

Longer exercise provides added benefit to children's health

September 18 2012



Twenty minutes of daily, vigorous physical activity over just three months can reduce a child's risk of diabetes as well as his total body fat -- including dangerous, deep abdominal fat -- but 40 minutes works even better, according to research by Dr. Catherine Davis, clinical health psychologist at the Institute of Public and Preventive Health at Georgia Health Sciences University. Credit: Phil Jones, GHSU photographer

Twenty minutes of daily, vigorous physical activity over just three months can reduce a child's risk of diabetes as well as his total body fat - including dangerous, deep abdominal fat – but 40 minutes works even better, researchers report.

"If exercise is good for you, then more exercise ought to be better for you and that is what we found for most of our outcomes," said Dr. Catherine Davis, clinical health psychologist at the Institute of Public and Preventive Health at Georgia Health Sciences University.

Pediatric and adult studies have shown the metabolic benefits of aerobic activity but had yet to dissect differences in the dose response, or the amount of activity needed to elicit a given benefit. The study published in the [Journal of the American Medical Association](#) looked at 222 overweight, previously inactive 7- to 11-year olds in the Augusta, Ga., area and found more is better.

"Obesity is a growing public health crisis that is affecting youth throughout the United States, and we know that obesity can contribute to the development of type 2 diabetes," said Dr. Michael Lauer, Director of the National Heart, Lung and Blood Institute Division of Cardiovascular Sciences of the National Institute of Health. "This research adds to the body of evidence that physical activity improves children's health, that longer periods of exercise provide a greater benefit and that increased physical activity among overweight and obese children could stave off the onset of type 2 diabetes."

A third of the study participants maintained their typically [sedentary lifestyle](#); a third began a 20-minute heart-rate-raising, after-school exercise routine for three months; and a third exercised for 40 minutes after school.

While their primary focus was [insulin resistance](#), a risk factor for diabetes, the researchers also measured total body fat, visceral fat and [aerobic fitness](#) over the study's course.

Children who exercised for 40 minutes had a 22 percent reduction in insulin resistance versus the controls, while the 20-minute group

experienced an 18 percent reduction, said Davis, the study's lead author.

The extra 20 minutes also helped the children lose more total body fat and visceral fat while fitness, which appeared driven by intensity rather than duration, gained a similar boost from both time periods. Benefits were gained without restrictive diets and worked equally well in black and white boys and girls.

Davis' research team kept both groups moving with running and tag games and modified sports. "Regulation sports tend to have kids standing around a lot waiting for the ball. We had enough balls so everyone was moving all the time," she said. They kept it fun, giving non-food rewards, such as small toys, for children who kept their heart rates high. "It had to be fun or they would not keep coming," said Davis, noting the 94 percent retention rate of [study participants](#).

She hopes the evidence of the solid health benefits of a fun, vigorous and relatively short exercise routine will be used to design public health interventions for a society in which one-third of elementary school children are overweight.

"It's practical in the sense that we were able to quantify the dose required to make these changes," Davis said. "If you are able to get kids active for 20 minutes every day in school, whether through physical education or taking a running break during lunch, that can make a real difference." She noted that while schools are a great place to start, jam-packed curricula likely mean a 40-minute [exercise routine](#) will require after-hours programs as well.

"You can reach a lot of kids by making changes at school," Davis said. "We don't want this to just be for athletic or coordinated kids but for all kids, especially the ones who are less likely to be on a sports team."

Childhood obesity rates in the United States have been climbing for more than a decade. While they seem to be plateauing, the unprecedented levels have serious consequences for children's health and longevity, Davis said. A primary example is the emergence of type 2 diabetes, previously considered an adult, lifestyle-related problem with serious implications for cardiovascular health and more. One of the first indications of trouble is increased insulin resistance, how much insulin the pancreas must produce to enable glucose circulating in the blood to become energy for the cells. In this study, researchers showed a benefit of 40 minutes of daily exercise on the disposition index – the ratio of insulin resistance to the body's ability to secrete insulin – a proven predictor of diabetes development in adults.

"When your body is no longer able to secrete enough insulin to overcome your body's resistance to it, that's when it becomes diabetes," Davis said, noting that in insulin resistance, pancreases must work overtime producing extra insulin to convert excess blood glucose to usable energy. Without sufficient insulin, a vicious cycle results as energy-starved cells increase the appetite and people eat more creating even more glucose to convert. "Exercise basically gives the pancreas a break and could prevent or delay [type 2 diabetes](#) as long as people remain active," Davis said. Longer-term and follow-up studies are needed to find out what happens with these children over time and how to help them sustain a healthy lifestyle.

In 2005, a federal panel, co-chaired by Dr. William B. Strong, a pediatric cardiologist and retired Professor at the Medical College of Georgia at GHSU, recommended 60 minutes or more of daily [vigorous physical activity](#) for school-age children. The supervised 40-minute exercise sessions in the study likely resulted in a similar amount of cumulative activity, Davis said. "And, unfortunately 40 minutes is a lot more activity than many children are getting these days."

Provided by Georgia Health Sciences University

Citation: Longer exercise provides added benefit to children's health (2012, September 18)
retrieved 20 March 2024 from <https://medicalxpress.com/news/2012-09-longer-added-benefit-children-health.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.