

Recommendations Concerning Flavored Milk: Annotated Bibliography

Since 2002 the World Health Organization (W.H.O.) has recommended that sugars make up less than 10% of total energy intake per day; in draft guidelines released in March 2014, the W.H.O. further suggests limiting sugars to less than 5% of total energy intake for additional benefits. For an adult of normal Body Mass Index, 5% total energy intake is equal to 25 grams, or 6 teaspoons (http://www.who.int/nutrition/sugars_public_consultation/en/). The National Dairy Council states that the average 8-oz container of flavored milk contains 4 teaspoons of added sugar (http://www.nationaldairycouncil.org/SiteCollectionDocuments/child_nutrition/general_nutrition/FlavoredMilk_V13.pdf). Although there is debate over whether prohibiting flavored milk in schools reduces calcium and other nutrient intake, flavored milk contains more than 12 grams of added sugar per 12-oz serving and the Nutrition in Healthcare Leadership Team therefore categorizes it as a sugar-sweetened beverage to be avoided.

All citations will include authors' names, dates of publication, article titles, and publication titles, as well as a short synopsis of the authors' relevant credentials and/or backgrounds, the purpose and content of the articles, whether the article has been peer-reviewed, and the articles' relevant recommendations concerning the consumption of flavored milk.

Bligh M & Hoolihan L. (2011). Bone Health in Children and Adolescents: Implications for Client Counseling. Dairy Council of California. Retrieved from <http://www.nutrition411.com/pdf/Bone%20Health%20in%20Children%20and%20Adolescents,%20Implications%20for%20Client%20Counseling.pdf>.

The authors, both Registered Dietitians and Project Managers at the Dairy Council of California, collaborated on this presentation to provide health professionals with information regarding factors that affect their client's bone health. Calcium is given special attention as the primary nutrient involved in bone health. American adolescents do not come close to meeting the recommendations for dairy consumption. The authors state that "All milks, regardless of fat level or added flavorings, contain about 300 mg of calcium per cup" and encourage flavored milk because of the calcium content, and any milk as the preferred alternative to consuming a dietary supplement. This presentation has not been peer-reviewed.

Boston Public Health Commission. (2012). Healthy Beverage Toolkit. Retrieved from <http://www.bphc.org/programs/cib/chronicdisease/healthybeverages/Forms%20%20Documents/toolkit/HealthyBeverageToolkitFinal.pdf>.

The toolkit is intended to help various organizations encourage healthy lifestyles through policies and practices and is based on current science, public health research, and national recommendations and standards. Skim milk and milk with 1% fat are not considered SSBs because the sugar is naturally occurring, rather than added during the production process. Low-fat chocolate milk and other flavored milk are considered SSBs because they contain added sugars to flavor the milk. Some argue that this additional sugar makes flavored milk unhealthy; others argue the intake of nutrients outweighs these concerns. By these standards, sweetened milk is considered a "yellow" beverage. Milk is required to contain less than 100 calories per 8oz serving. For children, flavored milk is permitted and required to contain less than 130 calories per serving. The BPHC recommends that agencies phase out flavored milk over time.

California School Nutrition Association, letter to Kaiser Permanente Educational Theater dated 6/17/2013. Retrieved from <http://www.calsna.org/documents/nutrition/LettertoKaiserTheaterGroupFlavoredMilkResponse.pdf>.

The American Pediatric Association and American Dietetic Association recommend low-fat flavored milks or milk alternatives for children to ensure they consume the recommended amount

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of dairy and receive the nutritional benefits. Over 70% of the added sugar in the American diet is from soda, sugary drinks, candy, cakes and pies and these are the items that should be targeted for elimination or reduction. Flavored milk is more nutritious than other sugary drinks and only non-fat flavored milks are offered in schools today. Children who consume flavored or white milk consume more vitamin A, calcium, phosphorous, potassium, magnesium and have a lower BMI than non-milk drinkers.

Centers for Disease control and Prevention, National Center for Chronic Disease Prevention and Health Proomotion, Division of Adolescent and School Health. (2009). Nutrition Standards for Foods in Schools. Recommended Nutrition Standards for Foods Outside of School Meal Programs: Information for Parents, Guardians, Teachers, and School Staff.

Retrieved from

http://www.cdc.gov/healthyyouth/nutrition/pdf/nutrition_factsheet_parents.pdf.

The resource was created by a division of the CDC and reiterates the IOM nutrition standards. Fat-free and low-fat milk and milk products, lactose-free and soy beverages per portion as packaged should have less than 35% of calories from total sugars. Exceptions to this standard are: Unflavored nonfat and low-fat milk and yogurt; flavored nonfat and low-fat milk can contain no more than 22 g of total sugars per 8-oz portion, or 30 g of total sugars per 8-oz serving.

Child Nutrition Programs. (2012). Chocolate Milk – The Facts. Oregon Department of Education. Retrieved from

http://www.oregondairyCouncil.org/resources/free_downloads/downloads/ODE-School-Milk-Fact-Sheet.pdf.

The study data was collected by the Eugene district school nutrition staff aggregated by Cornell University. Chocolate milk contains all of the nutrients in white milk; chocolate milk served in schools is specially formulated with only 40 calories more than white milk and has fewer sugars than an equivalent amount of orange juice. When an Oregon school district cut chocolate milk from the menu, total milk selection decreased by 11%, 14 former chocolate milk drinkers opted for no milk instead, and 6.8% of children stopped participating in the school lunch program completely.

Committee on Nutrition Standards for Foods in Schools. (2007). Institute of Medicine. Nutrition Standards for Foods in Schools: Leading the Way Toward Healthier Youth.

Retrieved from www.iom.edu/~media/Files/Report_Files/2007/Nutrition-Standards-for-Foods-in-Schools-Leading-the-Way-toward-Healthier-Youth/factsheet.pdf.

The project staff are all affiliates of the Institute of Medicine. The Tier 1 recommendations for all students include low-fat and nonfat flavored milk with no more than 22g of total sugars per 8oz portion. Low-fat milk is considered to be 1% milk fat.

Harvard School of Public Health. (2009). Healthy Beverage Guidelines. Retrieved from

<http://www.hsph.harvard.edu/nutritionsource/healthy-drinks-full-story/>.

The HSPH seeks to provide timely information on diet and nutrition for clinicians, health professionals and the public. Milk is a key source of calcium and Vitamin D for children. Low-fat milk, sold as 1% or 1.5%, or skim (fat-free) milk are the best choices because they contain less saturated fat. Two glasses of milk per day provides sufficient nutrition without being excessive. The ideal is to consume zero drinks sweetened with sugar or high-fructose corn syrup, but up to a maximum of 8 oz per day will help ensure less than 10 percent of daily calories from beverages. While whole milk has calcium and vitamin D, it has nearly twice the calories and a large amount of saturated fat and should be consumed in a small amount only.

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Institute Of Medicine. (2009). School Meals: Building Blocks for Healthy Children. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2009/School-Meals/School%20Meals%202009%20%20Report%20Brief.pdf>.

These recommendations were created from a consensus study and led by the Food and Nutrition Board. The study was authored by the Committee on Nutrition Standards for National School Lunch and Breakfast Programs and associated study staff, and funded by the USDA, although the study does not necessarily reflect the views of the USDA. The IOM recommends fat-free (plain [unflavored] or flavored) and plain [unflavored] low-fat milk only.

Murphy M, Douglass J, Johnson R & Spence L. (2008). Drinking Flavored or Plain Milk Is Positively Associated with Nutrient Intake and Is Not Associated with Adverse Effects on Weight Status in US Children and Adolescents. *J Am Diet Assoc.* 108(4):631-639. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18375219>.

The authors are a team of Registered Dietitians, one of whom was the VP of Nutrition Research for the National Dairy Council at the time of publication. They used data from the 1999-2002 National Health and Nutrition Examination Surveys, focusing on the milk-drinking status and height and weight measurements of 7,557 children and adolescents aged 2-18 years participating in a 24-hour dietary recall. Only those children and both groups of milk drinkers have comparable nutrient intakes adjusted for energy, age and gender. Adolescents who consumed milk had average calcium intakes close to their dietary recommended intakes and their BMI measurements were comparable to or lower than the BMI measures of nondrinkers. The study found a higher total milk intake by flavored milk consumers than plain milk consumers. Flavored milk consumers were also found to have lower intakes of soft drinks and fruit drinks than non-consumers of flavored milk; the study did not find a relationship between flavored milk intake and consumption of added sugars.

Quann E & Adams D. (2013). Impact on Milk Consumption and Nutrient Intakes From Eliminating Flavored Milk in Elementary Schools. *Nutrition Today*, 48(3), 127-134. DOI: 10.1097/NT.0b013e3182941d6a. Retrieved from http://journals.lww.com/nutritiontodayonline/Fulltext/2013/05000/Impact_on_Milk_Consumption_and_Nutrient_Intakes.7.aspx.

The authors are a registered dietician and director of Regulatory Affairs at the Dairy Research Institute/National Dairy Council, and the president and founder of the Prime Consulting Group, Inc, respectively. They declare that the study funder, MilkPEP, had no influence on the conclusions drawn. This study was observational and additional research is needed to further examine milk consumption at school and the impact on total dietary intake. Measurements of milk sold, consumed and discarded at school breakfast and lunch were recorded; when flavored milk was removed there was a 37.4% decrease in total milk consumption. When schools offered flavored milk some days of the week, this did not lead to increased consumption of non-flavored milk on days when it was the only option. Alternate foods were researched to determine what foods could satisfy the nutrient deficit from lower milk consumption; it would likely result in more calories and fat being consumed, cost up to \$4600 more per 100 students per year, and save 15 to 28g of sugar per week. Most schools would need to re-plan their entire menu sequence to deliver the essential nutrients lost due to lower milk consumption.

Stewart H, Dong D & Carlson A. (2013). Why Are Americans Consuming Less Fluid Milk? A Look at Generational Differences in Intake Frequency. *United States Department of*

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Agriculture, Economic Research Report 149. Retrieved from www.ers.usda.gov/publications/err-economic-research-report/err149.aspx.

The authors are agricultural and food economists employed by the USDA who used data from one-day dietary recalls over 30 years. Americans are drinking less fluid milk on average, especially with their midday and night time meals, and most do not consume enough dairy products. If fluid milk consumption continues to decline, then raising Americans' dairy intakes and improving overall diet quality would require substantial increases in the consumption of non-fluid skim and low-fat products. Lower fat products now represent the bulk of fluid milk consumption for all age groups. Individuals who consume milk at an early age are more likely to do so as adults. The NSLP stipulates that schools must provide fluid milk and it must be low-fat or skim and only skim milk may be flavored. Children's milk consumption may decrease with exposure to competing beverages.

Story M. (2013). Recommendations for Healthier Beverages. Robert Wood Johnson Foundation. Retrieved from <http://www.rwjf.org/en/research-publications/find-rwjf-research/2013/03/recommendations-for-healthier-beverages.html>.

Low-fat and non-fat unflavored milk are recommended for all age groups as a healthier beverage option. The panel does not endorse flavored milk as a healthy beverage, but given the wide availability, sets the calorie limit to reduce calories and sugar intake; if flavored milk is offered it should be nonfat or low-fat with no more than 130 calories per 8 ounces. Only unflavored milk is appropriate for children ages 2 to 4. Milk consumption is critical for the many children and adolescents who do not get adequate amounts of key nutrients from other sources. Limited evidence suggests that flavored milk increases key nutrient consumption; however, recent analysis of the contribution of flavored milk to added caloric intake supports the panel's milk recommendation.

United States Department of Agriculture. (2013). All Food Sold in Schools Standards. Interim final rule. Retrieved from <http://www.gpo.gov/fdsys/pkg/FR-2013-06-28/pdf/2013-15249.pdf>.

The USDA does not support allowing low-fat flavored milk, and low-fat flavored milk is not allowable for any meal pattern based on the IOM's school meal recommendations to help control calories. Nonfat flavored milk is allowable in the school meal patterns without any sugar or calorie caps. But schools that offer nonfat flavored milk must select products that are lower in calories and added sugars in order to stay within the school meal calorie ranges; the USDA offers technical assistance to identify such products.