

In-school tests suggest overweight boys and girls benefit from being fit

April 4 2012

Improving or maintaining physical fitness appears to help obese and overweight children reach a healthy weight, reports a new study from the Friedman School of Nutrition Science and Policy at Tufts University. Researchers analyzed four years of data from in-school fitness tests and body mass index (BMI) measurements of students in grades 1-7 in the city of Cambridge, Mass.

In the study published online March 15 by the journal *Obesity*, Sacheck and colleagues examined the association between weight status and [fitness levels](#) by assessing student performance on five fitness tests. Regardless of their weight, [students](#) were classified as "fit" if they passed all five tests and "underfit" if they failed one or more tests.

The assessments taken between 2004 and 2007 coincided with a city-wide weight and fitness intervention that prompted improvements to gymnasiums, promotion of physical activities outside of school, professional development for physical education teachers and issuing "Health and Fitness report cards" to parents. The 2,793 students in the study participated in bi-weekly school gym classes plus a daily recess, and annual assessments of their BMI and [physical fitness](#).

"Of the 1,069 students who were initially obese or overweight, 17% achieved a healthy weight within the one to four year study period compared with 6.3% of students who began the study at a healthy weight and became obese or overweight." said Jennifer M. Sacheck, Ph.D., senior author and an assistant professor at the Friedman School. "It is

encouraging to see any kind of reversal in unhealthy weight patterns, considering Centers for Disease Control statistics indicate child and [adolescent obesity](#) rates rose approximately 13% between 1980 and 2008."

Within the four-year study period, 27% of the 1,882 students who were underfit at baseline became fit.

"Obese and [overweight girls](#) who achieved fitness were almost five times as likely, and obese and overweight boys were two and a half times as likely, to reach a healthy weight than those who stayed underfit," said first author Adela Hruby, a Ph.D. candidate at the Friedman School. "It turns out that maintaining fitness is beneficial, too. We observed that obese and overweight girls and boys who both started and ended the study being fit were more likely to have a healthy weight by the end of the study."

Staying fit also benefitted healthy weight boys and girls; they were more likely to maintain their weight than those students who declined from fit to underfit over the course of the study.

Maintaining or achieving a healthy weight appeared to be most closely associated with cardiorespiratory fitness, which was assessed by the students' performance in a 20-yard shuttle run (a 6-minute, back-and-forth run between two markers). Incremental improvement in cardiorespiratory fitness was associated with achieving a healthy weight in children who were obese or overweight at baseline and with weight maintenance in [healthy weight](#) students who were fit at baseline.

Sacheck noted additional research is needed to explain the current results. "Because ours is an observational study using just annual measures, it is unclear whether students who became fit did so before they lost weight or whether they lost weight before they became fit," she

said. "Long-term intervention trials that assess both fitness and nutrition could provide more data to determine the role of improved fitness in weight loss."

A range of options exist for increasing child fitness. "Federal guidelines call for at least 60 minutes of moderate to vigorous exercise per day and most of that should fall into the category of cardiorespiratory fitness that builds the capacity of the heart and lungs, such as soccer or dancing," Sacheck said.

"In addition to organized sports, school recesses or walking to school counts toward that one-hour goal. Parents can help by being active with their kids and limiting time spent watching TV or playing video games."

The authors propose schools as leading advocates for physical activity programming and policies, such as in-school fitness testing. "Although data on childhood fitness and health outcomes is still evolving, there is a body of research showing relationships between the two in adults, such as reduced risk for cardiovascular disease and diabetes. If studies continue to show the same for children, there is an even stronger case for [fitness](#) testing in schools where large groups of children can have access to such an evaluation."

More information: Hruby A, Chomitz VR, Arsenault LN, Must A, Economos CD, McGowan RA, and Sacheck JS. Predicting Maintenance or Achievement of Healthy Weight in Children: The Impact of Changes in Physical Fitness. *Obesity*, March 15, 2012; [doi:10.1038/oby.2012.13](https://doi.org/10.1038/oby.2012.13)

Provided by Tufts University

Citation: In-school tests suggest overweight boys and girls benefit from being fit (2012, April 4)

retrieved 6 May 2024 from

<https://medicalxpress.com/news/2012-04-in-school-overweight-boys-girls-benefit.html>

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