

# Study finds childhood fitness reduces long-term cardiovascular risks of childhood obesity

May 24 2016, by Michael Schmidt

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Michael Schmidt, UGA kinesiology professor, along with his collaborators at the Menzies Institute for Medical Research in Hobart, Australia, and the George Institute for Global Health at Oxford University, have found that higher aerobic fitness in childhood, independent of abdominal fat, reduced the risk of developing metabolic syndrome in early adulthood by 36 percent compared to those with lower childhood fitness levels. Credit: Peter Frey/UGA

A new study from a group of international researchers has identified a potentially effective tool to reduce the long-term health risks of childhood obesity-aerobic exercise.

In a study published in the early online edition of the *International Journal of Obesity*, researchers at the University of Georgia, the Menzies Institute for Medical Research in Hobart, Australia, and the George Institute for Global Health at Oxford University found that higher aerobic [fitness](#) in childhood, independent of abdominal fat, reduced the risk of developing [metabolic syndrome](#) in early adulthood by 36 percent compared to those with lower childhood fitness levels.

Metabolic syndrome is a clustering of key [cardiovascular disease](#) risk factors and is associated with an increased risk of subsequent coronary artery disease, stroke and Type 2 diabetes.

The study used data collected as part of a 20-year follow-up of 1,792 Australians who participated in a national childhood health and fitness survey at age 7 to 15 years in 1985. Data collection included a 1-mile run to assess cardiorespiratory fitness and waist circumference measures to assess abdominal fat in childhood. As adults, participants attended one of 34 study clinics held across Australia where they underwent a range of additional health and fitness assessments.

"While a number of studies have found that higher levels of aerobic fitness can substantially reduce the cardiovascular disease risks associated with adult obesity, few studies have looked to see whether this might also be true regarding [childhood obesity](#)," said the study's lead author Michael Schmidt, an associate professor in the College of Education's department of kinesiology.

While the long-term cardiovascular risks of childhood obesity were reduced among those with higher childhood fitness, children with higher levels of abdominal fat still had a three-fold increased risk of adult metabolic syndrome after adjusting for their fitness level.

However, the combination of both a high waist circumference and low cardiorespiratory fitness in childhood proved especially potent as these participants were over eight times more likely to have the metabolic syndrome in adulthood than those who had low waist circumference and high aerobic fitness levels.

The study's results also support the importance of staying physically active beyond childhood.

"We found that participants who had low fitness levels in childhood but increased their relative fitness level by adulthood had a markedly lower prevalence of metabolic syndrome than those who remained low fit," said study co-author Erika Rees, a doctoral student in kinesiology. "And this was especially true for those with higher levels of abdominal fat as children."

Schmidt said that the findings come with an important caveat. "Our findings are based on the [waist circumference](#) and fitness levels among Australian children in 1985. Children in the U.S. and other developed countries today have substantially [higher levels](#) of [abdominal fat](#) and much lower levels of [aerobic fitness](#). Therefore, fewer of today's children may have the level of fitness needed to partially offset the negative cardiovascular disease risks of [childhood](#) obesity."

Provided by University of Georgia

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