



Just 15 Minutes of Physical Activity Lowers Kids' Risk of Obesity and Diabetes

Even an extra 15 minutes a day of moderate to vigorous running, jumping, or kicking a ball can dramatically cut the risk of childhood obesity, according to researchers.

In a cross-sectional study of more than 5,000 12-year-olds, a daily quarter-hour of moderate to vigorous exercise was associated with a 50% drop in the risk of obesity for boys, found Andy Ness, Ph.D., of the University of Bristol.

In girls, the decline in risk was lower, at nearly 40%, Dr. Ness and colleagues reported.

"The association between physical activity and obesity we observed was strong," Dr. Ness said. "These associations suggest that modest increases in physical activity could lead to important reductions in childhood obesity."

The study is among the first to use objective measures both of physical activity and lean and fat mass, the researchers said. The study was part of the long-running prospective Avon Longitudinal Study of Parents and Children, which enrolled more than 14,000 pregnant women in England in 1991 and 1992 and has followed the mothers and children in detail since.

For this analysis, the researchers asked children in the larger study to wear an Actigraph, a device containing an accelerometer, for a week, taking it off only to bathe, to swim, or when cycling (because the instrument is not accurate for cycling).

The device registers vertical motion as counts per minute and has been validated as a measure of energy expenditure, Dr. Ness and colleagues said. For this study, the researchers calculated both total physical activity and moderate to vigorous activity, defined as an Actigraph output of more than 3,600 counts per minute. The researchers calculated the body-mass index of the children using standard tools and also measured fat and lean mass using dual energy x-ray absorptiometry scanning.

Of the 6,622 children who agreed to wear an Actigraph, 5,595 wore it at least 10 hours a day for at least three days and were included in the analysis. Absorptiometry scanning was available for 5,500 of them. Analysis found "a strong negative dose-response association between objectively measured physical activity and DXA-derived measures of fat mass and obesity," the researchers said.

Specifically:

- In boys, a difference of 15 minutes of moderate to vigorous activity was associated with between a 55% and 70% reduction in the risk of obesity, depending on which multivariate model was used. Both risk reductions were highly significant at $P < 0.0001$.

- In girls, 15 minutes of moderate to vigorous activity led to a risk reduction of between 38% and 39%, depending on the model. Again, the risk reductions were significant, at $P < 0.0001$ and $P = 0.002$, respectively.

When the children were stratified by quintiles of moderate to vigorous activity, there was a highly significant trend -- in both boys and girls -- toward lower obesity risk the higher the activity level.

In the most highly adjusted model, the odds ratio for obesity between top and the bottom quintiles was 0.03 for boys and 0.36 for girls (with the P -values for the trend at $P < 0.0001$ and $P = 0.006$, respectively). "We know that diet is important," said co-author Chris Riddoch, Ph.D., of Bath University, "but what this research tells us is that we mustn't forget about activity."

"It's been really surprising to us how even small amounts of exercise appear to have dramatic results," he said in a statement.

Action Points: Explain that diet and exercise both play a role, but that this study suggests that even a small increase in moderate to vigorous physical activity is associated with dramatic reductions in the risk of childhood obesity.

Online in the open-access journal PLoS Medicine.

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FACT:

The prevalence of chronic kidney disease is on the rise, according to CDC: In the period from 1999 to 2004, 16.8% of the U.S. population ages 20 and older had chronic kidney disease, up from 14.5% in the period from 1988 to 1994. The difference represents a 15.9% increase based on crude estimates of prevalence. As would be expected, the prevalence of chronic kidney disease was greater among older men and women, and among those with diabetes, cardiovascular disease, and hypertension. In addition, Mexican Americans and non-Hispanic blacks had a greater prevalence of chronic kidney disease, particularly stage 1 disease, than non-Hispanic whites. "The large disparity in prevalence among those with stage 1 chronic kidney disease might be explained, in part, by racial/ethnic differences in microalbuminuria among non-Hispanic blacks and Mexican Americans. According to the CDC, both the incidence and prevalence of end-stage renal disease have increased during the past 30 year, and both are expected to continue increasing through the year 2010.

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