

Chapter 8

Food and Nutrition

Section 1

Carbohydrates, Fats,
and Proteins

- **Hands-On Activity** Which Foods Contain Fats?

Building Health Skills

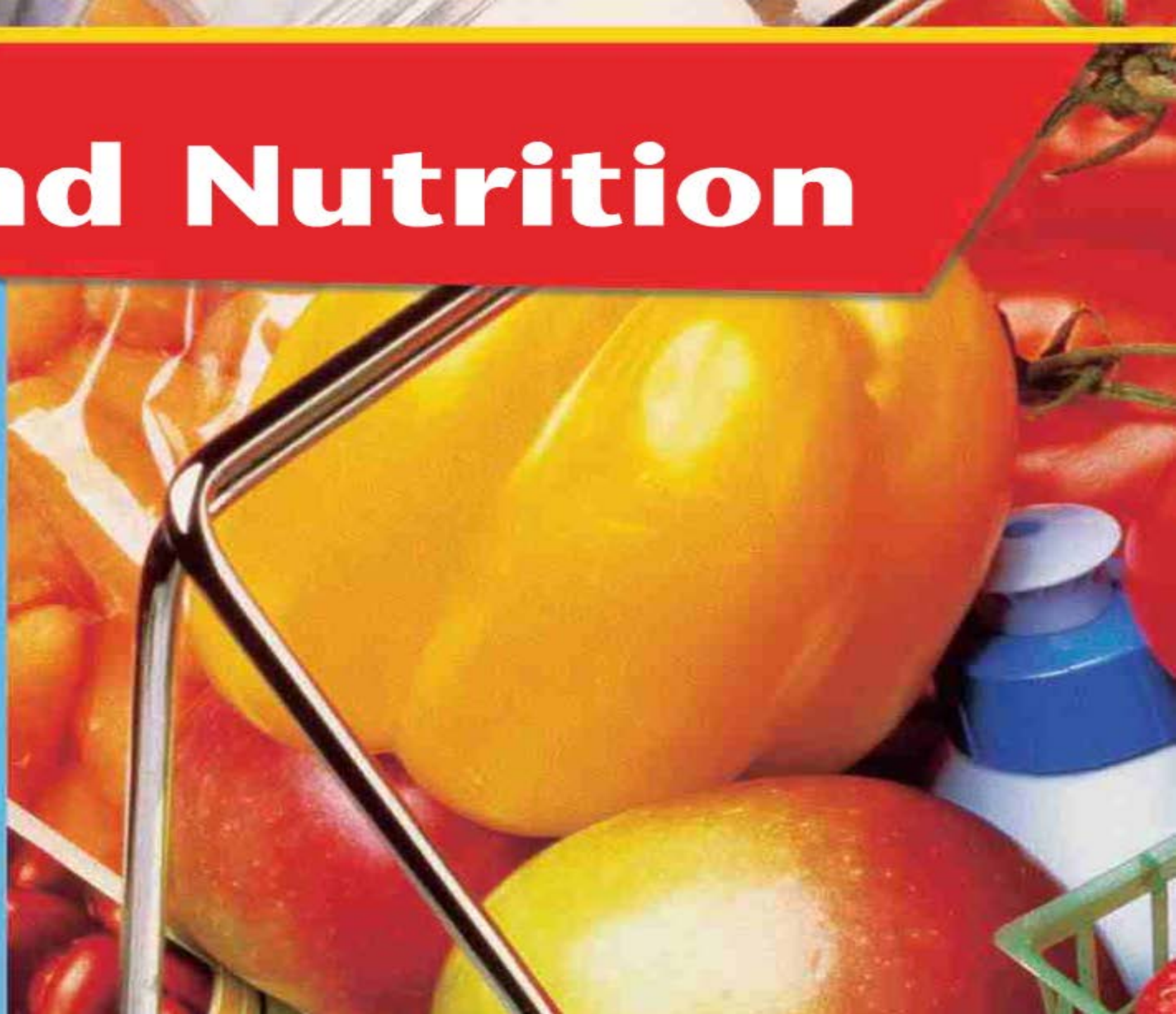
- **Setting Goals** Breaking a Bad Habit

Section 2

Vitamins, Minerals,
and Water

Section 3

Guidelines for
Healthful Eating



Section 8.1

Carbohydrates, Fats, and Proteins

Objectives

Name the three classes of nutrients that supply your body with energy.

Explain how the body obtains energy from foods.

Describe the roles that carbohydrates, fats, and proteins play in your body.

Warm-Up

Quick Quiz Which of these statements are always true? Which are sometimes true? Which are always false?

- 1** Foods that are high in calories are unhealthy.
- 2** You should avoid foods with sugars in them.
- 3** You should avoid fats in your diet.
- 4** Vegetarian diets are low in protein.
- 5** Snacking is bad for you.

A T	S T	A F

WRITING For each of your responses, explain why you gave the answer you did.

Foods Supply Nutrients

- Food supplies your body with **nutrients**: substances that the body needs to regulate bodily functions, promote growth, repair body tissues, and obtain energy.
 - There are **six classes of nutrients**:
 - carbohydrates
 - fats
 - proteins
 - vitamins
 - minerals
 - water
 - **Carbohydrates, fats, and proteins** can all be used by the body as **sources of energy**.

Foods Supply Energy

- The **foods** you eat are your **body's energy source**.
- You **need energy** to:
 - maintain your body temperature
 - keep your heart beating
 - enable you to understand what you read

Fuel for Your Body

- When your body uses the nutrients in foods, a series of chemical reactions occurs inside your cells. As a result, energy is released.
 - Metabolism is the chemical process by which your body **breaks down food** to **release** this **energy**.
- Metabolism also involves the use of this energy for **growth and repair of body tissue**.

What are Calories?

- The amount of **energy released** when nutrients are broken down is measured in units called **calories**.
- The **more calories** a food has, the **more energy** it contains.

Calorie-Sheet

Item	Quantity	Caloric value	Item	Quantity	Caloric value
Break fast			Beverages		
Egg boiled	1	80	Tea, black, no sugar	1cup	10
Egg fried	1	110	Coffee, black no sugar	1cup	10
Egg omelette	1	120	Tea with milk & sugar	1cup	45
Bread slice with butter	1	90	Coffee, milk & sugar	1cup	45
Chapati	1	60	Milk without sugar	1cup	60
Puri	1	75	Milk with sugar	1cup	75
Paratha	1	150	Horlicks, milk & sugar	1cup	120
Subji	1cup	150	Fresh fruit juice	1cup	120
Idli	1	100	Aerated soft drinks	1bottle	90
Dosa plain	1	120	Beer	1bottle	200
Dosa masala	1	250	Soda	1bottle	10
Sambhar	1cup	150	Alcohol, neat	1peg, small	75
Lunch / Dinner			Miscellaneous		
Cooked rice, plain	1cup	120	Jam	1tsp	30
Cooked rice, fried	1cup	150	Butter	1tsp	50
Phulka	1	60	Ghee	1tsp	50
Nan	1	150	Sugar	1tsp	30
Dal	1cup	150	Biscuit	1	30
Curd	1cup	100	Fried nuts	1cup	300
Curry, vegetable	1cup	150	Puddings	1cup	200
Curry, meat	1cup	175	Ice-cream	1cup	200
Salad	1cup	100	Milk-shake	1glass	200
Papad	1	45	Wafers	1pkt	120
Cutlet	1	75	Samosa	1	100
Pickle	1tsp	30	Bhel puri/pani puri	1helping	150
Soup, clear	1cup	75	Kabab	1plate	150
Soup, heavy	1cup	150	Indian sweet/mithai	1pc	150
			Fruit	1helping	75

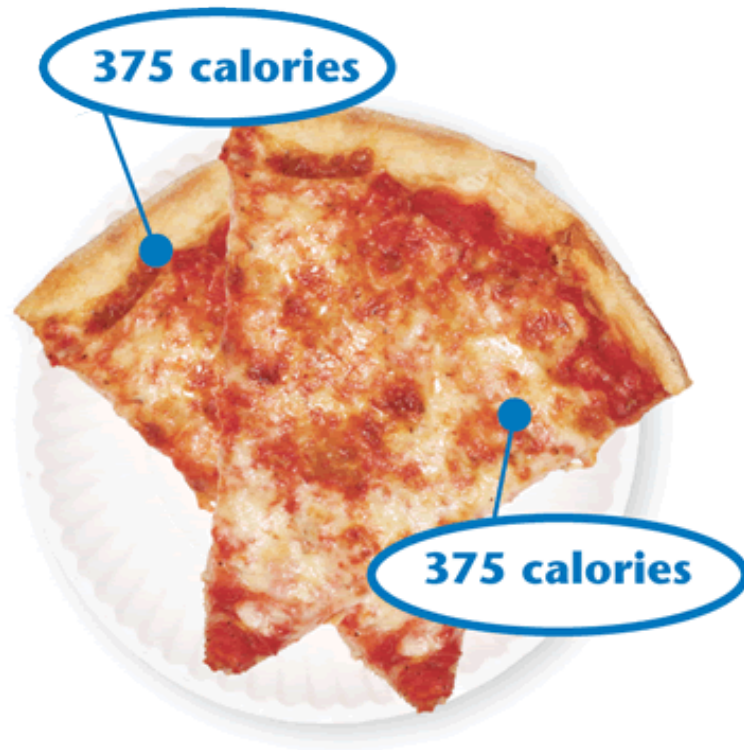
Calorie-Burning Chart for Various Activities

Approximate calories burned, per hour, by a 150-pound woman

Exercise	Calories/hour	Exercise	Calories/hour
Sleeping	55	Water Aerobics	400+
Eating	85	Skating/blading	420+
Sewing	85	Dancing, aerobic	420+
Knitting	85	Aerobics	450+
Sitting	85	Bicycling, moderate	450+
Standing	100	Jogging, 5mph	500+
Driving	110	Gardening, digging	500+
Office Work	140	Swimming, active	500+
Housework, moderate	60+	Cross country ski machine	500+
Golf, with trolley	180	Hiking	500+
Golf, without trolley	240	Step Aerobics	550+
Gardening, planting	250	Rowing	550+
Dancing, ballroom	260	Power Walking	600+
Walking, 3mph	280+	Cycling, studio	650
Table Tennis	290+	Squash	650+
Gardening, hoeing etc.	350+	Skiping with rope	700+
Tennis	350+	Running	700+

For good health, the number of calories in the food that you eat should match the calorie needs of your body. But when planning what to eat, you need to think about more than just the calorie content of foods. You also need to consider whether or not the foods you choose contain all the nutrients your body needs.

Which lunch is a healthier choice? Which would you eat? Why?



TOTAL:
750 calories

A

FIGURE 1 These two meals contain the same amount of energy but different nutrients. **Calculating** About how many salads would it take to equal the calories found in one slice of pizza? **MATH**

B

110 calories

85 calories



375 calories

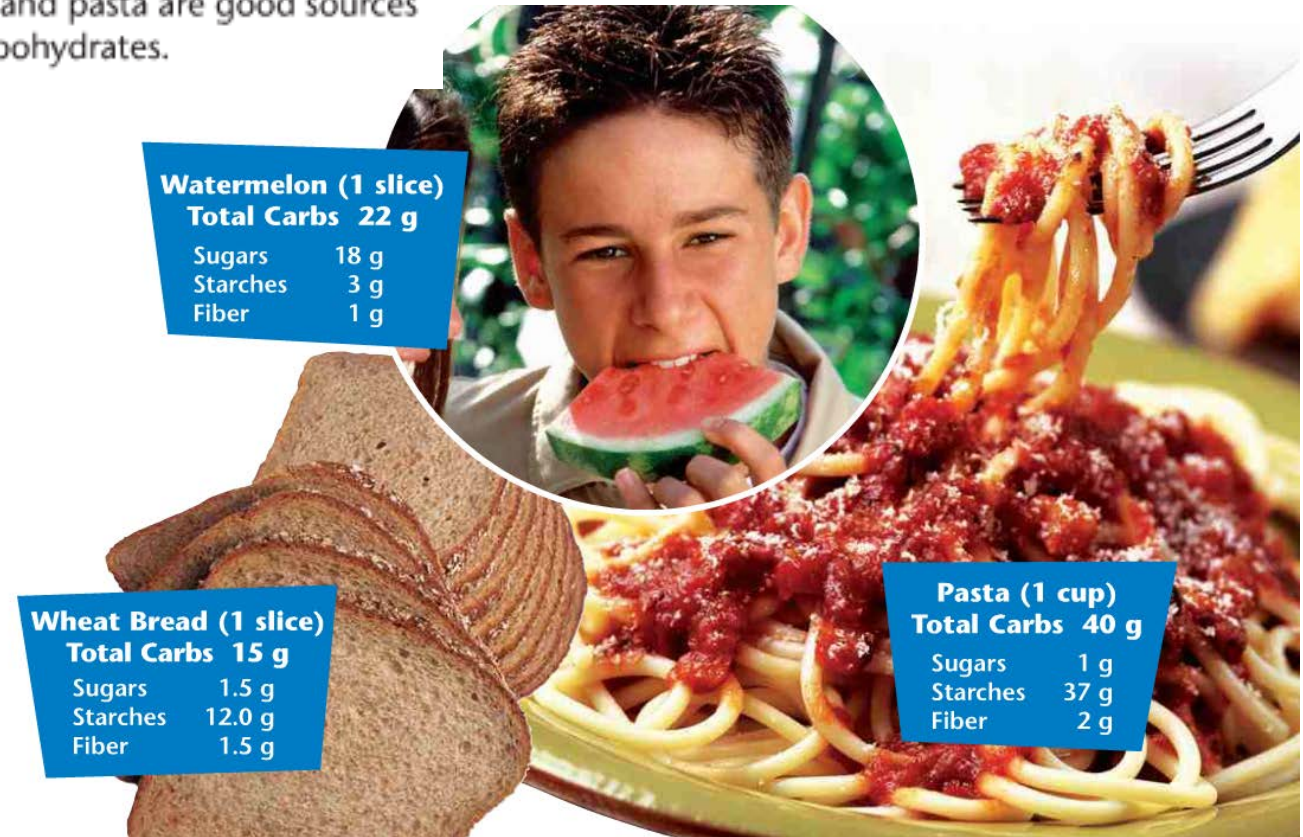
TOTAL:
750 calories

Carbohydrates

- **Carbohydrates** are nutrients made of carbon, hydrogen, and oxygen. CHO

- Carbohydrates **supply energy** for your body's functions.

FIGURE 2 Whole-grain breads, fruits, and pasta are good sources of carbohydrates.



Simple Carbohydrates

Simple carbohydrates are also known as **sugars**.

- **Glucose** is the most important of the sugars because it is the major provider of energy for your body's cells.
- All other types of sugar are converted to glucose once they are inside your body.

Simple carbohydrates

Simple carbohydrates are found in foods such as fruits, milk, and vegetables

Cake, candy, and other refined sugar products are simple sugars which also provide energy but lack vitamins, minerals, and fiber



ADAM.

Complex Carbohydrates

Complex carbohydrates are made up of **sugars that** are linked together chemically to **form long chains**.

- Starches are one of the main types of complex carb.
 - Found in many plant foods
 - When you eat foods containing starch, your digestive system breaks the starch down into simple sugars that can be absorbed into your bloodstream for energy.

Complex carbohydrates

Complex carbohydrates provide vitamins, minerals, and fiber

Foods such as breads, legumes, rice, pasta, and starchy vegetables contain complex carbohydrates



ADAM.

Fiber

- **Fiber** is a type of complex carbohydrate that is found in plants (not a nutrient).
- A high-fiber diet...
 - may reduce the risk of colon cancer
 - helps prevent constipation
 - may help prevent heart disease

Insoluble Fiber



Cereals



Whole-wheat bread



Lentils



Apple



Avocado



Strawberries

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Soluble Fiber



Barley



Oats



Beans



Figs



Prunes



Sweet potatoes

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Your Body's Energy Reserves

- At a meal, you usually eat more carbohydrates (GLUCOSE) than your body can immediately use.
- The extra glucose is converted into a type of starch called **glycogen**, which is stored in the body.
- When your body needs more glucose, the glycogen is converted back to glucose.
- If you eat so many carbohydrates that the body's glycogen stores are full, then the **excess** carbohydrates are **stored as fat** instead.

Daily Carbohydrate Intake

	MEN (2600 kcal diet)	WOMEN (2000 kcal diet)	Target Category
High Carb >30% kcal	>200gm	>150gm	<ul style="list-style-type: none"> •Athletics •Highly active people •For weight gain •Pregnant & breastfeeding
Moderate Carb 15-30% kcal	100-200 gm	75-150gm	<ul style="list-style-type: none"> •Generally healthy •Weight maintainance •Hypothyroidism •Hypercholesterolemia
Low Carb 10-15% kcal	65-100gm	50-75gm	<ul style="list-style-type: none"> •Weight loss •Diabetes patients •Digestive issues
Very Low Carb <10% kcal	<65gm	<50gm	<ul style="list-style-type: none"> •Neurological issues like epilepsy •Very high blood sugar •Extreme weight loss

- Nutritionists recommend that **45 to 65 percent** of a person's daily calorie intake come from **carbohydrates**.
- It is **better to eat foods rich in complex carbohydrates** rather than simple carbohydrates.

Fats

- **Fats** are made of carbon, hydrogen, and oxygen. CHO

- supply your body with energy
- form your cells
- maintain body temperature
- protect your nerves.

Unsaturated Fats

- **Unsaturated Fats** have at least one unsaturated bond in a place where hydrogen can be added to the molecule.
- Unsaturated fats are usually **liquid at room temperature**.
- Unsaturated fats are classified as either **monounsaturated** fats or **polyunsaturated** fats.

Saturated Fats

- Fats that have all the hydrogen the carbon atoms can hold are called **saturated fats**.
- Saturated fats are usually **solid at room temperature**.
- **Too much** saturated fat in your diet can lead to **heart disease**.



Daily Fat Intake

Nutritionists recommend that **20 to 35 percent** of your calories come from fat, **primarily unsaturated** fat.

Comparing Sources of Fat

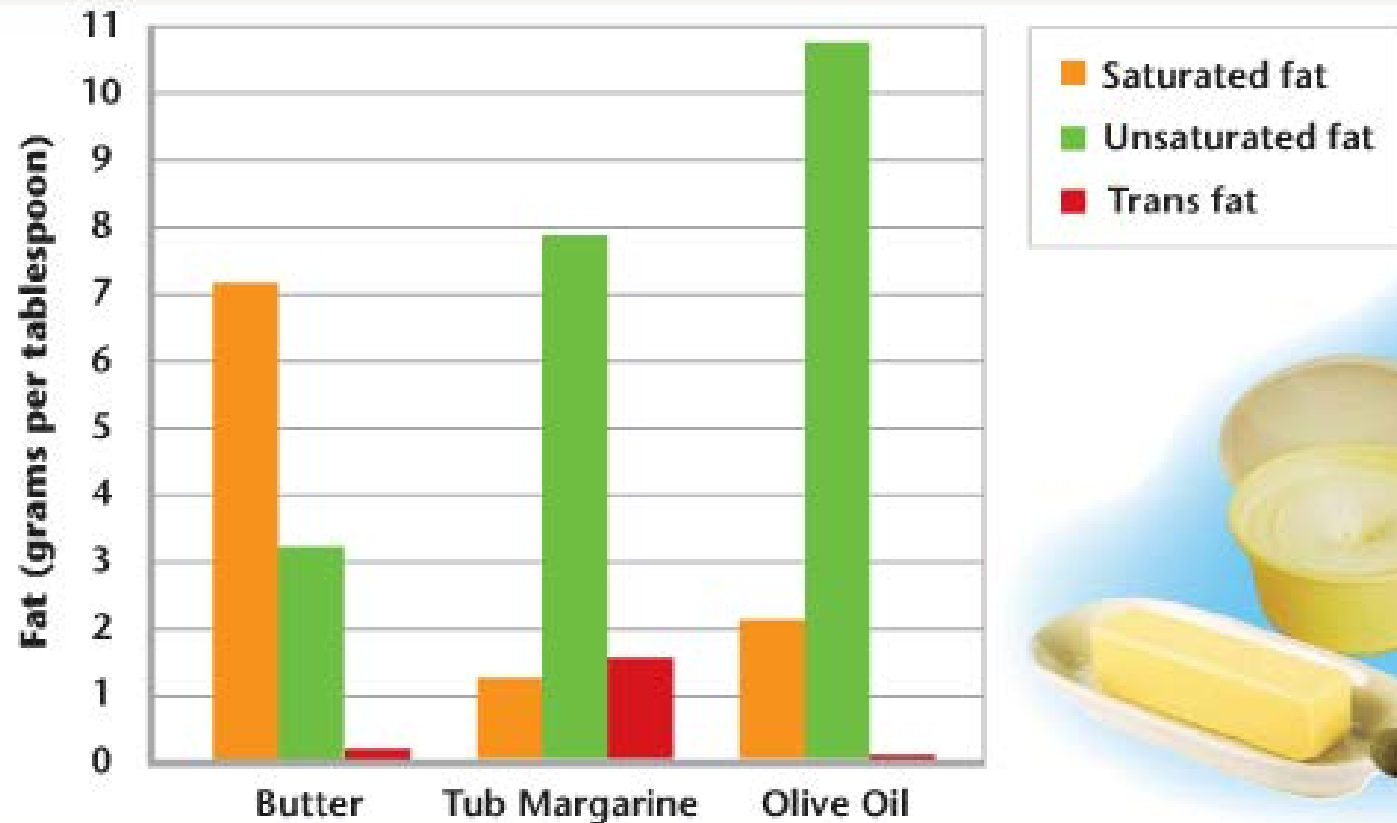


FIGURE 4 Eating foods containing unsaturated fats, such as olive oil, is more healthful than eating foods containing saturated fats.

Reading Graphs Which of the fat sources in the graph is lowest in saturated fat?

Hands-On Activity

Which Foods Contain Fats?

Materials

brown paper bag
scissors
marker
dropper
potato chip
milk chocolate
carrot
whole milk
skim milk
apple juice
ground beef

Try This

- 1 Cut a brown paper bag into squares about 3 inches on each side. Write the name of each food on a square.
- 2 Rub each food on the square with its name. If the food is a liquid, place a few drops on the square.
- 3 Let the squares dry. Then hold each square up to a light.

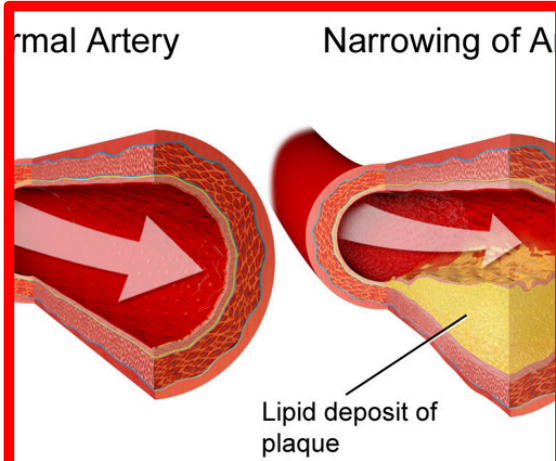
Think and Discuss

- 1 Which squares had a spot when you held them up to the light? Those foods contain fat. Which squares did not have a spot?
- 2 Does your daily diet include many foods that are high in fat? (To be sure, try testing some foods that you commonly eat.) How could you reduce the amount of fat that you consume each day?



How to reduce cholesterol with diet.

Cholesterol



Coronary Artery Disease

What is Cholesterol?



Carotid Artery Surgery

- **Cholesterol** is a **waxy, fatlike substance** that is found **only in animal products**.
- Your body **needs a certain amount** of cholesterol to make:
 - cell membranes and nerve tissue
 - certain hormones
 - substances that aid in the digestion of fat.
- Your liver can make all of the cholesterol your body needs; therefore, cholesterol is not a necessary part of the diet.
- When the cholesterol level in your body is too high, plaque buildup may occur and block the flow of blood to your heart or brain.

Trans Fats

- **Trans fats** are made when manufacturers add hydrogen to the fat molecules in vegetable oils.
- Trans fats are found in margarine, chips, and commercially baked goods.
- Trans fat seems to have many of the negatives of saturated fat.

6 WORST TRANS FAT FOODS



BREAKFAST PASTRIES

Processed pastries that are typically eaten in the morning. Examples include donuts, cinnamon buns, and coffee cakes.



FRIED FOODS

Almost any food that is battered and fried. Examples include French fries, onion rings, chicken wings, and fried chicken.



SALTY SNACKS

Salty and bite-sized foods that are typically quick to make or packaged ready-to-eat. Examples include crackers, popcorn, and beef jerky.



PASTAS

Processed pastas that are boxed or come frozen. Examples include ravioli, macaroni and cheese, and lasagna.



DESSERTS

Ready-to-eat treats that often come individually packaged or frozen. Examples include snack cakes, cake and brownie mixes, and ice cream bars.



BREADS

Processed breads that come frozen or can be bought packaged and pre-cut. Examples include garlic bread, Texas toast, and breadsticks.



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Proteins

- Nutrients that contain nitrogen as well as carbon, hydrogen, and oxygen are called **proteins**.
- Proteins can serve as a source of energy.
- The most important function of proteins is their role in the growth and repair of your body's tissues.



Connect to
YOUR LIFE

What are the main sources of protein in your diet?

How Much Protein Is in Your Refrigerator?

Broiled beefsteak (6 oz)	49.9 grams
Cheddar cheese (1 oz)	7.1 grams
Corn (1 ear)	2.0 grams
Egg (1 large)	6.3 grams
Fried chicken (1 drumstick)	13.2 grams
Orange juice (1 cup)	2.0 grams

How Much Protein Is in Your Refrigerator?

Peanut butter (2 Tbsp)	8.0 grams
Refried beans (1/2 cup)	6.9 grams
Salmon (6 oz)	37.6 grams
Tofu (1/2 cup)	10.3 grams
Whole milk (1 cup)	7.9 grams

FIGURE 5 Meats, fish, eggs, and dairy products are excellent sources of protein. **Calculating** Which has more protein per ounce: beefsteak or cheddar cheese? **MATH**

Amino Acids

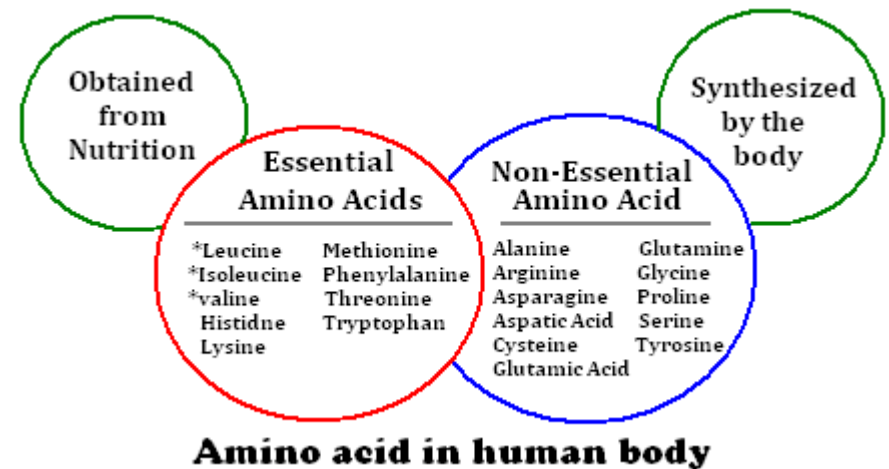
- Proteins are long chains of smaller “links” that are bound together chemically.
- These smaller substances are known as **amino acids**.

Essential Amino Acids

The nine amino acids that the body cannot manufacture are called essential amino acids.

Complete and Incomplete Proteins

- Protein from animal sources is complete protein.
- It contains all nine essential amino acids.
- Most protein from plant sources is incomplete protein.
- It lacks one or more of the essential amino acids.



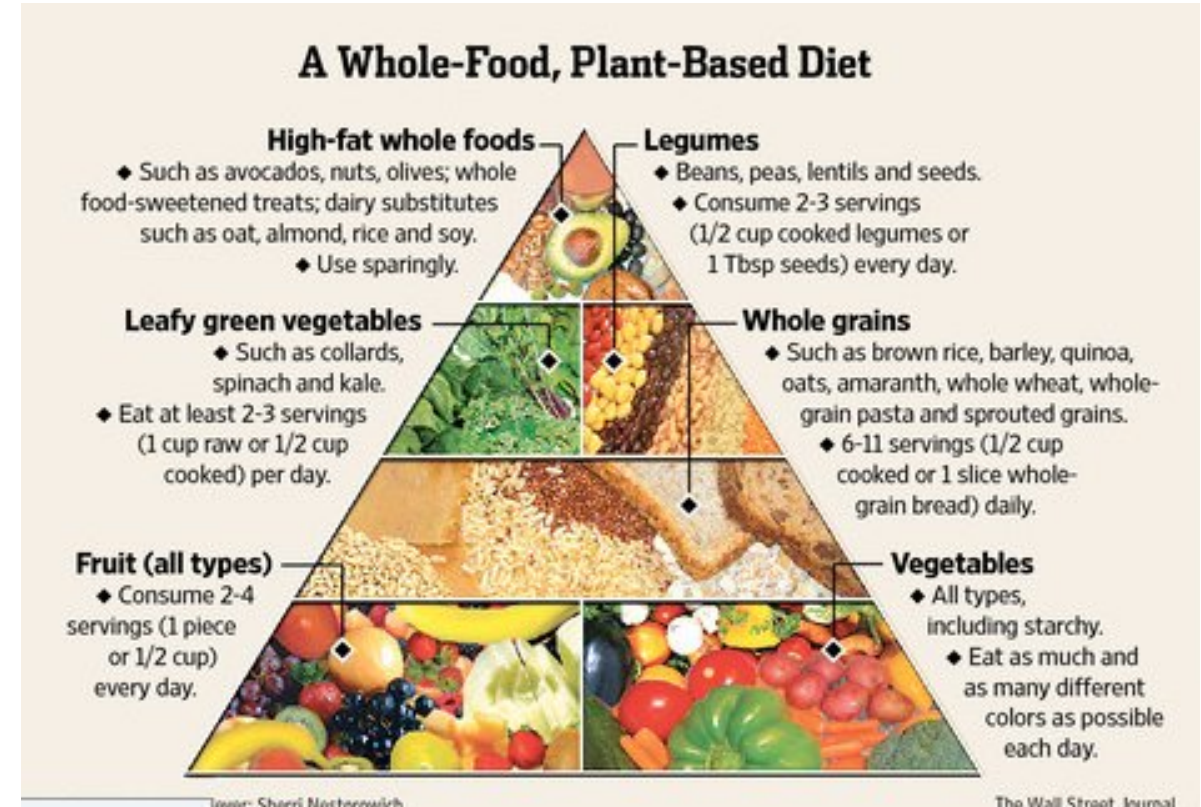
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Daily Protein Intake

Nutritionists recommend that 10 to 35 percent of your calories come from proteins.

Proteins for Vegetarians

People who don't eat meat can combine two or more plant protein sources that, taken together, provide all the essential amino acids.



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Vocabulary

nutrient	A substance in foods that the body needs to regulate bodily functions, promote growth, repair body tissues, and obtain energy.
metabolism	The chemical process by which the body breaks down food to release energy.
calorie	Unit for the amount of energy released when nutrients are broken down.
carbohydrate	A nutrient made of carbon, hydrogen, and oxygen and that supplies energy.
fiber	a type of complex carb found in plants

Vocabulary

fat A nutrient made of carbon, hydrogen, and oxygen; supplies energy, forms cells, maintains body temperature, and protects nerves.

unsaturated fat A fat with at least one unsaturated bond in a place where hydrogen can be added to the molecule.

saturated fat A fat that has all the hydrogen the carbon atoms can hold. A fat that has all the hydrogen the carbon atoms can hold.

cholesterol A waxy, fatlike substance that is found only in animal products.

Vocabulary

trans fat The type of fat produced when manufacturers add hydrogen to the fat molecules in vegetable oils.

protein A nutrient that contains nitrogen as well as carbon, hydrogen, and oxygen; needed for the growth and repair of body tissues.

amino acid Small units that are bound together chemically to form proteins.

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Quiz

Decide whether each statement is true or false. Write true or false in the space provided.

- _____ 1. The body uses carbohydrates, fats, and proteins as sources of energy.
- _____ 2. The energy in food is released during a series of chemical reactions inside body cells.
- _____ 3. Most of a person's daily calorie intake should come from proteins.
- _____ 4. The only role that fats play in the body is to supply energy.
- _____ 5. Carbohydrates are important for the growth and repair of body tissues.

Write the letter of the correct answer in the space provided.

- _____ 6. fat that is solid at room temperature
 - _____ 7. unit that measures the amount of energy released in food
 - _____ 8. small substance that make up the "links" in proteins
 - _____ 9. substance from food that the body uses for growth, repair, and energy
 - _____ 10. type of complex carbohydrate found in plants
- a. nutrient
 - b. calorie
 - c. fiber
 - d. unsaturated fat
 - e. saturated fat
 - f. amino acid

Objectives

- ▶ **Identify** the two main classes of vitamins.
- ▶ **List** seven minerals your body needs in significant amounts.
- ▶ **Explain** why water is so important to your body.

Vocabulary

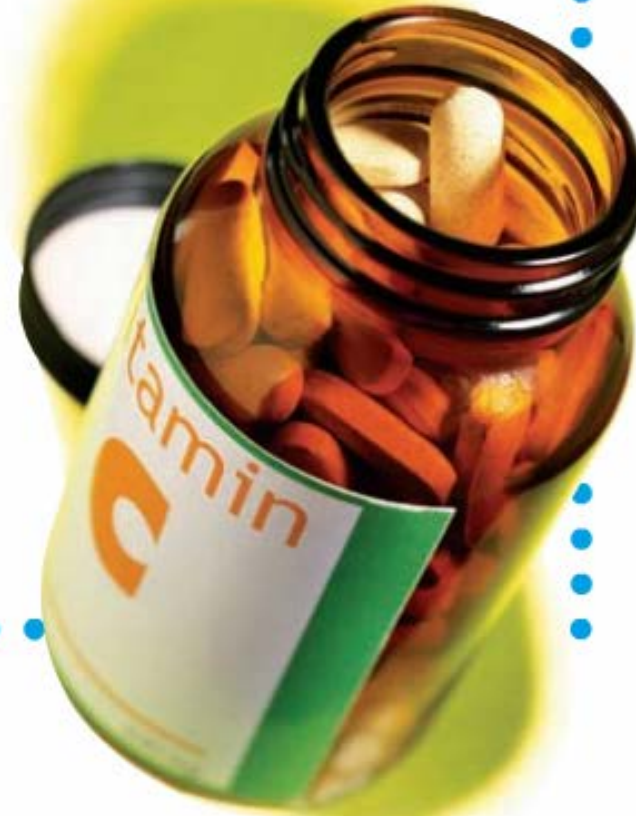
- vitamin
- antioxidant
- mineral
- anemia
- homeostasis
- electrolyte
- dehydration

Warm-Up

Myth As part of a healthy diet, people need to take dietary supplements.

Fact A diet that contains a variety of healthful foods usually supplies all the vitamins and minerals that your body needs.

WRITING Where do you think most teens get their information about nutrition? How factual do you think their information is?



Vitamins

- One of the first discoveries of the importance of vitamins came in the 1700s.
- A Scottish doctor, James Lind, discovered that sailors who were fed citrus fruits recovered from [scurvy](#).
- Today, health scientists know that scurvy is caused by a lack of vitamin C, which is found in abundance in citrus fruits.

Health Benefits of Vitamins

Organic  Facts**Vitamin A**

Beneficial in treating eye disorders, skin infections

Vitamin B9

Reduces risk of neural tube defects during pregnancy

Vitamin B12

Provides relief from symptoms of anemia, kidney and liver disorders

Vitamin C

Helps treat scurvy, cancer and common cold

Vitamin D

Aids in treating arthritis, tooth decay, diabetes and rickets

Vitamin E

Improves blood circulation and slows down aging process

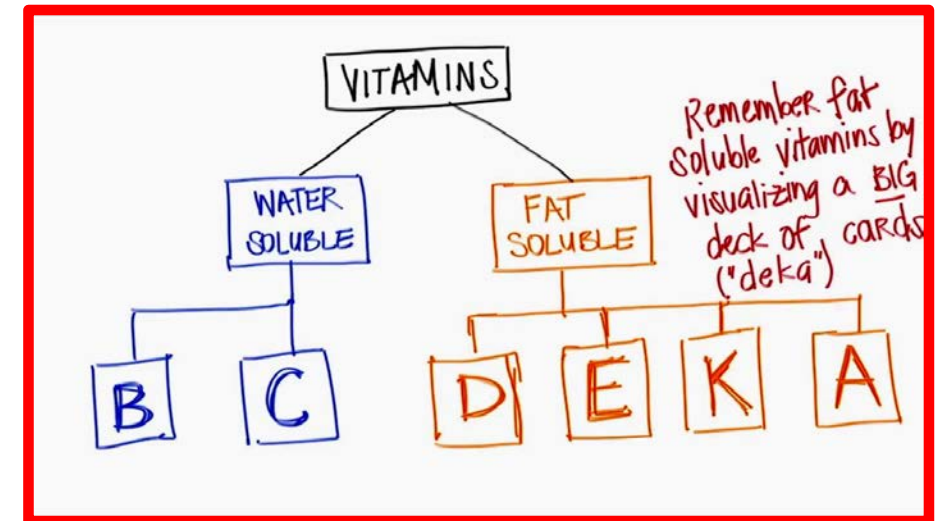
Vitamin K

Reduces risk of menstrual pain and internal bleeding

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What Are Vitamins?

- Nutrients that are made by living things, are required only in small amounts, and that assist many chemical reactions in the body are **vitamins**.
 - Do not directly provide energy
 - Help the body with various processes, including the use of other nutrients
 - Vitamin K helps blood clot
 - Vitamin D helps calcium absorption
- There are two classes of vitamins
 - **fat-soluble** vitamins—dissolve in fatty material
 - **water-soluble** vitamins—dissolve in water



Fat-Soluble Vitamins

- Vitamins A, D, E, and K are fat-soluble vitamins
- Fat-soluble vitamins can be stored by the body
- Absorption is enhanced by dietary fat
- Some indigestible fat substitutes that are used in low-fat or low-calorie products can prevent absorption of these vitamins
 - To prevent this from happening many foods are enriched with vitamins A & D
- Sources of fat-soluble vitamins are
 - vegetable oils
 - liver
 - eggs
 - certain vegetables

Fat-Soluble Vitamins**Vitamin Good Sources**

A Liver; eggs; cheese; milk; yellow, orange, and dark green vegetables and fruit

D Milk; eggs; liver; exposure of skin to sunlight

E Margarine; vegetable oils; wheat germ; whole grains; legumes; green, leafy vegetables

K Green, leafy vegetables; potatoes; liver; made by intestinal bacteria

Main Functions

Maintains healthy skin, bones, teeth, and hair; aids vision in dim light

Maintains bones and teeth; helps in the use of calcium and phosphorus

Aids in maintenance of red blood cells, vitamin A, and fats

Aids in blood clotting



Water-Soluble Vitamins

- Water-soluble vitamins cannot be stored by the body.
- Examples of water-soluble vitamins are C and all of the B vitamins.
- Sources of water-soluble vitamins are
 - fruits
 - vegetables
 - whole-grain foods
 - and many other foods

Water-Soluble Vitamins

Vitamin	Good Sources	Main Functions
B1 (Thiamin)	Pork products; liver; whole-grain foods; legumes	Aids in carbohydrate use and nervous system function
B2 (Riboflavin)	Milk; eggs; meat; whole grains; dark green vegetables	Aids in metabolism of carbohydrates, proteins, and fats
B3 (Niacin)	Poultry; meat; fish; whole grains; nuts	Aids in metabolism
B6 (Pyridoxine)	Meat; poultry; fish; whole-grain foods; green vegetables	Aids in metabolism of carbohydrates, proteins, and fats
B12 (Cobalamin)	Meat; fish; poultry; eggs; milk; cheese	Maintains healthy nervous system and red blood cells

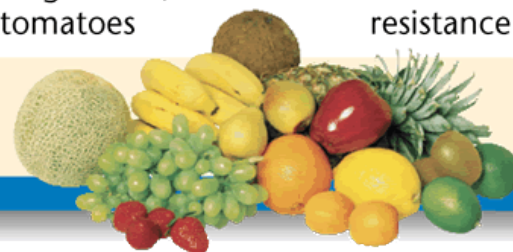


Antioxidants

- Vitamins called **antioxidants** help protect healthy cells from the damage caused by the normal aging process as well as from certain types of cancer.
- Vitamins C and E are two of the most powerful antioxidants.

Water-Soluble Vitamins


Vitamin	Good Sources	Main Functions
Pantothenic acid	Organ meats; poultry; fish; eggs; grains	Aids in metabolism
Folate (Folic acid)	Green, leafy vegetables; legumes	Aids in formation of red blood cells and protein
Biotin	Organ meats; poultry; fish; eggs; peas; bananas; melons	Aids in metabolism
C (Ascorbic acid)	Citrus fruits; green vegetables; melons; potatoes; tomatoes	Aids in bone, teeth, and skin formation; resistance to infection; iron uptake



Minerals



- Your body requires only small amounts of **minerals**, which are nutrients that occur naturally in rocks and soil.
- You need seven **minerals**—calcium, sodium, potassium, magnesium, phosphorus, chlorine, and sulfur—in significant amounts.

Minerals




Mineral	Good Sources	Main Functions
Calcium	Milk and milk products; dark green, leafy vegetables; tofu; legumes	Helps build and maintain bones and teeth; nerve and muscle function; blood clotting
Phosphorus	Meat; eggs; poultry; fish; legumes; milk and milk products	Helps build and maintain bones and teeth; energy metabolism
Magnesium	Leafy green vegetables; legumes; nuts; whole-grain food	Helps build bones and protein; energy metabolism; muscle contraction
Sodium	Table salt; processed food; soy sauce	Helps maintain water balance; nerve function
Chlorine	Table salt; soy sauce; processed foods	Helps maintain water balance; digestion
Potassium	Vegetables, fruits, meat, poultry, fish	Helps maintain water balance and make protein; functioning of heart and nervous system

Minerals

Mineral	Good Sources	Main Functions
Sulfur	Milk and milk products; meat; poultry; fish; legumes; nuts	Forms part of some amino acids and B vitamins
Iodine	Seafood; iodized salt	Helps in metabolism as part of thyroid hormone
Selenium	Seafoods; meats; organ meat	Helps break down harmful substances
Iron	Red meats; seafood; legumes; green, leafy vegetables; fortified cereals; dried fruits	Part of red blood cells; helps in energy metabolism
Zinc	Meats; poultry; seafood; milk; whole-grain foods	Part of many substances that help carry out body processes
Fluorine	Fish; fluoridated water	Helps form strong teeth and bones



Calcium

- Calcium is important in blood clotting and the functioning of your nervous system.
- It is an essential ingredient in the formation and maintenance of bones and teeth.
- A lack of calcium can sometimes lead to osteoporosis, a condition in which the bones gradually weaken.

Potassium

- Potassium and sodium work together to maintain water balance in the body.
- Most Americans do not consume enough potassium.

Iron

- Iron is necessary for healthy red blood cells.
- If a person's diet does not include enough iron, he or she may develop **anemia**, a condition in which the red blood cells do not contain enough hemoglobin.

Sodium

- Sodium is important in several body processes, including the functioning of the heart and water balance.
- Too much sodium can cause a problem with blood pressure.

Sodium-Rich Vegetables



To Limit Sodium in Snacks

- Focus on fresh fruits and vegetables.
- Eat unsalted pretzels and popcorn.
- Choose low-fat yogurt or fruit smoothies.

Sodium-Rich Fruits



Vitamin and Mineral Supplements

- Vitamin and mineral supplements, therefore, are not usually necessary if your diet is nutritious and well-balanced.
- An excess, or overdose, of vitamins or minerals may damage your health.
- If you do take a vitamin or mineral supplement, a health care provider can advise you about how much is the right amount.

GET YOUR IPADS...LOOK IT UP!

Are mineral supplements necessary?

Yes:

No:

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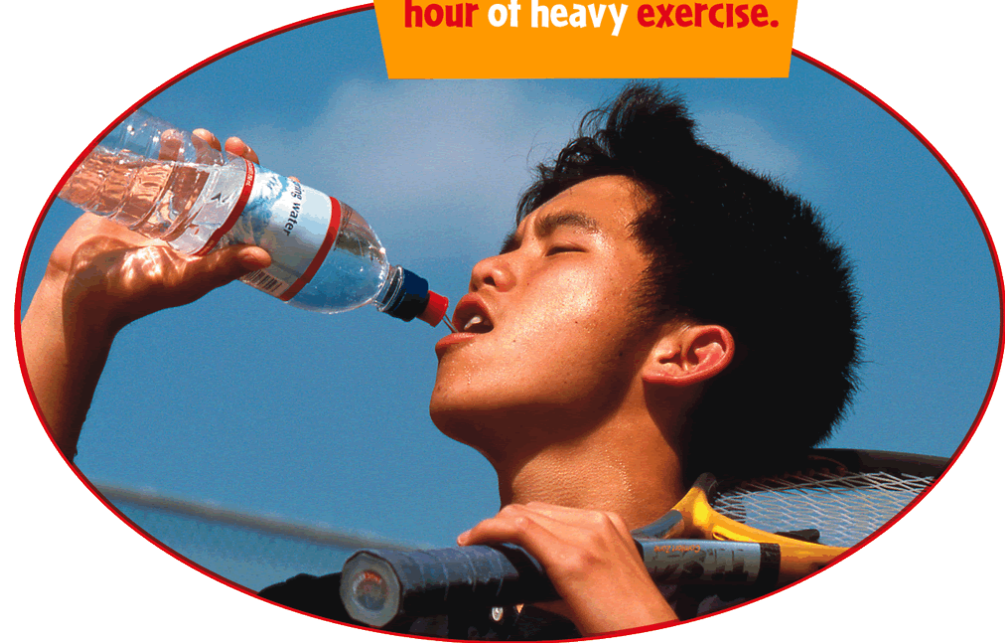
Water

- About 65 percent of your body weight is water.
- Nearly all of the body's chemical reactions, including those that produce energy and build new tissues, take place in a water solution.

HOW
MUCH
WATER
DO WE
REALLY
NEED?

LOOK IT
UP!!

You can lose **4 cups** of
water during every
hour of heavy **exercise**.



- Every day, you need at least ten 8-ounce cups of water if you are a **female** 14 to 18 years old.
- **Males** in the same age group need 14 cups of water per day.

Water and Homeostasis

What the heck are electrolytes?

Electrolytes help maintain the fluid balance in your body.

Electrolytes include:

sodium
chloride
potassium
magnesium
calcium



yogapancake.com

When you sweat,
you lose electrolytes
which can throw
things out of balance

Where to find electrolytes:

sodium		pickles
chloride		tomatoes
potassium		banana
magnesium		spinach
calcium		collard greens

- **Homeostasis** is the process of maintaining a steady state inside your body.

- When you become overheated, your body excretes perspiration, which cools your body. Thus, water regulates body temperature.

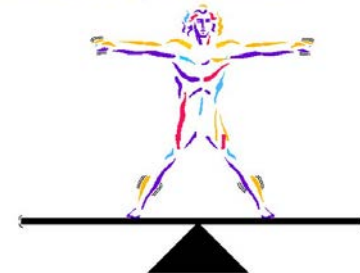
- Water contains dissolved substances called **electrolytes** that regulate many processes in your cells.

Examples of Homeostasis

Many variables are maintained by homeostasis.

Examples include:

- * Temperature
- * Blood pH
- * Blood sugar
- * Water balance
- * Blood pressure
- * Ion balance



ELECTROLYTES LOST WHEN YOU SWEAT

WHILE WORKING OUT, YOU LOSE THE 4 MOST IMPORTANT ELECTROLYTES.

POTASSIUM

Eat bananas to replenish lost potassium.



SODIUM

Eat peanut butter on a bagel for a snack after working out.



CALCIUM

Milk & milk products provide a powerful combination of carbs, calcium, potassium & protein.



MAGNESIUM

Nuts, grains & dried beans can replenish magnesium.



MOO! Don't like milk? Try yogurt!

AFTER ANY INTENSE EXERCISE, IT IS IMPORTANT TO REPLENISH THESE ELECTROLYTES.



BAPTIST HEALTH

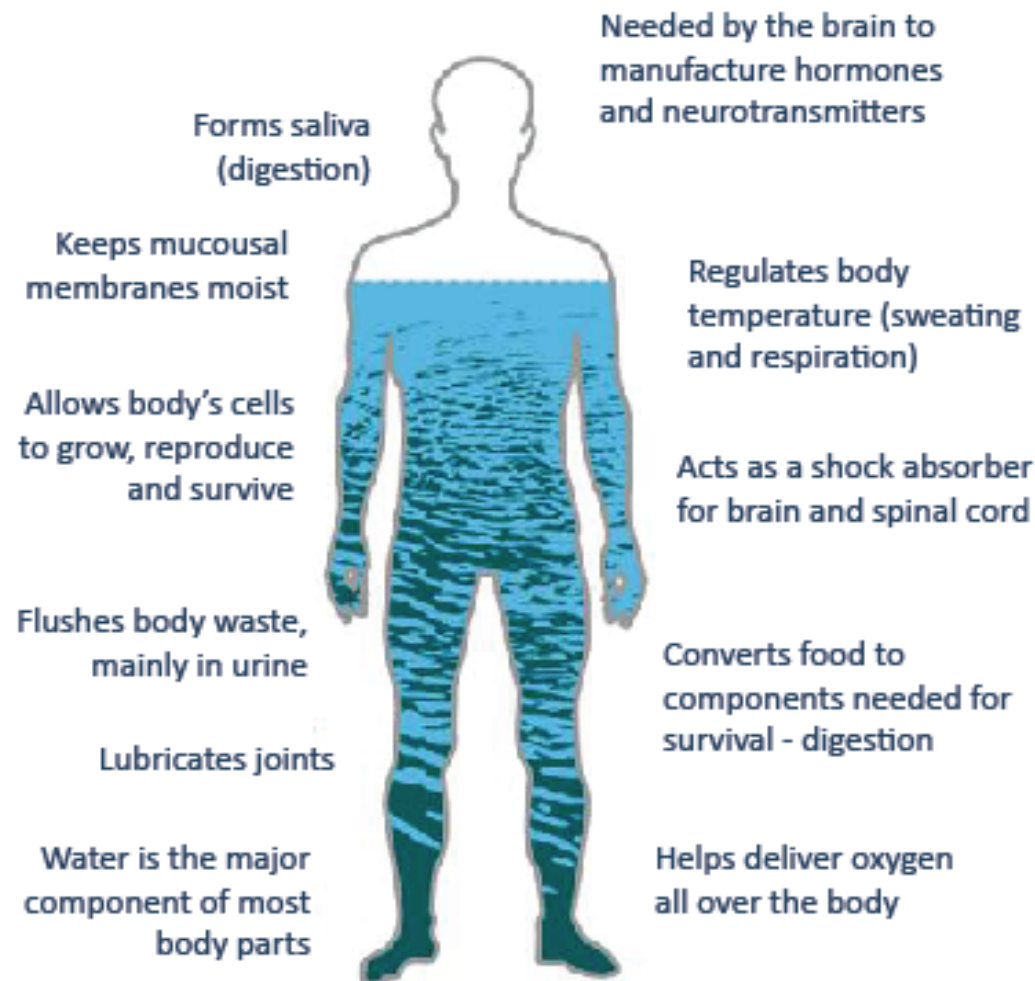
Sources:
www.ahajournals.org, www.heart.org, www.heart.org, www.heart.org

Preventing Dehydration

- **Dehydration** is a serious reduction in the body's water content.
- Symptoms of dehydration can include weakness, rapid breathing, and a weak heartbeat.



What Does Water do for You?



Water Versus Sports Drinks

- A sports drink is **not necessary** if you exercise for **60 minutes or less**.
- Sports drinks with electrolytes are not necessary unless you exercise for **5 hours or more**.
- If you exercise longer, a sports drink that contains carbohydrates may be beneficial.



Vocabulary

vitamin A nutrient that is made by living things, is required in small amounts, and assists in chemical reactions in the body.

antioxidant A vitamin that helps protect healthy cells from the damage caused by the normal aging process as well as from certain types of cancer.

mineral A nutrient that occurs naturally in rocks or soil; needed by the body in small amounts.

anemia A condition in which the red blood cells do not contain enough hemoglobin.

Vocabulary

homeostasis	The process of maintaining a steady state inside the body.
electrolyte	A dissolved substance that regulates many processes in cells.
dehydration	A serious reduction in the body's water content.

End of
Slide

Write the letter of the correct answer in the space provided.

- _____ 1. Which is *not* a characteristic of vitamins?
- They are made by living things.
 - They are required by the body in small amounts.
 - They occur naturally in rocks and soil.
 - They assist in many chemical reactions in the body.
- _____ 2. Which of the following protects healthy cells from damage during the normal aging process?
- electrolytes
 - minerals
 - water
 - antioxidants
- _____ 3. Which of the following is a mineral?
- folate
 - magnesium
 - pantothenic acid
 - biotin
- _____ 4. Which mineral is needed for healthy red blood cells?
- calcium
 - potassium
 - iron
 - sodium
- _____ 5. The process of maintaining a steady state inside the body is called
- homeostasis.
 - dehydration
 - anemia.
 - nausea.

Decide whether each statement is true or false. Write true or false in the space provided.

- _____ 6. Water-soluble vitamins can be stored by the body.
- _____ 7. Only plants can absorb minerals from rocks and soil.
- _____ 8. An excess of vitamins or minerals can damage your health.
- _____ 9. Water regulates body temperature.
- _____ 10. Water can be obtained only by drinking beverages.

Objectives

- ▶ **Explain** how the *Dietary Guidelines for Americans* can help you plan a healthful diet.
- ▶ **Summarize** the recommendations in the MyPyramid plan.

Vocabulary

- *Dietary Guidelines for Americans*
- nutrient-dense food
- MyPyramid plan

Warm-Up

Dear Advice Line,

My family is really busy, and we don't have a lot of time to cook. It seems like we eat an awful lot of take-out, packaged meals, and frozen dinners. I wonder if we are getting too much sodium, sugar, and fat. I also don't think we get enough fresh vegetables and whole grains. What can we do?

WRITING Write a response to this teen to help solve the problem.



The Dietary Guidelines

- The ***Dietary Guidelines for Americans*** is a document developed by nutrition experts to promote health.
- The *Dietary Guidelines* provide information on how to
 - make smart food choices
 - balance food intake with physical activity
 - get the most nutrition out of the calories you consume
 - handle food safely

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Key Recommendations:

Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:^[1]

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils

A healthy eating pattern limits:

- Saturated fats and *trans* fats, added sugars, and sodium

Key Recommendations that are quantitative are provided for several components of the diet that should be limited. These components are of particular public health concern in the United States, and the specified limits can help individuals achieve healthy eating patterns within calorie limits:

- Consume less than 10 percent of calories per day from added sugars^[2]
- Consume less than 10 percent of calories per day from saturated fats^[3]
- Consume less than 2,300 milligrams (mg) per day of sodium^[4]
- If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age.^[5]

In tandem with the recommendations above, Americans of all ages—children, adolescents, adults, and older adults—should meet the *Physical Activity Guidelines for Americans* to help promote health and reduce the risk of chronic disease. Americans should aim to achieve and maintain a healthy body weight. The relationship between diet and physical activity contributes to calorie balance and managing body weight. As such, the *Dietary Guidelines* includes a Key Recommendation to:

- Meet the *Physical Activity Guidelines for Americans*.^[6]

Make Smart Food Choices

- Choose a wide variety of foods.
- Include plenty of whole-grain foods, vegetables, and fruits.
- Choose low-fat or nonfat milk and milk products.

End of
Slide

Balance Food and Physical Activity

- Maintaining a healthy weight is a matter of balancing the calories you take in with how active you are.
- The *Dietary Guidelines* recommend that teenagers be active for 60 minutes most days.

End of
Slide

Get the Most Nutrition Out of Your Calories

- Choose foods that are nutrient-dense.
- **Nutrient-dense foods** contain lots of vitamins and minerals relative to the number of calories.
 - Low in saturated fat, trans fat, added sugar, and salt.
 - Examples: lean meats, fish, poultry, legumes
- Most people consume too much sodium but not enough potassium.
 - Fruits and vegetables can boost potassium levels.
 - Limit salty foods: chips, crackers, pop, pickled foods, luncheon meat, canned soups.

Hungry for a snack? Try these nutrient-dense foods:

- **Fresh fruit**
- **Low-fat yogurt**
- **Nuts and raisins**
- **Raw veggies**

End of
Slide

Handle Food Safely

- Part of good nutrition is using safe procedures to prepare, handle, and store the food you eat.
- Keep your hands and surfaces that come into contact with food clean.
- Separate raw and cooked foods while preparing or storing them.
- Cook meat, poultry, and fish to safe internal temperatures.
- If food is perishable, chill it right away.
- Thaw foods in the refrigerator, not the counter.



End of
Slide

MyPyramid Plan

Physical Activity

As a teenager, you should try to be active 60 minutes most days.



Grains

Make half the grains you eat whole grains. Look for the word *whole* before the name of the grain. Good choices are

- breads: whole-wheat or rye, pita, rolls, tortillas
- pasta: macaroni, spaghetti, rice noodles
- other grains: rice, crackers, couscous, bulgur, breakfast cereals



Vegetables

Vary your vegetables. Include in your diet

- dark green vegetables: spinach, kale, mustard or collard greens
- orange vegetables: carrots, squash, sweet potatoes
- dry beans and peas
- starchy vegetables: potatoes, corn, lima beans



Fruits

- Eat a variety of fruits, such as apples, bananas, mangoes, oranges, papayas, grapes, and pineapples.
- Limit your fruit juices.



Oils

- Consume most of your fats from fish, nuts, and vegetable oils.
- Limit solid fats, such as butter, stick margarine, shortening, and lard.



Milk

- Get plenty of calcium- rich foods.
- Choose low-fat or fat-free when you consume milk, yogurt, or cheese.



Meat and Beans

Choose low-fat or lean meats and poultry.
Vary your protein by choosing

- fish, nuts, seeds
- beans or peas, such as kidney, garbanzo, fava, navy, lentils



The “MyPyramid Plan”

- The **MyPyramid plan** groups foods according to types and indicates how much of each type should be eaten daily for a healthy diet.
- The MyPyramid plans differ with a person’s age, sex, and activity level.



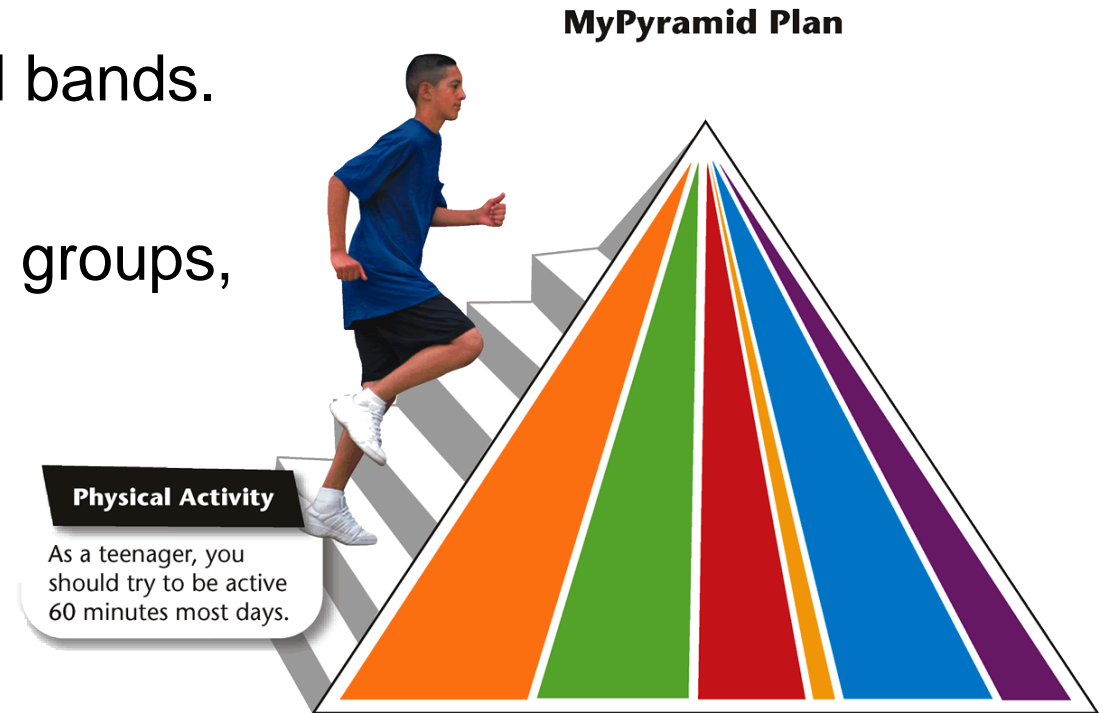
**Connect to
YOUR LIFE**

What kinds of things could you do to be more active each day?

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Slide**

The Colored Bands

- The pyramid is divided into six colored bands.
- Each band represents one of five food groups, plus oils.
- The width of each band indicates the proportion of your diet that should come from that group.



The Stair Steps

The stair steps in the pyramid represent physical activity.

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Slide

Creating Your Own MyPyramid Plan

You can create your own personalized MyPyramid plan by visiting the USDA's Web site on the Internet.



Recommended Servings Per Day for 16-Year-Olds

Activity Level	Grains	Vegetables	Fruits	Milk	Meat and Beans
Sedentary Male Female	8 ounces 6 ounces	3 cups $2\frac{1}{2}$ cups	2 cups $1\frac{1}{2}$ cups	3 cups 3 cups	$6\frac{1}{2}$ ounces 5 ounces
Moderate Male Female	10 ounces 6 ounces	$3\frac{1}{2}$ cups $2\frac{1}{2}$ cups	$2\frac{1}{2}$ cups 2 cups	3 cups 3 cups	7 ounces $5\frac{1}{2}$ ounces
Active Male Female	10 ounces 8 ounces	4 cups 3 cups	$2\frac{1}{2}$ cups 2 cups	3 cups 3 cups	7 ounces $6\frac{1}{2}$ ounces

Using the Food Guidelines

Meals

- You should try to vary your diet at each meal.
 - **Breakfast** Don't skip breakfast. Choose whole-grain cereals, low-fat milk or yogurt, and fruit. Limit pastries, eggs, and bacon.
 - **Lunch** Focus on whole grains, fruits, and vegetables. Use mustard or ketchup instead of mayonnaise. Try low-fat cheese on pizza.
 - **Dinner** Trim excess fat from meats. Instead of fried meats or fish, try them grilled. Choose low-fat dressings, and limit butter.



FIGURE 16 Eating a healthy breakfast will help you to resist unhealthy foods later in the day.

End of
Slide

Using the Food Guidelines

Snacks

- Try satisfying your sweet tooth with fruit instead of cookies.
- Make a whole-wheat bagel, not a donut, your after-school treat.
- When you go to the movies, choose unbuttered popcorn.



End of
Slide



Using the Food Guidelines

Eating Out

Follow these tips.

- Substitute low-fat milk, water, or fruit juice for shakes and soft drinks.
- Select the salad bar in place of fries or onion rings. But go easy on dressings, cheese, bacon bits, and croutons.
- Choose a grilled chicken sandwich instead of a burger.

Eating foods away from home

Full-service and fast-food restaurants, convenience stores, and grocery stores offer a variety of meal options. Typically, these meals are higher in calories, saturated fat, sodium, and added sugars than the food you prepare at home. Think about ways to make healthier choices when eating food away from home.

1 Consider your drink

Choose water, unsweetened tea, and other drinks without added sugars to complement your meal. If you drink alcohol, choose drinks lower in added sugars and be aware of the alcohol content of your beverage. Keep in mind that many coffee drinks may be high in saturated fat and added sugar.

2 Savor a salad

Start your meal with a salad packed with vegetables to help you feel satisfied sooner. Ask for dressing on the side and use a small amount of it.



3 Share a dish

Share a dish with a friend or family member. Or, ask the server to pack up half of your entree before it comes to the table to control the amount you eat.

4 Customize your meal

Order a side dish or an appetizer-sized portion instead of a regular entree. They're usually served on smaller plates and in smaller amounts.

5 Pack your snack

Pack fruit, sliced vegetables, low-fat string cheese, or unsalted nuts to eat during road trips or long commutes. No need to stop for other food when these snacks are ready-to-eat.



6 Fill your plate with vegetables and fruit

Stir-fries, kabobs, or vegetarian menu items usually have more vegetables. Select fruits as a side dish or dessert.

7 Compare the calories, fat, and sodium

Many menus now include nutrition information. Look for items that are lower in calories, saturated fat, and sodium. Check with your server if you don't see them on the menu. For more information, check www.FDA.gov.

8 Pass on the buffet

Have an item from the menu and avoid the "all-you-can-eat" buffet. Steamed, grilled, or broiled dishes have fewer calories than foods that are fried in oil or cooked in butter.

9 Get your whole grains

Request 100% whole-wheat breads, rolls, and pasta when choosing sandwiches, burgers, or main dishes.



10 Quit the "clean your plate club"

You don't have to eat everything on your plate. Take leftovers home and refrigerate within 2 hours. Leftovers in the refrigerator are safe to eat for about 3 to 4 days.

Vocabulary

***Dietary
Guidelines for
Americans***

A document developed by nutrition experts to promote health and to help people reduce their risk for heart disease, cancer, and diabetes through diet and physical activity.

**nutrient-dense
food**

A food that contains lots of vitamins and minerals relative to the number of calories, but is low in saturated fat, trans fat, added sugar, and salt.

MyPyramid plan

A plan that groups foods according to types and indicates how much of each type should be eaten daily for a healthy diet.

End of
Slide

Quiz

Decide whether each statement is true or false. Write true or false in the space provided.

- _____ 1. The *Dietary Guidelines* recommend that teens be active for 60 minutes most days.
- _____ 2. To prevent food-borne illnesses, thaw foods on the counter.
- _____ 3. According to the MyPyramid plan, your diet should include more meats and beans than grains.
- _____ 4. Exercise is important for balancing the calories you consume with the calories you use.
- _____ 5. According to the MyPyramid plan, you must consume every food group at each meal.

Write the letter of the correct answer in the space provided.

- _____ 6. The *Dietary Guidelines for Americans* provides information on
 - a. planning a low-sodium diet.
 - b. calculating how many calories certain foods have.
 - c. finding the daily recommended servings of grains.
 - d. handling food safely.
- _____ 7. Which is an example of a nutrient-dense food?
 - a. soft drinks
 - b. potato chips
 - c. peanuts
 - d. cookies
- _____ 8. The MyPyramid plan
 - a. differs according to the foods people eat.
 - b. differs according to a person's age, sex, and activity level.
 - c. is the same for all people.
 - d. is the same for people at all activity levels.
- _____ 9. According to the MyPyramid plan, pasta and breads belong to the
 - a. meat and beans group.
 - b. vegetables group.
 - c. fruits group.
 - d. grains group.
- _____ 10. Which is *not* a tip that can help you follow the *Dietary Guidelines* and the MyPyramid plan?
 - a. Skip breakfast if you do not have time.
 - b. Choose unbuttered popcorn at the movies.
 - c. Use mustard or ketchup instead of mayonnaise.
 - d. Choose a grilled chicken sandwich instead of a burger.