

Lack of exercise linked to higher heart disease risk in healthy children as young as 9

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Even healthy children as young as nine-years-old can start to show an increased risk of future heart problems if they are physically inactive, according to a study in the May issue of *Acta Paediatrica*.

A team of researchers from Sweden and Denmark studied 223 children – 123 boys and 100 girls – with an average age of 9.8 years, assessing their <u>physical activity</u> levels over four days.

They found that the children who were more physically active had a lower composite risk factor score for cardiovascular disease (CVD) than the children with lower amounts of moderate to vigorous physical activity and vigorous physical activity.

"It is well known that physical inactivity in adults is associated with a wide range of diseases and all causes of death" says lead author Dr Tina Tanha from the Department of Clinical Sciences at Skane University Hospital in Malmo, Sweden.

"We believe that our study now demonstrates a clear clinical association between physical inactivity and multiple CVD risk factors in children. It reveals that up to 11 per cent of the variance in composite CVD risk factor scores in the children could be explained by differences in their physical activity."

The children wore an accelerometer strapped to an elastic waist belt for four consecutive days to measure physical activity levels, using



parameters set by two large accelerometer studies. Children were only included in the study if they wore the belt for a minimum of eight hours a day for three days. They also underwent tests for various CVD risk factors, including blood pressure, resting heart rate, fitness and body fat.

Key findings included:

- The children's average body mass index was 17.5 for the girls and 17.4 for the boys.
- The boys were significantly more physically active than the girls, with higher levels of general physical activity (746 mean counts per minute versus 620), moderate to vigorous physical activity (45 minutes versus 35 minutes) and vigorous physical activity (15 minutes versus 11 minutes).
- There were no significant differences between the genders when it came to systolic and diastolic blood pressure, mean arterial pressure and pulse pressure. However the resting heart rate was significantly higher in the girls (85 versus 80 beats per minute).
- The boys had lower total body fat mass than the girls (6.3kg versus 8.3kg) and lower percentage body fat (16.2 per cent versus 22.6 per cent), but a higher peak oxygen uptake (41.7mL/min/kg versus 35.7).
- Vigorous physical activity accounted for ten per cent of the variance in the accumulated cardiac risk scores and moderate to vigorous physical activity accounted for eight per cent of the variance. The results were similar for boys and girls.
- But there was a difference when it came to general physical



activity. This accounted for 11 per cent of the variance in the boys, but showed no significant variance in the girls.

"Previous research into CVD risk factors in children have focused on quite specific single risk factors, but our study covers multiple risk factors" explains Dr Tanha.

"Our results show a significant association between low levels of activity and high composite risk factors for CVD, even in young <u>children</u>. Much of the association was driven by body fat measurements and oxygen intake.

"This is important because the accumulation of these <u>risk factors</u>, if started in early childhood and sustained over a long period, is believed to have greater impact on CVD and mortality than one single risk factor."

More information: Lack of physical activity in young children is related to a higher composite risk factor score for cardiovascular disease. Tanha et al. Acta Paediatrica. 100, pp717-721. (May 2011). DOI: 10.1111/j.1651-2227.2011.02226.x

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