Policy Statement

Pediatrics Volume 113, Number 1 January 2004, pp 152-154

Soft Drinks in Schools

AMERICAN ACADEMY OF PEDIATRICS

Policy Statement

Organizational Principles to Guide and Define the Child Health Care Systemand/or Improve the Health of All Children

Committee on School Health

ABSTRACT. This statement is intended to inform pediatricians and otherhealth care professionals, parents, superintendents, and school board membersabout nutritional concerns regarding soft drink consumption in schools.Potential health problems associated with high intake of sweetened drinks are1) overweight or obesity attributable to additional calories in the diet; 2)displacement of milk consumption, resulting in calcium deficiency with anattendant risk of osteoporosis and fractures; and 3) dental caries andpotential enamel erosion. Contracts with school districts for exclusive softdrink rights encourage consumption directly and indirectly. School officialsand parents need to become well informed about the health implications ofvended drinks in school before making a decision about student access to them.A clearly defined, district-wide policy that restricts the sale of soft drinkswill safeguard against health problems as a result of overconsumption.

BACKGROUND AND INFORMATION
Overweight

Overweight is now the most common medical condition of childhood, with theprevalence having doubled over the past 20 years. Nearly 1 of every 3 childrenis at risk of overweight (defined as body mass index [BMI] between the 85th and95th percentiles for age and sex), and 1 of every 6 is overweight (defined asBMI at or above the 95th percentile).[1] Complications of the obesityepidemic include high cholesterol, high blood pressure, type 2 diabetesmellitus, coronary plaque formation, and serious psychosocial implications.[2-6]Annually, obesity-related diseases in adults and children account for more than300 000 deaths and more than $100 billion per year in

treatment costs.[7-9]

Soft Drinks and Fruit Drinks

In the United States, children's daily food selections are excessively highin discretionary, or added, fat and sugar.[10-15] This category offats and sugars accounts for 40% of children's daily energy intake.[10]Soft drink consumers have a higher daily energy intake than nonconsumers at allages.[16] Sweetened drinks (fruitades, fruit drinks, soft drinks, etc)constitute the primary source of added sugar in the daily diet of children.[17]High-fructose corn syrup, the principle nutrient in sweetened drinks, is not aproblem food when consumed in smaller amounts, but each 12-oz serving of acarbonated, sweetened soft drink contains the equivalent of 10 teaspoons ofsugar and 150 kcal. Soft drink consumption increased by 300% in 20 years,[12]and serving sizes have increased from 6.5 oz in the 1950s to 12 oz in the 1960sand 20 oz by the late 1990s. Between 56% and 85% of children in school consumeat least 1 soft drink daily, with the highest amounts ingested by adolescentmales. Of this group, 20% consume 4 or more servings daily.[16]

Each 12-oz sugared soft drink consumed daily has been associated with a0.18-point increase in a child's BMI and a 60% increase in risk of obesity,associations not found with "diet" (sugar-free) soft drinks.[18]Sugar-free soft drinks constitute only 14% of the adolescent soft drink market.[19]Sweetened drinks are associated with obesity, probably because overconsumptionis a particular problem when energy is ingested in liquid form[20] andbecause these drinks represent energy added to, not displacing, other dietaryintake.[21-23] In addition to the caloric load, soft drinks pose arisk of dental caries because of their high sugar content and enamel erosionbecause of their acidity.[24]

Calcium

Milk consumption decreases as soft drinks become a favorite choice forchildren, a transition that occurs between the third and eighth grades.[12,15]Milk is the principle source of calcium in the typical American diet.[11]Dairy products contain substantial amounts of several nutrients, including 72%of calcium, 32% of phosphorus, 26% of riboflavin, 22% of vitamin B_{12},19% of protein, and 15% of vitamin A in the US food supply.[25] Thepercent daily value for milk is considered either "good" or"excellent" for 9 essential nutrients depending on age and gender. Intake of protein and micronutrients is decreased in diets low in dairyproducts.[19,26] The resulting diminished calcium intake jeopardizesthe accrual of maximal peak bone mass at a critical time in life, adolescence.[27]Nearly 100% of the calcium in the body resides in bone.[27] Nearly 40%of peak bone mass is accumulated during adolescence. Studies suggest that a 5%to 10% deficit in peak bone mass may result in a 50% greater lifetimeprevalence of hip fracture,[28] a problem certain to

worsen if stepsare not taken to improve calcium intake among adolescents.[29]

STATEMENT OF PROBLEM

Soft drinks and fruit drinks are sold in vending machines, in school stores,at school sporting events, and at school fund drives. "Exclusive pouringrights" contracts, in which the school agrees to promote one brandexclusively in exchange for money, are being signed in an increasing number ofschool districts across the country,[30] often with bonus incentivestied to sales.[31] Although they are a new phenomenon, such contractsalready have provided schools with more than $200 million in unrestrictedrevenue.

Some superintendents, school board members, and principals claim that thefinancial gain from soft drink contracts is an unquestioned "win" forstudents, schools, communities, and taxpayers.[31,32] Parents andschool authorities generally are uninformed about the potential risk to thehealth of their children that may be associated with the unrestrictedconsumption of soft drinks. The decision regarding which foods will be sold inschools more often is made by school district business officers alone rather thanwith input from local health care professionals.

Subsidized school lunch programs are associated with a high intake ofdietary protein, complex carbohydrates, dairy products, fruits, and vegetables.[16]The US Department of Agriculture, which oversees the National School LunchProgram, is concerned that foods with high sugar content (especially foods ofminimal nutritional value, such as soft drinks) are displacing nutrients withinthe school lunch program, and there is evidence to support this.[26]

There are precedents for using optimal nutrition standards to create a modeldistrict-wide school nutrition policy,[33] but this is not yet aroutine practice in most states. The discussion engendered by the creation ofsuch a policy would be an important first step in establishing an idealnutritional environment for students.

RECOMMENDATIONS

1. Pediatricians should work to eliminate sweetened drinks in schools. This entails educating school authorities, patients, and patients' parents about the health ramifications of soft drink consumption. Offerings such as real fruit and vegetable juices, water, and low-fat white or flavored milk provide students at all grade levels with healthful alternatives. Pediatricians should emphasize the notion that every school in every district shares a responsibility for the nutritional health of its student body.
2. Pediatricians should advocate for the creation of a school nutrition advisory council comprising parents, community and school officials, food service representatives,

physicians, school nurses, dietitians, dentists, and other health care professionals. This group could be one component of a school district's health advisory council. Pediatricians should ensure that the health and nutritional interests of students form the foundation of nutritional policies in schools.

3. School districts should invite public discussion before making any decision to create a vended food or drink contract.
4. If a school district already has a soft drink contract in place, it should be tempered such that it does not promote overconsumption by students.
    - Soft drinks should not be sold as part of or in competition with the school lunch program, as stated in regulations of the US Department of Agriculture.[34]
    - Vending machines should not be placed within the cafeteria space where lunch is sold. Their location in the school should be chosen by the school district, not the vending company.
    - Vending machines with foods of minimal nutritional value, including soft drinks, should be turned off during lunch hours and ideally during school hours.
    - Vended soft drinks and fruit-flavored drinks should be eliminated in all elementary schools.
    - Incentives based on the amount of soft drinks sold per student should not be included as part of exclusive contracts.
    - Within the contract, the number of machines vending sweetened drinks should be limited. Schools should insist that the alternative beverages listed in recommendation 1 be provided in preference over sweetened drinks in school vending machines.
    - Schools should preferentially vend drinks that are sugar-free or low in sugar to lessen the risk of overweight.
5. Consumption or advertising of sweetened soft drinks within the classroom should be eliminated.

COMMITTEE ON SCHOOL HEALTH,2002-2003
Howard L. Taras, MD, Chairperson
Barbara L. Frankowski, MD, MPH
Jane W. McGrath, MD
Cynthia J. Mears, DO
*Robert D. Murray, MD
Thomas L. Young, MD
LIAISONS
Janis Hootman, RN, PhD
National Association ofSchool Nurses
Janet Long, MEd
American School HealthAssociation
Jerald L. Newberry, MEd

National EducationAssociation, Health Information
Mary Vernon-Smiley, MD, MPH
Centers for DiseaseControl and Prevention
STAFF
Su Li, MPA
**Lead author*

REFERENCES

1. American Academy of Pediatrics, Committee on Nutrition. Prevention of pediatric overweight and obesity. *Pediatrics*. 2003;112:424-430
2. Freedman DS, Dietz WH, Srinivasan SR, Berenson GS. The relation of overweight to cardiovascular risk factors among children and adolescents: the Bogalusa Heart Study. *Pediatrics*. 1999;103:1175-1182
3. Pinhas-Hamiel O, Dolan LM, Daniels SR, Standiford D, Khoury PR, Zeitler P. Increased incidence of non-insulin-dependent diabetes mellitus among adolescents. *J Pediatr*. 1996;128:608-615
4. Ludwig DS, Ebbeling CB. Type 2 diabetes mellitus in children: primary care and public health considerations. *JAMA*. 2001;286:1427-1430
5. Dietz W. Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*. 1998;101:518-525
6. Davison KK, Birch LL. Weight status, parent reaction, and self-concept in five-year-old girls. *Pediatrics*. 2001;107:46-53
7. Allison DB, Fontaine KR, Manson JE, Stevens J, VanItallie TB. Annual deaths attributable to obesity in the United States. *JAMA*. 1999;282:1530-1538
8. Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH. The disease burden associated with overweight and obesity. *JAMA*. 1999;282:1523-1529
9. Blumenthal D. Controlling health care expenditures. *N Engl J Med*. 2001;344:766-769
10. Muñoz KA, Krebs-Smith SM, Ballard-Barbash R, Cleveland LE. Food intakes of US children and adolescents compared with recommendations. *Pediatrics*. 1997;100:323-329
11. Subar AF, Krebs-Smith SM, Cook A, Kahle LL. Dietary sources of nutrients among US children, 1989-1991. *Pediatrics*. 1998;102:913-923
12. Calvadini C, Siega-Riz AM, Popkin BM. US adolescent food intake trends from 1965 to 1996. *Arch Dis Child*. 2000;83:18-24
13. Borrud LG, Enns CW, Mickle S. What we eat in America: USDA surveys food consumption changes. *Food Rev*. 1996;19:14-19. Available at: http://www.ers.usda.gov/publications/foodreview/sep1996/sept96d.pdf. Accessed February 12, 2003
14. Borrud LG, Mickle S, Nowverl A, Tippett K. *Eating Out in America: Impact on Food Choices and Nutrient Profiles*. Beltsville, MD: Food Surveys Research Group, US Department of Agriculture; 1998. Available at: http://www.barc.usda.gov/bhnrc/

foodsurvey/Eatout95.html. Accessed February 12, 2003
15. Lytle LA, Seifert S, Greenstein J, McGovern P. How do children's eating patterns and food choices change over time? Results from a cohort study. *Am J Health Promot*. 2000;14:222-228
16. Gleason P, Suitor C. *Children's Diets in the Mid-1990s: Dietary Intake and Its Relationship with School Meal Participation*. Alexandria, VA: US Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation; 2001. Available at: http://www.fns.usda.gov/oane/menu/published/cnp/files/childiet.pdf. Accessed February 12, 2003
17. Guthrie JF, Morton JF. Food sources of added sweeteners in the diets of Americans. *J Am Diet Assoc*. 2000;100:43-51
18. Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective observational analysis. *Lancet*. 2001;357:505-508
19. Harnack L, Stang J, Story M. Soft drink consumption among US children and adolescents: nutritional consequences. *J Am Diet Assoc*. 1999;99:436-441
20. Mattes RD. Dietary compensation by humans for supplemental energy provided as ethanol or carbohydrates in fluids. *Physiol Behav*. 1996;59:179-187
21. Bellisle F, Rolland-Cachera M-F. How sugar-containing drinks might increase adiposity in children. *Lancet*. 2001;357:490-491
22. Tordoff MG, Alleva AM. Effect of drinking soda sweetened with aspartame or high-fructose corn syrup on food intake and body weight. *Am J Clin Nutr*. 1990;51:963-969
23. De Castro JM, Orozco S. Moderate alcohol intake and spontaneous eating patterns of humans: evidence of unregulated supplementation. *Am J Clin Nutr*. 1990;52:246-253
24. Heller K, Burt BA, Eklund SA. Sugared soda consumption and dental caries in the United States. *J Dent Res*. 2001;80:1949-1953
25. Gerrior S, Bente L. *Nutrient Content of the US Food Supply, 1909-97*. Home Economics Research Report No. 54. Washington, DC: Center for Nutrition Policy and Promotion, US Department of Agriculture; 2001. Available at: http://www.usda.gov/cnpp/Pubs/FoodSupply/foodsupplyrpt.pdf. Accessed February 12, 2003
26. Johnson RK, Panely C, Wang MQ. The association between noon beverage consumption and the diet quality of school-age children. *J Child Nutr Manage*. 1998;22:95-100
27. American Academy of Pediatrics, Committee on Nutrition. Calcium requirements of infants, children, and adolescents. *Pediatrics*. 1999;104:1152-1157
28. Wyshak G. Teenaged girls, carbonated beverage consumption, and bone fractures. *Arch Pediatr Adolesc Med*. 2000;154:610-613
29. NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy. Osteoporosis: prevention, diagnosis, and therapy. *JAMA*. 2001;285:785-795
30. Henry T. Coca-cola rethinks school contracts. Bottlers asked to fall in line. *USA Today*. March 14, 2001:A01

31. Nestle M. Soft drink "pouring rights": marketing empty calories to children. *Public Health Rep*. 2000;115:308-319
32. Zorn RL. The great cola wars: how one district profits from the competition for vending machines. *Am Sch Board J*. 1999;186:31-33
33. Stuhldreher WL, Koehler AN, Harrison MK, Deel H. The West Virginia Standards for School Nutrition. *J Child Nutr Manage*. 1998;22:79-86
34. National School Lunch Program Regulations. 7 CFR §210.11 (2002). Competitive food services

---

Return to Contents