

CHEESE

Cheese's immense popularity stems from its taste, versatility, many varieties and nutritional package.

WHAT IS CHEESE?

All cheese is made from milk, but different manufacturing and aging processes are used to produce the array of cheeses available today. Cheese is made by coagulating or curdling milk, stirring and heating the curd, draining off the whey (the watery part of milk), collecting and pressing the curd, and in some cases, ripening. Cheese can be made from whole, 2% lowfat, 1% lowfat or fat-free milk, or combinations of these milks. About one-third of all milk produced each year in the U.S. is used to make cheese. In 1998, 9.7 billion pounds of natural and processed cheeses were produced.

VARIETIES

More than 400 different varieties of cheese are available. Cheeses are categorized in several ways: natural versus process cheeses, unripened versus ripened and soft versus hard. Many cheeses are named for their place of origin, such as Cheddar cheese, which originated in Cheddar, England.

■ **Natural Cheeses.** These cheeses can be unripened or ripened. **Unripened** cheeses are made by coagulating milk proteins (casein) with acid. Examples include soft cheeses like cream cheese, cottage cheese and Neufchatel. **Ripened** cheeses are made by coagulating milk proteins with enzymes (rennet) and culture acids. These cheeses are then ripened (aged) by bacteria or mold. Cheddar, Swiss, Colby, brick and Parmesan are some examples of bacteria-ripened cheeses. Blue, Roquefort, Camembert and Brie are examples of mold-ripened cheeses.

Natural cheeses are often categorized according to their moisture or degree of softness or hardness:

Soft Cheeses:

Brie, Camembert, ricotta, cottage

Semi-Soft Cheeses:

Blue, brick, feta, Havarti, Monterey Jack, mozzarella, Meunster, provolone

Hard Cheeses:

Cheddar, Colby, Edam, Gouda, Swiss



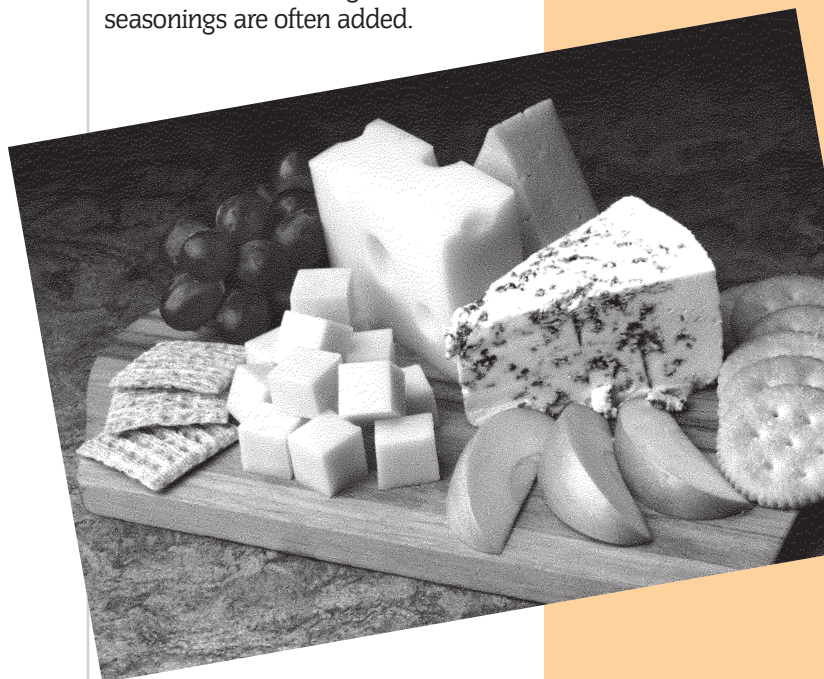
Very Hard Cheese:

Parmesan, Romano

■ **Process Cheeses.** These cheeses are made by blending one or more natural cheeses, heating and adding emulsifying salts. Process cheeses contain more moisture than natural cheeses.

Pasteurized process cheeses

include American cheese, cheese spreads and cheese foods. Cold-pack cheese is a blend of natural cheeses processed without heat. Flavoring and seasonings are often added.



CHEESE

NUTRITIONAL INFORMATION

Cheese is a concentrated source of many of milk's nutrients. Considering that it takes about 10 pounds (5 quarts) of milk to make 1 pound of whole milk cheese, cheese is a nutrient-dense food. Cheese provides calories; high-quality protein; vitamins such as A, riboflavin (B₂) and B₁₂; and minerals such as calcium, phosphorus and zinc.

The chart below gives the nutritional profile of some popular cheeses in common servings. The Nutrition Facts label on cheese products also provides nutritional information.



For individuals wishing to lower their calorie or fat intake, a variety of lowfat cheeses is available. These include:

Lowfat Cheese:

3 grams (g) or less of fat per reference amount (1 oz for most cheeses, 4 oz for cottage cheese)

Reduced-Fat Cheese:

25% less fat per reference amount than its full fat counterpart

Fat-Free Cheese:

less than 0.5 gram (g) of fat per reference amount

UNIQUE HEALTH BENEFITS

Consuming cheese immediately after meals or as a between-meal snack helps to reduce the risk of tooth decay. Certain cheeses—aged Cheddar, Swiss, blue, Monterey Jack, Brie, Gouda and processed American cheese—have been shown to help prevent tooth decay. Calcium, phosphorus and other components in cheese may contribute to this beneficial effect.

STORING AND HANDLING CHEESE

■ **Storing.** Cheese should be refrigerated at 40°F or below in the original wrapper or container, transparent wrap, aluminum foil or plastic wrap. Generally, harder (lower moisture) cheeses keep longer than softer (higher moisture) cheeses.

■ **Freezing.** Cheese can be frozen, but it may become mealy and crumbly when thawed. Thawed cheese is best used crumbled or shredded in salads, as toppings or in cooked dishes. Some cheeses are better frozen than others. Because blue cheese varieties like Roquefort and Gorgonzola are generally used crumbled, further change in their texture is of little consequence. Because other cheeses like Parmesan and Romano can be stored in the refrigerator for prolonged periods, freezing is unnecessary.

For best results:

- Freeze pieces of cheese in sizes of ½ pound or less.
- Package in moisture-proof, airtight wrapping.
- Freeze quickly and store at 0°F or lower.
- Thaw in the refrigerator.
- Use as soon as possible after thawing.

■ **Cooking.** Why is it difficult to melt some cheeses? If cheese is heated at too high a temperature or for too long, it may become tough, rubbery or stringy, and refuse to melt. To melt cheese, use a low temperature for a short time. Some cheeses like process American readily melt. Dry cheeses like Parmesan, if finely grated, melt better than higher moisture cheeses. Generally, lowfat cheeses are more suitable for serving cold than using in cooked dishes.

Tips to help melt cheese include:

- Shred, grate or cut cheese into small pieces.
- Add cheese topping to food at the end of baking or broiling, or just heat long enough to melt.
- When making a sauce, add cheese as the last ingredient and heat just until melted.
- To soften cheese in the microwave oven, remove wrapper and place cheese on a microwave-safe plate. Timing will vary according to desired softness and microwave conditions.

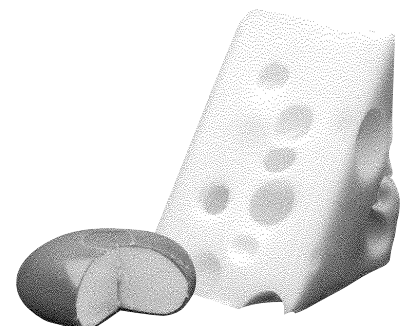
For accurate measurement, use the following:

- 4 oz = 1 cup shredded
- 3 oz = 1 cup grated (Parmesan or Romano)

A NUTRITIONAL LOOK AT CHEESE

Serving size	Calories Kcal	Fat g	Calcium mg
American, Pasteurized Process, 1 ounce	106	8.4	174
Cheddar, 1 ounce	114	8.9	204
Cottage, ½ cup	81	1.1	68
Cream Cheese, 1 ounce	98	9.3	22
Mozzarella, part-skim (low moisture), 1 ounce	79	4.6	207

Source: USDA Nutrient Database for Standard Reference.



CHEESE

COMMONLY ASKED QUESTIONS ABOUT CHEESE

Isn't Cheese Fattening?

Many lowfat, low-calorie cheeses are available. Check out the Nutrition Facts panel on product labels. For example, a serving (4 oz) of lowfat cottage cheese (1% milk fat) provides just 82 calories and 1 g fat, along with high-quality protein, riboflavin, calcium and other essential nutrients.

If I'm Lactose Intolerant, Shouldn't I Avoid Cheese?

No. Many aged cheeses like Cheddar and Swiss contain little, if any, lactose (milk's sugar). Most of the lactose is removed when these cheeses are made. Aged (ripened) cheeses like Cheddar generally have less lactose than unripened (fresh) cheeses like cream cheese. Due to the creaming mixture used, creamed cottage cheese has slightly more lactose than dry curd cottage cheese.

Is Cheese Made from Unpasteurized Milk Safe?

Most cheeses made in the U.S. are from pasteurized milk. If unpasteurized milk is used, government regulations require that the cheese be aged for at least 60 days before it is sold. Regulatory agencies recognize aging of cheese as equal to pasteurization for eliminating pathogenic bacteria. Safe handling and storage of cheese are key to ensuring its safety and quality.

Should Cheese with Mold Be Discarded?

Although most molds on cheese are harmless, some may produce toxins that can diffuse into the cheese. Many packages of natural and process cheeses contain mold inhibitors, such as sorbic acid, that increase the shelf life of these products. Properly wrapping cheese can help prevent the development of undesirable mold. If mold develops, remove the visible mold as well as an additional ½ inch of cheese on all sides of the mold to be safe (except with mold-ripened cheeses such as Roquefort and blue).

Why Does Cottage Cheese Have Less Calcium Than Many Other Cheeses?

Compared to most other cheeses, cottage cheese is a modest source of calcium. In the manufacturing of cottage cheese, 50 to 75% of milk's calcium is removed when the whey is drained. Cottage cheeses with extra calcium are available. Check product labels. Although cottage cheese may provide less calcium than some other cheeses, cottage cheese is high in protein, generally low in fat and a good source of riboflavin.

