

# Children who eat vended snack foods face chronic health problems, poor diet

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School children who consume foods purchased in vending machines are more likely to develop poor diet quality - and that may be associated with being overweight, obese or at risk for chronic health problems such as diabetes and coronary artery disease, according to research from the University of Michigan Medical School.

The study also looked at foods sold in school stores, snack bars and other related sales that compete with USDA lunch program offerings and found that these pose the same health and diet risks in school-aged children.

"The foods that children are exposed to early on in life influence the pattern for their eating habits as adults," says lead study author Madhuri Kakarala, M.D., Ph.D., clinical lecturer of internal medicine at the U-M Medical School.

Previous studies assessing the nutritional value of school lunches and the impact they have on children's overall health have found similar results, but this study is the first to look specifically at competitive foods and beverages - those sold at snack bars or [vending machines](#), rather than through the USDA lunch program.

Researchers analyzed data from 2,309 children in grades 1 through 12 from schools across the country. Interviewers administered questionnaires to obtain 24-hour [food](#) intake data on a given school day. Second-day food intake data was obtained from a group of students to account for day-to-day usual intakes.

Among those surveyed, 22 percent of school children consumed competitive or vended food items in a school day. Usage was highest in high school, where 88 percent of schools had vending machines, compared to 52 percent of middle schools and 16 percent of elementary schools. Competitive food and beverage consumers had significantly higher sugar intakes and lower dietary

fiber, vitamin B levels and iron intakes than non-consumers.

Soft drinks accounted for more than two-thirds of beverages offered in school vending machines and stores. Desserts and fried snacks were the most commonly consumed vended items among elementary school children and beverages other than milk and fruit juice were the most commonly consumed items among middle and high school students. Other frequently consumed vended foods included candy, snack chips, crackers, cookies, cakes and ice cream.

The results did not show a significant difference in students' consumption of these items based on family income or race and ethnicity.

Findings of this study appear in the September issue of the *Journal of School Health*.

"Consumption of vended foods and beverages currently offered in U.S. schools is detrimental to children's diet quality," says Kakarala. "Childhood obesity, resulting from poor dietary choices, such as those found in this study, greatly increases the risk for many chronic diseases. A healthy school food environment can reduce these dietary risks."

Based on their findings, the study authors recommend school administrators design guidelines restricting vended and competitive foods and beverages to those that are rich with nutrients and not energy-dense. Additionally, school foodservice personnel can prepare point-of-service materials and displays to promote more healthful foods such as fresh fruit, yogurt, low-fat milk, juice and sandwiches.

"Targeted nutrition education to promote the importance of healthful snacks is further stressed by the Child Nutrition Act—the major federal legislation that determines school food policy and resources," Kakarala says. "These and other types

of school-enforced policies can be very helpful for children in making smarter eating choices throughout the school day."

If more healthful snack options are not available in vending machines or [school](#) stores, children are at risk for poor nutrition by choosing these items over a USDA-choice lunch or a meal packed from home, Kakarala says.

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