



Overview

Cheese is delicious and nutritious and can start with just 3 ingredients: milk, starter culture and salt. This process can be done in so many ways that there are ~2,000 varieties of cheese. Cheese is also a nutrient-rich food that contributes protein, calcium, phosphorus and vitamin A to the U.S. diet. For vegetarians, cheese and other dairy foods are important sources of high-quality protein. For people with lactose intolerance (LI), cheese can be a source of dairy nutrients with minimal lactose. In fact, 3 servings of dairy foods are included in the Healthy U.S.-Style and Healthy Vegetarian Eating Patterns in the 2015 Dietary Guidelines for Americans (DGA). A 2016 systematic review concluded that eating cheese is not associated with cardiovascular disease (CVD) risk (high-quality evidence) and may be associated with a lower risk for stroke and type 2 diabetes (T2D) (moderate-quality evidence). Cheese can be an important part of healthy eating patterns.

Eating cheese helps Americans meet dairy food recommendations

Dairy foods like cheese are foundational foods in healthy eating patterns. Healthy eating patterns, which include low-fat and fat-free dairy foods, are associated with lower risk for CVD (strong evidence) and T2D (moderate evidence).¹ Dairy consumption is also linked to improved bone health, especially in children and adolescents.¹

While milk should not be given to infants before 12 months, yogurt and cottage cheese (in ¼ to ½ cup servings) can be introduced around 6 months, and cheese (in ½ ounce servings) can be introduced around 9 months, depending on developmental readiness.² The DGA recommends 3 daily servingsⁱ of low-fat or fat-free dairy foods for those 9 years and older, 2½ for children 4-8 years, and 2 for children 2-3 years in the Healthy U.S.-Style Eating Pattern.¹ Young children come the closest to meeting DGA recommendations. Girls and boys 2-5 years eat 2.2 servings of dairy foods per day, on average, including 0.6 servings of cheese.³ Dairy food consumption tends to fall below recommended amounts by the time children go to school, and this trend carries forward through adolescence and into adulthood.³ American adults 19 years and older average fewer than 2 servings of dairy foods daily, half of which is cheese.⁴ Encouraging adults and children to add 1 more daily serving of dairy foods like cheese to their eating pattern is a practical way to help meet dairy recommendations.⁵

Cheese is the second leading food source of dietary calcium in the U.S. diet.⁶

Eating cheese helps Americans meet nutrient recommendations

Cheese makes important nutrient contributions to the U.S. diet.⁶ Cheese is an excellent source of high-quality protein and contributes other essential nutrients such as calcium, phosphorus and vitamin A to the U.S. diet.⁶ Cheese provides 27% of calcium, 8% of protein and 9% of vitamin D and contributes approximately 10% of total fat, 18% of saturated fat and 5% of total calories to the diets of Americans 2 years and older.⁶ Cheese is the second leading food source of dietary calcium in the U.S.

ⁱ One serving refers to 1 cup-equivalent. For milk, 1 cup-equivalent equals 1 cup.

For more information, please visit: <https://www.nationaldairyCouncil.org/science-summary>

diet (after milk) for Americans 2 years and older.⁶ In one study, middle school students selected nutrient-dense foods like fruits, vegetables and whole grains more often from school lunch menus when those items included visible cheese.⁷ With thousands of varieties of cheese available worldwide, there are many options for incorporating cheese into a healthy eating pattern.

For those with LI, dairy avoidance can lead to inadequate consumption of shortfall nutrients like calcium.⁸ Eating small amounts of natural cheeses such as Cheddar, Colby, Monterey Jack, mozzarella, Swiss and provolone, which contain minimal lactose, may be an effective approach to manage LI and still consume important dairy nutrients.⁹ For vegetarians, cheese and other dairy foods are important sources of high-quality protein. Low-fat or fat-free dairy foods are included in all of the eating patterns outlined by the 2015 DGA.¹

What to know about sodium in cheese

Sodium, in the form of salt, is essential to cheesemaking. It helps develop flavors, consistency and texture and also helps preserve cheese and prevent spoilage.¹⁰ Although cheese is a source of sodium in the U.S. diet,⁶ different cheeses contain different amounts of sodium. Some cheeses like Swiss and ricotta cheese tend to be made with less sodium, and reduced-sodium cheeses are also available. Swiss cheese is a low-sodium choice. Reducing sodium consumption, increasing potassium consumption and engaging in regular physical activity can help lower blood pressure for those with prehypertension or hypertension.¹ A recent systematic review concluded that high-quality evidence indicates no link between cheese consumption and the risk for hypertension.¹¹ Cheese can be incorporated into the Dietary Approaches to Stop Hypertension (DASH) diet, an eating pattern high in fruit, vegetables and low-fat dairy foods, recommended by the American Heart Association to lower blood pressure.^{12,13,14,15} The 2015 DGA highlights the DASH diet and reduced sodium consumption as dietary strategies for adults who would benefit from lowering their blood pressure.

Eating cheese may be linked with health benefits

Eating cheese has been linked with health benefits. A recent systematic review found that moderate-quality evidence indicates eating cheese may be associated with a lower risk for T2D.¹¹ Evidence from a recent meta-analysis also supports a link between eating cheese and a 10% lower risk for stroke, with the largest risk reductions observed with daily consumption of about 40 grams (~1½ ounce) of cheese.¹⁶ More research is needed to understand these observations.

Links between cheese consumption and CVD risk differ from what would be expected based on the saturated fat content of cheese. A recent systematic review found that high-quality evidence from two meta-analyses and a prospective study indicates no association between cheese consumption and CVD risk.¹¹ This difference may be due to the unique physical structure, or matrix, of protein, vitamins and minerals in cheese.¹⁷ More research is warranted to help determine how characteristics of cheese may contribute to its lack of association with CVD risk.

Cheese can be part of a healthy eating pattern

The DGA recommends low-fat or fat-free dairy foods.¹ The majority of cheese eaten in the U.S., however, is not low-fat or fat-free, and most cheeses available at retail are regular fat varieties. About 25% of cheeses available are “reduced-fat,” meaning they contain at least 25% less total fat than a comparable regular fat cheese. Due to the limited availability of low-fat or fat-free cheeses (~1-2% of cheeses at retail), reduced-fat cheese is a more available option for those aiming to lower fat consumption from cheese. Calories from saturated fat should make up no more than 10% of total calories, according to the DGA, which means that regular or reduced-fat cheese can be incorporated into healthy eating patterns while staying within recommended calorie levels. The wide variety of cheeses available, including part-skim, reduced-fat and reduced-sodium options, provide flexibility for those looking to lower fat or sodium consumption. Eating cheese can be part of a healthy eating pattern.

References

- ¹ USDA, HHS. 2015-2020 Dietary Guidelines - health.gov. <http://health.gov/dietaryguidelines/2015/guidelines/>. Published 2016. Accessed January 8, 2016.
- ² American Academy of Pediatrics, Kleinman RE, Greer FR. *Pediatric Nutrition : Policy of the American Academy of Pediatrics.*; 2013. <https://shop.aap.org/pediatric-nutrition-7th-edition-paperback/>. Accessed December 6, 2017.
- ³ What We Eat in America: Mean Amounts of Food Patterns Cup Equivalents. 2013. https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/fped/Table_1_FPED_GEN_1314.pdf.
- ⁴ National Dairy Council. NHANES 2011-2014. Hyattsville, MD: U.S. Department of Health and Human Services. <http://www.cdc.gov/nchs/nhanes.htm>.
- ⁵ Rice BH, Quann EE, Miller GD. Meeting and exceeding dairy recommendations: effects of dairy consumption on nutrient intakes and risk of chronic disease. *Nutr Rev.* 2013;71(4):209-223. doi:10.1111/nure.12007.
- ⁶ Huth PJ, Fulgoni VL, Keast DR, Park K, Auestad N. Major food sources of calories, added sugars, and saturated fat and their contribution to essential nutrient intakes in the U.S. diet: data from the national health and nutrition examination survey (2003–2006). *Nutr J.* 2013;12(1):116. doi:10.1186/1475-2891-12-116.
- ⁷ Donnelly, JE; Sullivan, DK; Smith, BK; Gibson, CA; Mayo, M; Lee, R; Lynch, A; Sallee, T; Cook-Weins, G; Washburn R. 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). <https://schoolnutrition.org/5--News-and-Publications/4--The-Journal-of-Child-Nutrition-and-Management/Spring-2010/Volume-34,-Issue-1,-Spring-2010---Donnelly;-Sullivan;-Smith;-Gibon;-Mayo;-Lee;-Lynch;-Sallee;-Cook-Weins;-Washburn/>. Accessed November 8, 2017.
- ⁸ Wilt TJ, Shaukat A, Shamliyan T, Taylor BC, MacDonald, R; Tacklind, J; Rutks, I; Schwarzenberg, SJ; Kane, RL; Levitt M. *Lactose Intolerance and Health.* Rockville, MD; 2010.
- ⁹ NIH Lactose Intolerance and Health Conference. <https://consensus.nih.gov/2010/lactose.htm>. Accessed September 29, 2017.
- ¹⁰ Walstra P, Walstra P, Wouters JTM, Geurts TJ. *Dairy Science and Technology, Second Edition.* CRC Press; 2005. <https://books.google.com/books?hl=en&lr=&id=ynHLBQAAQBAJ&pgis=1>. Accessed October 26, 2015.
- ¹¹ Drouin-Chartier J-P, Brassard D, Tessier-Grenier M, et al. Systematic Review of the Association between Dairy Product Consumption and Risk of Cardiovascular-Related Clinical Outcomes. *Adv Nutr An Int Rev J.* 2016;7(6):1026-1040. doi:10.3945/an.115.011403.
- ¹² Appel LJ, Moore TJ, Obarzanek E, et al. A Clinical Trial of the Effects of Dietary Patterns on Blood Pressure. *N Engl J Med.* 1997;336(16):1117-1124. doi:10.1056/NEJM199704173361601.
- ¹³ Chobanian A V, Bakris GL, Black HR, et al. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertens (Dallas, Tex 1979).* 2003;42(6):1206-1252. doi:10.1161/01.HYP.0000107251.49515.c2.
- ¹⁴ United States Department of Agriculture, United States Department of Health and Human Services, National Heart Lung and Blood Institute. *In Brief: Your Guide to Lowering Your Blood Pressure with DASH.* https://www.nhlbi.nih.gov/files/docs/public/heart/dash_brief.pdf. Accessed December 13, 2017.
- ¹⁵ Chiu S, Bergeron N, Williams PT, Bray GA, Sutherland B, Krauss RM. Comparison of the DASH (Dietary Approaches to Stop Hypertension) diet and a higher-fat DASH diet on blood pressure and lipids and lipoproteins: a randomized controlled trial. *Am J Clin Nutr.* December 2015;ajcn.115.123281-. doi:10.3945/ajcn.115.123281.
- ¹⁶ Chen G-C, Wang Y, Tong X, et al. Cheese consumption and risk of cardiovascular disease: a meta-analysis of prospective studies. *Eur J Nutr.* 2017;56(8):2565-2575. doi:10.1007/s00394-016-1292-z.
- ¹⁷ Thorning TK, Bertram HC, Bonjour J-P, et al. Whole dairy matrix or single nutrients in assessment of health effects: current evidence and knowledge gaps. *Am J Clin Nutr.* 2017;105(5):1033-1045. doi:10.3945/ajcn.116.151548.