Sedentary lifestyle and overweight in children weaken arterial health

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Arterial wall stiffness and reduced arterial dilation are the first signs of cardiovascular diseases that can be measured. The Physical Activity and Nutrition in Children Study (PANIC) carried out in the Institute of Biomedicine at the University of Eastern Finland shows that low levels of physical activity, weaker physical fitness and higher body fat content are linked to arterial stiffness already in 6-8 year-old children. The study sample included 160 children, and the findings were published in *Scandinavian Journal of Medicine* and *Science in Sports*.

Physically active and fit persons have more flexible arterial walls in childhood

The study showed that better physical fitness, plenty of leisure time physical activity and a low body fat percentage were associated with more flexible arterial walls already in primary school children. An analysis of the joint effects of these factors shows that only physical fitness was independently linked to arterial stiffness. Children whose physical fitness was better than that of their peers also had a better arterial dilation capacity during physical exercise.

Furthermore, the study showed that children with weak physical fitness combined with a high body fat percentage or low levels of physical activity also had the stiffest arteries. Moreover, higher arterial stiffness was also found in children with low levels of physical activity combined with a high body fat percentage. Children with the most physical activity

or with the best physical fitness had the most flexible arteries and the best arterial dilation capacity.

Prevention of cardiovascular diseases best begun in childhood

The PANIC Study has earlier shown that the cumulation of risk factors for type 2 diabetes and vascular diseases in people who are overweight and physically passive begins already in childhood. This is a major concern because the cumulation of risk factors in childhood significantly increases the risk of type 2 diabetes, vascular diseases and premature death in adulthood. The study published now shows measurable adverse changes in the arteries of children with less physical activity, weaker physical fitness and higher body fat content.

The findings suggest that a lifestyle intervention in childhood can reduce the risk of cardiovascular diseases later in life. Another finding of the study deserving special attention is the association of better physical fitness with better arterial health, suggesting that especially regular, high-intensity physical exercise can be beneficial for arterial health.

Provided by University of Eastern Finland