to limit their caffeine intake to 200-300 mg/day (about one 12 oz cup coffee).
 - Pregnant women are recommended to limit caffeine due to the risk of miscarriage.
 - Breastfeeding women are recommended to limit caffeine because of the transfer through breast milk to the infant, which can make infants fussy.
 - Some sources of caffeine are coffee, teas, sodas (Mountain Dew & Colas), chocolate, and energy drinks.
-

FOOD GROUPS

Definition

A food group is a grouping of foods with similar nutrients.

6 Food Groups

Foods are divided into six food groups. These groups are:

1. Grains (Bread, Cereal, Rice, and Pasta)
 2. Fruits
 3. Vegetables
 4. Milk Products (Milk, Yogurt and Cheese)
 5. Protein Foods (Meat, Poultry, Fish, Dry Beans, Eggs and Nuts)
 6. Fats, Oils, and Sweets
-

Contents of the Food Groups

Most foods fit in one or more of the food groups. The chart on the next page lists some common foods for each of the food groups.

Learning Activity 1

To help you learn more about assigning foods to the appropriate food groups, you may want to try **Learning Activity 1** found at the end of this module.

Continued on next page

FOOD GROUPS *(continued)***The Six Food Groups**

Food Group	Some Common Foods
Grains	<ul style="list-style-type: none"> • Rice • Tortilla • Bread • Grits • Cereal • Pasta • Crackers
Vegetables	<ul style="list-style-type: none"> • Fresh, Frozen and Canned Vegetables • Vegetable Juices
Fruits	<ul style="list-style-type: none"> • Fresh, Frozen, Canned and Dried fruits • Fruit Juices
Milk Products or Milk Substitutes	<ul style="list-style-type: none"> • Milk • Yogurt • Cheese • Ice cream • Pudding or Custard • Soy Milk and other milk substitutes
Protein Foods	<ul style="list-style-type: none"> • Beef • Pork • Lamb • Poultry (Chicken, Turkey) • Fish and Seafood • Eggs • Dry Beans/Peas • Nuts (including peanut butter) • Soy Products (such as Tofu)
Fats, Oils, Sweets	<ul style="list-style-type: none"> • Butter • Margarine • Lard • Oils • Candy • Cakes/Pastries • Sodas

FOOD GROUPS (continued)**Choice**

A choice is the portion or amount used to measure the quantity of food recommended for eating.

Chart

The *Food Group Choices and Serving Size Guidelines* below show appropriate servings for:

- Children 1 to 3 years old
- Children 4 to 5 years old
- Adults

Food Group Choices and Serving Size Guidelines

Food Group/Food	1 – 3 years old	4 – 5 years old	Adult
Grains	6 – 8 Choices/Day	4 – 5 Choices/Day	6 – 8 Choices/Day
Bread, tortilla, roll, muffin, pancake, waffle	½	1	1
Dry cereal	½ cup	1 cup	1 cup
Noodles, rice, cooked cereal	¼ cup	½ cup	½ cup
Crackers	2-3 small	6 small	4
Vegetables	Total Amount/Day		
Cooked or raw	1- 1½ cups	1 ½ - 2 cups	3 cups
Fruits	Total Amount/Day		
Fresh	1 - 1½ cups	1 - 1½ cups	2 cups
Canned or frozen	1 - 1½ cups	1 - 1½ cups	2 cups
Juice	≤ ½ cup	≤ ¾ cup	¾ cup
Milk Products	4 Choices/Day	3 – 4 Choices/Day	3 – 4 Choices/Day
Milk or breast milk	½ cup	¾ cup	1 cup
Cheese	¾ ounce	1 ounce	1½ ounces
Yogurt, pudding, custard	½ cup	¾ cup	1 cup
Protein Foods	2 – 4 Choices/Day	3 – 5 Choices/Day	6 Choices/Day
Meat, chicken, turkey, fish	1-2 tablespoons or ½ -1 ounce	2 tablespoons or 1 ounce	1 ounce
Egg	½ - 1	1	1
Cooked dry beans, lentils, tofu	2-4 tablespoons	¼ cup	½ cup
Peanut butter	½ - 1 tablespoon	1 tablespoon	1 tablespoon

For more information on food group choices visit [Choose MyPlate](#)

2015 DIETARY GUIDELINES FOR AMERICANS

Definition

The *Dietary Guidelines for Americans* provide science based advice to promote health and to reduce risk for major chronic diseases through diet and physical activity. They were developed for Americans over two years of age, including those at an increased risk of chronic disease.

Dietary Guidelines

The *Dietary Guidelines for Americans* suggest:

- Balance calories with physical activity to manage weight.
 - Consume more of certain foods and nutrients such as vegetables, fruits, whole grains, fat-free and low-fat dairy products and seafood.
 - Consume fewer foods with sodium (salt), saturated fats, trans fats, cholesterol, added sugars and refined grains.
-

Compatibility with WIC Foods

WIC foods align with the *Dietary Guidelines for Americans* in its recommendations to:

- Increase vegetables and fruits
 - Increase whole grains and fiber
 - Decrease saturated fat
 - Decrease juice (high fructose levels)
-

Key Recommendations

BALANCING CALORIES TO MANAGE WEIGHT

Prevent and/or reduce overweight and obesity through improved eating and physical activity behaviors.

- Control total calorie intake to manage body weight.
- For individuals who are overweight or obese, this will mean consuming fewer calories from food and beverages.
- Increase physical activity and reduce time spent in sedentary behaviors.
- Maintain appropriate calorie balance during each stage of life - childhood, adolescence, adulthood, pregnancy, and breastfeeding, and older age.

Find more specific information at
<http://health.gov/dietaryguidelines/default.asp>

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2015 DIETARY GUIDELINES FOR AMERICANS *(continued)*

Key Recommendations *(continued)*

FOODS AND NUTRIENTS TO INCREASE

Individuals should meet the following recommendations as part of a healthy eating pattern while staying within their calorie needs:

- Increase vegetable and fruit intake.
- Eat a variety of vegetables, especially dark-green, red and orange.
- Consume at least half of all grains as whole grains. Increase whole-grain intake by replacing refined grains with whole grains.
- Increase intake of fat-free or low-fat milk and milk products, such as milk, yogurt, cheese, or fortified soy beverages.
- Choose a variety of protein foods, which include seafood, lean meat and poultry, eggs, dried beans and peas, soy products, and unsalted nuts and seeds.
- Increase the amount and variety of seafood consumed by choosing seafood in place of some meat and poultry.
- Replace protein foods higher in solid fats with choices lower in solid fats and calories and/or are sources of oils.
- Use oils to replace solid fats where possible.
- Choose foods providing more potassium, dietary fiber, calcium, and vitamin D, which are nutrients of concern in American diets. These foods include vegetables, fruits, whole grains, and milk and milk products.

Recommendations for specific population groups

Women capable of becoming pregnant

- Choose foods with heme iron, found in animal sources and more readily absorbed by the body. Non-heme sources from plants, although not as readily absorbed, also provides iron and becomes absorbable with vitamin C-rich foods.
- Consume 400 micrograms (mcg) per day of synthetic folic acid (from fortified foods and/or supplements) in addition to folate rich foods.

Women who are pregnant or breastfeeding

- Consume 8 to 12 ounces of seafood per week from a variety of seafood types.
- Due to the high methyl mercury content, limit white (albacore) tuna to 6 ounces per week and do not eat the following four types of fish: tilefish, shark, swordfish, and king mackerel.
- If pregnant, take an iron supplement, as recommended by an obstetrician or other health care provider.

Continued on next page

2015 DIETARY GUIDELINES FOR AMERICANS *(continued)*

Key Recommendations *(continued)*

BUILDING HEALTHY EATING PATTERNS

- Choose an eating pattern to meet nutrient needs over time while being mindful of an appropriate calorie level.
- Account for all foods and beverages consumed and assess how they fit within a total healthy eating pattern.
- Follow food safety recommendations when preparing and eating foods to reduce the risk of foodborne illnesses.

FOODS AND FOOD COMPONENTS TO REDUCE

- Reduce daily sodium intake to less than 2,300 milligrams (mg) and further reduce intake to 1,500 mg among persons who are 51 and older and those of any age who are African American or have hypertension, diabetes, or chronic kidney disease. The 1,500 mg recommendation applies to about half of the U.S. population, including children, and the majority of adults.
- Consume less than 10 percent of calories from saturated fatty acids by replacing them with monounsaturated and polyunsaturated fatty acids.
- Consume less than 300 mg per day of dietary cholesterol.
- Keep trans fatty acid intake as low as possible by limiting foods which contain synthetic sources, such as partially hydrogenated oils.
- Reduce the intake of calories from solid fats and added sugars.
- Limit the dietary intake of foods made with refined grains, especially those containing solid fats, added sugars, and sodium.
- If alcohol is consumed, it should be consumed in moderation - up to one drink per day for women and two drinks per day for men - and only by adults of legal drinking age.

Alcohol consumption during pregnancy is not recommended.

Learning Activity 2

To help you learn more about using a food label to determine the nutrient content of foods, you may want to try **Learning Activity 2** found at the end of this module.

Continued on next page

2015 DIETARY GUIDELINES FOR AMERICANS *(continued)*

REVIEW THIS FOOD LABEL

Compare the 2015 Dietary Recommendations to this food.

Start here with Serving Size

Check calories

Quick guide to % DV

- 5% or less is low
- 20% or more is high

Get enough of these:

- Dietary Fiber
- Potassium
- Vitamins A & C
- Calcium & Iron

Limit these:

- Saturated Fat
- Trans Fat
- Cholesterol
- Sodium
- Sugars

Nutrition Facts

Serving Size 1 cup (228g)

Servings Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

% Daily Value*

Total Fat 12g 18%

Saturated Fat 3g 15%

Trans Fat 1.5g

Cholesterol 30mg 10%

Sodium 470mg 20%

Total Carbohydrate 31g 10%

Dietary Fiber 0g 0%

Sugars 5g

Protein 5g

Vitamin A 4%

Vitamin C 2%

Calcium 20%

Iron 4%

*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:

		Calories:	2,000	2,500
Total Fat	Less than	65g	80g	
Sat Fat	Less than	20g	25g	
Cholesterol	Less than	300mg	300mg	
Sodium	Less than	2,400mg	2,400mg	
Total Carbohydrate		300g	375g	
Dietary Fiber		25g	30g	

WIC FOOD GUIDELINES

What are the *WIC Food Guidelines*?

The *WIC Food Guidelines* describe amounts of foods the WIC population need to eat each day to stay healthy.

See sample WIC Food Guideline pamphlets for pregnant, post-partum, breastfeeding, newborn, infants, and children up to 5 years.

What Do the *WIC Food Guidelines* Show?

The *WIC Food Guidelines* show:

- The six food groups
 - A “fats, oils, and sweets” category
 - The recommended range of servings WIC participants should eat from each of these
 - Examples of foods from each food group
-

Using *WIC Food Guidelines*

When you use the WIC Food Guidelines remember:

Eat the recommended daily choice amounts from each of the food groups.

- Choose a variety of foods from each food group.
 - *Eat a Rainbow* – With fruits & vegetables eat a variety of colors.
 - Make Half Your Grains Whole.
 - Adults and children over 2 years old should drink low fat milk.
 - Eat fats, oils and sweets in moderation.
 - Eat the recommended amount of servings from each food group.
-

ENERGY

Energy

Our bodies use energy to:

- **Carry out important life processes** (including the heartbeat, breathing, building new cells, metabolism, and maintaining body temperature)
 - **Fuel body movements and physical activity**
-

Nutrients Providing Energy

Our bodies use three nutrients for energy:

- Carbohydrates
- Fats
- Protein

Carbohydrates are usually the best source of energy.

Calories

Calories are units we use to measure the amount of energy:

- Used by our bodies
- Supplied by foods

The number of calories supplied by a food will depend on the amount of carbohydrates, protein, and fats it contains.

The chart below shows the caloric values for one gram of carbohydrate, protein, and fat.

Nutrient	Calories/Gram
Carbohydrate	4
Protein	4
Fat	9

Energy Balance

A person's body is in "energy balance" when the number of calories she/he eats is the same as the number of calories she/he uses.

Continued on next page

ENERGY *(continued)*

Energy Needs Vary

Energy needs vary from person to person. Energy needs will depend on a person's:

- Body size
 - Age
 - Gender
 - Level of physical activity
 - Health status
 - Other factors (such as pregnancy and breastfeeding needs)
-

Pica

Pica is a condition where a person craves or eats non-food items. Pregnant women and children may crave and eat non-foods like dirt, clay, ice, laundry starch, cigarette butts, paint chips, glue, soap, toothpaste, carpet fibers, ash, etc. Some of the health problems related to consuming these items include:

- Iron deficiency anemia
- Lead poisoning
- Digestive problems
- Interference with absorbing important nutrients
- Choking

Refer WIC participants with pica to their primary care physician and give them an appropriate WIC appointment as per your agency's protocol.

The Importance of Giving Accurate Information

A WNA can talk to participants about various topics based on your local agency protocol. It is very important to provide accurate information to WIC participants. Giving out inaccurate information is dangerous if the participant begins or continues with unhealthy or harmful behaviors leading to illness or injury. It also confuses the participant, who is not sure who to listen to when they hear the correct information somewhere else.

FOOD SAFETY

Play It Safe With Food

Food handling risks at home are more common than most people think. The four easy lessons of **CLEAN, SEPARATE, COOK** and **CHILL** can help prevent harmful bacteria from causing foodborne illness in your family.

CLEAN:

Bacteria can spread throughout the kitchen but frequent cleaning can keep germs in check.

- Wash your hands with warm water and soap for 20 seconds before and after handling food.
- Wash cutting boards, dishes, utensils and counter tops with hot soapy water after preparing each food item and before going on to the next food.
- Consider using paper towels to clean up kitchen surfaces. If you use cloth towels, wash them often in the hot cycle of the washer.
- Rinse fresh fruits and vegetables under running tap water, including those with uneaten skins and rinds.
- Hand rub firm-skin fruits and vegetables or scrub with a clean vegetable brush while rinsing under running tap water.

SEPARATE:

Cross contamination is how bacteria are spread. Keep raw meat, poultry and seafood and their juices away from ready to eat foods.

- Use one cutting board for fresh produce and a separate one for raw meat, poultry and seafood.
- Separate raw meat, poultry, seafood and eggs from other foods in the grocery cart, grocery bags and in the refrigerator.
- Never place cooked foods on a plate previously used for raw meat, poultry, seafood or eggs.

COOK:

For all cooks, even experienced ones, improper heating and preparation of food means bacteria can survive.

- Use a food thermometer to measure the internal temperature of cooked foods. Make sure meat, poultry, egg dishes, casseroles and other foods are cooked to the correct internal temperature.
 - Cook ground meat or poultry until it reaches a safe internal temperature. Color is not a reliable indicator of doneness.
 - Cook eggs until the yolk and white are firm. Only use recipes in which eggs are cooked or heated thoroughly.
 - Bring sauces, soups and gravy to a boil when reheating
-

FOOD SAFETY *(continued)*

Play It Safe With Food

CHILL:

Bacteria spreads fastest at temperatures between 40° F and 140° F, so chilling food properly is one of the most effective ways to decrease the risk of foodborne illness.

- Chill leftovers and takeout foods within 2 hours. Keep the fridge at 40° F or below and use an appliance thermometer to check the temperature.
- Refrigerate or freeze meat, poultry, eggs and other perishables as soon as possible after grocery shopping.
- Never defrost food at room temperature. Food must be kept at a safe temperature during thawing. There are three safe ways to defrost food: in the refrigerator, in cold water, and in the microwave. Food thawed in cold water or in the microwave should be cooked immediately.

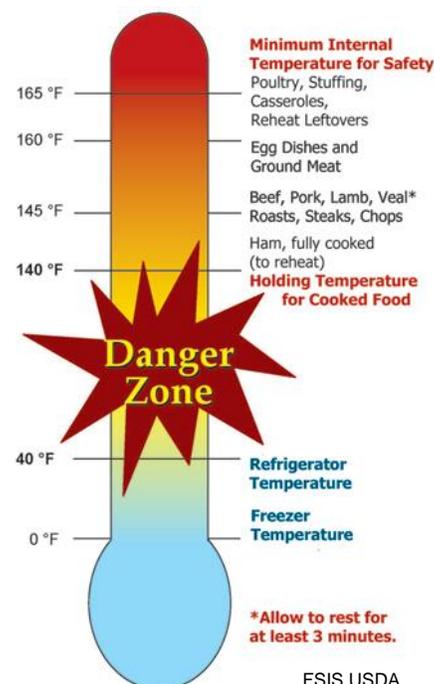
HIGH RISK FOODS:

The following foods may have harmful microorganisms and should not be fed to infants/young children or pregnant women:

- Raw eggs or fish
- Unpasteurized milk and dairy products
- Fresh unpasteurized Mexican cheeses, queso fresco and soft cheese, brie
- Undercooked meats and tofu

Deli meats or hot dogs (OK if heated until steaming hot)

This diagram shows the different temperature zones for different foods to be cooked at, refrigeration & freezing temperatures.



PROGRESS CHECK

1. List at least three reasons why the body needs food:

2. Healthy eating can prevent or lower the risk of developing what health problems? List at least three.

3. Put a check mark (✓) before all of the true statements about food.

_____ Food, when consumed, is anything which helps meet the body’s need for energy, maintenance, repair, and/or growth.

_____ Food is digested completely in the mouth.

_____ Food helps control our body temperature.

_____ During digestion food is broken down into simple sugars, amino acids or fatty acids.

4. Match the body part involved in the digestion of food with its main function.

<u>BODY PART</u>	<u>FUNCTION</u>
_____ Esophagus	A. Chewing
_____ Large intestine	B. Breaking down food using muscle action and acid
_____ Small intestine	C. Eliminating waste materials
_____ Mouth	D. Provides passageway to stomach
_____ Stomach	E. Digesting and absorbing nutrients

PROGRESS CHECK *(continued)*

5. Match the major nutrients with their functions.

<u>NUTRIENT</u>	<u>FUNCTION</u>
_____ Proteins	A. Provide energy for the body
_____ Carbohydrates	B. Help body regulate processes
_____ Fats	C. Build, maintain and repair cells
_____ Vitamins	D. Form part of body's structures
_____ Minerals	E. Provide essential fatty acids and carry other nutrients
_____ Water	F. Make up body fluids

6. Fill in the chart below by writing in the six food groups and at least three common foods for each group.

FOOD GROUP	COMMON FOODS

PROGRESS CHECK *(continued)*

7. What are the five key nutrients on which WIC focuses? List five examples of foods for each key nutrient?

8. List at least five recommendations from the 2015 *Dietary Guidelines for Americans*.

9. Put a check mark (✓) next to all true statements about using the *WIC Food Guidelines*.

- In the Grains Group, eat at least half the amounts as whole grains every day to increase fiber and folic acid intake.
- MyPlate gives you the **exact** number of servings a person should eat per food group.
- Eat more foods from the Fruit and Vegetable groups since they comprise half of MyPlate.
- MyPlate consists of the food groups and fats, oils, and sweets.

10. For each of the nutrients listed below, write in the number of calories provided by one gram.

NUTRIENT	CALORIES/GRAM
Carbohydrate	
Protein	
Fat	

LEARNING ACTIVITIES

The following activities are included and are recommended for interactive learning:

- **Learning Activity 1:** Food Groups
- **Learning Activity 2:** Nutrients in Foods

Activity 1: Food Groups

Learning Objectives

After completing this activity the Trainee will be able to identify foods for each of the six food groups.

Background

A food group is a group of foods with similar nutrients.

Foods are divided into six food groups. These groups are:

1. Grain Group
 2. Fruit Group
 3. Vegetable Group
 4. Milk Group
 5. Protein Group
 6. Fats, oils, sweets
-

Instructions

1. For each of the foods listed on the next page check (✓) the food group in which it belongs.
 2. After you finish the list, go on to the next page and write down some of the foods you might eat in a typical day. For each of these foods check (✓) the food group in which it belongs.
-

Activity 1: Food Groups *(continued)*

FOOD	MILK PRODUCTS	PROTEIN FOODS	VEGETABLES	FRUITS	GRAINS
Tortilla					
Rice					
Mango					
Banana					
Scrambled Egg					
Peanut Butter					
Lentils					
Bok Choy					
Sweet Potato					
Pineapple					
Yogurt					
Cottage Cheese					
Hotdog Bun					
Ice Cream					

Activity 2: Nutrients in Foods

Learning Objectives

After completing this activity the Trainee will know how to determine the nutrient content of foods using food labels.

Background

You may determine the nutrient content of a food by using:

- The **food label** often found on food packages

Food labels contain the nutrient composition of many foods.

Instructions

1. For each of the foods listed on the next page fill in the chart with its nutrient content. (For “Vitamin” or “Mineral”, choose any vitamin or mineral you wish, and write it in the blank space.)
2. Identify three foods consumed by your family. Review the food label then list these foods in the chart and using the information fill in the nutrient content.
3. Discuss your findings with your mentor or supervisor.

Continued on next page

Activity 2: Nutrients in Foods *(continued)*

FOOD	CALORIES	CARBOHYDRATE (GRAMS)	FAT (GRAMS)	PROTEIN (GRAMS)	VITAMIN		MINERAL	
					A	C	IRON	CALCIUM
Peanut butter (1 Tablespoon)								
Bagel (1/2)								
Banana (1 peeled)								
Orange juice (1/2 cup from concentrate)								

PROGRESS CHECK ANSWERS

1. List at least three reasons why the body needs food:

ANY 3 OF THE FOLLOWING ANSWERS ARE CORRECT.

- **Energy**
- **Growth**
- **Maintenance and repair of body tissue**
- **Regulation of body functions**

2. Healthy eating can prevent or lower the risk of developing what health problems? List at least three.

ANY 3 OF THE FOLLOWING ANSWERS ARE CORRECT.

- **Tooth decay**
- **Heart disease**
- **Certain cancers**
- **Osteoporosis**
- **Diabetes**
- **Iron-deficiency anemia**
- **Any vitamin or mineral deficiency**

3. Put a check mark (✓) before all of the true statements about food.

Food, when consumed, is anything which helps meet the body's need for energy, maintenance, repair, and/or growth.

Food is digested completely in the mouth.

Food helps control our body temperature.

During digestion food is broken down into simple sugars, amino acids, or fatty acids.

4. Match the body part involved in the digestion of food with its main function.

<u>BODY PART</u>	<u>FUNCTION</u>
<u> D </u> Esophagus	A. Chewing
<u> C </u> Large intestine	B. Breaking down food using muscle action and acid
<u> E </u> Small intestine	C. Eliminating waste materials
<u> A </u> Mouth	D. Provides passageway to stomach
<u> B </u> Stomach	E. Digesting and absorbing nutrients

PROGRESS CHECK ANSWERS *(continued)*

5. Match the major nutrients with their functions.

<u>NUTRIENT</u>	<u>FUNCTION</u>
<u>C</u> Proteins	A. Provide energy for the body
<u>A</u> Carbohydrates	B. Help body regulate processes
<u>E</u> Fats	C. Build, maintain and repair cells
<u>B</u> Vitamins	D. Form part of body's structures
<u>D</u> Minerals	E. Provide essential fatty acids and carry other nutrients
<u>F</u> Water	F. Make up body fluids

6. Fill in the chart below by writing in the five food groups and at least three common foods for each group.

THE FOLLOWING ANSWERS ARE SUGGESTED, OTHERS MAY ALSO BE CORRECT.

FOOD GROUP	COMMON FOODS
Grains	<i>Rice</i> <i>Tortillas</i> <i>Cereals</i> <i>Pasta</i>
Vegetable	<i>Carrots</i> <i>Broccoli</i> <i>Spinach</i> <i>Peppers</i> <i>Greens</i> <i>Bok Choy</i>
Fruit	<i>Orange</i> <i>Banana</i> <i>Melon</i> <i>Mango</i> <i>Apple</i> <i>Fruit Juice</i> <i>Fresh, frozen, canned and dried fruits</i>
Milk	<i>Milk, all varieties</i> <i>Yogurt</i> <i>Cheese</i> <i>Ice cream or ice milk</i> <i>Pudding or custard</i>
Protein	<i>Beef</i> <i>Pork</i> <i>Lamb</i> <i>Fish</i> <i>Eggs</i> <i>Dry beans/peas</i> <i>Poultry (chicken, turkey)</i> <i>Nuts</i> <i>Soy products (tofu)</i>
Fats, Oils, Sweets	

PROGRESS CHECK ANSWERS *(continued)*

7. What are the five key nutrients on which WIC focuses? List five examples of foods for each key nutrient?

PROTEIN	CALCIUM	IRON	VITAMIN A	VITAMIN C
Poultry, sea-food, meats Milk products Calcium-fortified soy milk Eggs Tofu Dried beans/peas Nuts & Seeds	Calcium-fortified foods Milk products Corn tortillas (made with calcium) Salmon and small fish eaten with bones Tofu (processed using calcium) Greens, Broccoli Dried beans/peas	Poultry, fish, meats Dried beans/peas Dried fruit Green vegetables Iron-fortified cereals	Orange-red vegetables (carrots, yams, peppers, sweet potatoes) Dark green vegetables (spinach, collards, kale, broccoli) Orange fruits (mango, papaya, apricot, cantaloupe) Butter, Milk, Cheese Egg yolk	Citrus fruits Citrus juices Broccoli Strawberries Kiwi Cantaloupe Guava, Mango Papaya Cabbage Snow peas Peppers

8. List at least five recommendations from the 2015 *Dietary Guidelines for Americans*.

ANY 5 OF THE FOLLOWING ANSWERS ARE CORRECT.

- ***Aim for a healthy weight.***
- ***Be physically active each day.***
- ***Let MyPlate guide your food choices.***
- ***Choose a variety of grains daily, especially whole grains.***
- ***Choose a variety of fruits and vegetables daily.***
- ***Keep food safe to eat.***
- ***Choose a diet low in saturated fat and cholesterol while moderate in total fat.***
- ***Choose beverages and foods to moderate your intake of sugars.***
- ***Choose and prepare foods with less salt.***
- ***If you drink alcoholic beverages, do so in moderation.***

9. Put a check mark (✓) next to all true statements about using the *WIC Food Guidelines*.

- In the Grains Group, eat at least half the amounts as whole grains every day to increase fiber and folic acid intake.
- MyPlate gives you the exact number of servings a person should eat.
- Eat more foods from the Fruit and Vegetable groups since they comprise half of MyPlate.
- MyPlate consists of food groups and fats, oils, and sweets.

10. For each of the nutrients listed below, write in the number of calories provided by one gram.

NUTRIENT	CALORIES/GRAM
Carbohydrate	4
Protein	4
Fat	9