

## Spending more time physically active associated with better cardiometabolic measures among children

February 14 2012

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In a study that included data for more than 20,000 children and adolescents, higher amounts of time with moderate to vigorous physical activity were associated with better cardiometabolic risk factors (such as measures of cholesterol, blood pressure and waist size), regardless of the amount of time spent sedentary, according to a study in the February 15 issue of *JAMA*.

"National and international public health authorities agree that children and [adolescents](#) should accumulate at least 60 minutes of moderate- to vigorous-intensity [physical activity](#) (MVPA) daily," according to background information in the article. "Many health authorities and organizations have also recognized the potentially detrimental effects of prolonged time spent sedentary and consequently compiled guidelines for reducing the amount of sedentary time, especially TV viewing."

Some recent reports have suggested that higher amounts of time spent sedentary are associated with an adverse cardiometabolic risk profile. "However, the independent and combined associations between objectively measured time spent in MVPA and time spent sedentary in relation to cardiometabolic risk factors in youth remain unclear," the authors write.

Ulf Ekelund, Ph.D., of the Institute of Metabolic Science, Cambridge, United Kingdom, and colleagues examined the associations between

MVPA and time spent sedentary with established cardiometabolic [risk factors](#) in children and adolescents. For the study, the researchers pooled data from 14 studies (between 1998 and 2009) comprising 20,871 children (ages 4-18 years) from the International Children's Accelerometry Database. Time spent in MVPA and sedentary time were measured using accelerometry (measurement of physical activity). The independent associations between time in MVPA and sedentary time, with outcomes, were examined using [meta-analysis](#). Participants were stratified by tertiles (one of three groups) of MVPA and sedentary time. The cardiometabolic measures used for the study included waist circumference, systolic [blood pressure](#), fasting triglycerides, high-density lipoprotein (HDL) cholesterol, and fasting insulin levels.

For this study group, overall, 75 percent of children were categorized as normal weight, 18 percent as overweight, and 7 percent as obese. Children spent an average of 30 minutes per day in MVPA and 354 minutes per day being sedentary. Youth in the top tertile of MVPA accumulated more than 35 minutes per day in this intensity level compared with fewer than 18 minutes per day for those in the low tertile. The researchers found that time in MVPA was significantly associated with all cardiometabolic outcomes independent of sex, age, accelerometer monitor wear time, time spent sedentary, and waist circumference (when not the outcome). Time spent sedentary was not associated with any of the outcomes after additional adjustment for MVPA.

"Higher levels of MVPA were associated with significantly lower values of waist circumference, systolic blood pressure, fasting insulin and fasting triglycerides, and higher values of HDL [cholesterol](#) across tertiles for sedentary time. The differences in outcomes between higher and lower MVPA were greater the lower the sedentary time," the authors write.

"Our results have implications for public health policy and physical activity counseling. Children should be encouraged to increase their participation in physical activity of at least moderate intensity rather than reducing their overall sedentary time as this appears more important in relation to cardiometabolic health. However, our measure of sedentary time takes into account the accumulated time spent sedentary rather than a specific behavior (e.g., TV viewing). Therefore, decreasing TV time in youth may still be an important public health goal as TV viewing may be associated with other unhealthy behaviors such as snacking and soft drink consumption."

The researchers add that moving from the bottom to the top tertile for MVPA requires an increase in MVPA of at least 20 minutes per day. "Increasing daily activity at this intensity level can be achieved by participating in activities such as brisk walking, jogging, cycling, playing soccer, and other team sports."

**More information:** *JAMA*. 2012;307[7]:704-712.

Provided by JAMA and Archives Journals

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