

# MILK

**M**ilk has long been a popular beverage, not only for its flavor, but because of its unique nutritional package. Milk is one of the best sources of calcium in the American diet. It also provides high-quality protein, vitamins and other minerals.

## VARIETIES

■ **Whole Milk** (3.25% fat) contains 150 calories and 8 grams (g) of fat per serving (8 fluid oz). Although not required, whole milk may be fortified with vitamin D at a level of 400 International Units (IU) per 1 quart. If vitamin D is added, the label must state this fact.

■ **2% Reduced-Fat Milk** (2% fat) contains 120 calories and 5 grams (g) of fat per serving (8 fluid oz). Vitamins A and D are removed with the milk fat. For this reason, these vitamins must be added to 2% reduced-fat milk so that it contains at least 2,000 IU of vitamin A and 400 IU of vitamin D per 1 quart. The addition of these vitamins must be stated on the label.

■ **1% Lowfat Milk** (also called Light Milk) (1% fat) contains 100 calories and 2.5 grams (g) of fat per serving (8 fluid oz). Vitamins A and D must be added to a level of at least 2,000 IU of vitamin A and 400 IU of vitamin D per 1 quart. The label must indicate the addition of these vitamins.

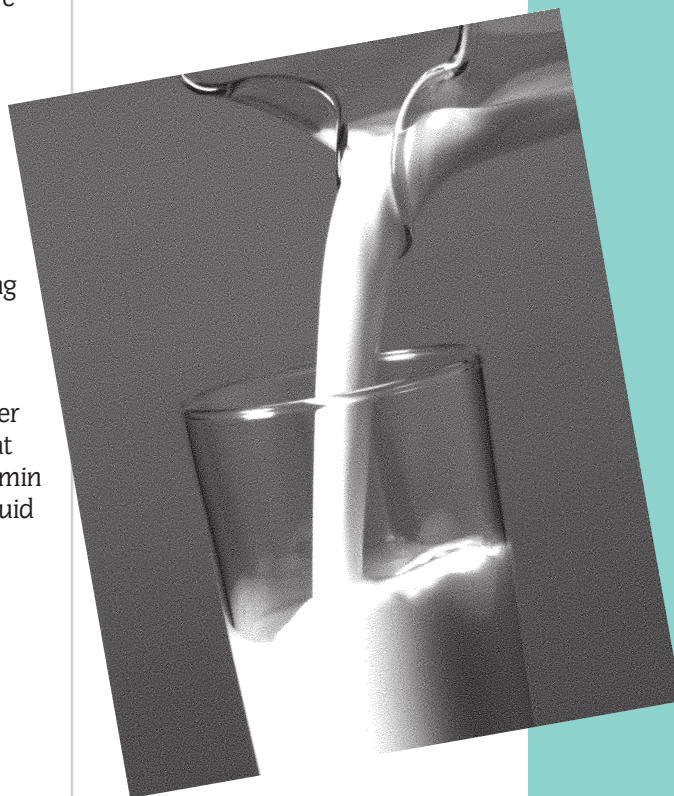
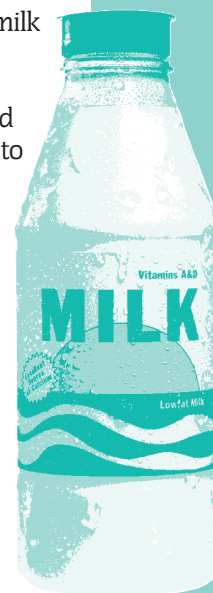
■ **Fat-Free Milk** (also called Skim or Nonfat Milk) (0% fat) contains 80 calories and 0 grams (g) of fat per serving (8 fluid oz). Vitamins A and D must be added to a level of at least 2,000 IU of vitamin A and 400 IU of vitamin D per 1 quart. The label must indicate the addition of these vitamins.

■ **Chocolate Milk** (fat-free, 1% lowfat, 2% reduced-fat, whole milk) is milk to which chocolate or cocoa and a sweetener have been added. This milk is just as nutritious as its unflavored counterpart. Compared to plain milk, chocolate milk contains about 60 more calories per serving (8 fluid oz).

■ **Evaporated Milk** (6.5% fat) is made by removing about 60% of the water from whole milk. The milk is then homogenized, fortified with vitamin D to a level of 25 IU per 1 fluid ounce, canned and heat sterilized. The addition of vitamin A is optional. If added, each fluid ounce must contain not less than 125 IU of vitamin A.

■ **Evaporated Fat-Free Milk** (0.5% fat or less) is a concentrated, fortified (vitamins A and D) fat-free (skim or nonfat) milk that is canned and sterilized.

■ **Sweetened Condensed Milk** (8% fat or less) is a canned milk concentrate of whole milk to which sugar has been added. The sweetener used (usually sucrose) prevents spoilage. Sweetened condensed fat-free milk contains no more than 0.5% milk fat.



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## PROCESSING TERMS EXPLAINED

### What Is Pasteurization?

This is the process of heating raw milk at a high enough temperature for a sufficient length of time to make milk bacteriologically safe and increase its keeping quality. Most milk sold in the U.S. is pasteurized. Pasteurization has little effect on milk's nutritive value.

### What Is Ultrapasteurization?

Milk that is ultrapasteurized has been heated to a higher temperature than pasteurized milk. Ultrapasteurized milk stays fresher longer under refrigeration than pasteurized milk. This process is often used for cream and eggnog.

### How Does UHT or Ultra High Temperature Milk Differ from Ultrapasteurized Milk?

The major difference is that UHT milk is packaged in sterilized containers. UHT milk can be stored at room temperature for up to 3 months. Once opened, it should be refrigerated.

### Why Is Milk Homogenized?

Homogenization breaks up and disperses milk fat throughout milk, resulting in a smooth, uniform texture. Most whole milk is homogenized to prevent the cream from rising to the top. Homogenization results in a softer curd in the stomach that aids digestion.



### Why Are Some Milks Fortified?

Because few foods, including milk, naturally contain vitamin D, this vitamin is added to 98% of fluid milk marketed in the U.S. Because vitamin A is removed with the milk fat, this vitamin is added to 2% reduced-fat, 1% lowfat and fat-free milks. If vitamin D and/or A is added to any dairy product, it must be indicated on the label. Nonfat milk solids may be added to some fat-free milks to improve their appearance, flavor and nutritive value. The milk must be labeled **Protein Fortified** or **Fortified with Protein**. The addition of nonfat milk solids increases the calories from protein and carbohydrate and adds more calcium. Some milks may be fortified with calcium. If so, this must be indicated on the label.

## NUTRITIONAL INFORMATION

Milk is a **nutrient-dense** food. This means that it provides a high level of essential nutrients compared to its calories. In fact, each serving of milk provides 10% or more of the recommended daily intake for calcium, vitamin D (if fortified), protein, potassium, vitamin A, vitamin B<sub>12</sub>, riboflavin and phosphorus.

Milk is an excellent source of calcium. Regardless of its fat content, milk provides about 300 milligrams (mg) of calcium per serving (8 fluid oz). The chart below provides information on the calcium content of fluid milk products per serving.

An adequate intake of calcium helps to reduce the risk of osteoporosis, high blood pressure and colon cancer. It is difficult to obtain enough calcium without consuming milk (or other dairy foods). To help meet calcium needs, the following number of servings of milk (or its equivalent) is recommended each day:

Children 4-8	3 servings
Children 9-18	4 servings
Adults 19-50	3 servings
Adults 50+	4 servings

Milk is a good source of high-quality **protein**, which means it contains all essential amino acids, the "building blocks" of protein. In addition to calcium, milk provides other minerals like phosphorus, which helps strengthen bones; potassium, which regulates the body's fluid balance and helps maintain normal blood pressure; magnesium, which is found in bones and teeth; and zinc, which helps keep skin, bones and hair healthy. The major fat-soluble vitamins in milk are A, which helps maintain normal vision and skin, and D, which helps the body absorb calcium. Milk is also a good source of the water-soluble vitamins niacin and B<sub>12</sub>. Niacin plays an important role in maintaining the normal function of enzymes in the body. Vitamin B<sub>12</sub> helps build red blood cells that carry oxygen from the lungs to working muscles. Milk is an excellent source of riboflavin (B<sub>2</sub>), which helps convert food into energy and promotes skin and eye health.

### A NUTRITIONAL LOOK AT MILK

1 cup (8 oz)	Calories Kcal	Fat g	Calcium mg
Whole	149	7.7	291
2% Reduced fat	121	4.4	296
1% Lowfat	104	2.2	312
Nonfat	90	0.5	316
Chocolate, Whole	208	8.0	280
Chocolate, 2% Reduced Fat	178	4.7	284
Chocolate, 1% Lowfat	157	2.3	286

Source: USDA Nutrient Database for Standard Reference.



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### STORING AND HANDLING MILK

Milk is perishable. To preserve its safety and quality, the following tips are recommended:

- Refrigerate milk at 40°F or less as soon as possible after purchase and store in the original container.
- Return milk to the refrigerator immediately after pouring out the amount needed. Never return unused milk to the original container.
- Keep milk containers closed to prevent the absorption of other flavors. An absorbed flavor changes the taste, but the milk is still safe.
- Protect milk from exposure to strong light since light can reduce its riboflavin content and cause off-flavors.
- Look for the “sell by” or “pull” dates on milk cartons. If properly cared for, milk generally stays fresh for 2 to 3 days after this date. Some dairy processors guarantee their products for a specific time after this date. Ask your grocer for more details.
- Keep canned milks like evaporated and sweetened condensed milks in a cool dry place and invert the cans every 2 months. These milks generally keep for about a year at room temperature. Once opened, canned milks should be poured into an opaque covered container, refrigerated and used within a few days.
- Store dry milks in a cool, dry place and keep in an airtight container after opening. Once reconstituted, dry milk should be refrigerated and handled like other fluid milks.
- Freezing of milk is not recommended. It causes undesirable changes in milk’s texture and appearance.
- Microwaving milk is not recommended to extend milk’s shelf life or as a means of pasteurization.

### COMMONLY ASKED QUESTIONS ABOUT MILK

#### When Can Infants Be Fed Cow’s Milk?

Infants can be fed whole milk, not lowfat or reduced-fat milks, beginning at 12 months of age, according to the American Academy of Pediatrics. Whole milk is recommended for toddlers until at least 2 years of age. After 2 years of age, lowfat milk may be fed, depending on the child’s caloric needs. Check with your doctor regarding the best choice of milk for your child.

#### Should I Be Concerned About Giving My Child Chocolate Milk?

No. Chocolate milk is just as nutritious as unflavored milk. Both milks are excellent sources of calcium, a nutrient low in many children’s diets. Because kids like chocolate milk, they are more likely to consume this beverage and, at the same time, boost their calcium intake. There is no scientific evidence that drinking chocolate milk increases children’s caffeine intake, causes hyperactivity or contributes to tooth decay.

#### If I’m Lactose Intolerant, Should I Avoid Milk?

Not necessarily. Many individuals who have difficulty digesting lactose (milk’s sugar) can consume a glass or two of milk a day with meals with few, if any, symptoms. Smaller portions of milk (4 oz) consumed more often may be better tolerated. Lactose-reduced or lactose-free milks are also an option. Lactose-reduced milk contains about 70% less lactose than regular milk. Lactose-free milk is 100% lactose reduced.

#### What Is Skim Deluxe or Skim Supreme Milk?

This fat-free milk looks like and has the mouth-feel of 2% reduced-fat milk as a result of the addition of a small amount of dietary fiber to the milk. This milk is an option for those who want the look and mouth-feel of 2% lowfat or whole milk without the extra calories and fat. Vitamin A Palmitate Is Listed on Some Milk Cartons.

#### What Is It and Does It Contain Palm Oil?

When added to milk, vitamin A is combined with palmitic acid, also known as retinyl palmitate, to make it stable. There is no palm oil, a highly saturated fatty acid, in vitamin A palmitate. Vitamin A is added to 2% reduced fat, 1% lowfat and fat-free milks.

#### Isn’t Milk Fattening?

Overweight results from consuming too many calories and getting too little exercise. There are a variety of milks with different calorie and fat contents. Take a look at the Nutrition Facts labels on milks. Fat-free milk, for example, has only 80 calories, no fat and all the calcium of other milks.

