

Dairy Foods Can Help Support Healthy Weight in Childhood



Overview

Healthy weight management during childhood is crucial for long-term health, supporting proper growth and development and fostering overall well-being. In children, healthy weight management involves maintaining a healthy weight trajectory and preventing excess weight gain throughout growth and development. Dairy foods, including milk, cheese and yogurt, provide a nutrient-dense package that serves a valuable role in healthy eating patterns for children across the weight spectrum. Beyond delivering essential vitamins and minerals vital for growth, the high-quality protein, fatty acids and other bioactive compounds found in dairy foods may contribute to satiety, support lean muscle mass and help regulate energy balance. The 2025-2030 Dietary Guidelines for Americans (DGA) emphasizes the importance of healthy eating patterns made up of nutrient-dense foods to support these outcomes. By integrating dairy foods into a balanced and calorie-appropriate diet, children can benefit from their unique nutrition and health contributions to help achieve and maintain a healthy weight throughout their growing years.

Dairy foods offer a nutrient-dense package that can help promote healthy weight throughout childhood and adolescence

The rising prevalence of overweight and obesity among children and adolescents is a significant public health concern.¹ Globally, an estimated 1 in 5 children or adolescents experiences excess weight.⁵ In the U.S., the Centers for Disease Control and Prevention (CDC) reports prevalence data from 2017 to March 2020 estimating obesity among children and adolescents 2-19 years old is 19.7%, with prevalence increasing with age: the prevalence of obesity is approximately 12.7% among children 2-5 years old, 20.7% among children 6-11 years old and 22.2% among adolescents 12-19 years old.⁶ Good nutrition and balanced eating patterns are essential for supporting

healthy growth, development and maintaining a healthy weight in early life. For children 2-18 years old, the 2025-2030 DGA recommends 3 servings per day for 1600 calories or higher, 2.5 servings for 1200-1500 calories per day and 2 servings per day for 1,000 calories per day.⁷ Dairy foods contribute significantly to a healthy eating pattern for children, on average providing 14% of total calories, 65% of vitamin D, 62% of calcium, 39% of vitamin A, 38% of vitamin B12, 24% of high-quality protein and 19% of total fat to the diets of Americans 2-18 years old.⁸

Growing research suggests dairy foods may play a beneficial to neutral role in supporting healthy weight in childhood and adolescence

Recent meta-analyses and systematic reviews, spanning research from 1996 to 2024, indicate that dairy food consumption may have a beneficial⁹⁻¹¹ to neutral^{12,13} link with excess weight in children and adolescents. A meta-analysis of 14 cross-sectional studies on 124,545 children and adolescents 4-19 years old reported that total dairy food consumption was associated with a 34% reduction in obesity prevalence risk.⁹ Consumption of individual dairy foods (i.e., total milk, cheese or yogurt) was neutrally associated with the prevalence of overweight or obesity risks.⁹ A separate meta-analysis of prospective studies found a detrimental association between total milk consumption and overweight risk.⁹ A systematic review and meta-analysis conducted by Jakobsen et al.¹⁰ of randomized controlled trials (RCTs), which are designed to assess causality, in children and adolescents reported that consuming a diet higher in dairy foods reduced body fat percentage and increased lean body mass but did not impact BMI z-score.

Of eight recent RCTs, five reported neutral effects of dairy food consumption on weight outcomes,¹⁴⁻¹⁸ two reported beneficial effects¹⁹⁻²¹ and one reported detrimental effects.²² A 2020 RCT by Calleja et al.¹⁹ enrolled 10-18-year-old females with overweight who were low-dairy consumers to assess the impact of incorporating four daily servings of dairy foods (consistent with the 2007-2018 Canadian dietary recommendations) into a balanced eating pattern for weight maintenance. Compared to the group that maintained habitual low dairy food consumption (0-2 servings/day), the group consuming the recommended amount of dairy foods had significantly greater lean mass.¹⁹ There were no significant differences in waist circumference, hip circumference, fat mass or body fat percentage.¹⁹ A follow-up analysis of this study also indicated that increased dairy food consumption improved nutrient intake (e.g., protein, riboflavin, vitamin B12, vitamin D, calcium and potassium) and healthy snack consumption to a greater extent compared to the low-intake group.²⁰ In another RCT, substitution of habitual dairy products with high-protein (i.e., 10 g protein/100 g) yogurt in the diets of 6-8-year-old children reduced fat mass without affecting BMI or fat free mass compared to substituting with yogurt containing regular amounts of protein (i.e., 3.5 g protein/100 g) after 24 weeks.²¹

In observational studies published since 2020 assessing dairy food consumption and weight outcomes in children and

Understanding healthy weight in childhood and adolescence

Healthy weight management in children is different than in adults. For adults, where excess weight is highly prevalent,¹ weight reduction is often the primary goal, whereas in children, the focus is on achieving a healthy weight trajectory that supports normal growth and development.² This may involve slowing or stabilizing weight gain while height increases, allowing children to “grow into” a healthy weight. In other circumstances, weight reduction interventions may be appropriate for children with overweight and obesity to prevent their progression to obesity during adulthood.³ Assessing obesity in growing children and adolescents requires accounting for changes in body weight and composition due to natural growth.⁴

Currently, the most widely accepted method of screening for obesity in children is by using body mass index (BMI) adjusted for sex and age (typically reported as BMI z-score, BMI standard deviation score or BMI percentile).⁴

adolescents, 17 (46%) studies reported beneficial associations,²³⁻³⁹ 9 (24%) studies reported neutral associations⁴⁰⁻⁴⁸ and 13 (35%) studies reported detrimental associations.^{32,35,49-59} One prospective cohort study, with a follow-up of nine years, found no clinically meaningful association between consumption of total dairy and specific types of dairy foods (i.e., dairy foods that were liquid or solid, low- or high-fat, low or high in sugar, fermented or not fermented) on BMI or body composition among 1,126 German children and adolescents (median age of 4.1 years at baseline).⁴¹ Similarly, neutral results were observed in another cohort study of 217 Iranian adolescents (12-18 years old at baseline) with a follow-up of nine years.⁴⁰ One recent cross-sectional study, involving over 193,000 Chinese children and adolescents 3-18 years old, reported a lower relative risk of obesity among those with daily consumption of dairy foods compared to those who rarely consumed dairy foods.²⁴

Nuances surrounding consumption levels are critical to understanding the role of dairy food consumption in weight outcomes in children and adolescents. For example, two cohort studies observed an increase in obesity risk with ≥ 500 mL (equivalent to about two cups or more of dairy milk) of dairy milk consumption per day in 451,630 Korean 3-year-olds followed for 1-3 years.^{50,56} Conversely, not consuming any milk was also associated with increased obesity risk in children,⁵⁰ while consumption of < 200 mL (about one cup or less) per day decreased the risk of obesity.⁵⁶ In addition, most epidemiological research examining the role of dairy foods and children has been cross-sectional, which captures associations at a single point in time and should therefore be considered within the broader body of scientific evidence. While more long-term and clinical research is needed to better understand the relationship between consumption of different types of dairy foods and weight outcomes in children and adolescents, the current body of research suggests that moderate dairy food consumption can be a part of healthy eating patterns to reduce the risk of obesity during child growth and development.

Whole-milk dairy foods as part of balanced diets may help children and adolescents maintain healthy body composition and weight

Recent studies indicate that whole- and reduced-fat (i.e., 2% milk fat) dairy foods are not linked with weight gain and may help promote a more favorable body composition in children and adolescents.^{11,13,17,30,33,36,39} One meta-analysis of observational studies of 20,897 children and adolescents 1-18 years old reported that higher dairy fat consumption was associated with lower childhood adiposity.¹¹ Several prospective cohort studies also suggest beneficial associations between higher-fat milk consumption and weight outcomes.^{33,39,41} A study in 796 children 2-3 years old reported that consumption of whole- or reduced-fat milk during early childhood is associated with a lower risk of overweight/obesity in early adolescence compared to consumption of low-fat or fat-free milk (i.e., 1% milk fat or skim milk dairy foods, respectively).³³ In a large prospective cohort study consisting of 7,467 children (mean 2.6 years old) followed for an average of 2.7 years, each 1% increase in fat content of milk consumed was associated with a 0.05 lower BMI z-score, even after adjusting for the amount of milk consumed.³⁹ This study also found that children who consumed whole milk had 16% lower odds of being overweight and 18% lower odds of obesity compared to those who consumed reduced-fat milk.³⁹

The beneficial effects of whole milk may be in part due to the unique composition of dairy fat and its overall food matrix, where the interplay of nutrients, bioactive compounds and physical structure of full-fat dairy foods may promote satiety and beneficially modulate energy balance.^{7,65-73} For example, a 2025 cross-sectional study in 267 Canadian children (1.5-5 years old) found that consuming saturated fat from dairy milk and saturated fat from total dairy foods (approximately 70% of total fatty acids in dairy foods)⁷⁴ was neutrally associated with body composition.³² In an RCT assessing the effect of milk fat on adiposity in children 4-6 years old, body fat, BMI, fat mass index and lean mass index were not significantly different between children who consumed full-fat dairy foods compared to those who consumed low-fat dairy foods.¹⁷

Flavored dairy milk and yogurt may promote overall healthier eating patterns among children and adolescents without negatively impacting weight

In studies conducted in children and adolescents, flavored milk consumption is associated with overall enhanced diet quality and is not associated with risk of adverse weight gain.^{10,31,41,60-64} A 2023 systematic review and meta-analysis of 3 RCTs of children and adolescents found that substituting sugar-sweetened beverages with either noncaloric beverages or flavored milk reduced body fat percentage.¹⁰ In a large cohort study of Australian children 2-16 years of age, flavored milk consumption was beneficially associated with micronutrient status without any differences in markers of weight gain.⁶¹ An analysis of the 2011-2012 National Nutrition and Physical Activity Survey among 2,812 Australian children 2-18 years old linked flavored and unflavored milk drinkers with higher total daily milk, dairy and calcium intakes than those classified as milk nondrinkers or milk avoiders, and that milk consumption did not impact BMI.⁶²

Specific to yogurt, analysis of 2001-2016 NHANES data found that total yogurt consumption (inclusive of flavored varieties and across fat levels) was associated with higher nutrient intake, nutrient adequacy and diet quality in children.⁶⁵ No adverse risk for anthropometric measures was found in children among yogurt consumers or nonconsumers. This research suggests that flavored milk and yogurt can be a part of overall calorie-balanced, healthy eating patterns to support weight management in children and adolescents

Dairy foods may contribute to weight management through their unique food matrix

A growing body of research emphasizes the importance of a food's matrix – the complex interplay of nutrients, bioactive compounds and the physical structure of a food – on health.^{69,70,73,75-77} While research is emerging, with the majority of research to date conducted via in vitro and animal models or in adults, evidence suggests that unique components in the dairy food matrix may play a role in weight management among children and adolescents.^{66,68,78-82,86-88}

Dairy foods are a good source of high-quality protein, including whey and casein.^{67,83-85} Research indicates that the high-quality protein and bioactive peptides in dairy foods may promote the release of satiety hormones, which may have downstream effects to regulate food intake through the brain's amino acid-sensing system and increased energy expenditure.^{66,68} In adults, calcium has been linked with potential benefits to support weight management, such as reducing fat accumulation, stimulating fat breakdown and decreasing energy absorption in the gut.⁸² Specific fermented dairy foods, like yogurt, kefir and certain cheeses, can further introduce live and active cultures and probiotics into the diet, which can help beneficially modulate gut health⁸⁶ – another potential factor in weight management.⁸⁷

Dairy fats may also be important bioactive components in milk, cheese and yogurt that benefit metabolic health. Dairy fat is a complex mixture of over 400 types of fatty acids, ranging in length from 4-24 carbons.⁷⁴ Animal and in vitro studies have linked fatty acids found in dairy foods like short-, medium-, odd- and branched-chain fatty acids and naturally occurring trans fatty acids with potential benefits for lipid metabolism, gut health and systemic inflammation that may help promote overall metabolic health.^{79,80,88} In addition, conjugated linoleic acids have been linked with potential biological activity that may suppress appetite and food intake and may regulate lipid metabolism in animal models, although studies conducted in humans with conjugated linoleic acid supplements have been inconclusive.^{78,81} More research is needed to better understand the dynamic relationship between dairy's nutrition and food matrix and how it may mediate benefits for weight management, especially in children.

Conclusion

Dairy foods deliver a uniquely rich package of nutrients and bioactive compounds that may contribute to healthy weight management in children and adolescents. Research indicates a beneficial to neutral link between consuming dairy foods, including flavored options and across a range of fat levels, and weight outcomes in children and adolescents. By incorporating dairy foods into balanced and calorie-appropriate diets, children can achieve and maintain a healthy weight alongside their overall growth and development.

Key Takeaways for Health & Wellness Professionals

- **The current body of evidence links dairy foods with beneficial to neutral weight outcomes in children and adolescents.** Research suggests dairy food consumption can be part of healthy eating patterns associated with lower risk of overweight and obesity during growth and development.⁹⁻¹³
- **Dairy foods provide a nutrient-dense package that can help support overall healthy eating patterns throughout childhood and adolescence.** On average, while milk, cheese and yogurt account for just 14% of calories in the diets of 2-18 year olds, they are significant sources of nutrition, providing 65% of their vitamin D and 62% of their calcium, among other key nutrients.^{7,8}
- **Whole- and reduced-fat dairy foods can fit within balanced eating patterns for children.** Growing evidence suggests dairy food consumption across a range of fat levels is *not* associated with adverse weight outcomes and may even support favorable body composition during childhood – possibly due to the role of dairy’s unique fat in promoting overall metabolic health.^{11,13,17,30,33,36,39,74,78-81,88}
- **Flavored milk and yogurt can help support overall diet quality without negatively impacting weight.** Studies show children who consume flavored dairy foods often get more vitamins and minerals in their diet, with no association with adverse weight outcomes.^{10,31,41,60-64}
- **The dairy food matrix may play a role in supporting healthy weight regulation throughout early life.** Emerging and mechanistic research has linked dairy’s proteins, fats and other bioactive compounds such as live and active cultures found in some fermented dairy foods with benefits for satiety, metabolism, gut health and body composition, which could promote weight regulation during childhood and teen years.^{66,68,78-82,86-88}

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