

32.1 Nutrients and Homeostasis

KEY CONCEPT

Cells require many different nutrients.



32.1 Nutrients and Homeostasis

- ▶ **The six types of nutrients are water, carbohydrates, proteins, fats, minerals, and vitamins.**
- Water makes up 55% to 60% of your body.
 - involved in nearly every cell and body process
 - need 2 liters (8 cups) a day to replace fluid lost

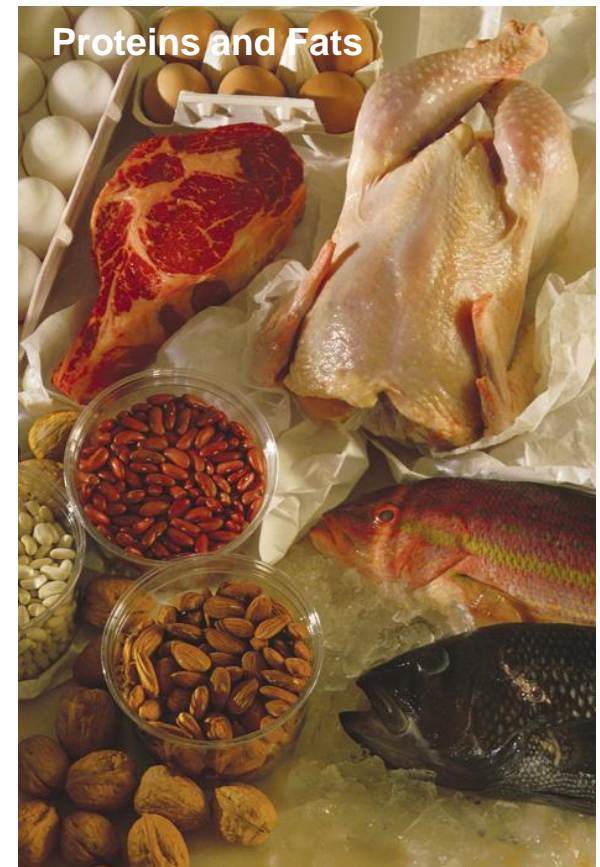
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- Carbohydrates are the main source of energy for the body.
 - simple and complex carbohydrates supply glucose
 - fiber from plant foods helps elimination



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- Proteins are necessary for growth and repair of the body's cells.
 - body makes 12 out of 20 amino acids
 - other eight essential amino acids come from food
- Fats provide energy and key building components.
 - fats are saturated and unsaturated
 - essential fatty acids come from food



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- Minerals are inorganic materials.
 - help to build or repair tissues
 - replenished by eating variety of foods

MINERALS	SOURCES	IMPORTANT FOR
Calcium	dairy products, salmon, sardines, dark leafy greens	blood clotting, bone/tooth formation; muscle/nerve function
Iron	liver, dark leafy greens, whole grains	component in hemoglobin
Iodine	iodized salt, seafoods, sea vegetables	component in thyroid hormones
Magnesium	nuts, whole grains, leafy green vegetables	bone/tooth formation; coenzyme in protein synthesis
Phosphorus	meats, dairy products, nuts, dried peas and beans	bone/tooth formation; active in many metabolic processes
Potassium	meats, dairy products, many fruits and vegetables	regulation of pH, fluid balance, and muscle/nerve function
Sodium	table salt, seafoods, processed foods	regulation of pH, fluid balance, and muscle/nerve function
Zinc	meats, seafoods, grains	activation of many enzymes in metabolic processes

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- Vitamins are organic molecules that work with enzymes.
 - vitamins are fat-soluble and water-soluble
 - regulate cell functions, growth, development
 - replenished by eating variety of foods

VITAMIN	SOURCES	IMPORTANT FOR
Fat-Soluble (Dissolves in Fat)		
A (retinol)	dark green, yellow, and orange vegetables, fortified milk, fish and liver oils	healthy skin, mucous membranes, vision
D (calciferol)	fortified dairy and whole grain products, egg yolks, fish and liver oils	bone and tooth formation, increase in calcium and phosphorus absorption
Water-Soluble (Dissolves in Water)		
B ₁ (thiamine)	pork and red meats, whole grains, dried beans and peas, eggs	metabolism of carbohydrates
B ₂ (riboflavin)	dairy products, liver and organ meats, enriched whole grains	metabolism of carbohydrates and proteins, normal growth in skin, lips, and mucous membranes

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▶ Meeting nutritional needs supports good health.

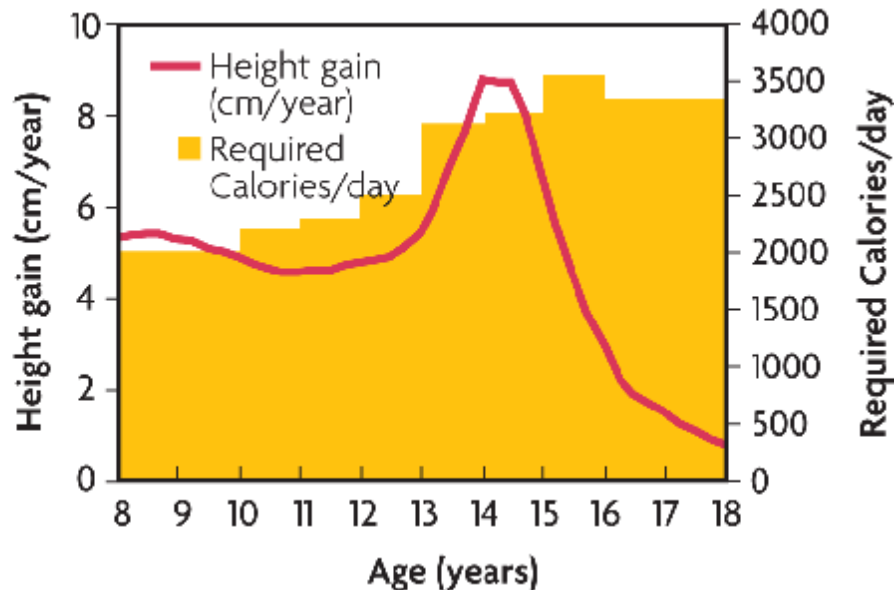
- During puberty, you require more nutrients and Calories.
 - One Calorie equals one kilocalorie, or 1000 calories.
 - 1g of protein or carbohydrate equals 4 Calories.
 - 1g of fat equals 9 Calories.



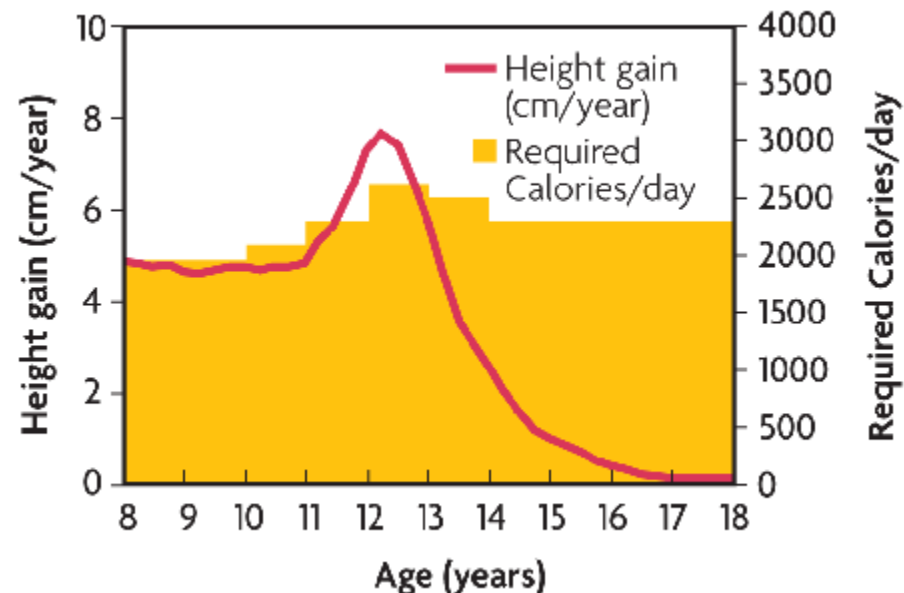
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- A balanced diet of whole foods provides the best nutrients and Calories.
- Food and physical activity also need to be balanced.

MALES



FEMALES



32.1 Nutrients and Homeostasis

- Food labels can help you make good eating choices.

MACARONI AND CHEESE

1 Know serving size.

2 Check Calories and Calories from fat per serving.

3 Limit these nutrients.

4 Get enough of these nutrients.

Footnote explains % Daily Values

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

Source: U.S. Food and Drug Administration