

# Science Summary

## Nutrient Contributions of Dairy Foods



### Overview

Consuming dairy foods as part of a healthy dietary pattern helps people thrive at every age, from childhood through adulthood. Dairy foods help Americans meet recommendations for calcium, vitamin D and potassium, 3 of the 4 underconsumed nutrients of public health concern. Dairy foods also make important contributions to the intake of other nutrients, including protein, vitamin A, vitamin B12, riboflavin, phosphorus, zinc, iodine and selenium, in the U.S. diet. The nutrient contributions of dairy foods have been noted in the Dietary Guidelines for Americans (DGA) since the first DGA was released in

1980. On average, Americans do not meet recommendations for dairy food intake. Yet, even at current intake levels, dairy foods supply roughly half of the calcium and vitamin D in the U.S. diet. Meeting recommendations for dairy foods can help Americans close key nutrient gaps and contribute to overall healthy dietary patterns.

### Dairy foods are an important part of recommended healthy dietary patterns

The DGA recommends consuming dairy foods, such as milk, cheese and yogurt, as part of healthy dietary patterns associated with reduced risk for several chronic diseases, including type 2 diabetes and cardiovascular disease.<sup>1</sup> The 2020 DGA also recognizes the importance of consuming dairy foods in healthy dietary patterns to achieve peak bone mineral density in childhood and adolescence.<sup>1</sup> The Healthy U.S.-Style Dietary Pattern in the 2020 DGA recommends 3 daily servings of low-fat or fat-free dairy foods for those 9 years and older, 2½ servings for children 4-8 years and 2 servings for children 2-3 years.<sup>1</sup> It also recommends 1⅔ to 2 servings of whole- and reduced-fat dairy foods for toddlers 12-23 months and small amounts of yogurt and cheese for infants 6 to 12 months, depending on developmental readiness.<sup>1</sup>

### Dairy foods make important nutrient contributions to the U.S. diet

Milk, cheese and yogurt contribute nutrients essential to the daily nutrition of all Americans. Milk is a nutrient-rich and affordable source of thirteen essential nutrients like protein, calcium, phosphorus, potassium, zinc, iodine, selenium, magnesium and vitamins A, D, B12, riboflavin (B2) and pantothenic acid (B5) in the U.S. diet. Milk is also the leading food source of three nutrients of public health concern (calcium, vitamin D and potassium) for children 2-18 years and the leading food source of calcium and vitamin D for all Americans over the age of 2.<sup>2</sup> Cheese is a good source of high-quality protein, the second leading food source of calcium in the U.S. diet (after milk) for Americans 2 years and older<sup>2</sup> and contributes phosphorus and vitamin A to the U.S. diet.<sup>3,4</sup> Low-fat yogurt is an excellent source of calcium and provides protein, phosphorus, zinc, vitamin B12, pantothenic acid (B5) and riboflavin (B2) as well.<sup>5\*</sup>

\*USDA FoodData Central (FDC) ID: Low-fat vanilla yogurt 170888

Adults and children 2 years of age and older who meet dairy recommendations are less likely to be below recommendations for a number of essential nutrients including calcium, magnesium, phosphorus, protein, riboflavin, vitamin A, vitamin B12, vitamin D, selenium, zinc, potassium and choline than Americans who do not meet dairy recommendations.<sup>4</sup> However, Americans over the age of 2 consume, on average, about 1½ cups of dairy foods daily, an amount below recommendations for most life stages.<sup>2</sup> Even at current consumption rates, milk, cheese and yogurt contribute, on average, about 52% of the calcium, 51% of the vitamin D, 14% of the potassium, 17% of the protein, 29% of the vitamin A, 28% of the vitamin B12, 21% of the riboflavin (B2), 27% of the phosphorus and 17% of the zinc to the diets of Americans ages 2 and older, while providing 11% of total calories, 26% of saturated fat and 11% of sodium.<sup>2</sup> Inadequate intake of calcium, phosphorus, protein, riboflavin, and vitamin B12 is close to zero among adults and children who meet dairy food recommendations.<sup>4</sup> Adding just 1 daily serving of dairy foods to individuals' current intakes can help Americans move closer to meeting dairy food recommendations and contribute to closing key nutrient gaps.

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### **Current beverage intakes support recommendations for children to drink milk**

Drinking milk is an important habit to develop in childhood and carry forward into adulthood. Dairy consumption tends to fall below recommended amounts by the time children go to school, and this trend persists through adolescence and into adulthood.<sup>6</sup> The 2020 DGA recommends drinking milk with meals as one strategy to increase dairy consumption.<sup>1</sup> It also recommends choosing water and unsweetened beverages like 100% fruit or vegetable juice, low-fat or fat-free milk or fortified soy beverages within healthy dietary patterns in place of sugar-sweetened beverages (SSBs) like soda, fruit drinks, sports and energy drinks.<sup>1</sup> SSBs are not a component of USDA Dietary Patterns and are not necessary in the child or adolescent diet.<sup>1</sup> Among milk drinking children ages 2 to 18, milk contributes 32% the calcium, 55% of the vitamin D, 19% of the potassium and just 8% of the calories. White milk contributes no added sugars, and flavored milk contributes, on average, approximately 4% of added sugars to children's diets.<sup>2</sup>

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### **Nutrients in dairy foods can be difficult to replace with other foods**

Replacing dairy foods with non-dairy, calcium-equivalent foods can have unintended nutritional consequences. Non-dairy beverages that contain similar amounts of calcium per cup as milk, such as calcium-fortified almond or rice beverage, can be lower in potassium and protein than milk.<sup>5\*</sup> More than 50% of the Americans who do not consume adequate amounts of dairy foods consume below the estimated average requirements for calcium, magnesium, vitamin A and vitamin D.<sup>4</sup> Because dairy foods are the lowest cost source of dietary calcium and among the lowest cost sources of riboflavin (B2) and vitamin B12 in the U.S. diet, they are a good value, too.<sup>7</sup>

Four leading health organizations (the Academy of Nutrition and Dietetics, the American Academy of Pediatric Dentistry, the American Academy of Pediatrics and the American Heart Association) recommend that children 1 to 5 years of age not consume plant-based milk alternative beverages except for fortified soy beverage. Their Healthy Beverage recommendations state that non-soy plant-based beverages are inconsistently formulated, meaning they vary in nutrient and added sugar content, and are “not an equal substitute for cow's milk.”<sup>8</sup> The DGA similarly states that consuming almond, rice, coconut, oat and hemp ‘milks’ “does not contribute to meeting the dairy group recommendation,” because the nutrient content of these plant-based beverages is not similar to dairy milk and fortified soy beverages.

\*FDC IDs: Almond beverage: 1097550; Rice beverage: 171942

## References

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- <sup>3</sup> 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
- <sup>4</sup> Hess JM, Cifelli CJ, Fulgoni III VL. Energy and Nutrient Intake of Americans according to Meeting Current Dairy Recommendations. *Nutrients.* 2020;12(10):3006. doi:10.3390/nu12103006
- <sup>5</sup> USDA. FoodData Central. <https://fdc.nal.usda.gov/index.html>. Published 2019.
- <sup>6</sup> Dietary Guidelines Advisory Committee. 2020. Scientific Report of the 2020 Dietary Guidelines Advisory Committee. [https://www.dietaryguidelines.gov/sites/default/files/2020-07/ScientificReport\\_of\\_the\\_2020DietaryGuidelinesAdvisoryCommittee\\_first-print.pdf](https://www.dietaryguidelines.gov/sites/default/files/2020-07/ScientificReport_of_the_2020DietaryGuidelinesAdvisoryCommittee_first-print.pdf).
- <sup>7</sup> Hess JM, Cifelli CJ, Agarwal S, Fulgoni VL. Comparing the cost of essential nutrients from different food sources in the American diet using NHANES 2011–2014. *Nutr J.* 2019;18(1):68. doi:10.1186/s12937-019-0496-5
- <sup>8</sup> Lott M, Callahan E, Welker Duffy E, Story M, Daniels S. Healthy Beverage Consumption in Early Childhood: Recommendations from Key National Health and Nutrition Organizations. Consensus Statement. Durham, NC; 2019. <https://healthyeatingresearch.org/wp-content/uploads/2019/09/HER-HealthyBeverage-ConsensusStatement.pdf>.