CONSENSUS STATEMENT

Healthy Beverage Consumption in School-Age Children and Adolescents

Recommendations from Key National Health and Nutrition Organizations

Healthy Eating Research

January 2025

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INTRODUCTION

Dietary patterns consist of the food and beverage choices one makes throughout life, which significantly impact an individual's health. While most dietary recommendations focus primarily on the foods and nutrients necessary for a healthy dietary pattern, the scientific evidence demonstrating the important contribution of beverage choices to health has grown in volume and strength over the last several decades. Simultaneously, a proliferation of new beverages in the marketplace has created confusion over the health benefits and risks of each beverage. Many of these new beverages contain added sugars that can contribute to the risk of overweight, obesity, and diet-related chronic diseases, such as dental caries and type 2 diabetes, when consumed in excess. There has also been an increase in beverages that contain non-sugar sweeteners, caffeine, and/or other ingredients with purported health benefits. In addition, national consumption data indicate a need for improvement in beverage intake by children and adolescents, including among various racial and ethnic groups. Thus, addressing beverage consumption is essential for improving dietary patterns and overall nutrition, health, and wellbeing for children and adolescents, as well as addressing health and nutrition inequities.

BACKGROUND

In 2019, Healthy Eating Research (HER) released evidence-based beverage recommendations for young children, birth to 5 years, with the goal of providing comprehensive and consistent guidelines to inform healthcare providers and public health practitioners and to encourage healthier beverage choices among parents and other caregivers. These recommendations were developed via a consensus process involving an expert panel of representatives from four leading national health and nutrition organizations, the Academy of Nutrition and Dietetics (the Academy), the American Academy of Pediatric Dentistry (AAPD), the American Academy of Pediatrics (AAP), and the American Heart Association (AHA). The resulting *consensus statement* and *technical report* (which details the scientific evidence underlying the recommendations) have led to changes in organizational practices, policies, and healthcare guidance to reduce the consumption of sugar-sweetened beverages and improve young children's beverage intake. Several consumer materials are also available at *HealthyDrinksHealthyKids.org*.

While many authoritative bodies have issued recommendations for healthy beverage intake in school-age children and adolescents, important gaps exist. These recommendations have not been comprehensive in the types of beverages discussed, and many newer and increasingly popular beverage types are not addressed at all. There are also inconsistencies in certain aspects of the recommendations, including the recommended amounts to consume or limit, contributing to confusion among healthcare providers, other practitioners, parents and other caregivers, and children and adolescents.

Given the importance of beverage consumption throughout the lifespan, especially in childhood and adolescence, HER convened the same four national health and nutrition organizations to develop comprehensive evidence-based recommendations for beverage consumption among children and adolescents ages 5 to 18 years. The resulting recommendations focus on beverage consumption in the context of the whole diet, with the goal of achieving a healthy dietary and growth pattern as recommended by the Dietary Guidelines for Americans (DGA).[1]

DEFINITIONS[a]

100% Juice
Beverage made from the extraction or pressing of the natural liquid found in fruits or vegetables; 100% juice means that everything in the container comes from a fruit or vegetable with no added sugars or artificial ingredients. Beverages made from 100% juice diluted with water (no other added ingredients) are also included in this category.

Beverages with Caffeine and Other Stimulants
Drinks that contain caffeine, a legal stimulant that is mildly addictive, or other stimulants, such as taurine, often found in energy drinks. Examples include coffee, tea, energy drinks, and energy shots.

Beverages with Non-Sugar Sweeteners
Beverages that contain any of the six high-intensity sweeteners approved by the U.S. Food and Drug Administration (FDA) as food additives (saccharin, aspartame, acesulfame-K, sucralose, neotame, and advantame) or three additional plant- or fruit-based high-intensity sweeteners generally recognized as safe and thus permitted for use in the food supply (steviol glycosides, monk fruit, and thaumatin). Non-sugar sweeteners (NSS) may also be called diet sweeteners, non-nutritive sweeteners, no- or low-calorie sweeteners, or artificial sweeteners.

Plain Drinking Water
Potable water that is unsweetened, unflavored, and fluoridated. Not all plain water sources are naturally fluoridated, but fluoridated water should be used when available. Examples include tap water, well water, or plain, unsweetened bottled or carbonated (i.e., sparkling) water.

Plain Pasteurized Milk
Cow's milk and other animal-based milk that has been heated to a specified temperature and for a specified length of time to kill pathogens that may be found in raw milk, and to which caloric sweeteners, NSS, or flavorings have not been added. Common varieties include whole milk (also known as Vitamin D milk), reduced fat (2%), low-fat (1%), and skim (fat-free).

Plant-Based Milk Alternatives
Non-dairy beverages that are derived from plant-based ingredients, such as grains (e.g., rice, oats), nuts/seeds, legumes, or blends of these ingredients, and are often fortified with nutrients found in dairy milk. Many come in both sweetened and unsweetened varieties; sweetened varieties generally contain added sugars and/or NSS.

Sugar-Sweetened Beverages
Liquids to which any forms of sugar are added. Examples include sports drinks, soft drinks/sodas, energy drinks, fruit drinks, fruit-flavored drinks, fruitades, aguas frescas, sweetened waters, horchata, and sweetened coffee and tea drinks.

Sweetened Flavored Milk
Pasteurized cow's milk to which sweeteners and/or flavorings have been added for the main purpose of increasing palatability. Examples include chocolate or strawberry milk.

[a] Many beverages in the marketplace may fall into more than one of these categories.

METHODS

A multi-step process was used to develop the evidence-based recommendations:

1. HER convened a scientific advisory committee (SAC) in 2023 and an expert panel of representatives from four national health and nutrition organizations in 2024.
2. An extensive review of approximately 50 unique source documents and reports from 20 domestic and international authoritative bodies on recommendations and guidance for beverage consumption among children and adolescents ages 5 through 18 years was conducted by the lead research consultant.
3. Structured scoping reviews of the literature for beverages where there was a lack of existing recommendations or where recommendations were incomplete or inconsistent were conducted by the research team.
4. HER and the Expert Panel Chairs hosted virtual meetings of the expert panel and SAC to discuss preliminary consensus recommendations based on available evidence gathered in steps 2 and 3.
5. HER reconvened expert panel and SAC members to develop, review, and agree on final consensus recommendations.

The expert panel was composed of two representatives from each of the four national health and nutrition organizations, two co-chairs with expertise in beverage consumption in children and adolescents ages 5 to 18 years, and a research consultant with expertise in nutrition and public health. HER also recruited nine individuals with extensive expertise in establishing dietary guidance, childhood nutrition, and nutrition science to serve on the SAC, which provided input throughout the consensus process on the panel methodology and protocols. The SAC also reviewed the final consensus recommendations for scientific rigor and accuracy. A list of expert panel and SAC members is provided in the Acknowledgements section at the end of this report.

The expert panel and SAC met virtually over approximately five months during the consensus statement development process to discuss knowledge gaps, agree on research terms and content, conduct literature reviews, review the evidence, and develop the final consensus recommendations. Specifically, over this period, the panel convened twice as a full group, twice as part of beverage-specific working groups, and three times with the full expert panel and SAC. In between meetings, expert panel member feedback was also gathered via Qualtrics surveys at key decision points. The final draft recommendations and supporting rationale were reviewed by all members of the expert panel and the SAC, with refinements made as needed to achieve consensus. For additional details on the consensus process and methodology, please reference the *technical report*.

SUMMARY OF KEY PANEL FINDINGS AND RECOMMENDATIONS

The following recommendations are intended to support a life-course approach to nutrition, recognizing that children and adolescents have diverse hydration, calorie, and nutrient needs based on age and patterns of growth, physical development, and physical activity that rapidly evolve during this life stage.[1] The expert panel used *AAP's periodicity table* from the Recommendations for Preventive Pediatric Health Care,[2] which is based on developmental stage, rather than age, as well as the calorie and nutrient needs established by the DGA to develop the age subgroups used in the recommendations.[1]

The expert panel recognizes that some beverages, such as water, milk, and 100% juice (in moderation) contribute to meeting daily hydration needs and often provide beneficial nutrients, such as vitamins, minerals, and fluoride, which may help children and adolescents meet daily nutrient and food group recommendations in a healthy dietary pattern. Thus, consumption of these beverages should be considered in the context of the whole diet. However, many beverages in the marketplace provide "discretionary calories" and may not add any nutritional benefit to the diet. These beverages often contain added sugars, which contribute excess calories to the diet, and/or non-sugar sweeteners (NSS) or stimulants, which may be harmful if consumed in large quantities.

Added sugars—sugars that are added during the processing or preparation of foods and beverages—are especially concerning in U.S. diets as they are abundant in the food supply and strong evidence links overconsumption to negative health outcomes, including increased risk of dental caries, overweight and obesity, and diet-related chronic diseases.[3] According to the DGA, approximately 85% of the calories a person consumes each day are needed to meet food and nutrient recommendations; this leaves only a small amount (15%) for discretionary foods and beverages, including added sugars.[1] The DGA recommends that children and adolescents limit added sugars to less than

10% of calories per day (which is equivalent to 200 calories, or 50 grams of added sugars, in a 2,000 calorie per day diet). The AHA recommends even lower limits of no more than 6 teaspoons of added sugar per day (equivalent to 25 grams of added sugars or 100 calories), and no more than 8 ounces of sugary beverages a week for children and adolescents due to the link between excess added sugar consumption and negative impacts on cardiovascular health.[4]

The expert panel considered all these principles, as well as current evidence-based recommendations and the latest research when developing the following recommendations. A summary of recommendations for healthy beverage consumption in children and adolescents, ages 5 through 18 years, is provided in Table 1. Complete recommendations, full rationale, and evidence are presented in the *technical report*.

Table 1. Recommendations for Healthy Beverage Consumption, Ages 5–18 Years

	5–8 years	9–13 years	14–18 years
Total Hydration Needs*	40 fl oz of total beverages per day (~5 cups)	54–61 fl oz of total beverages per day (~6.75–7.6 cups)	61–88 fl oz of total beverages per day (~7.6–11 cups)
 Plain Drinking Water**	16–40 fl oz per day (2–5 cups)	22–61 fl oz per day (2.75–7.6 cups)	29–88 fl oz per day (3.6–11 cups)
 Plain Pasteurized Milk	up to 20 fl oz per day (2.5 cup eq/day)	up to 24 fl oz per day (3 cup eq/day)	up to 24 fl oz per day (3 cup eq/day)
 100% Juice	<4–6 fl oz per day (½ to ¾ cup/day)	<6–8 fl oz per day (¾ to 1 cup/day)	<8 fl oz per day (1 cup/day)
 Plant-Based Milk Alternatives	Only recommended when medically indicated (e.g., milk protein allergy) or to meet specific dietary patterns (e.g., vegan). Choose alternatives that are nutritionally similar to milk, such as unsweetened, fortified soy milk. Avoid plant-based milk alternatives containing added sugar or non-sugar sweeteners.		
 Sweetened Flavored Milk	Avoid or limit consumption due to the high amount of added sugars per serving		
 Sugar-Sweetened Beverages	Not recommended		
 Beverages with Non-Sugar Sweeteners	Not recommended		
 Beverages with Caffeine and Other Stimulants	Not recommended		

*Total Hydration Needs represent the total volume of fluids per day consumed as beverages; amounts are based on median intake to avoid dehydration and should not be considered maximums or minimums. Total hydration needs vary for each individual based on sex, age, and weight, and will vary day-to-day based on factors such as climate and physical activity. Plain drinking water is the primary recommended beverage for meeting hydration needs.

**Plain drinking water ranges are determined using the quantities in total hydration needs minus the maximum recommended quantities of milk and 100% juice. Individual needs vary day-to-day; see the section below on plain drinking water for more information.

Note about unit conversions: 1 cup = 8 fluid ounces = 237 milliliters

BEVERAGES RECOMMENDED AS PART OF A HEALTHY DIET

Plain Drinking Water and Total Hydration Needs

Expert Panel Recommendations

Plain drinking water is recommended as part of a healthy diet for children and adolescents ages 5 through 18 years. It should be the primary beverage for meeting hydration needs. The specific amount required by each individual will vary day-to-day based on climate and level of physical activity, as well as the volume of fluids consumed via other foods and beverages.

When considering the total beverage intake necessary to meet hydration needs, data suggest that the following total fluid volumes (which include all beverages—water, milk, juice) will meet daily hydration needs for most children and adolescents. The expert panel used these estimates for total hydration needs to determine ranges for plain drinking water. The following plain drinking water ranges are determined using the quantities in total hydration needs minus the maximum recommended quantities of milk and 100% juice.

	5–8 years	9–13 years		14–18 years	
Total Hydration Needs	**40 fl oz per day** (5 cups or 1,183 mL) **No difference by sex.**	Female	Male	Female	Male
		54 fl oz (6.75 cups or 1,597 mL)	**61 fl oz** (7.6 cups or 1,804 mL)	**61 fl oz** (7.6 cups or 1,804 mL)	**88 fl oz** (11 cups or 2,602 mL)
Plain Drinking Water	**16–40 fl oz per day** (2–5 cups or 473–1,183 mL) **No difference by sex.**	Female	Male	Female	Male
		22–54 fl oz (2.75–6.75 cups or 651–1,597 mL)	**29–61 fl oz** (3.6–7.6 cups or 858–1,804 mL)	**29–61 fl oz** (3.6–7.6 cups or 858–1,804 mL)	**56–88 fl oz** (7–11 cups or 1,656–2,602 mL)

Fluoridated water is the preferred form of plain water given its substantial oral health benefits; however, not all communities or individuals have access to fluoridated water. In this case, the expert panel still recommends the consumption of plain water to meet daily water intake goals, and healthcare providers should discuss alternative sources of fluoride with patients and families.

Rationale

Water is essential for life. Individual fluid needs vary on a day-to-day basis because of differences in physical activity, climate, and intake of other foods and beverages containing water. A healthy human body is able to compensate for some degree of over- and under-hydration in the short term, allowing normal hydration to be maintained over a range of water intakes. One day of low intake may not lead to dehydration; however, a continuous pattern of under-consuming fluids will compromise health.

Due to this variation in an individual's total water needs and lack of evidence indicating specific requirements, the expert panel used the Adequate Intake (AI)[b] for total water set by the Dietary Reference Intakes Committee and the Panel on Dietary Reference Intakes for Electrolytes and Water convened by the National Academies of

[b] Adequate Intake is the recommended average daily intake level based on observed or experimentally determined approximations or estimates of nutrient intake by a group (or groups) of apparently healthy people that are assumed to be adequate; it is used when a Recommended Dietary Allowance (RDA) cannot be established.

Sciences, Engineering, and Medicine to guide the development of this recommendation.[5] The AI for total water includes drinking water and the water content of beverages and food, and is based on the median total water intake from the U.S. National Health and Nutrition Examination Survey III data. The recommended amounts of total fluid intake for adequate hydration provided by the panel include only the proportion of fluids that come from daily beverage consumption, including water. However, these recommended amounts should not be interpreted as a maximum or minimum; rather, they are an estimate of daily fluid needs from beverages to avoid dehydration in most children and adolescents.

Water should be the primary beverage consumed to meet these daily hydration needs; however, the specific amount of water consumed by an individual may be adjusted based on the total amount of other beverages (e.g., milk, 100% juice) consumed in a given day, as well as other factors including climate and physical activity. The expert panel calculated ranges for plain drinking water to account for an individual drinking no other beverages in a day (i.e., the upper end of the range) as well as for an individual consuming the maximum recommended amounts of milk and 100% juice (i.e., the lower end of the range). The technical report contains several additional scenarios for how water intake may be adjusted based on other beverages consumed in a given day (see **Appendix F** in the Technical Report).

When considering types of water, the expert panel recommends consuming potable water that is unsweetened, unflavored, and fluoridated. The expert panel recommends that all water consumed by children and adolescents be fluoridated, given the evidence demonstrating its role in dental caries prevention and supporting optimal oral health. While fluoridated water is preferred due to its oral health benefits, not all individuals have access to fluoridated water. In this case, the expert panel still recommends consumption of plain water to meet daily water intake goals, and healthcare providers should discuss alternative sources of fluoride with patients and families.

Examples of plain drinking water include tap water, well water, or plain, unsweetened bottled or carbonated (i.e., sparkling) water. Tap water is the preferred water source as it is usually readily available, convenient, affordable, and environmentally friendly; in many places, it is also fluoridated. Bottled water does not share any of these characteristics and should only be purchased when tap water is unsafe for drinking. More information on the environmental impacts of bottled water and how filters can be installed to make tap water more palatable can be found in the technical report.

While plain carbonated water may be okay for children and adolescents in limited quantities, flavored water, with or without carbonation, is not recommended due to its lower pH, which has negative impacts on oral health. Research indicates that frequent consumption of beverages with a pH of less than 4.0 can be potentially damaging to dentition, leading to erosion of enamel on the tooth's surface.[6] Most flavored waters (including flavored carbonated water) have a pH in the 3.0–3.8 range due to the addition of acids (e.g., citric acid, malic acid, phosphoric acid) and other natural or artificial flavorings. In contrast, plain drinking water has a pH of ~7, considered neutral, and plain carbonated water generally has a pH between 5.5 and 6.8 (varies by brand).[7]

Plain Pasteurized Milk

Expert Panel Recommendations

Plain pasteurized milk is recommended as part of a healthy diet for children and adolescents ages 5 to 18 years.

	5–8 years	9–13 years	14–18 years
Plain Pasteurized Milk	**up to 20 fl oz per day** (2.5 cup eq/day)	**up to 24 fl oz per day** (3 cup eq/day)	**up to 24 fl oz per day** (3 cup eq/day)

These recommendations are in alignment with recommendations from the DGA for daily servings of dairy. The DGA includes all fluid, dry, or evaporated milk, including lactose-free and lactose-reduced products and fortified soy beverages (soy milk)[c], buttermilk, yogurt, kefir, and cheeses[d] in the dairy group. One cup-equivalent from the dairy group equals one cup (or 8 fluid ounces) of milk. Thus, the expert panel recommendations do not need to be met by milk alone.

Rationale

The dairy group is an important source of several essential nutrients in the diets of children and adolescents, including calcium, phosphorus, vitamins A and D, B vitamins, and protein.[1,8] Milk, in particular, provides three nutrients of public health concern given low intakes—potassium, calcium, and Vitamin D—making it an important beverage in the diet of children and adolescents. Yet, as children age, national surveillance data show dairy consumption, especially milk, decreases leading to inadequate intake of these key nutrients.[9] If a child does not like milk, other foods from the dairy group (e.g., plain, pasteurized unsweetened yogurt or cheese) can meet daily nutrient needs. If an individual is allergic to milk or follows a vegan diet, fortified PBMA may be a suitable option (see the **Plant-Based Milk Alternatives** section in the Technical Report).

The expert panel recognizes the role of dairy fat in healthy dietary patterns has been controversial in recent years due to evidence suggesting that saturated fat from dairy may not be associated with adverse health outcomes (e.g., heart disease) as previously thought.[10] However, in the absence of conclusive evidence to justify a departure from existing recommendations, the expert panel recommends fat-free (skim) or low-fat (1%) milk given their nutrient density and lower calorie and saturated fat content, as evidence suggests diets lower in saturated fat are better for health outcomes.[11] Consumption of dairy products high in saturated fat may contribute to excess calories in the diet, which continues to be a concern due to the high prevalence of children and adolescents with overweight or obesity in the U.S. However, there may be situations when a higher fat content of milk (2% or whole) is appropriate. Thus, when counseling children and adolescents and their families, healthcare providers should recommend the milk type best suited to an individual's nutrient needs.

When making dietary choices, individuals should consider the most nutrient-dense options in the dairy group, such as unsweetened, plain pasteurized fat-free (skim) and low-fat (1%) milk, yogurt, and cheese. In the case of lactose intolerance, choose unsweetened low-lactose and lactose-free dairy products; in the case of a dairy allergy, plain, unsweetened, fortified soy beverages and yogurt or other PBMA meeting minimal nutrition standards (see the **Plant-Based Milk Alternatives** section in the Technical Report) should be considered to meet dairy needs. If selecting foods rather than beverages to meet dairy recommendations, water consumption should be increased to meet daily hydration needs.

[c] The expert panel recommendations address PBMA, including fortified soy beverages, separately; please reference that section of the consensus statement for more details.

[d] Note: Cream, sour cream, and cream cheese are not included in the recommendation for the dairy group due to their low calcium content.

BEVERAGES TO LIMIT AS PART OF A HEALTHY DIET

100% Juice

Expert Panel Recommendations

100% fruit and vegetable juice can be part of a healthy diet in children and adolescents, but consumption should be limited. The following recommendations are considered upper limits for daily servings of 100% juice, not minimum requirements.

	5–8 years	9–13 years	14–18 years
100% Juice	**<4–6 fl oz per day** (½ to ¾ cup/day)	**<6–8 fl oz per day** (¾ to 1 cup/day)	**<8 fl oz per day** (1 cup/day)

These limits extend to 100% vegetable juice as well as fruit and vegetable juice blends.

Rationale

The fruit group, as defined by the DGA, includes both whole fruit and 100% fruit juice; however, 100% fruit juice is lower in dietary fiber and more calorically dense than whole fruit. Moreover, research has shown that consuming calories in liquid form does not contribute to satiety (the feeling of fullness) in the same way as the consumption of solid foods, and may therefore be associated with excess calorie intake.[12] Eating fruits and vegetables in whole forms is also important for promoting variety in the diet.

Fiber is a nutrient of public health concern among children and adolescents because it is under-consumed. Thus, it is ideal for children and adolescents to meet their daily fruit requirements primarily by eating fresh, canned, or frozen fruits and vegetables, without added sugars or NSS, as many of these are good sources of dietary fiber.

The 100% juice recommendations are upper limits for daily servings (not minimum requirements). These amounts were determined by allowing approximately one-third of total daily fruit recommendations in the form of 100% juice (see the technical report for recommended daily fruit servings at different ages and calorie levels). Should a family choose to dilute 100% juice with water, the amount of juice served per day (pre-dilution) should not exceed the recommended limits.

While 100% juice is not needed in the diet, the expert panel recognizes that some families may have difficulty accessing whole fruits and/or vegetables for a variety of reasons, including cost, lack of proximity to food retailers, and seasonality. In these cases, 100% juice may help meet daily fruit and/or vegetable recommendations and achieve a healthy dietary pattern.

Plant-Based Milk Alternatives (PBMA)

Expert Panel Recommendations

PBMA are only recommended for children and adolescents when medically indicated (e.g., milk protein allergy, galactosemia), or to meet specific dietary patterns (e.g., vegan). In these cases, fortified soy milk or PBMA that are nutritionally similar to cow's milk are recommended in place of dairy milk. As with dairy milk, PBMA containing added sugars or NSS should be avoided.

Rationale

PBMA are not recommended for exclusive consumption in place of dairy milk for healthy children and adolescents unless medically indicated (e.g., milk protein allergy, galactosemia) or to meet specific dietary preferences (e.g., cultural foodways, vegan or vegetarian dietary patterns, and/or for environmental considerations), as these products are not nutritionally equivalent to cow's milk. Dairy is best suited to meet the nutritional needs of children and adolescents and is preferred over plant-based products because the latter have varied and incomplete nutrition profiles.

In the case of lactose intolerance, low-lactose or lactose-free versions of dairy products should be used as an alternative to dairy for children and adolescents rather than PBMA. For cultural foodways that do not typically include the recommended amount of dairy milk (or as much dairy as typical U.S. diets) or for individuals who follow a vegan dietary pattern, fortified soy milk or PBMA that are nutritionally similar to cow's milk are recommended in place of dairy milk. In all these cases, the expert panel recommends consulting with a healthcare provider, such as a pediatrician or registered dietitian nutritionist, to ensure that the intake of nutrients commonly obtained from dairy milk can be considered in dietary planning.

Table 2: Nutrient Requirements for PBMA as a Cow's Milk Substitute in Federal Child Nutrition Programs

Key Nutrient in Cow's Milk per cup (8 fl oz)	
Protein	8g
Calcium	276 mg
Vitamin A	500 IU
Vitamin D	100 IU
Magnesium	24 mg
Phosphorous	222 mg
Potassium	349 mg
Riboflavin	0.44 mg
Vitamin B-12	1.1 mcg

Protein, Calcium, Vitamin D, and Potassium are the most important nutrients to consider when choosing PBMA as a replacement for cow's milk.

Except for soy milk fortified with calcium and vitamins A and D, the DGA do not include PBMA as part of the dairy group because their overall nutritional content is not similar to dairy foods (see **Appendix H** in the Technical Report). Other plant-based products sold as "milks" (e.g., rice, almond, coconut, oat, hemp) are often fortified with calcium and possibly other nutrients to attain levels similar to cow's milk, however it is not known whether the bioavailability of these added nutrients is comparable to that of their naturally-occurring counterparts in cow's milk. Thus, the expert panel agrees with the 2020–2025 DGA that PBMA, with the exception of soy, are not generally a good substitute for meeting daily dairy recommendations.

When choosing PBMA as a replacement for cow's milk, it is important to ensure nutrition requirements are met. At a minimum, protein, calcium, vitamin D, and potassium should be considered. Table 2 shows the requirements for PBMA permitted in federal child nutrition programs;[13] currently, only soy milk and some pea protein milks meet these requirements. It is important to avoid PBMA with added sugars; sweetened PBMA, which are prevalent, do not add any nutritional benefit to the diet.

Sweetened Flavored Milk

Expert Panel Recommendations

Children and adolescents should avoid or limit consumption of flavored milk with added sugars (e.g., chocolate or strawberry milk), as these beverages contribute to excess intake of added sugars.

Rationale

Sweetened milks, more commonly referred to as flavored milks (e.g., chocolate or strawberry milk) are not recommended in the diets of children and adolescents because they contribute to excess intake of added sugars. Many families are not aware that an 8-fluid ounce glass of low-fat chocolate milk[e], for example, can contain as much as 20 grams (or 5 teaspoons) of added sugar,[14] which is more than a sports drink (~14 grams of added sugar per 8 fluid ounces) and comparable to the amount of added sugar found in the same volume of regular soda (~25 grams per 8 fluid ounces).[1] Flavored milk and dairy products are also increasingly sweetened with NSS, which are not recommended for children and adolescents (see **Beverages with Non-Sugar Sweeteners** section in the Technical Report).

To meet dairy recommendations, plain pasteurized milk is recommended as part of a healthy diet. If plain milk is not well tolerated (e.g., lactose intolerance), low-lactose or lactose-free dairy products should be considered. If a child or adolescent does not accept the taste of plain milk, other dairy sources (e.g., unsweetened yogurt, cheese) should be considered before shifting to flavored milk. Providing children with sweetened flavored milk to meet daily dairy requirements is discouraged. The AHA recommends that children and adolescents consume no more than 6 teaspoons of added sugar per day (equivalent to 25 grams of added sugars, or 100 calories), and no more than 8 fluid ounces of sugary beverages a week.[4] One cup of flavored milk can meet or even exceed these daily added sugar recommendations. Thus, children and adolescents should avoid consuming sweetened flavored milk, and limit consumption when avoidance is not feasible as there are alternative options for meeting daily dairy recommendations.

The expert panel recognizes that the National School Lunch Program and School Breakfast Program allow flavored milk to be served as part of reimbursable meals. Recent updates to school meal nutrition standards limit added sugars in flavored milk to no more than 10 grams of sugar per 8 fluid ounce serving in elementary schools and no more than 15 grams per 12 fluid ounce serving in middle and high schools[f], which may serve as a helpful sugar reduction strategy. However, due to the rapid growth and development of children and adolescents, there is not much room for discretionary calories in the diet, and even with these new limits, students are at risk of exceeding daily added sugar limits through flavored milk alone if they choose it at both school breakfast and lunch. While healthcare providers and parents can encourage the selection of plain milk options, research shows that children select flavored milk more frequently than plain milk when offered at school, highlighting an important policy opportunity to further improve the school food environment.[15] It will also be important to ensure that sugar limits for school meals do not result in a further increase in the use of NSS in sweetened milk as manufacturers seek to maintain product sweetness and flavor profiles.

[e] Turkey Hill 1% ready-to-drink chocolate milk contains 20 grams of added sugar per 8-fluid ounces.

[f] This policy goes into effect July 1, 2025.

BEVERAGES NOT RECOMMENDED AS PART OF A HEALTHY DIET

Sugar-Sweetened Beverages (SSB)

Expert Panel Recommendations

SSB such as soft drinks/sodas, sports drinks, energy drinks, fruit drinks, fruit-flavored drinks, fruitades, aguas frescas, sweetened waters, horchata, and sweetened coffee and tea beverages, are not recommended as part of a healthy diet for children and adolescents.

Rationale

Consumption of SSB is associated with negative impacts on overall dietary intake and health outcomes, such as dental caries, overweight and obesity, cardiovascular disease, and type 2 diabetes. Moreover, SSB are the largest source of added sugars in the diets of U.S. children and adolescents, while contributing little to achieving a healthy dietary pattern.[16] According to the 2020–2025 DGA, a healthy dietary pattern should limit added sugars to less than 10% of calories per day.[1] In a 2000-calorie diet, this is approximately 200 calories or 12 teaspoons of added sugar. However, in 2017–2018, the average daily intake of added sugars was 17 teaspoons for children and adolescents (ages 2–19 years).[17]

Added sugars are prevalent in the U.S. food supply. They are added during the processing of foods and beverages and include sugars from syrups and honey, concentrated fruit or vegetable juices, and foods packaged as sweeteners.[16] The leading sources of added sugars in U.S. diets are SSB, desserts, and sweet snacks, but added sugars are found in many unexpected products including breads, cereals, yogurt, salad dressings, and tomato sauces.[17] Reducing consumption of SSB is a simple strategy to decrease added sugars in the diets of children and adolescents and can contribute to improvements in overall diet quality.

Beverages with Non-Sugar Sweeteners (NSS)

Expert Panel Recommendations

Beverages with NSS are not recommended for consumption as part of a healthy diet for children and adolescents.

NSS include the six high-intensity sweeteners approved by the FDA as food additives (saccharin, aspartame, acesulfame-K, sucralose, neotame, and advantame) and three high-intensity sweeteners generally recognized as safe and thus permitted for use in the food supply (steviol glycosides, monk fruit, and thaumatin).[g] NSS may also be called diet sweeteners, non-nutritive sweeteners, no- or low-calorie sweeteners, or artificial sweeteners.

Rationale

The use of NSS has increased in the food supply as a result of efforts to decrease added sugars in foods and beverages. While NSS are approved by the FDA for use in the U.S. food supply, there is emerging evidence to suggest potential undesirable effects from long-term use of NSS in adults, including higher risk of type 2 diabetes, cardiovascular disease, and mortality.[18] There is also emerging evidence of undesirable effects from shorter-term use, for example on the gut microbiome.[19] The 2020 DGA, which is the current edition as of the time of this report's publication, states that questions remain about the effectiveness of replacing added sugars

[g] Sugar alcohols and low-calorie sugars are not considered to be NSS; however, these substances are increasingly used as sweeteners in the food supply and are addressed further in the technical report.

with low- and no-calorie sweeteners as a long-term weight management strategy.[1] More recently, the World Health Organization (WHO) recommended against the use of NSS to control body weight in both children and adults, stating that evidence shows the use of NSS does not confer any long-term benefit in reducing body fat.[18] WHO guidance also suggests that NSS not be used to reduce the risk of noncommunicable diseases among adults.

Despite new research in adults, there is a lack of evidence on the safety and impact of NSS consumption on long-term health among children and adolescents. In 2018, the AHA released a science advisory cautioning against children's and adolescent's prolonged consumption of beverages containing NSS (which they refer to as low-calorie sweeteners), stating "…there is a dearth of evidence on the potential adverse effects of low-calorie sweetened beverages relative to health benefits."[8, 20] In 2019, the AAP also issued a policy statement on the use of NSS (which they refer to as non-nutritive sweeteners) in children stating that the use of NSS in isolation is unlikely to lead to substantial weight loss and that there is a lack of research on the long-term effects of NSS use in children and adolescents, thus pediatricians are encouraged to discuss the risks and benefits of potential use with children and families.[21]

This expert panel identified little conclusive evidence regarding the short and long-term health impacts of consuming beverages with NSS, particularly among children and adolescents, and therefore concluded that a precautionary approach is prudent. Given that childhood and adolescence are critical developmental periods in the life course, characterized by rapid physical, neurologic, cognitive, and social growth and development, along with the lack of evidence regarding the short- and long-term health impacts of consuming beverages with NSS among children and adolescents, it is this panel's expert opinion that these beverages are not necessary and should be avoided. In addition, the amount of NSS is not required to be disclosed on nutrition labels, which makes it difficult for consumers to accurately measure intake. Moreover, given the sweetness of NSS, it is reasonable to expect that they could contribute to a preference for sweet-tasting foods and beverages.

Beverages with Caffeine and Other Stimulants

Expert Panel Recommendations

Beverages with caffeine and other stimulants are not recommended for consumption as part of a healthy diet for children and adolescents.

Rationale

Caffeine is not necessary for adequate nutrition, thus beverages with caffeine are not recommended for consumption as part of a healthy diet for children and adolescents. Common sources of caffeine include coffee, non-herbal teas, energy drinks, sodas, chocolate and coffee-flavored foods and beverages, and other beverages (e.g., some water and juices have added caffeine). Caffeine consumption has increased over the past decade with the proliferation of energy drinks in the market, which contain large amounts of caffeine and added sugar. Yet, caffeine content is not required to be disclosed on nutrition labels, making it difficult to accurately measure intake via foods and beverages. With increased intake has come an increase in case reports of adolescents experiencing adverse effects, the most concerning of which include cardiovascular events. Recent research also demonstrates significant negative impacts on sleep quality and patterns, dietary intake and patterns, and mental health.

There is uncertainty about the safe level of caffeine intake in children and adolescents. AAP suggests that children under age 12 avoid caffeine entirely, while adolescents (ages 13–18) limit intake to no more than 100 mg/day through foods and beverages.[22] However, this recommendation is hard to operationalize given that caffeine content is not required to be disclosed on nutrition labels. Table 3 includes known caffeine levels for some beverages (exact caffeine amount varies by brand), and it is easy to see how quickly a 100 mg/day limit can be exceeded.[23, 24] Thus, the expert panel recommends a precautionary approach of avoiding

caffeine for all children and adolescents. All children and adolescents should avoid consuming energy drinks, which can contain large amounts of caffeine and sugar in a single serving as well as additional stimulants.

The expert panel also reviewed relevant literature to explore the impact of consuming beverages with additives and supplements, such as prebiotics, probiotics, or added vitamins or minerals, during childhood and adolescents (ages 5–18 years) on health. There is insufficient evidence available to describe the health impacts of consuming beverages with additives and supplements among children and adolescents. Given the paucity of evidence, as well as the fact that many of the beverages with these ingredients also fall into other categories (e.g., SSB, NSS, beverages with caffeine), the expert panel determined that beverages with additives and supplements should not be a unique category for the purpose of this report.

Table 3: Caffeine Content of Beverages

Caffeine in Beverages per cup (8 fl oz)	
Bottled Iced Tea	15-25 mg
Brewed Black or Green Tea	55 mg in 1 tea bag
Charged Lemonade	60-70 mg
Coffee	80-100 mg
Decaf Coffee or Tea	2-15 mg
Energy Drinks	150-300 mg
Soda (regular cola)	35-40 mg

OTHER CONSIDERATIONS WHEN CHOOSING BEVERAGES

The expert panel considered several other issues when reviewing the literature and developing recommendations, including:

- the ever-changing, diverse beverage environment;
- impacts of the food system, and beverages in particular, on climate change, including environmental implications of single-use beverage containers and packaging as well as greenhouse gas emissions from beverage production;
- implications of these recommendations and possible necessary adaptations for varying cultural foodways, traditions, and customs or dietary patterns in the U.S.;
- income or budgetary considerations;
- the harmful layered effect of additives in beverages, potentially falsely marketed to offer nutritional value; and
- opportunities for these recommendations to inform policy, environmental, and systems efforts to improve children's and adolescents' health.

More information on each of these issues can be found in the technical report.

CONCLUSION

Beverages are critical for adequate hydration and play an important role in achieving a healthy dietary pattern and developing life-long healthy nutrition habits. Despite efforts to improve beverage intake patterns among children and adolescents, many are still not meeting recommendations, and disparities in intake by race, ethnicity, and income persist. The beverage recommendations put forward by this expert panel are based on the best available evidence, and in some cases, expert opinion.

A consistent theme that emerged throughout the expert panel's information-gathering efforts and review of the literature was that research and evidence on the health impacts of consuming most beverages during childhood and adolescence is limited. High-quality studies (defined by this effort as randomized control trials, quasi-experimental studies, and observational prospective cohort studies) are particularly scarce, as are longitudinal data to examine the long-term health impacts of beverage consumption. Additionally, there is a dearth of research on beverage consumption patterns and behaviors and their associated health outcomes among different racial and ethnic groups in the U.S. These recommendations take a conservative approach given the scarcity of evidence and may change over time as new evidence emerges.

The goal of this consensus panel is to provide consistent messages that can be used by healthcare providers, public health practitioners, and parents and other caregivers to improve the beverage intake patterns of children and adolescents. The level of collaboration and consistency among major national health and nutrition organizations represented in these recommendations has the capacity to make meaningful change and improve the health and wellbeing of 5 to 18-year-olds throughout the U.S.

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This Consensus Statement is based on the full technical report of this expert panel. The complete list of citations can be found in the *technical report*.

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About Healthy Eating Research

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