

Science Summary

Dairy in Healthy Dietary Patterns



Overview



Dairy foods, such as milk, yogurt and cheese, are foundational foods included in multiple healthy dietary patterns. These include the Healthy Eating Patterns in the 2020 Dietary Guidelines for Americans (DGA), the Dietary Approaches to Stop Hypertension (DASH) eating plan, as well as those recommended by the American Heart Association (AHA) and guidelines from the National Osteoporosis Foundation. Dairy foods help meet nutrient needs and are associated with better bone health, especially in children and adolescents.

Healthy dietary patterns containing low-fat or fat-free dairy foods are also associated with lower risk for cardiovascular disease (CVD) and type 2 diabetes (T2D). Dairy foods can be affordable sources of key nutrients – including high-quality protein, calcium, potassium and vitamin D – and are available in a variety of options to help meet taste, health and wellness needs. By choosing the DGA-recommended daily servings of dairy foods as part of a healthy dietary pattern, Americans ages 6 months and above can enjoy the many benefits dairy foods provide.

Dietary patterns have emerged as a valuable way to guide healthy eating

People eat and drink a variety of foods and beverages that collectively establish a dietary pattern.¹ Dietary patterns are defined as “quantities, proportions, variety or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed.”² Dietary patterns capture the synergistic and cumulative effects that combinations of foods and beverages – and the nutrients they contain – can have on health.² Because dietary patterns contain multiple foods and beverages that work together in relation to health, they may be more predictive of health than any one food or nutrient.¹

Dairy foods are foundational foods in multiple dietary patterns associated with better health

Dietary Guidelines for Americans:

Americans, on average, consume fewer dairy foods and plant-based foods, such as vegetables, fruits, and whole grains, than recommended in the Healthy U.S.-Style, Healthy Vegetarian and Healthy Mediterranean Style Eating

Patterns.¹ The DGA note that dairy consumption is also linked to improved bone health, especially in children and adolescents.¹ Based on consistent evidence from prospective cohort studies, systematic reviews and meta-analyses, the 2020 Dietary Guidelines Advisory Committee concluded that dietary patterns that include low-fat dairy foods are associated with a lower risk of all-cause mortality, cardiovascular disease, overweight, and obesity.²

The Healthy U.S. and Vegetarian-Style Dietary Patterns in the 2020 DGA recommend 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.¹ 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.¹

Vegetarian Style Eating Patterns

The Healthy Vegetarian dietary pattern is defined by the DGA as a lacto-ovo-vegetarian diet which includes dairy foods. Adults age 20+ years who reported consuming this pattern had lower energy, saturated fat and sodium intakes.³

DASH and Mediterranean eating patterns:

DASH and the Mediterranean diet are well-studied eating patterns that helped shape the DGA recommendations. The DASH eating plan is based on the DASH trial, which found that following a reduced-fat eating plan including 2-3 servings of dairy foods and 8-10 servings of fruits and vegetables per day lower blood pressure in adults with elevated blood pressure.^{4,5,6}

Adults participating in the PREMIER study who increased their intakes of dairy products and consumed five or more servings of fruits and vegetables per day lost more weight and had greater reductions in blood pressure than other groups.⁷ A review of 68 research and review papers found that prolonged adoption of the DASH diet was shown to have sustained beneficial effects on health.⁸ While the original DASH diet trials included mostly low-fat dairy foods, results of a more recent trial showed that the DASH diet is equally effective if whole-fat dairy foods are substituted for low-fat dairy foods.⁹

Systematic reviews found that the DASH diet led to improvements in blood pressure among adults and adolescents as well as reductions in total cholesterol and LDL-C.^{10,11} Prospective cohort studies also found lower risk of stroke, CVD and CVD-mortality among adults with high adherence to a DASH diet.^{12,13} Several studies suggest that following the DASH dietary pattern is linked with lower risk of overweight and obesity in adolescents and adults.^{10,14,15,16}

The Mediterranean diet is described in the scientific literature, generally, as containing high amounts of extra virgin olive oil, vegetables, fruits, cereals, nuts and pulses/legumes, moderate amounts of fish and other meat, dairy foods and red wine, and low amounts of eggs and sweets.¹⁷ Prospective cohort trials indicate that Mediterranean eating patterns that include dairy foods are linked to reduced risk of CVD and diabetes.^{18,19,20,21} In a randomized controlled trial of adults at high risk of cardiovascular disease, consuming a Mediterranean style diet with 3-4 daily servings of dairy foods, with no restrictions on fat levels of dairy foods, reduced blood pressure and improved lipid levels compared to a control group consuming a low-fat diet. The authors concluded that a

Mediterranean diet with additional dairy may be appropriate for an improvement in cardiovascular risk factors in a population at risk of CVD.²²

The DGA Healthy Mediterranean Eating Pattern (HMEP) contains less dairy food than the other DGA healthy eating patterns. Results of a modeling study indicate that replacing one serving of refined grain foods in the HMEP for adults with a serving of low-fat or fat-free dairy foods brings the amounts of several shortfall vitamins and minerals (calcium, potassium, and vitamin D) closer to recommended levels without increasing saturated fat or sodium above recommended ranges.²³

Dietary patterns recommended by authoritative organizations:

Dairy foods are also part of dietary patterns recommended by medical and health organizations.^{24,25,26,27,28,29} The American Heart Association (AHA) emphasizes the importance of healthy dietary patterns to reduce the risk of cardiovascular disease morbidity and mortality. The AHA evidence-based dietary guidance advises choosing healthy sources of protein including low-fat or fat-free dairy products.²⁴ Furthermore, the AHA guidance states that evidence suggests potential cardiometabolic benefits of consuming fermented dairy such as yogurt, but states that the evidence remains inconclusive.

The 2019 American College of Cardiology/AHA Guidelines on the Primary Prevention of Cardiovascular Disease recommend the DASH diet to help prevent and treat hypertension. These guidelines recommend the DASH diet alongside the Mediterranean and vegetarian diets as heart-healthy eating patterns to help with weight loss and glycemic control with T2D.³⁰

The American Academy of Pediatrics, the National Osteoporosis Foundation and the American Diabetes Association also include low-fat or fat-free dairy foods as foods to meet nutrient needs.^{26,27,28,29} Dietary patterns outside the U.S. include dairy foods as part of healthy eating patterns. For example, the Southern European Atlantic Diet, the traditional dietary pattern of Northern Portugal and North-Western Spain, includes dairy foods and has been associated with lower risk of all causes of death among older Spanish adults.³¹

There are multiple ways to achieve a high-quality diet and research demonstrates significant associations with lower all-cause death and cardiovascular disease mortality.³²

Three daily servings of dairy foods provide excellent nutritional value

Americans are currently under consuming dairy foods, at about 2 dairy servings per day on average. Adding just 1 more daily serving can help fill shortfall nutrient gaps.^{23,33} In the 2,000 calorie Healthy U.S.-Style Eating Pattern, 3 servings of low-fat or fat-free dairy foods contribute only 12% of daily calories, but 20-69% of many key nutrients, including calcium, vitamin D and potassium, nutrients of public health concern identified by the DGAC.² The unique nutrient profile of dairy foods can be difficult to replace with non-dairy foods, even calcium-equivalent foods.^{2,33} Non-dairy beverages other than fortified soy beverage are not recommended for children because of variability in their nutrient content and lack of evidence for adequate bioavailability of nutrients.³⁴

Researchers modeled the impact of replacing one of the three recommended servings of low-fat or fat-free dairy foods in the Healthy US-style eating pattern with a whole- or reduced-fat option and found that some reduced and whole-fat dairy foods, especially milk, can fit into calorie-balanced healthy eating patterns that align with saturated fat recommendations.³⁵ Allowing some flexibility in fat level of dairy food servings aligns with the recommendations that calories from solid fats and added sugars are best used to increase the palatability of nutrient-dense foods.³⁵ Similarly, replacing one serving of refined grain foods with one serving of low-fat, fat-free dairy foods in the Mediterranean diet brings the amounts of key nutrients closer to recommended levels without increasing saturated fat.²³

A variety of nutrient-dense dairy foods are available

Many dairy food options are available to help tailor healthy eating patterns to meet daily needs. These include lactose-free or lactose-reduced cow's milk and dairy foods made with less sodium, fat or added sugars. Yogurt varieties that contain more high-quality dairy protein, like Greek- or Icelandic-style products, and many cheese varieties are also available.

Dairy foods are often more affordable than replacements used to meet nutrient needs, such as fortified soy beverage and fortified orange juice. An analysis of NHANES data indicated that dairy foods were the least expensive sources of calcium and vitamin D in the American diet as well as low-cost sources for potassium, magnesium and vitamin A.³⁶

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