

Flavored Milk

2011

Flavored milk is a nutrient-rich beverage providing the same nine essential nutrients as white milk. When looking at foods from which Americans get their nutrients, milk (including both flavored and unflavored) is the number one food source of three of the four nutrients that the 2010 Dietary Guidelines for Americans says both children and adults need to consume more of – calcium, vitamin D, and potassium. Although flavored milk contains more calories and carbohydrate than unflavored milk, it contributes only 3% of total added sugar intake and only 2% of total calorie intake in the diets of children ages 2 to 18 years, on average. Nonetheless, the dairy industry has spearheaded efforts to reformulate flavored milk to lower total calories and decrease added sugars, while preserving its nutritional value and taste appeal among children. This report outlines the results of these efforts and provides a brief overview of the science examining the role of flavored milk in children's diets. The scientific support for low-fat and/or fat-free flavored milk is reflected in statements by leading health and nutrition organizations and the 2010 Dietary Guidelines for Americans.

Scientific Status Report

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Flavored milk is a nutrient-rich beverage providing the same nine essential nutrients as white milk, including calcium, potassium, phosphorus, protein, vitamin D, vitamin A, vitamin B12, riboflavin, and niacin (niacin equivalents).¹ Milk is the number one source of three of the four nutrients that the 2010 Dietary Guidelines for Americans says both children and adults need to consume more of – calcium, vitamin D, and potassium.^{2,3} Each 8-ounce serving of flavored or white milk provides 300 mg of calcium or 30% of the Daily Value (1,000 mg) for calcium.^{1,4}

The major difference between flavored and unflavored milk is the higher calorie and carbohydrate content of flavored milk due to the relatively small amount of added sucrose and/or other nutritive sweeteners.¹ The dairy industry has reformulated flavored milk offered in schools to lower total calories, and decrease added sugars and fat, while preserving its nutritional value and taste appeal.⁵ On average, flavored milk offered in schools provides 134 calories per 8-ounce serving, which is 32 fewer calories than five years ago and only 31 calories more than the white milk offered in schools.⁶ Also, flavored milk contains on average 38% less added sugar than five years ago – from 16.7 grams to 10.4 grams or from 4 teaspoons to just 2.5 teaspoons per serving.⁶ On average, flavored milk contributes only 3% of total added sugars and only 2% of total calories to the diets of children ages 2 to 18 years.² In comparison, on average, carbonated soft drinks and fruit drinks together contribute 45% of total added sugars and 9% of total calories to children's diets, and in general these beverages provide few nutrients.²

The 2010 Dietary Guidelines for Americans³ acknowledges that adding a small amount of sugars to nutrient-dense foods such as fat-free chocolate milk helps enhance milk's palatability. The Guidelines recommends 2 cups of low-fat or fat-free milk and milk products each day for children ages 2 to 3 years, 2 ½ cups for children 4 to 8 years, and 3 cups for people aged 9 years and over.³ Consumption of low-fat and fat-free flavored milk could help children and adults meet their daily recommended dairy servings and dairy nutrients. Research shows that school-aged flavored milk drinkers consume more milk and have higher intakes of essential nutrients such as calcium compared to nonflavored milk drinkers.^{7,8} A study of nearly 4,000 school-aged children and adolescents found that those who drank flavored milk, such as chocolate milk, consumed more total milk and fewer soft drinks and fruit drinks than children who did not drink flavored milk.⁷ Also, flavored milk consumers had higher calcium intakes but not a higher percent of energy from total fat and added sugars intake than non-consumers of flavored milk.⁷ A retrospective analysis of the diets of more than 3,000 children ages 6 to 17 found a positive effect on children's overall diets when they chose flavored milks and yogurts, while intake of sodas and sweetened drinks had a negative effect.⁹

Flavored milk, nearly all of which offered in schools is low-fat or fat-free,^{10,11} is the most popular milk choice among school children, accounting for nearly 70% of milk chosen by children participating in the National School Lunch Program.¹¹ When flavored milk is eliminated from school meals, milk consumption has been shown to drop,^{12,13} which could make it difficult and expensive for schools to replace the nutrients lost from decreased milk intake.¹³

Parents often express concern about the contribution of dietary sugar (i.e., sucrose) in their children's diets to dental caries. However, flavored milk may contribute less to dental caries than other foods with similar sugar content. Additional research is needed to test this further. Flavored milk such as chocolate milk contains two to three fewer teaspoons of added sugar per 8-ounce serving than a soft drink. Both flavored and unflavored milks contain lactose, a naturally occurring (intrinsic) sugar. The food label indicates a combination of natural (i.e., 12 g lactose per 8-ounce serving) and added sugars. Sugar, particularly sucrose, and other fermentable carbohydrate-containing foods can contribute to dental caries, but their

effect is altered by several factors. For example, the frequency and amount of sugar or sugar-containing foods consumed, and their physical form (which influences how long these foods remain in the mouth or oral cavity), are primary dietary determinants in the development of tooth decay.^{14,15} Because flavored milk is a liquid, it is cleared from the mouth relatively quickly and, therefore, may be less cariogenic (tooth decay-promoting) than many other foods such as candies or cookies that stick to tooth surfaces. Furthermore, research indicates that components in milk such as calcium and phosphorus may help protect against dental caries.¹⁶ The American Academy of Pediatric Dentistry includes chocolate milk among its recommended nutritious snack choices.¹⁴ A briefing paper concludes that the cariogenicity of flavored milk is “negligible to low.”¹⁷

Research indicates that flavored milk or sugar per se does not contribute to obesity.^{8,18-21} A study found that children and adolescents who drank flavored milk or unflavored milk had higher nutrient intakes of vitamin A, calcium, phosphorus, magnesium, and potassium and had a body mass index (BMI) that was lower than or comparable to the BMIs of non-milk drinkers.⁸ According to this study, neither flavored nor unflavored milk adversely affected BMI measures in children or adolescents.⁸ Using data from the National Health and Nutrition Examination Surveys 2003-2006, researchers found no significant association between intake of added sugars and weight or body fatness in children aged 6 to 18 years.²¹

While consuming too much carbohydrate or any other energy-yielding nutrient may result in excessive energy intake and can raise the risk of obesity, there is no convincing evidence that intake of sugar (i.e., sucrose, high fructose corn syrup) has any unique influence on obesity.^{18,19} Although the Institute of Medicine notes that sugar consumption has no effect on body weight, it recommends that added sugars (i.e., those incorporated into foods and beverages during production) not exceed 25% of total calorie intake mainly because of the risk of nutrient inadequacies.²⁰ Fat and alcohol contribute 9 and 7 calories per gram, respectively, while carbohydrate (such as sugar) and protein each contribute only 4 calories per gram. Obesity results when energy intake exceeds energy expenditure.^{4,20} Weight loss and maintenance can be achieved by consuming fewer calories and/or by exercising more.³

Scientific reviews conclude that sugar intake does not adversely affect children’s behavior.^{18,22,23} In some circumstances, intake of sugars can improve cognitive performance.¹⁸ When used in moderation and with consideration of overall caloric balance, sugars can increase the appeal of nutrient-dense foods and beverages, thereby providing additional choices to help meet nutritional needs in the context of a healthful diet.^{20,24}

Many leading health and nutrition organizations, as well as the 2010 Dietary Guidelines,³ support the important role of low-fat and fat-free milk, including flavored milk, to help meet children’s nutrient needs. In addition, they recognize that the relatively small amount of added sugar in flavored milk is a worthwhile tradeoff for the nutrients provided. The American Academy of Pediatrics, in its policy statement discouraging soft drinks in schools²⁵ and in its report on optimizing children’s and adolescents’ bone health and calcium intakes,²⁶ encourages consumption of nutritious beverages including low-fat or fat-free flavored milks. The Institute of Medicine, in its report on nutrition standards for competitive foods in schools, recommends increased availability of low-fat and fat-free dairy foods including flavored milks with modest amounts of sugars.²⁷ The American Heart Association states that adding sugars to nutrient-rich foods such as flavored milk improves the quality of children’s and adolescents’ diets, without adverse effects on body weight.²⁴ The School Nutrition Association supports low-fat and fat-free milk options, including fat-free flavored milk, in schools to help students meet their critical nutrient needs for strong bones and healthy diets.²⁸

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