

Beverages in Schools Programs

The availability of soft drinks and other “competitive” foods in school-based vending machines has become a contentious issue across the United States. The advocates of such initiatives contend that resource-strapped school systems are placing fiscal considerations above the health of their students, and that decisive policy change is necessary.

Obesity and other public health problems are extremely complex, and there is little evidence to suggest that punitive measures such as invoking a nutritional litmus test for vending machine foods would make a difference. A review of the latest scientific information regarding soft drinks and other competitive foods reveal some surprises, and suggests that using the school environment to teach students the principles of sound nutrition and the importance of physical activity would be a more constructive approach.

Kids are drinking fewer soft drinks than many people believe.

Data from the most recent U.S. Department of Agriculture’s Continuing Survey of Food Intake by Individuals (CSFII)¹ show that mean consumption of non-diet carbonated beverages among 12 to 16 year-olds both in and outside of school is only 1.2 12-ounce servings per day. Nearly 25% of the participants in this study did not have a soft drink on the day of the survey and 50%

A Nutritional Threat or a Teaching Opportunity?

had less than one serving. Only the top 5% of the population consumed three or more soft drinks per day. Too many soft drinks (or any other food) can contribute to a poor diet, but the data show that current intake of soft drinks is not excessive for most kids.

Obesity is caused by too many calories and not enough physical activity — not by snacks, soft drinks or any single food.

The key to maintaining a healthy weight is to balance calorie intake with physical activity. Too many calories, whether they are from chips and soda or 100% juice or other foods and beverages, will lead to obesity. Vending machines provide a wide range of beverage selections including milk, juice, and water as well as diet, non-diet and caffeine-free carbonated beverages. The American Dietetic Association² states, “It is the position of the American Dietetic Association that all foods can fit into a healthful eating style. The ADA strives to communicate healthful eating messages to the public that emphasize the total diet, or overall pattern of food

eaten, rather than any one food or meal. If consumed in moderation with appropriate portion size and combined with regular physical activity, all food can fit into a healthful diet.” The variety of beverages available in vending machines provides an opportunity to show kids the benefits of making appropriate choices based on balance, variety and moderation.

Foods from vending machines contribute only a small fraction of total calorie intake.

Data from the CSFII survey show that 55% of the sodas kids consumed were purchased in retail stores, 25% from fast food and other restaurants, while only nine percent were obtained from school cafeterias or vending machines³. Given that average consumption of sugar-sweetened soft drinks is only about one serving per day (approximately 120 calories) and the vast majority is consumed outside of school, eliminating the school vending choice is unlikely to have a significant impact on the incidence of obesity – especially if other calorie-containing beverages continue to be available outside of school.

Restricting soft drinks or other foods from vending machines may be counterproductive.

An experiment conducted at Penn State University⁴ found that pre-schoolers who were given limited access to one

flavor of a fruit-filled cookie were three times more likely to expressed interest in it (i.e. attempt to obtain, ask for, etc.) compared to a second flavor that remained unrestricted. The children had been ambivalent to both flavors of the cookie prior to the restriction. There are no published studies on the effect of restricting foods in school-based vending machines, but the Penn State study suggests that students may be more likely to purchase forbidden foods when they leave the “protected” environment of the school.

A University of Michigan study showed that soft drink consumption was not related to tooth decay in people under age 25.

Sugars, starch or other fermentable carbohydrates are necessary for tooth decay to occur. These carbohydrates can come from any food or beverage. However, other factors that influence tooth decay such as stickiness of the food, frequency of consumption, oral hygiene, fluoride intake and access to professional care are equally as important. A recent study using data from the National Health and Nutrition Examination Survey (NHANES)⁵ showed that intake of carbonated beverages was not associated with the incidence of decayed, missing or filled tooth surfaces among U.S. consumers less than 25 years of age. This finding suggests that education is a key factor in maintaining oral health and is likely to be of greater importance than the mix of foods available in school-based vending machines.

Physical activity is just as important as energy intake for managing body weight.

As noted previously, obesity is the result of too many calories and not enough physical activity. Unfortunately, the level of physical activity among U.S. children is declining. A recent study⁶ that tracked

the frequency of exercise-requiring leisure activities in a group of 9-10 year old black and white girls found that participation in such activities decreased by 100 and 64%, respectively, by the time the girls were 16-17 years old. Furthermore, television watching is strongly related to the incidence of obesity. An analysis of the NHANES database⁷ showed that children who watched five or more hours of television per day were more than twice as likely to be obese than children who watched one hour per day or less.

Primary and secondary physical education programs have been curtailed during the past decade so that school systems can devote more resources to academic programs. While there are no objective data that link this trend with increasing rates of childhood obesity, the public health community is calling for innovative programs that enable all Americans to get more exercise, and schools have a unique opportunity to participate in such an effort.

Conclusions

The restriction of carbonated beverages and other foods in school-based vending machines has become a focal point for addressing childhood obesity, tooth decay and other nutrition-related issues. However, many factors contribute to these conditions, and there is no objective evidence that such measures will improve public health. Foods from vending machines constitute only a small fraction of the total diet, and restricting them could lead to increased consumption outside of the relatively limited school environment. On the

other hand, a cooperative approach in which educators and other stakeholders use the school environment to show kids the benefits of physical activity and how to incorporate favorite foods into a balanced, energy-appropriate diet, is likely to be far more effective.

Guy Johnson, a consultant with more than 25 years experience in applied nutrition science, is an authority on the role of diet and exercise on health and nutrition.

¹ Smith P.A. et. al., Relationship between soft drink consumption and BMI among teens. FASEB Journal 15:A1001 (abstract) (2001).

² ADA Reports. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. J. Am. Diet. Assn. 102:100 (2002).

³ Bowman, S.A. Beverage choices of young females: Changes and impact on nutrient intakes. J. Am. Diet. Assn. 102:1234 (2002).

⁴ Fisher, J.O. and Birch, L.L. Restricting access to palatable foods affects children's behavioral response, food selection, and intake. Am. J. Clin. Nutr. 69:1264 (1999).

⁵ Heller, K.E. et. al. Sugared soda consumption and dental caries in the United States. J. Dent. Res. 80:1949 (2001).

⁶ Kimm, S.Y.K. et. al. Decline in physical activity in black girls and white girls during adolescence. New Eng. J. Med. 347:709 (2002).

⁷ Crespo, C.J. et. al. Television watching, energy intake and obesity in US children. Arch. Pediatr. Adolesc. Med. 155:360 (2001).

- According to Government data, consumption of non-diet soft drinks among U.S. adolescents is only 1.2 twelve-ounce servings per day
- Only nine percent of soft drinks consumed by children are purchased from school-based vending machines
- Schools provide an excellent setting to teach kids how to incorporate their favorite foods and beverages into a healthy diet and to encourage physical activity
- Restricting access to certain foods and beverages in schools could create greater demand for them outside of the “protected” environment