

New evidence for the importance of educational attainment in brain health

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With aging populations and growing life expectancy, the number of people suffering from dementia is increasing. For more effective dementia prevention, it is important to better understand risk and

protective factors affecting late-life cognition. It is known that midlife cardiovascular risk factors are associated with weaker late-life cognition (memory and other information processing skills). A new study from the University of Helsinki and the University of Turku aimed to examine if educational background affects this association. More than 4,000 Finnish twins participated in the study published in *Age and Ageing*.

"The study showed that cardiovascular risk factors, such as [high blood pressure](#), high cholesterol, high body mass index and physical inactivity, were associated with poorer late-life cognition. This association was stronger in those with lower educational attainment compared to those with [higher education](#)," tells postdoctoral researcher Paula Iso-Markku from the University of Helsinki, the lead author of the study.

The result emphasizes the importance of childhood and adolescent education in dementia prevention.

"The mechanisms are not yet known, but these results may reflect the effect of cognitive reserve. Higher educational attainment may increase cognitive reserve that helps to tolerate dementia risk factors better," says Academy of Finland Research Fellow Eero Vuoksimaa who led the study.

The twin study design enabled examination of genetic and shared environment effects in these associations. Shared environment means all environmental factors that make children of the same family similar, like socioeconomic background and living environment, like eating and exercising habits.

Higher education level was associated with better late-life cognition in co-twins with similar cardiovascular risk burden. On the contrary, in co-twins with similar [educational background](#), cardiovascular risk factors were not associated with late-life cognition. The results suggest that the

association of education and late-life cognition is independent of genetics and shared environment but the association between midlife cardiovascular risk factors and late-life cognition is rather explained by shared environmental and genetic effects.

"The study results do not imply that healthy lifestyle is not important in the prevention of dementias but rather emphasizes the significance of familial effects in advocating of [healthy lifestyle](#) and highlight the importance of education in dementia prevention," clarifies Paula Iso-Markku.

The study population was the older Finnish Twin Cohort study from the University of Helsinki. The participants have answered questionnaires including education level and [cardiovascular risk factors](#) in 1975, 1981 and 1990 (on average 46 years old and altogether at the ages of 31 to 59). In 1999–2007 and 2013–2017, the cognition of the participants was evaluated with two telephone screening instruments. The participants were on average 73 years old at the time of the telephone interview.

The study in *Age and Ageing* is open access publication. The Academy of Finland and Juho Vainio Foundation have funded the study.

More information: *Age And Ageing* (2021). [DOI: 10.1093/ageing/afab228](#)

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