SCIENCE SUMMARY: Milk & Health

Overview

Milk is a delicious and nutritious beverage produced fresh in every U.S. state. Milk is made possible by dairy farmers committed to responsibly producing milk to help nourish Americans while remaining mindful of natural resources. Different milks help meet different people's health, taste and cooking needs. The variety of milks available include whole, reduced-fat (2% milk fat), low-fat (1% milk fat), fat-free and flavored options. For people with lactose intolerance (LI), there are lactose-free varieties as well. Regardless of fat level or lactose content, milk is a nutrient-rich and affordable source of essential nutrients like protein, calcium, phosphorus and vitamins A, D, B12, riboflavin (B2), niacin (B3) and pantothenic acid (B5) in the diet.[1,2,3,4,5] The Dietary Guidelines for Americans (DGA) and the American Academy of Pediatrics (AAP) recommend consuming low-fat or fat-free dairy foods like milk every day to help meet nutrient needs.[6,7,8,9]

Drinking milk helps Americans meet dairy food recommendations

Dairy foods like milk 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 cardiovascular disease (strong evidence) and type 2 diabetes (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.[10] The AAP advises that parents transition infants from breast milk or formula to whole milk at 1 year[11] and from whole milk to lower-fat milks at 2 years. The DGA recommends 3 daily servings[i] 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 1.5 servings of milk.[12] Dairy consumption tends to fall below recommended amounts by the time children go to school, and this trend carries forward through adolescence and into adulthood.[13] American adults 19 years and older average fewer than 2 servings of dairy foods daily.[13] Encouraging adults and children to add 1 more daily serving of dairy foods like milk to their eating pattern is a practical way to help meet dairy recommendations.[14]

Drinking milk helps Americans get the essential nutrients their bodies need

Milk makes important nutrient contributions to the U.S. diet.[1,15,16,17,18] It is the primary food source of 3 of the 4 underconsumed nutrients of public health concern identified by the DGA: calcium, vitamin D and potassium.[17,18] Milk is the leading food source of 9 essential nutrients for children 2-18 years.[17] For adults 19 years and older, milk is the leading food source of calcium, potassium and vitamin D and an important source of phosphorus, magnesium, and vitamins A, B12, B6, riboflavin (B2) and thiamin (B3).[18] For school-age children and adults, adding 1 more serving of low-fat or fat-free dairy foods every day to current eating patterns would help meet nutrient needs.[14]

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

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Nutrients from milk are difficult to replace with most milk alternatives

Many beverages called “milk” are available, but often are not nutritionally equivalent to milk. Milk contains 8 grams of high-quality protein per 8-ounce cup serving, while almond, rice and coconut “milks” contain 1 or fewer grams of protein per serving, unless fortified.[4,19] Proteins from animal food sources like milk are complete and high-quality because they provide all amino acids. Proteins from plant sources vary in quality. Although the DGA includes soy beverage in the dairy group if it is fortified with calcium and vitamins A and D,[1] fortified soy beverage is not commonly consumed by Americans,[17,18] so it contributes very little nutrition to the average U.S. diet.[15,20] The DGA notes that alternative beverages, such as almond, rice, coconut and hemp “milks,” are not nutritionally equivalent to milk and are not included in the dairy group.[1] Other beverages, like calcium-fortified orange juice, are also not nutritionally equivalent to milk.

Drinking milk is an important habit to develop in childhood and carry forward into adulthood.

Drinking milk every day is a healthy habit for children to develop

Beverages make important contributions to children’s nutrition.[1,15,16,18] As children get older, they tend to choose less nutritious beverages, like sugar-sweetened beverages (SSBs), instead of milk.[15,16] The DGA recommends that Americans 2 years and older drink low-fat or fat-free milk, water and 100% juice instead of SSBs.[1] SSBs, such as soda (regular, not sugar-free), fruitades, sports drinks, energy drinks, sweetened waters, coffees and teas, contribute 47% of added sugars to the diet but few nutrients.[1] Flavored milk contributes, on average, 4% of added sugars[21] to the diets of children 2-18 years and a multitude of nutrients including protein, calcium, phosphorus and vitamins A, D, B12, riboflavin (B2), niacin (B3) and pantothenic acid (B5). Through the School Breakfast Program and the National School Lunch Program (NSLP),[21,22,23] schools can offer low-fat and fat-free white and flavored milks. School-age children who drink flavored milk tend to have higher milk and nutrient consumption (calcium, potassium, phosphorus, magnesium, vitamin A and saturated fat), but not higher body mass indices or added sugar consumption than children who do not drink milk.[24] Middle- and high school-age children who participate in the NSLP consume more nutrients,[25] including more fiber, calcium, potassium and vitamin A, than nonparticipants, on average.[25,26] Drinking milk is an important habit to develop in childhood and carry forward into adulthood.

What to know about lactose intolerance and milk allergy

Some people feel discomfort after drinking milk, which may be due to LI or possibly milk allergy (MA). Individuals who are sensitive to lactose (“lactose intolerant”) do not make enough lactase, an enzyme that breaks down lactose during digestion.[27] People with LI may experience discomfort like bloating or gas after consuming some dairy products. LI is different from MA, which is an immune reaction to milk protein(s) that can manifest with several different symptoms.[28] MA is most common among young children, but children often “outgrow” it by early adolescence.[29,30] LI is less common among young children.[27] Dairy avoidance, whether due to MA, LI or other reasons, can lead to inadequate consumption of important nutrients.[27,31] While both MA and LI should be diagnosed and treated by a doctor, people with MA should avoid dairy foods[29] and ensure their diet includes other sources of the essential nutrients contained in dairy foods. Management strategies, like selecting lactose-free milk, can help most people with LI consume dairy products.[27]

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