

# Childhood obesity linked to stiff arteries

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Children with more body fat and less endurance than their fitter, leaner counterparts have stiffer arteries at a young age, Medical College of Georgia researchers said.

Stiff arteries are a hallmark of atherosclerosis, a typically adult condition in which blood vessels become clogged.

"When children at such a young age start getting diseases only adults used to get, it's like the sky is falling," said Dr. Catherine L. Davis, clinical health psychologist in MCG's Georgia Prevention Institute and principal investigator on the study. The findings were presented during the 31st Annual Society of Behavioral Medicine Meeting.

Using a non-invasive measure of pulse wave velocity, Davis discovered that children with a greater [body mass index](#), more body fat and less endurance had stiffer central arteries compared to leaner and fitter children. Identifying these children early could hasten preventive measures, she noted.

Her most recent National Heart, Lung and Blood Institute-funded study involves overweight or obese 8-11-year-old children, half of whom participate in aerobic exercises such as jumping rope and shooting hoops weekdays after school while the other half participate in sedentary activities, including board games and crafts.

Among a similar cohort of children, Davis also found that regular exercise decreases metabolic risks linked to cardiovascular disease and

diabetes. The new study will examine the effects of exercise on nonalcoholic [fatty liver disease](#) and atherosclerosis.

Nonalcoholic fatty liver disease, which affects about 40 percent of obese children, initially is often symptomless. But its long-term risk of inflammation and scarring, which can cause [liver damage](#) and failure, also is related to hardening of the arteries.

"It's essentially another aspect of the metabolic imbalance these children are experiencing when they're overweight and inactive and is a signal they're at very high risk for diabetes," Davis said.

She already found that exercise reduces inflammation, visceral fat (a type of fat situated between the organs), body mass index and insulin levels. Children who exercised showed improvement on virtually all of those measures after just 20 to 40 minutes of daily aerobic exercise for 12 weeks. She presented the findings at the American Heart Association's Nutrition, Physical Activity and Metabolism Conference in March.

Davis is working with Dr. Sudipta Misra, MCG pediatric hepatologist, to use novel ultrasound technology instead of the traditional biopsies to gauge liver fibrosis.

"A gentle pulse will pass through the liver, and the echo will determine if the liver is stiff (indicating disease) or nice and soft," Davis said.

Davis hopes her research will encourage programs to keep [children](#) active and hold lifestyle-related diseases at bay.

Provided by Medical College of Georgia

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