

Healthier diets possible in low-income, rural communities in America

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In the United States, children don't eat enough fruits, vegetables and whole grains. Instead, their diets typically include excessive amounts of sugars and solid fats, counter to the 2010 Dietary Guidelines for Americans recommendations, increasing the risk of obesity and diabetes. A team of investigators implemented a two-year intervention study in low-income, rural areas where a disproportionately higher risk of overweight and obesity habits among children persists, leading to increased risk of diabetes and heart disease in adulthood. The children enrolled in the study consumed significantly more fruits and vegetables. The results are published in the *Journal of the Academy of Nutrition and Dietetics*.

To evaluate [students' diet quality](#) at the beginning and after the study, researchers designed the CHANGE (Creating Healthy, Active and Nurturing Growing-up Environments) study, a two-year randomized, controlled, community- and school-based [intervention](#) to prevent unhealthy weight gain among rural school-aged children.

"Our primary objectives were to improve the diets, physical activity levels, and weight status of rural children based on the successful model developed by Tufts University researchers for the Shape Up Somerville study," says lead investigator Christina Economos, PhD, Friedman School of Nutrition Science and Policy, Tufts University, Boston . "The objective of our analysis was to examine changes in fruit, vegetable, legume, whole-grain and low-fat dairy consumption among rural elementary students who were exposed to the CHANGE study

intervention compared with students in control schools," says lead author Juliana F. W. Cohen, ScM, ScD, Department of Nutrition, Harvard School of Public Health, Boston. The team wanted to test its hypothesis that students exposed to the study would improve their diet quality due to healthier food environments.

Eight communities in rural California, Kentucky, Mississippi, and South Carolina participated in the study between 2007 and 2009. Two communities in each state were randomly assigned to either an intervention or control group. Students in the intervention sample were given daily access to healthier school foods and weekly educational curriculum which incorporated the goals of the Shape Up Somerville model: at least five servings of fruits and [vegetables](#); no more than two hours of television or other screen time; and at least one hour of physical activity. The mean age of the 1,230 participating students was 8.6 and about 85-95 percent were nonwhite.

A baseline analysis revealed that students in CHANGE schools:

- Ate similar amounts of fruits, vegetables, whole grains, dairy, potatoes/potato products, saturated fats, and sugars as students in control schools
- Consumed significantly more legumes

As a result of the intervention, food consumption of students in CHANGE schools was significantly different than students in the control schools with the following results:

- Eating 0.08 cups of vegetables per 1,000 kcal more per day
- Eating 0.22 cups combined fruits and vegetables per 1,000 kcal more per day
- Had a significantly lower glycemic index

There was a trend toward more [fruit](#) consumption in the CHANGE study intervention with 0.15 cups per 1,000 kcal per day.

Dr. Cohen concludes, "The outcomes of the CHANGE study provide evidence that a multi-component intervention targeting low-income children living in rural communities in America can improve their diet quality. Overall, students consumed significantly more vegetables and combined [fruits and vegetables](#) after exposure to the CHANGE study intervention compared with students in control schools and communities."

Drs. Cohen and Economos and colleagues call for more research to examine ways to improve other aspects of children's diets using this community-based model.

More information: "The CHANGE Study: A Healthy-Lifestyles Intervention to Improve Rural Children's Diet Quality," Juliana F.W. Cohen, ScM, ScD; Vivica I. Craak, MS; Silvina F. Choumenkovitch, PhD; Raymond R. Hyatt, PhD; and Christina D. Economos, PhD. *Journal of the Academy of Nutrition and Dietetics*, [DOI: 10.1016/j.jand.2013.08.014](#)

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