

Risk factors of Alzheimer's disease and metabolic syndrome can accumulate in childhood

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Genetic predisposition to Alzheimer's disease is linked to an increased risk of cardiometabolic disorders present in childhood, a new study from Finland shows. Ongoing at the University of Eastern Finland, the findings from the Physical Activity and Nutrition in Children Study, PANIC, were published in the *Journal of Alzheimer's Disease*.

Alzheimer's [disease](#) is the most common memory disorder. In addition to genetic [predisposition](#), the [risk](#) of Alzheimer's disease is also increased by cardiometabolic risk factors, such as [type 2 diabetes](#). The accumulation of these risk factors is known as the metabolic syndrome. The newly published study explored the association of genetic predisposition to Alzheimer's disease with cardiometabolic risk factors in 469 primary school children in Kuopio, Finland, during a two-year follow-up. Genetic factors and cardiometabolic risk factors were analysed from blood samples. In

addition, body adiposity was measured using a DXA scanner.

The study showed that girls with a higher genetic predisposition to Alzheimer's disease also had higher levels of LDL cholesterol at the onset of the study. During the two-year follow-up, they also showed abnormal insulin and glucose levels, impaired insulin resistance and other characteristics of the metabolic syndrome more frequently than others. In boys, no similar association was observed.

The association of genetic predisposition to Alzheimer's disease with cardiometabolic risk factors clearest in overweight and obese girls.

"Overweight and obesity may enhance the detrimental effect of genetic factors on cardiovascular and metabolic health. Healthy lifestyles, such as sufficient sleep, physical exercise and a healthy diet, may, however, reduce the adverse genetic effects," says Dr. Eero Haapala, an Adjunct Professor of Paediatric Exercise Physiology at the University of Eastern Finland and the University of Jyväskylä.

The findings indicate that in primary school aged girls, [genetic predisposition](#) to Alzheimer's disease and [cardiometabolic risk](#) factors are linked to one another. However, although these risk factors increase the risk of Alzheimer's disease in adults, further research into the significance of this association in children is still needed.

"We know that the development of cardiovascular diseases can start already in childhood, but similar evidence relating to Alzheimer's disease remains scarce," Adjunct Professor Haapala concludes.

Adjunct Professor Haapala has written a blog post

explaining the study and its findings in more detail.

The blog is available at:

blogs.uef.fi/puheenvuoroja/2018-09-25/ready-in-childhood/

More information: Eero A. Haapala et al. Associations of Genetic Susceptibility to Alzheimer's Disease with Adiposity and Cardiometabolic Risk Factors among Children in a 2-Year Follow-up Study, *Journal of Alzheimer's Disease* (2018). DOI: [10.3233/JAD-180216](https://doi.org/10.3233/JAD-180216)

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