

cheese & healthy eating



NATIONAL DAIRY COUNCIL®

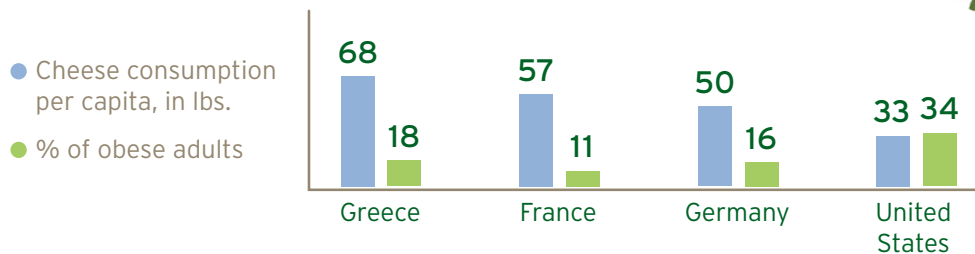
INNOVATION
CENTER FOR U.S. DAIRY™
HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET

Did you know?

Cheese can fit into almost any eating plan. This brochure provides statistics, facts and nutrition information on cheese and how it can help meet health and wellness needs.

Other countries have higher cheese consumption, yet lower incidence of hypertension and obesity.

- Hypertension affects 16.5 percent of French adults compared with 31.3 percent of U.S. adults.^{1,2,3,4}



Sixteen percent of teenagers and 26 percent of adults are reducing or not eating meat in their diets and both are looking for additional sources of protein.⁵

- Cheese can help fill the protein gap. Cheese contributes high-quality protein as well as calcium, phosphorus and vitamin A to the American diet.
- U.S. preteen and teenage girls 9 to 18 are at risk for not getting enough calcium according to the Institute of Medicine.⁶
- As part of a healthy, balanced diet, cheese can help fill this gap. Most cheeses are a good to excellent source of calcium.
- Cheese may help children eat more fruits, vegetables and whole grains.
- A recent study indicates that the visible addition of cheese to various middle school menu offerings may help increase the consumption of fruits, vegetables and whole grains compared with these items without cheese.⁷ Pairing foods with cheese potentially helps to increase total nutrient intake to improve diet quality.



Fast facts

- It takes 10 pounds of milk to make 1 pound of cheese.
- The dairy food group is the top source of dietary calcium in the American diet.⁸
- Cheese is the No. 2 source of dietary calcium for Americans.⁸
- Cheese is more than just calcium; it also provides high-quality protein needed to help stay healthy.
- For those with lactose intolerance, cheese can be an important source of calcium. Natural cheeses such as Cheddar, Colby, Monterey Jack, mozzarella and Swiss contain minimal amounts of lactose, because most of the lactose is removed when the curds are separated from the whey in the cheese making process.
- Most dairy foods are gluten-free. Natural cheeses are gluten-free and in the case of cheeses that have added flavors or are processed, check the food label's ingredient list to make sure ingredients sourced from wheat, barley or rye aren't added.

Cheese

... a few simple ingredients

Cheese is a complex food made from a few simple ingredients. Cheese makers have developed thousands of varieties of cheese around the world, each with a unique taste, texture and nutritional profile. No cheese is the same — there are many standards of identity for cheese, because there are a number of ways to adjust the basic recipe to get a distinct product (e.g., Cheddar, Swiss, blue, Brie, mozzarella, etc.).

Natural cheese is made from four basic ingredients: milk, salt, starter culture or “good bacteria” and an enzyme called rennet. The nutrients found in cheese (e.g., calcium, protein, phosphorus) are there because milk is the main ingredient in cheese.⁹ Salt is needed to finish the transformation of liquid milk into enjoyable cheese. Salt also acts as a natural preservative.¹⁰

Process cheese is made from high-quality natural cheese so it also provides important nutrients such as calcium, phosphorus and protein. And it can be made to have more calcium as well as added vitamin D. Historically, process cheese was used to provide shelf-stable cheese for wartime and for shipping to warmer climates.^{11,12,13}

The processing halts the aging process so the cheese maintains its flavor, texture and smoothness. Process cheese is customizable for flavor and qualities such as a smooth melt that make it a versatile, tasty and easy-to-use food. The amount of salt used impacts firmness, flavor, food safety and preservation.¹⁰



Cheese has been around for centuries and is rich in culture

- Its origins date back to ancient times when travelers from Asia are believed to have brought the art of cheese making to Europe. According to an ancient legend, the first cheese was accidentally made by an Arabian merchant who carried his milk in a pouch made from an animal's stomach. The rennet in the lining of the pouch combined with the heat of the sun and caused the milk to separate into curd and whey. That night he found that the whey satisfied his thirst, and the cheese (curd) satisfied his hunger.¹⁴
- Cheese making was common in the Roman Empire and the Romans passed on their knowledge to the rest of Europe. The art of cheese making flourished. The Pilgrims included cheese in the Mayflower's supplies for their voyage to America in 1620. Once in the New World, the craft of cheese making spread quickly.¹⁴
- The cheese making process is an art with roots going back to Biblical times, and is a sustainable and natural food that helps keep cultures, communities and families vibrant and healthy today.¹⁴

Cheese can fit into almost any eating plan

Because there are so many different types of cheese, it's a nutritious choice that easily fits into most eating plans — the Dietary Guidelines for Americans (DGA) general population recommendations and many of its meal plans; the Dietary Approaches to Stop Hypertension (DASH) diet, diabetic, Mediterranean, plant-based, vegetarian, gluten-free and low-lactose, among others.

What about fat?

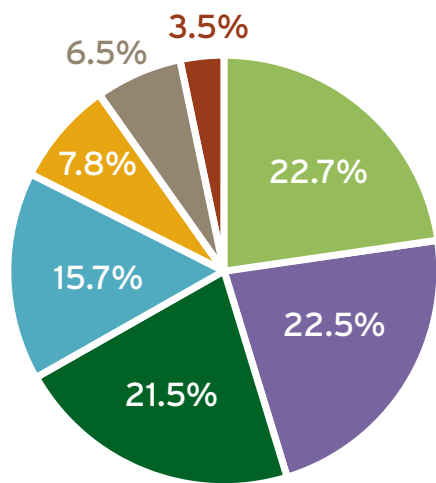
Cheese accounts for only 9 percent of the total fat and 16 percent of the saturated fat in the U.S. diet.¹⁵ Emerging research has shown simply reducing saturated fat in the diet is not associated with a decreased risk of heart disease or cardiovascular disease.¹⁶ And scientists from Harvard have identified a component in dairy fat that may reduce the risk of type 2 diabetes.¹⁷

What about sodium?

Salt/sodium plays an important role in cheese making. The majority of the sodium in the U.S. diet (92 percent) comes from sources other than cheese (see chart below).¹⁸ Cheese contributes only 8 percent of the sodium.¹⁸ Salt is a vital part of the cheese making process, as it controls moisture, texture, taste, functionality and food safety. So, salt cannot be completely eliminated; however, some cheeses require less than others.

Sources of sodium in the diet by food groups¹⁸

- Salt as Ingredient
- Other Foods
- Grain Products
- Meat, Fish, Poultry
- Cheese
- Vegetables
- Dairy, Other



More than 300 different cheeses in the U.S. and 2,000 ¹⁹ in the world can be classified into eight categories: ²⁰	
Blue	A characteristic of varieties that develop blue or green streaks of harmless, flavor-producing mold throughout the interior. Generally, veining gives cheese an assertive and piquant flavor. Examples: Roquefort, Gorgonzola and Danish blue.
Hard	Well-aged, easily grated and primarily used in cooking. Examples: Parmesan, Romano and Asiago.
Pasta Filata	Curds are heated and stretched or kneaded before being molded into shape. Stretches when melted. Examples: mozzarella, string and provolone.
Processed	A blend of fresh and aged natural cheeses that have been shredded, mixed and heated with an addition of an emulsifier salt, after which no further ripening occurs. Examples: American cheese and process cheese spreads.
Semi-hard	A classification of cheese based upon texture. Examples: Colby, Cheddar, Edam and Gouda.
Semi-soft	A wide variety of cheeses made with whole milk that melt well when cooked. Examples: Monterey Jack, brick, Fontina, Havarti and Muenster.
Soft and Fresh	Have high moisture content, typically made with the addition of lactic acid cultures. Examples: cottage cheese, cream cheese, Feta, Mascarpone, ricotta and queso blanco.
Soft-ripened	Classification of cheese based upon texture. Examples: Brie and Camembert.





What's your type?²¹

Looking to lower the sodium in your diet?

Try: Swiss, Monterey Jack, ricotta, Port de Salut or Parmesan (1 Tbsp). Also try lower sodium varieties of Colby-Jack, provolone, Muenster, mozzarella or Cheddar.

Watching the fat in your diet?

Try: Parmesan, Romano (grated) or part-skim mozzarella. Also try lower fat options of cottage, ricotta, Cheddar, Swiss, Parmesan, Colby, Muenster, provolone, Mexican blend* or American (process).

Need more calcium in your diet?

Try: Swiss, Cheddar, ricotta, mozzarella, Monterey Jack, Gouda, queso blanco, Mexican blend* or Colby.

Looking for more protein options for your diet?

Try: Swiss, cottage, ricotta, mozzarella, Monterey Jack, Cheddar, Gouda, Colby, Port de Salut, provolone, Mexican blend* or Muenster.

Watching lactose in your diet?

Try: Cheddar, Swiss, Monterey Jack or mozzarella.

*A blend of cheeses

Did you know?

If you are looking to lower the sodium in your diet, one tip is to choose a cheese based on firmness and age. In general, softer, less-aged cheeses require less salt than harder, aged varieties. Lower-sodium and lower-fat cheeses also are available. Get more help on a cheese to meet your individual needs in the chart below.²¹

Per 1 oz. (unless noted)	Swiss	Monterey Jack	Ricotta, part-skim (1/2 cup)	Cheddar	Mozzarella, part-skim	Brie	Process American (1 slice/21 g)	Blue
Calories	106	104	171	114	72	95	79	100
Protein	8 g	7 g	14 g	7 g	7 g	6 g	5 g	6 g
Calcium	224 mg	209 mg	337 mg	204 mg	222 mg	52 mg	116 mg	150 mg
Phosphorus	161 mg	124 mg	227 mg	145 mg	131 mg	53 mg	108 mg	110 mg
Fat	8 g	8 g	10 g	9 g	4.5 g	8 g	7 g	8 g
Sodium	54 mg	150 mg	155 mg	176 mg	175 mg	178 mg	263 mg	395 mg
Lactose	0.02 g	0.14 g	0.38 g	0.07 g	0.32 g	0.13 g	0.11 g	0.14 g

Cheese and its nutrients offer health benefits

Cheese can help fill nutrient gaps

- Cheese can provide calcium for people who don't meet daily recommendations and risk poor bone health.
- Cheese also provides protein, phosphorus, vitamin A and zinc to the U.S. diet.¹⁵
- Cheese not only tastes great, it's a convenient, portable and versatile food. When paired with fruits, vegetables and whole grains, it may help people eat more of these recommended food groups, including dairy.

Nutrient provided by cheese:	Nutrient's role in the body:
Calcium	Helps build and maintain strong bones and teeth; also important for nerves, muscle contraction and blood clotting.
Phosphorus	Helps strengthen bones and generate energy in the body's cells.
Protein	Builds and repairs tissues in the body while helping to balance fluids, transport nutrients and aid in muscle contraction.
Vitamin A	Helps maintain normal vision, skin and immune system; also important for bone growth.
Zinc	Supports the immune system, wound healing and ability to smell and taste.

Cheese provides only 5% of the calories in the U.S. diet, but also: ¹⁵	
Calcium	21%
Phosphorus	11%
Protein	9%
Vitamin A	9%
Zinc	8%

Choose calories by the company they keep

Natural cheese is made with four simple ingredients, and process cheese is made from natural cheese. Cheese is a high-quality food rich in nutrients that has been, and continues to be, part of a healthy eating plan. Many cheeses are excellent sources of calcium and good sources of high-quality protein and phosphorus — providing three nutrients particularly important for helping to build and maintain healthy bones.^{21,22} Some natural and process cheeses are fortified with vitamin D.

While nutrient profiles vary due to the large variety of cheeses, cheese contributes essential nutrients for good health to the U.S. diet, including calcium, phosphorus, protein, vitamin A and zinc. See chart to the left.



What is a serving size of cheese?²³

- 1½ ounces of natural cheese or 2 ounces of process cheese.
- About four dice-size cubes is a visual reminder of a serving of cheese.

Dairy industry working voluntarily to address sodium in cheese

Despite the fact that cheese contributes only 8 percent of the sodium to the U.S. diet, cheese makers are working together to proactively address public health as well as meet people's needs and lifestyles. Cheese makers continue to lead process control and product innovations as part of the solution to help lower sodium — all while maintaining strict expectations for food safety and taste.



References

- 1 International Dairy Federation. Bulletin of the International Dairy Federation 446/2010: The World Dairy Situation 2010.
- 2 Tibi-Levy Y, de Pourville G, Westerloppe J, Bamberger M. The cost of treating high blood pressure in general practice in France. *Eur J Health Econ.* 2008;9(3):229-236.
- 3 Centers for Disease Control and Prevention. High Blood Pressure Frequently Asked Questions. Available at: <http://www.cdc.gov/bloodpressure/faqs.htm>. Accessed November 18, 2010.
- 4 Organisation for Economic Co-operation and Development (OECD). Available at: http://www.oecd.org/document/35/0,3343,en_21571361_44315115_46064099_1_1_1_1,00.html. Accessed March 8, 2011.
- 5 DMI Emerging Diets Research, 2010. Available at: <http://www.usdairy.com/Health/ConsumerTrendsProteinLocal/Pages/Market%20Insights.aspx>.
- 6 IOM (Institute of Medicine). *Dietary Reference Intakes for Calcium and Vitamin D*. Washington, D.C.: The National Academies Press; 2011:480.
- 7 Donnelly JE, Sullivan DK, Smith BK, et al. The Effects of Visible Cheese on the Selection and Consumption of Food Groups to Encourage in Middle School Students. *J Child Nutr Manag.* 2010;34(1). Available at: <http://schoolnutrition.org/Content.aspx?id=14040>.
- 8 Fulgoni III VL, Keast DR, Quann EE, Auestad N. Food sources of calcium, phosphorus, vitamin D, and potassium in the U.S. Presented at Experimental Biology, Anaheim, Calif. April 24-29, 2010.
- 9 Cheesemaking: A Wisconsin Tradition. Available at: http://trade.eatwisconsincheese.com/wisconsin/how_cheese_is_made.aspx. Accessed February 15, 2011.
- 10 Guinee TP. Salting and the role of salt in cheese. *International Journal of Dairy Technology.* 2004;57(2-3):99-109.
- 11 Ustunol Z. Processed Cheese: What is that stuff anyway? *Michigan Dairy Review.* 2009. Available at: <https://www.msu.edu/~mdr/vol14no2/ustunol.html>. Accessed February 6, 2011.
- 12 What's That Stuff? *Chemical & Engineering News.* 2000;78(6):51. Available at: <http://pubs.acs.org/cen/whatstuff/stuff/7806sci2.html>. Accessed February 16, 2011.
- 13 Kraft Foods. Kraft History: J.L. Kraft. Kraft.com. Available at: <http://www.kraft.com.au/products/krafthistory/fredwalkerfounder/jlkraft.aspx>. Accessed May 16, 2011.
- 14 International Dairy Foods Association. Available at: <http://www.idfa.org/resource-center/industry-facts/cheese/>. Accessed February 16, 2011.
- 15 Dairy Research Institute™, NHANES (2003-2006). Ages 2+ years. Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey. Hyattsville, Md.: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. 2003-2004; 2005-2006. Available at: <http://www.cdc.gov/nchs/nhanes.htm>.
- 16 Siri-Tarino PW, Sun Q, Hu FB, Krauss RM. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease. *Am J Clin Nutr.* 2010;91(3):535-546.
- 17 Mozaffarian D, Cao H, King IB, et al. *Trans*-Palmitoleic Acid, Metabolic Risk Factors, and New-Onset Diabetes in U.S. Adults: A Cohort Study. *Ann Intern Med.* 2010;153(12):790-799.
- 18 Hentges E. Sources of Sodium in the Food Supply. Paper presented at: Institute of Medicine Committee on Strategies to Reduce Sodium Intake, Information-Gathering Workshop; 2009; Washington, D.C.
- 19 International Dairy Foods Association. Available at: <http://www.idfa.org/news--views/media-kits/cheese/cheese-facts/>. Accessed February 16, 2011.
- 20 Wisconsin Milk Marketing Board. Available at: <http://www.eatwisconsincheese.com/cheese/cheesecyclopedia.aspx>. Accessed March 10, 2011.
- 21 U.S. Department of Agriculture, Agricultural Research Service. 2010. USDA National Nutrient Database for Standard Reference, Release 23. Nutrient Data Laboratory Home Page. Available at: <http://www.ars.usda.gov/ba/bhnrc/ndl>. Accessed March 9, 2011.
- 22 U.S. Department of Health and Human Services. *Bone Health and Osteoporosis: A Report of the Surgeon General*. Rockville, Md.: U.S. Department of Health and Human Services, Office of the Surgeon General, 2004.
- 23 U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans*, 2010. 7th Edition, Washington, D.C.: U.S. Government Printing Office, January 2011.

Education is the true link between diet and health

Speak with your health care provider for information
specific to your needs.