

## Commentary

# Sweetened Drinks and Children's Health—What Do We Know, and What Can We Do?

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### INTRODUCTION

**S**UBSTANTIAL MEDIA ATTENTION has been given recently to the epidemic of obesity in the United States. Reports from the Surgeon General, the Centers for Disease Control and Prevention, and numerous scientific journals indicate a growing problem throughout all age groups. In the last 10 years, childhood obesity has doubled in the United States to 13%.<sup>1</sup> Overweight adolescents have a 70% chance of becoming overweight or obese adults, putting them at risk for health problems including heart disease, high blood pressure, certain cancers, and notably type 2 diabetes.<sup>2</sup>

A number of studies have documented that prevalence of type 2 diabetes mellitus is increasing in youth, and obesity is considered to be a major contributor to the increase.<sup>1</sup> Certainly the cause of this epidemic is multifactorial and extremely complex. A host of genetic, psychological, social, and behavioral factors play a part. We must also consider the role that the food environment and specifically sweetened beverages play in the development of overweight and type 2 diabetes in young people.

A recent study published in the journal *Lancet* showed that for each additional serving of sugar-sweetened beverage, such as soda and fruit-flavored drinks, children consumed, both their body mass index and frequency of obesity increased.<sup>3</sup> According to the U.S. Department of Agriculture, per capita soft drink con-

sumption has increased 500% in the last 50 years. The average teen consumes 15 teaspoons of sugar per day from soft drinks.<sup>4</sup> Schoolchildren who drink an average of 9 ounces or more of soft drinks a day consume 188 more calories than those drinking no soft drinks do.<sup>5</sup>

The specific contribution of these factors towards type 2 diabetes in children is still unclear. Some studies indicate that liquid calories are not registered the same as calories consumed from food, resulting in higher calorie consumption overall, and an increase in body weight.<sup>6</sup> Considering that consumption of one 12 ounce regular soda per day for 1 year can equate to 15 pounds of weight gain, there is reason to be concerned about the level of soft drink consumption and weight increases in children.

A review of the current literature on the health effects of sugar indicates that the relationship between dietary carbohydrate and insulin resistance is very cloudy. Associations have been found linking diets with high glycemic load and low fiber content to increased risk of diabetes.<sup>7</sup> The glycemic load of sweetened soft drinks undoubtedly results in a rapid increase in blood glucose and a subsequent insulin surge. There are many unknown consequences of this relationship, especially for children who are consuming large quantities of sweetened beverages at younger ages and exposing their endocrine systems to increasingly high glycemic loads.

Although there are some unanswered questions about the relationship between sugar-sweetened drinks and diabetes, there is no question that these drinks contain little in the way of necessary nutrients, and contribute unnecessary calories to young people's diets. For that reason alone, it is important to recognize the role of sodas as an occasional treat rather than something that should be consumed by children on a regular basis.

As healthcare providers, we must begin to explore some of the contributing risk factors for childhood overweight and type 2 diabetes that we can control and that have a significant impact on children's health. Examining the consumption of high-calorie sweetened beverages and the factors that are contributing to increasing consumption of these drinks such as accessibility, cost, and advertising is essential to adequately addressing potential risk factors. The increasing trend of selling soft drinks and sugar-sweetened beverages on school campuses is one example. A report released by the Public Health Institute examined the prevalence and specifics of district-wide contracts with soft drink companies in California's 25 largest public school districts.<sup>8</sup>

This study explored the issues surrounding contracts and how the provisions impact children's health. The study examined contract provisions including:

- Financial incentives that promote student soda consumption
- Advertising and promotion of soda products
- Limited school district control over beverage selection and sales locations
- Contract administration by non-nutrition personnel

### **FINANCIAL INCENTIVES**

Cash-strapped schools have developed an increasingly dependent relationship with soda companies. There are significant financial incentives in the form of commissions and large bonus payments, which increase as more soda is consumed or exclusive advertising rights and marketing opportunities are guaranteed.

### **ADVERTISING AND PROMOTION OF SODA PRODUCTS**

Each contract examined used a different approach to position soft drinks on campus, including elements of advertising and promotion. Forms of advertising ranged from trade-marked scoreboards and vending equipment to marketing support such as national promotions, software programs for student and administrative use, student awards, and free product donations.

### **LIMITED SCHOOL DISTRICT CONTROL**

In order to meet the changing nutritional needs of children, it is essential that school districts maintain the flexibility to determine the types of foods and beverages sold at school. In several instances, the examined contracts stipulate that decisions, such as the types of products to be sold and their sales locations, must be agreed to by the soda company. In contrast, traditional vendor contracts allow school districts to independently determine the types of products they would like to sell and the locations where the products will be sold.

### **ADMINISTRATION OF BEVERAGE CONTRACTS BY NON-NUTRITION PERSONNEL**

Administrative handling of beverage contracts varies from district to district. The only contract to stipulate nutrient analyses for beverage was a contract administered by food service. School districts seem to view soda contracts as business tools as opposed to segments of the child nutrition program.

### **FINDINGS**

One of the most striking discoveries in this study was that the contracts themselves varied so greatly, and that soft drinks were readily available to students. Most of the details in the contracts lead one to believe that beverage companies have mounted aggressive and largely

successful efforts to establish and maintain a strong presence in California schools. The ultimate result of this campaign is increasing consumption of highly sweetened drinks by young people, and increasing financial pressure on schools to continue selling them.

The report proposes some recommendations to help curb the trend of soda sales on campus and to help ensure the health of students is maintained as a priority. A basic tenet of these recommendations is to consider the health of students over financial considerations. Policies and local decisions need to address the need to fund schools and student activities adequately, so they do not have to rely on children's soft drink consumption to fund educational and extracurricular needs. There are healthy beverages that could be sold in place of highly sweetened soft drinks. Policies to encourage consumption of these drinks through product pricing and placement strategies, and addressing school advertising, will encourage healthier behavior.

Although there continues to be a lack of conclusive evidence regarding the link among soda consumption, overweight, and type 2 diabetes, it is certainly an issue that must be further explored. The trend in the United States of supersizing meals, including 44 and 64 ounce sodas at fast food restaurants, and 20-ounce sodas at school, is becoming the "norm." Efforts should be taken to protect young people from the looming obesity epidemic. The school environment is one opportunity to not only teach kids what is healthy, but also to provide opportunities for them to practice what we teach.

## REFERENCES

1. Wang G, Dietz WH: Economic burden of obesity in youths aged 6 to 17 years: 1979–1999. *Pediatrics* 2002; 109:E81-1. [Erratum in *Pediatrics* 2002;109:1195.] Available at: <http://www.pediatrics.org/cgi/content/full/109/5/e81>.
2. Surgeon General's Call to Action to Prevent and Decrease Obesity. Overweight in children and adolescents fact sheet. Available at: <http://www.surgeon-general.gov>. Accessed July 17, 2002.
3. Ludwig DS, Peterson KE, Gortmaker S: Relationship between consumption of sugar sweetened drinks and childhood obesity: a prospective, observational analysis. *Lancet* 2001;357:505-508.
4. Food Surveys Research Group. Food and Nutrient Intakes by Children 1994–1996, 1998. Beltsville, MD: U.S. Department of Agriculture, 1998. Available at: <http://www.barc.usda.gov/bhnrc/foodsurvey/home.htm>.
5. Harnack L, Stang J, Story M: Soft drink consumption among US children and adolescents: nutritional consequences. *J Am Diet Assoc* 1999;99:436-441.
6. Mattes RD: Dietary compensation by humans for supplemental energy provided as ethanol or carbohydrates in fluids. *Physiol Behav* 1996;59:179-187.
7. Salmeron J, Manson J, Stampfer MJ, Colditz GA, Wing AL, Willett WC: Dietary fiber, glycemic load, and risk of NIDDM in women. *JAMA* 1997;277:472-477.
8. Public Health Institute: Prevalence and specifics of district-wide beverage contracts in California's largest school districts: findings and recommendations. Berkeley, CA: Public Health Institute; 2002.

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