in the diet include snack foods and baked goods made with "partially hydrogenated vegetable oil" or "vegetable shortening." Trans fatty acids also occur naturally in some animal products, such as dairy products.

Current dietary standards recommend that no more than 10 percent of one's total daily calories come from saturated fats, and that total fat intake be no more than 30 percent of one's total daily calories. Experts give the following tips to reduce the amount of fat in the diet:

- Limit the amount of red meat eaten.
- Choose low-fat or no-fat varieties of milk and cheese.
- Remove the skin of chicken and turkey before eating.
- Snack on pretzels instead of potato chips.
- Decrease or eliminate fried foods, butter, and margarine from the diet.
- Cook with small amounts of olive oil instead of butter, to cut your saturated fat intake.

Read food labels to see exactly how much fat is in foods (Figure 8-4). If the number of "fat calories" is more than 30% of total calories per serving, the food should be considered high-fat.

Nutrition Facts

Serving Size 1/2 cup (114g)
Servings Per Container 4

Amount Per Serving	
Calories 90	Calories from Fat 30
	% Daily Value
Total Fat 3g	**5%**
Saturated Fat 0g	**0%**
Cholesterol 0mg	**0%**
Sodium 300mg	**13%**
Total Carbohydrate 13g	**4%**
Dietary Fiber 3g	**12%**
Sugars 3g	
Protein 3g	

Vitamin A	80%	• Vitamin C	60%
Calcium	4%	• 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
Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Figure 8-4 Food labels contain important information about the nutritive value of the foods. (Courtesy of the FDA)

Vitamins

Vitamins are complex organic substances that the body needs in small amounts. These small amounts are measured in milligrams (mg) or micrograms (mcg). A *milligram* is one thousandth of a gram, and a *microgram* is one thousandth of a milligram or one-millionth of a gram. These small amounts are essential to proper health. Most vitamins cannot be manufactured by the body and must be provided by the diet.

vitamin *A complex organic substance that the body needs in small amounts.*

Vitamins have a variety of different functions in the body. If the body has insufficient amounts of vitamins in the body, certain symptoms will appear. These symptoms can develop into a deficiency disease.

Vitamins are grouped into two categories: fat-soluble and water-soluble.

Fat-soluble vitamins are found in foods such as meats, liver, dairy products, eggs, and leafy green vegetables. These vitamins are stored in the body's fat reserves and released as the body needs them. Taking large doses of these vitamins has the potential to cause toxicity.

fat-soluble vitamin *A vitamin that can be dissolved in fat.*

Table 8-1 lists fat-soluble vitamins, food sources, functions, and signs of deficiency in each. The fat-soluble vitamins are:

- Vitamin A (retinol)
- Vitamin D (calciferol)
- Vitamin E (tocopherol)
- Vitamin K_1 (phytonadione)
- Vitamin K_2 (menaquinones)
- Vitamin K_3 (menadione)

Table 8-1 Fat-Soluble Vitamins

NAME	FOOD SOURCES	FUNCTIONS	DEFICIENCY/TOXICITY
Vitamin A (retinol)	Animal Liver Whole milk Butter Cream Cod liver oil Plants Dark green leafy vegetables Deep yellow or orange fruit Fortified margarine	Maintenance of vision in dim light Maintenance of mucous membranes and healthy skin Growth and development of bones Reproduction Healthy immune system	Deficiency Night blindness Xerophthalmia Respiratory infections Bone growth ceases Toxicity Birth defects Bone pain Anorexia Enlargement of liver
Vitamin D (calciferol)	Animal Eggs Liver Fortified milk Fortified margarine Oily fish Plant None Sunlight	Regulation of absorption of calcium and phosphorus Building and maintenance of normal bones and teeth Prevention of tetany	Deficiency Rickets Osteomalacia Osteoporosis Poorly developed teeth and bones Muscle spasms Toxicity Kidney stones Calcification of soft tissues
Vitamin E (tocopherol)	Animal None Plant Green and leafy vegetables Margarines Salad dressing Wheat germ and wheat germ oils Vegetable oils Nuts	Antioxidant Considered essential for protection of cell structure, especially of red blood cells	Deficiency Destruction of red blood cells Toxicity
Vitamin K	Animal Liver Milk Plant Green and leafy vegetables Cabbage, broccoli	Blood clotting	Deficiency Prolonged blood clotting/ hemorrhaging Toxicity Hemolytic anemia Interferes with anticlotting medications