

# Today's Agenda: 9/23/14

1. Students will grade Potential Injuries of Physical Activity crossword.
2. Students will grade Unit 1 Test, Living a Health Lifestyle with Physical Activity
3. **TO: Describe function of six basic nutrients in maintaining health.**



To survive, the human body needs the nutrients found in food.



Nutrients are classified into six groups.



## 1. What Are Carbohydrates (CHO)?

Made up of carbon, oxygen, and hydrogen, carbohydrates are **the body's preferred source of energy.**

Depending on their chemical makeup, carbohydrates are **classified as either:**

- **Simple**

**OR**

- **Complex**



## Simple and Complex Carbohydrates

**Simple CHO**

- They **are sugars**, such as fructose, lactose, and sucrose.
- They **occur naturally in plants** such as sugarcane and sugar beets.

**Complex CHO**

- They are **starches**.
- They are **found in whole grains, nuts, legumes, and tubers**.



## The Role of CHO

- Your **body converts all CHO to glucose.**
- **Glucose** that is not used right away **is stored as glycogen.**
- **When** more **energy is needed**, your **body converts the glycogen back to glucose.**
- Your body converts and **stores the excess CHO as body fat.**



## 2. Fiber

- Fiber is **found in the tough, stringy parts of vegetables, fruits,** and whole grains.
- It helps **prevent** intestinal problems such as **constipation.**
- Eating enough fiber **reduces the risk of heart disease.**
- Some types of fiber help control diabetes.



## Fiber

- Fiber is found in the tough, stringy parts of vegetables, fruits, and whole grains.
- It helps with digestive problems such as constipation.
- Eating complex carbohydrates reduces the risk of heart disease.
- Some types of fiber help control diabetes.



Fiber is an indigestible complex carbohydrate.



### 3. What Are Proteins?

Proteins are a vital part of every cell in your body. They are **made of long chains of substances called amino acids.**





## Complete and Incomplete Proteins



Complete  
Proteins

Incomplete  
Proteins

- Complete proteins **contain adequate amounts of all nine essential amino acids.**
- **Animal products and many soybean** products are good sources of complete proteins.



## Complete and Incomplete Proteins



**Complete  
Proteins**

**Incomplete  
Proteins**

- Incomplete proteins **lack one or more of the essential amino acids.**
- **Beans, peas, nuts, and whole grains** are good sources of incomplete proteins.



## The Role of Proteins

The **body uses proteins to:**

- **Build new cells and tissues.**
- **Replace damaged cells** by making new ones.
- Make enzymes, hormones, and antibodies.
- Supply the body with energy.



## 4. What Are Fats?

Fats are a **type of lipid**. The **building blocks of fats are called fatty acids**.

Depending on their chemical composition, fatty acids are **classified as either:**

- **Saturated**

**OR**

- **Unsaturated**



## Saturated and Unsaturated Fatty Acids

**Saturated Fatty Acids**

- Hold all the hydrogen atoms they can.
- Are usually **solid at room temperature**.
- Are associated with an **increased risk of heart disease**.

**Unsaturated Fatty Acids**

- Have at least one unsaturated bond where hydrogen can be added to the molecule.
- Are usually **liquids (oils) at room temperature**.
- Have been associated with a **reduced risk of heart disease**.



## The **Role of Fats**

- They **transport vitamins A, D, and K in the blood.**
- They serve as sources of linoleic acid—an essential fatty acid that is **needed for growth and healthy skin.**
- They add flavor and texture to food.
- They satisfy hunger longer than other nutrients do.

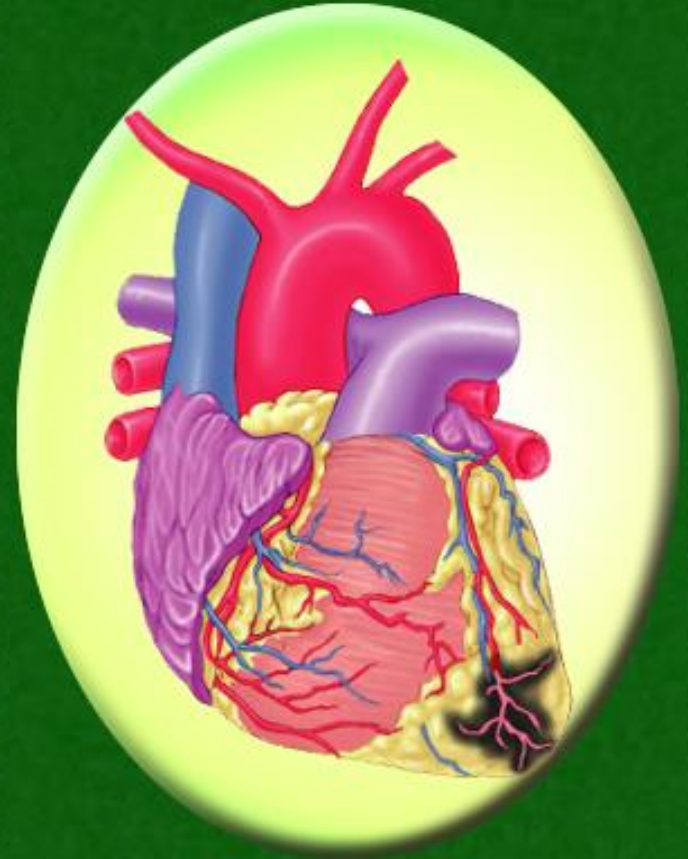


## The Role of Cholesterol

**Cholesterol is a waxy lipid-like substance that circulates in blood.**

Your body uses cholesterol to:

- **Make cell membranes and nerve tissue.**
- **Produce hormones.**
- **Produce vitamin D.**
- **Produce bile, which helps digest fats.**



## Ways to Reduce Your Risk of Heart Disease



- Eat a diet low in saturated fats and cholesterol.
- Lose excess weight to lower cholesterol levels.





## 5. Vitamins

- Vitamins are classified as **either water- or fat-soluble.**
- Water-soluble vitamins dissolve in water and pass easily into the blood during digestion. [More Info](#)
- Fat-soluble vitamins are absorbed, stored, and transported in fat. [More Info](#)




## Vitamins

- Vitamins are classified as either water- or fat-soluble.

- Water-soluble vitamins dissolve in water and pass easily into the bloodstream after digestion.

- Fat-soluble vitamins are absorbed, and transported in fat.

 Vitamins are compounds that help regulate many vital body processes, including the digestion, absorption, and metabolism of other nutrients.



# WATER-SOLUBLE VITAMINS

<b>Vitamin/Amount Needed Each Day</b>	<b>Role in Body</b>	<b>Food Source</b>
<b>C (ascorbic acid)</b> Teen female: 60 mg Teen male: 60 mg	protects against infection, helps form connective tissue, helps heal wounds, maintains elasticity and strength of blood vessels, promotes healthy teeth and gums	citrus fruits, cantaloupe, tomatoes, cabbage, broccoli, potatoes, peppers
<b>B<sub>1</sub> (thiamine)</b> Teen female: 1.1 mg Teen male: 1.5 mg	converts glucose into energy or fat, contributes to good appetite	whole-grain or enriched cereals, liver, yeast, nuts, legumes, wheat germ
<b>B<sub>2</sub> (riboflavin)</b> Teen female: 1.3 mg Teen male: 1.8 mg	essential for producing energy from carbohydrates, fats, and proteins; helps keep skin healthy	milk, cheese, spinach, eggs, beef liver
<b>Niacin</b> Teen female: 15 mg Teen male: 20 mg	important for maintenance of all body tissues; helps in energy production; needed by body to utilize carbohydrates, to synthesize body fat, and for cell respiration	milk, eggs, poultry, beef, legumes, peanut butter, whole grains, enriched and fortified grain products
<b>B<sub>6</sub></b> Teen female: 1.5 mg Teen male: 2.0 mg	essential for amino acid and carbohydrate metabolism, helps turn the amino acid <i>tryptophan</i> into serotonin (a messenger to the brain) and niacin	wheat bran and wheat germ, liver, meat, whole grains, fish, vegetables
<b>Folic acid</b> Teen female: 180 mcg Teen male: 200 mcg	necessary for production of genetic material and normal red blood cells, reduces risk of birth defects	nuts and other legumes, orange juice, green vegetables, folic acid-enriched breads and rolls, liver
<b>B<sub>12</sub></b> Teen female: 2.0 mcg Teen male: 2.0 mcg	necessary for production of red blood cells and for normal growth	animal products such as meat, fish, poultry, eggs, milk, and other dairy foods; some fortified foods

# FAT-SOLUBLE **VITAMINS**

Vitamin/Amount Needed Each Day	Role in Body	Food Source
<b>A</b> Teen female: 800 mcg Teen male: 1,000 mcg	helps maintain skin tissue, strengthens tooth enamel, promotes use of calcium and phosphorous in bone formation, promotes cell growth, keeps eyes moist, helps eyes adjust to darkness, may aid in cancer prevention	milk and other dairy products, green vegetables, carrots, deep-orange fruits, liver
<b>D</b> Teen female: 5 mcg Teen male: 5 mcg	promotes absorption and use of calcium and phosphorous, essential for normal bone and tooth development	fortified milk, eggs, fortified breakfast cereals, sardines, salmon, beef, margarine; produced in skin exposed to sun's ultraviolet rays
<b>E</b> Teen female: 8 mg Teen male: 10 mg	may help in oxygen transport, may slow the effects of aging, may protect against destruction of red blood cells	vegetable oils, apples, peaches, nectarines, legumes, nuts, seeds, wheat germ
<b>K</b> Teen female: 55 mcg Teen male: 65 mcg	essential for blood clotting, assists in regulating blood calcium level	spinach, broccoli, eggs, liver, cabbage, tomatoes

## 6. Important Minerals

Some important minerals you need each day are:


- Calcium
- Phosphorous
- Magnesium
- Iron



## Important Minerals

Some important minerals you need each day are:

- Calcium
- Phosphorus
- Magnesium
- Iron

 Minerals are substances that the body cannot manufacture but that are needed for forming healthy bones and teeth and for regulating many vital body processes.



## The Role of Water

- It **transports nutrients to and carries wastes from your cells.**
- It **lubricates your joints** and mucous membranes.
- It **enables you to swallow and digest foods**, absorb nutrients, and eliminate wastes.
- It helps **maintain normal body temperature** through perspiration.



Choose the appropriate option.

**Q.** The starches and sugars present in foods are called \_\_\_\_\_.

1. fiber
2. proteins
3. carbohydrates
4. vitamins





**A.** The starches and sugars present in foods are called **carbohydrates.**

Click **Next** to attempt another question.



Choose the appropriate option.

**Q.** A \_\_\_\_\_ is a fatty substance that does not dissolve in water.

1. sugar

2. lipid

3. protein

4. mineral



**A.** A **lipid** is a fatty substance that does not dissolve in water.

Click **Next** to attempt another question.



Provide a short answer to the question given below.

Q. What are vitamins?

Click **Next** to view the answer.



**A.** Vitamins are compounds that help regulate many vital body processes, including the digestion, absorption, and metabolism of other nutrients.

They are classified as either water-soluble vitamins, which dissolve in water; or fat-soluble vitamins, which are absorbed, stored, and transported in fat.

Click **Next** to attempt another question.



Provide a short answer to the question given below.

Your friend Steve wants to cut down on his intake of saturated fats and cholesterol. What advice would you give him?

