

Physical education key to improving health in low-income adolescents

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School-based physical education plays a key role in curbing obesity and improving fitness among adolescents from low-income communities, according to a new study led by researchers at the University of California, San Francisco and UC Berkeley.

The study, which identifies opportunities for adolescents to improve their health based on routine daily activities, finds that regular participation in PE class is significantly associated with greater cardiovascular fitness and lower [body mass index](#).

"We took an incredibly comprehensive look at all of the opportunities kids have throughout their day to engage in physical activity and determined which are the most strongly linked to fitness and weight status," said first author Kristine Madsen, MD, MPH, an assistant professor of pediatrics at UCSF Children's Hospital. "[Obesity](#) continues to be a major [public health](#) concern, particularly in low-income communities, so it is imperative that we develop targeted interventions to improve the health of at-risk youth."

"This research will help support moving physical education policy forward. Clearly, physical education in schools is an underutilized tool in our efforts to reduce [pediatric obesity](#)," said Patricia Crawford, DrPH, RD, the study's senior author and director of the Dr. Robert C. and Veronica Atkins Center for Weight and Health at UC Berkeley.

The study appears in the November 2009 issue of the journal "*Archives*

of Pediatrics & Adolescent Medicine" and is available online at <http://archpedi.ama-assn.org/>.

Madsen and her co-investigators surveyed 9,268 seventh- and ninth-grade students at 19 racially and ethnically diverse public schools in low-income communities throughout California. The schools represented in the survey also were participants in The California Endowment's Healthy Eating Active Communities Initiative, a statewide program that aims to fight childhood obesity and to develop policy changes that will reduce risk factors for diabetes and obesity.

Students answered questions anonymously about their level of participation in several daily physical activities, including PE class, walking to and from school and playing on sports teams. They also rated how much they enjoyed PE and estimated the amount of time they spent exercising during PE class. An additional survey question addressed whether students regularly purchased food from snack carts, fast food restaurants or stores on their way to and from school.

Answers obtained through the survey were then linked to each school's results from the state-mandated Fitnessgram - an annual assessment of students' fitness levels - to determine which physical activities had a significant impact on weight and cardiovascular health. Weight was measured using body mass index scores, and [cardiovascular fitness](#) was assessed using the amount of time it takes to walk/run a mile.

The researchers found that engaging in at least 20 minutes of exercise during PE class was significantly associated with both shorter mile times and lower body mass index scores. Furthermore, as the students' reported levels of enjoyment of PE increased, their mile times decreased.

"PE was by far the most significant predictor of students' fitness and was the only variable associated with improved weight status," Madsen said.

"I think this shows that we need to increase the importance of physical education in schools and set up tougher standards in the same way we set up tough standards around academic performance."

The data also showed a significant association between walking to school and shorter mile times; however, walking to school also was significantly associated with higher body mass index. The researchers state that this finding was not surprising, due to the fact that those students who walked to school were also more likely to buy food while in transit.

"The most affordable food options in low-income neighborhoods tend to be unhealthy, so it is not surprising that students who purchase more food on their way to and from school are more likely to be overweight," Madsen said. "We absolutely need to work with local vendors in these communities to improve the food environment and create healthy zones in the vicinity of schools."

According to Madsen, additional research should aim to identify the specific factors that contribute to students' enjoyment of PE, so that curricula can be shaped to improve the quality of classes and to achieve higher levels of physical exertion.

Source: University of California - San Francisco

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