

Chapter 9 Nutrition Basics

Hlth 2 Health and Wellness
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Learning Objectives

1. Define the following terms: essential nutrient, digestion, calorie, protein, amino acids, fat (saturated, unsaturated, polyunsaturated), trans fatty acid/trans fat, cholesterol, low-density lipoprotein, high-density lipoprotein, omega-3-fatty acid, carbohydrate, glucose, fiber (soluble, insoluble, dietary), vitamins, antioxidant, minerals, anemia, osteoporosis, daily values, vegetarian (vegan, lacto, lacto-ovo, pesco).
2. List the essential nutrients, and describe the functions they perform in the body.
3. Identify and discuss the functions of major minerals.
3. Discuss the USDA Food Guide Pyramids for vegetarian and non-vegetarian meal planning.
4. Explain how food labels are used to make informed choices about foods.
5. Construct a typical holiday meal and calculate calories and grams of fat from meal, and discuss what issues are involved in eating during the holiday season and celebrations.*
6. Discuss food similarities and differences between racial and ethnic groups.*

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What Did You Eat Today?

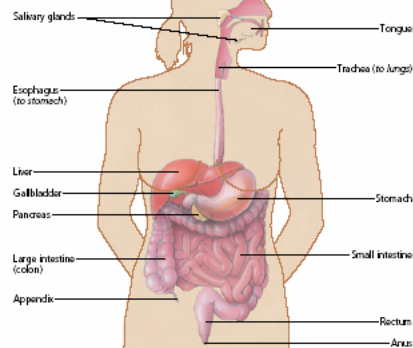
Breakfast? (MOST IMPORTANT MEAL)

Lunch?

Dinner?

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Digestive System



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Essential Nutrients

1. **Proteins** = amino acids, complete and incomplete proteins
2. **Fats** = lipids, glycerol + fatty acids
3. **Carbohydrates** = chains of simple sugars
4. **Vitamins** = water-soluble (B complex, C) and fat-soluble (A,D,E,K)
5. **Minerals** = inorganic elements, salts
6. **Water** = includes water in food you eat

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Proteins

- amino acids are building blocks of proteins
- essential amino acids (must eat these)
- nonessential amino acids (our body can produce these)
- complete protein (meats, poultry, fish, egg, dairy)
- incomplete protein (beans, peas, legumes)
- energy from protein - 4 kcalories/gm

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Carbohydrates

- **Simple carbohydrates:** monosaccharides- glucose, fructose, galactose; disaccharides- sucrose, lactose, maltose
- **Complex carbohydrates:** long chains of simple carbohydrates; starch (rice, pasta), fiber (insoluble soluble)
- primary source of energy for nervous system, brain, blood cells. The rest of the body can also convert proteins and fats for energy.
- human body cannot digest fiber, just add bulk to feces
- Energy from carbohydrates- 4 kcalories/gm

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Fats (Lipids)

- **Typical composition:** glycerol + fatty acids
- **Cholesterol** (body produces cholesterol, need for cells and steroid hormones). Should keep under
- **saturated fats** (solid at room temperature)
- **mono- and polyunsaturated fats** (liquid at room temp)
- **trans-fats** (artificially made saturated- peanut butter, margarine, shortening)
- High Density Lipoprotein (HDL- bad cholesterol), Low Density Lipoprotein (LDL, good cholesterol)
- Energy from fats- 9kcalories/gm

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Percent of Total Calories Each Day

- Protein (15%)
- Carbohydrates (55%)
- Fats (30% or less), 10% from saturated fats
- Alcohol, a non-essential nutrient (sparingly)

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Vitamins (water- & fat-soluble)

Water Soluble

- **B Complex** (thiamin, riboflavin, niacin, vitamin B-6, folate, vitamin B-12, biotin, panthothenic acid). B-12 from animal products ONLY.
- **C** (need for bones, cartilage, healing)

Fat Soluble

- **A** (prevent blindness)
- **D** (strong bones, usually included in milk)
- **E** (not much needed, for cells)
- **K** (need for proper blood clotting)

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Minerals (inorganic elements)

- **Major Minerals:** calcium, phosphorous, magnesium, sodium, chloride, potassium)
- **Trace Minerals:** copper, fluoride, iodide, iron, selenium, zinc

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Water

- Need about 8 cups of water per day, including water in the food you eat.
- More water in hot climates and vigorous exercise, less in cool climates, no exercise.
- **DO NOT** keep drinking water until urine is clear. Urine should be slightly yellow.
- Body knows how to regulate water.
- Lose water in urine, feces, sweat, lungs

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Dietary Reference Intakes (DRIs)

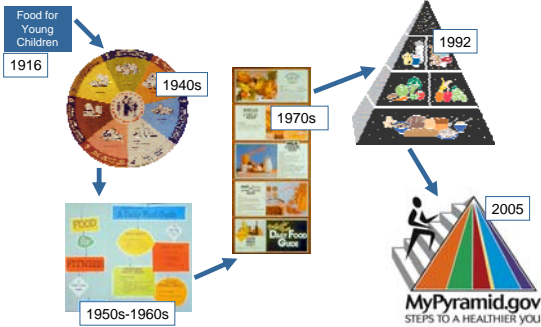
- standards for nutrient intake designed to prevent nutritional deficiencies and reduce the risk of chronic disease
- **Food Guide Pyramid** translates RDI into easy-to-understand guidelines

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MyPyramid USDA's New Food Guidance System

United States Department of Agriculture
Center for Nutrition Policy & Promotion 

History of USDA's Food Guidance



--1992-- Food Guide Pyramid



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--2005-- MyPyramid



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~~Servings~~

Daily Amounts
in cups or ounces

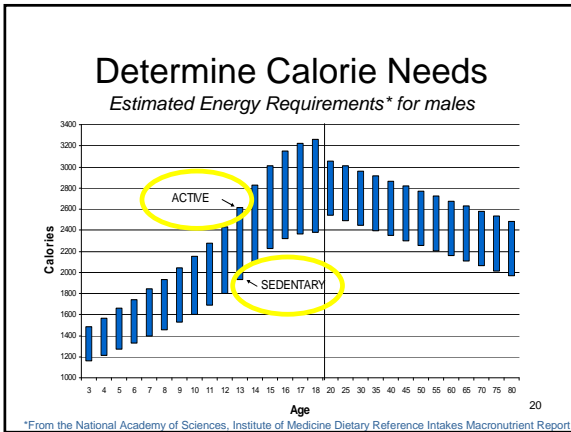


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Reasons for Revising— Updating the Science

- To ensure that the guidance reflects the latest nutrition science
 - New nutrient standards—DRI
 - New Dietary Guidelines
 - Food consumption and composition data

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Message: *Variety*

In the Dietary Guidelines:

- Consume a variety of nutrient-dense foods and beverages within and among the basic food groups.

In MyPyramid graphic:

- Color bands represent that all food groups are needed each day for health.

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Food Groups are Color Coded

Message: *Proportionality*

In the Dietary Guidelines:

- Adopt a balanced eating pattern.
 - Sufficient amount of fruits and vegetables,
 - 3 or more ounce equivalents of whole-grain products per day
 - 3 cup equivalents per day of fat-free or low-fat milk or milk products.

In MyPyramid graphic:

- Differing widths of the color bands suggest about how much food should be eaten from each group.

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Message: *Moderation*

In the Dietary Guidelines:

- Limit intake of saturated and *trans* fats, and choose products low in these fats.
- Make choices of meat, poultry, dry beans, and milk products that are lean, low-fat, or fat-free.
- Choose and prepare foods and beverages with little added sugars or calorie sweeteners.

In MyPyramid graphic:

- Food group bands narrow from bottom to top suggesting to eat nutrient-dense forms of foods.

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Mix up your choices within each food group.

Key food group messages from the Dietary Guidelines and MyPyramid:

- Focus on fruits.**
- Vary your veggies.**
- Get your calcium-rich foods.**
- Make half your grains whole.**
- Go lean with protein.**
- Know the limits on fats, salt, and sugars.**


Message: *Physical Activity*

In the Dietary Guidelines:

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.

In MyPyramid graphic:

- Steps and person on them symbolize that physical activity should be a part of everyday healthy living.



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Vegetarian Diets

Vegan: vegan vegetarians are true vegetarians who do not eat animal products. They plant products and algae. Vegans must watch for vitamin B-12 deficiency because only get this through eating animals. Humans **MUST HAVE** vitamin B-12 to live. **Does this mean humans were designed to eat animal products?**

Pseudo-vegetarians: these people want the name "vegetarian" but they eat animal products. Lacto (eat dairy), ovo (eat eggs), lacto-ovo (eat dairy & eggs), pesco (eat fish and shellfish)

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Food Labels

Nutrition Facts
 Serving Size 1 cup (265g)
 Servings per Container 2

| Amount per Serving | |
|-------------------------------|----------------------|
| Calories 235 | Calories from Fat 30 |
| % Daily Value* | |
| Total Fat 3g | 5% |
| Saturated Fat 1g | 5% |
| Cholesterol 30mg | 10% |
| Sodium 775mg | 32% |
| Total Carbohydrate 34g | 11% |
| Dietary Fiber 9g | |
| Sugars 5g | 36% |

Food Labels

continued

Protein 18g

Vitamin A 25%
 Vitamin C 0%
 Calcium 12%
 Iron 20%

*Percents (%) of a Daily Value are based on a 2,000 calorie diet. Your Daily Values may vary higher or lower depending on your calorie needs:

| Nutrients | 2,000 Calories | 2,500 Calories |
|--------------------|-------------------|----------------|
| 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 |
| Fiber | 25g | 30g |