

# Middle school intervention program leads to long-term BMI reduction for obese students

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A five-week obesity prevention program for seventh grade students in Southern California helped obese students lose weight over a long-term period, according to a new study from the RAND Corporation, Boston Children's Hospital, Harvard Medical School and the Los Angeles Unified School District.

The average reduction in body mass index (BMI) measured for obese students of average height two years later when they entered high school translated into about nine pounds lower bodyweight. The findings are published in the May issue of the journal *Pediatrics*.

The program, called Students for Nutrition and eXercise (SNaX), combined school-wide environmental changes and encouragement to eat healthy school cafeteria foods, along with a peer-led education and marketing campaign.

"We believe that SNaX may have triggered changes in physical activity and diet that were sustained from middle to high school, leading to the BMI reductions," said Laura M. Bogart, co-principal investigator of the study and a senior behavioral scientist at RAND, a nonprofit research organization. "Although we don't know why obese students in particular were affected by the intervention, this group of students may have had greater motivation to make behavioral changes, especially after being exposed to SNaX messages about health."

Five schools from the Los Angeles Unified School District were

randomly selected to the intervention group and five were randomly selected for a control group. A total of 1,368 students' height and weight were assessed at baseline and two years after completing the program.

At the start of the intervention, 30 percent of the seventh grade students were classified as obese. The students in the intervention schools who were classified as obese at the start of the program showed a significant decline in their BMI two years later when they were in the ninth grade.

The environmental changes triggered by the intervention included offering a greater variety of sliced/bite-sized healthy food and freely available chilled filtered water at lunch. A peer leader club incorporated a social marketing campaign with posters promoting physical activity, cafeteria food, healthy eating and nutritional postings about cafeteria food.

The marketing campaign included taste tests of cafeteria foods, as well as a short film shown to the entire seventh grade class that encouraged physical activity and healthy eating.

In addition, students were given pedometers and provided with instructions about different kinds of exercises that could be done safely at home, such as dancing and jumping jacks, and at school.

Immediately following the five-week intervention, researchers found significant increases in the proportion of students served fruit and lunch in the cafeteria, increases in water consumption and greater obesity-prevention knowledge, as well as an increase in positive attitudes toward cafeteria food. In addition, there was a decrease in the proportion of students buying snacks at school.

"It was exciting to see that students were interested in eating fresh fruit when it was made available and that many students volunteered to learn

more about healthy eating and physical activity so that they could help teach other students," said Dr. Mark Schuster, principal investigator of the study, chief of general pediatrics at Boston Children's Hospital, professor of pediatrics at Harvard Medical School and an adjunct researcher at RAND.

The question for the research team was whether the immediate results in behavior changes would lead to a reduction in BMI. To help with the long-term impact, all seventh graders were given take-home activities to do with their parents during each week of the program. Also, students and parents were given concrete suggestions about new foods to try at home, as well as information about the risks of sugary drinks and the value of healthy eating.

"Although SNaX lasted only five weeks, a primary goal of the program was to teach students skills that could be transferred to their family and to peers, as well as to instill healthier habits and provide students and parents with strategies for longer-term behavior changes," Bogart said.

Researchers note that the long-term effects on BMI suggest that SNaX could have an even greater impact if it were extended throughout the school year to fit with existing school clubs and extra-curricular activities.

Provided by RAND Corporation

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