Policy on Dietary Recommendations for Infants, Children, and Adolescents

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Purpose

The American Academy of Pediatric Dentistry (**AAPD**) recognizes its role in promoting well-balanced, low caries-risk, and nutrient-dense diets for infants, children, adolescents, and persons with special health care needs.

Methods

This policy was developed by the Clinical Affairs Committee and adopted in 1993. This document is an update from the last revision in 2012. The current revision includes searches of articles published in English between 1995 and 2017 using PubMed®/MEDLINE, Embase®, and Google Scholar. Key terms included childhood, obesity, dental caries, diet, and nutrition. Additional terms included health education, breastfeeding, food habits, dietary guidelines, sugar, sugar-sweetened beverages, and body mass index. After conducting the literature searches, articles were screened by viewing titles and abstracts. Data from 194 articles were abstracted and used to summarize dietary policies and research on diet and nutrition for infants, children, and adolescents.

Background

Dietary behaviors and prevalence of dental caries and obesity in children

The causes of dental caries and obesity are multifactorial, with both having significant dietary components. One of the behaviors associated with dental caries and obesity in children is the consumption of large quantities of sugar-sweetened foods and beverages. Sugar-sweetened beverages (**SSBs**) are defined by the Centers for Disease Control and Prevention to include soft drinks (soda or pop), fruit drinks, sports drinks, tea and coffee drinks, energy drinks, sweetened milk or milk alternatives, and any other beverages to which sugar, generally high-fructose corn syrup or sucrose (table sugar), has been added.[1] Sugar-containing beverages (**SCBs**) include SSBs as well as beverages in which sugar, generally glucose or fructose, is naturally present, such as 100 percent fruit juice.

Children's and adolescent's consumption of SSBs in the United States is high, and it increased from 242 calories/day between 1988–1994 to 270 calories/day between 1999–2004.[2] Additionally, adolescents with low-educated parents have higher total SSBs consumption and higher energy intake from SSBs.[3]

Dental caries prevalence in children has been variable, but remains high. For instance, prevalence of dental caries in primary teeth for children aged 2–5 increased from 22 percent to 30 percent between 1988–1994 and 1999–2004 and then decreased to 23 percent in 2011–2012.[4] The causes of dental caries involve a combination of factors and include diet, bacteria capable of fermenting carbohydrates, fluoride exposure, and a susceptible host.[5] While sugar, especially high frequency consumption, is a factor contributing to dental caries, a systematic study of sugar consumption and caries risk concluded that the relationship between sugar consumption and caries is weaker after the introduction of fluoride exposure.[6]

The causes of obesity include genetic components, lifestyle, and environmental variables, as well as nutritional factors. Health initiatives in the United States and other countries have specifically targeted reducing consumption of SSBs in an effort to lower the number of calories that children and adolescents consume per day. For children and adolescents aged 2–19, the prevalence of obesity has remained constant at about 17 percent, with obesity affecting about 12.7 million children and adolescents for the past decade.[7] Children and adolescents who are obese are likely to be obese as adults and, in adulthood, at risk for health problems such as heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis.[1] Because of the persistent high prevalence of dental caries and childhood obesity, the need remains for research, policy, advocacy, education, and professional engagement to further advance healthy dietary practices for infants, children, and adolescents.

National and international dietary guidelines

The U.S. Department of Health and Human Services and the U.S. Department of Agriculture develop dietary guidelines every five years to help Americans aged two and older make healthy food choices to help prevent chronic disease and enjoy a healthy diet. The 2015–2020 Dietary Guidelines for

ABBREVIATIONS
AAP: American Academy of Pediatrics. **AAPD:** American Academy Pediatric Dentistry. **OTC:** Over-the-counter. **SCBs:** Sugar-containing beverages. **SSBs:** Sugar-sweetened beverages.

Americans emphasize consuming a healthy eating pattern that includes a variety of vegetables, fruits, grains, fat-free or low-fat dairy products, a variety of protein foods, and oils, with limits on saturated and trans fats, added sugars, and sodium. The Dietary Guidelines for Americans give specific quantitative guidelines for consumers, such as consuming less than 10 percent of calories per day from added sugars, consuming less than 10 percent of calories per day from saturated fats, and consuming less than 2,300 milligrams per day of sodium.[8] In addition, the World Health Organization recommends reducing the intake of sugar to less than 10 percent of total energy intake, and to reduce children's risk of weight gain and dental caries, limiting the intake of sugar to less than five percent of total energy intake per day (less than 16 grams of sugar for children aged 4–8).[9] Additionally, the American Heart Association recommends reducing sugar consumption in children and adolescents to less than 25 grams of added sugar per day.[10] One should note that eight ounces of soft drink contain approximately 26 grams of sugar.

Dietary recommendations in dental practice

Dietary choices affect oral health as well as general health and well-being. Establishment of a dental home by 12 months of age allows the institution of individualized caries-preventive strategies, including dietary recommendations and appropriate oral hygiene instruction, as the primary teeth begin to erupt.[11]

Epidemiological research shows that human milk and breast-feeding of infants provide general health, nutritional, developmental, psychological, social, economic, and environmental advantages while significantly decreasing risk for a large number of acute and chronic diseases.[12] A systematic review of cariogenic potential of milk and infant formulas in animal models found that cow's milk and human milk are less cariogenic than sucrose solutions.[13] Another systematic review concluded that children exposed to long durations of breast-feeding up to age 12 months had reduced risk of caries. However, children breastfed more than 12 months has an increased risk of caries; and those children breastfed nocturnally or more frequently had a further increased caries risk.[14]

A June, 2017 recommendation of the Committee on Nutrition of the American Academy of Pediatrics (**AAP**) has reconfirmed that 100 percent juice and juice drinks have no essential role in a healthy diet for children, and contribute to excessive calorie intake and risk of dental caries in children.[15] Their recommendations include: juice should not be introduced to infants before one year of age; intake of juice should be limited to four ounces a day for children ages 1–3 years of age; 4–6 ounces for children 4–6 years of age; eight ounces for children 7–18 years of age; toddlers should not be given juice in containers that foster easy consumption; and toddlers should not be given juice at bedtime.[15]

It has been shown that nearly 54 percent of U.S. preschool children were given some form of over-the-counter (**OTC**) medications, most commonly as analgesics, antipyretics, and cough and cold medications.[16] Numerous OTC and prescribed oral liquid medications have been found to have a high sugar content to increase palatability and acceptance by children.[17-19] Frequent ingestion of sugar-sweetened medications is associated with dental caries in chronically ill children.[17,18,20] To motivate children to consume vitamins, numerous companies have made sugar containing jelly, gummy, and candy-like chewable vitamin supplements, and cases of vitamin A toxicity have been reported as a result of excessive consumption of candy-like vitamin supplements.[21] The AAP has recommended that the optimal way to obtain adequate amounts of vitamins is to consume a healthy and well-balanced diet.[22]

With regard to obesity, oral health professionals need to be more engaged in identifying children at risk for obesity and provide appropriate referral to pediatricians or nutritional specialists. A 2016 survey of pediatric dentists reported that 17 percent offer childhood obesity interventions, while 94 percent offer information or other interventions on the consumption of sugar sweetened beverages.[23] Barriers to providing healthy weight interventions including fear of offending the parent, appearing judgmental, creating parent dissatisfaction, and lack of parental acceptance of advice about weight management from a dentist.[23]

Policy statement

The AAPD supports:

- The recommendation of national and international organizations to reduce the consumption of sugar to less than 10 percent of total energy intake and, to reduce children's risk of weight gain and dental caries, sugar intake should be less than five percent of total energy intake (less than 16 grams of sugar for children aged 4–8).
- Breast-feeding of infants prior to 12 months of age to ensure the best possible health and developmental and psychosocial outcomes for infants.
- The AAP recommendations on fruit juice in infants, children, and adolescents.
- Education of health professionals and parents regarding daily sugar-consumption recommendations, as well as the sugar content of foods, beverages and oral liquid medications.
- Dental professionals becoming more engaged in identifying children who consume frequent or large quantities of sugar-containing foods and beverages, and who are at risk for dental caries and obesity.
- Dental professionals' engagement in nutrition education and provision, when necessary, of appropriate referral for dietary counseling from pediatrician or nutritional specialist.

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