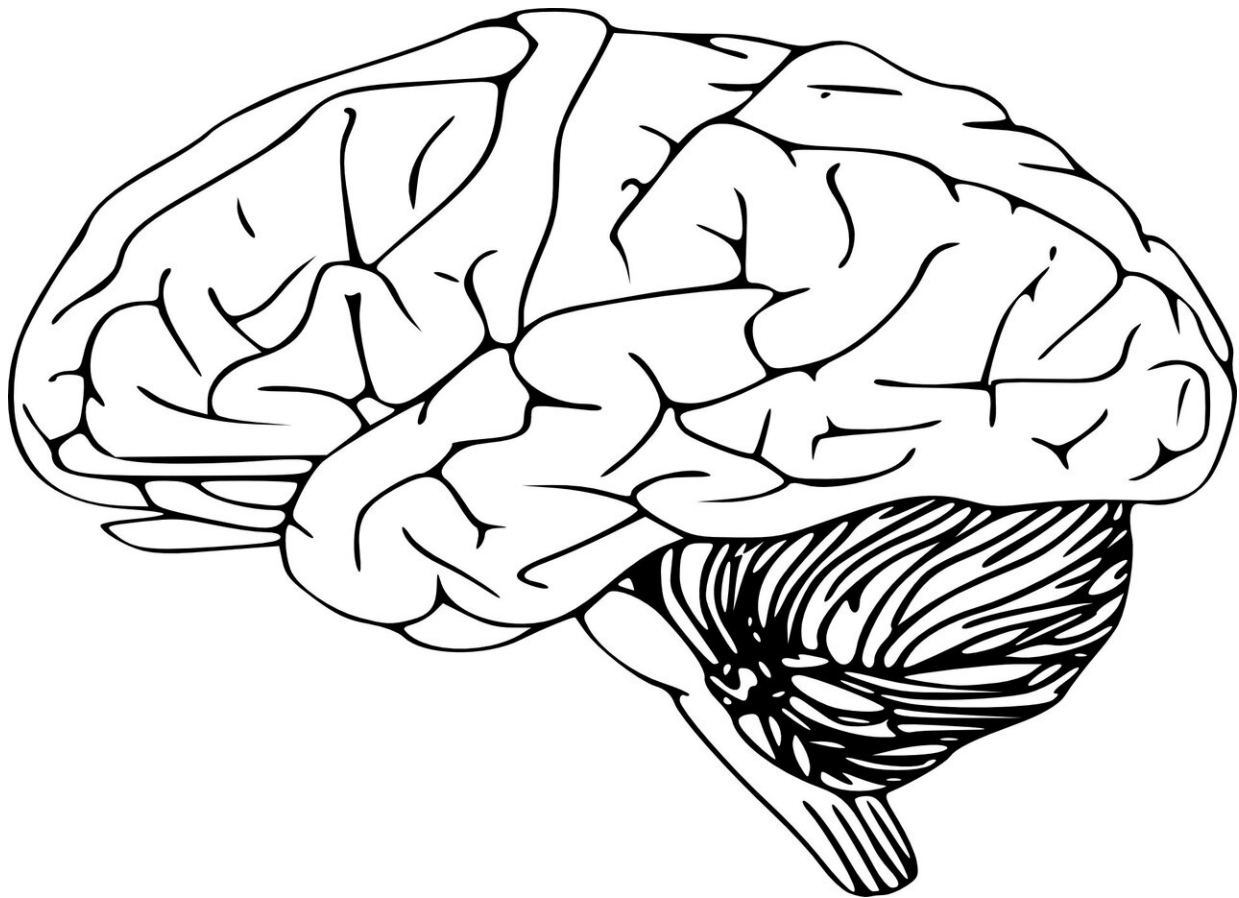


# Early cardiovascular disease linked to worse brain health in middle age

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People with early cardiovascular disease may be more likely to have memory and thinking problems and worse brain health in middle age,

according to new research published in *Neurology*.

"Cardiovascular diseases such as heart disease and stroke have been associated with an increased risk for [cognitive impairment](#) and dementia in [older adults](#), but less is known about how having these diseases before age 60 impacts cognition and brain health over the course of life," said study author Xiaqing Jiang, Ph.D., of the University of California, San Francisco. "Our study found that cardiovascular events earlier in life are associated with worse cognition, accelerated [cognitive decline](#) and poor brain health in [middle age](#)."

The study looked at 3,146 people. Participants were 18 to 30 years old at the start of the study and were followed for up to 30 years. By the end of the study, they had an average age of 55.

Of the total participants, 147, or 5%, were diagnosed with early cardiovascular disease, which was defined as having coronary [heart disease](#), stroke, congestive heart failure, carotid artery disease or peripheral artery disease before age 60. The average age for a first cardiovascular event was age 48.

After being followed for three decades, participants were given five cognitive tests. The tests measured thinking and memory skills including global cognition, processing speed, executive function, delayed verbal memory and verbal fluency.

Researchers found that people with early cardiovascular disease performed worse than those without on five out of five tests. In a test of recalling a list of words after 10 minutes where scores ranged from zero to 15, those with early cardiovascular disease compared to those without had an average score of 6.4 versus an average score of 8.5.

In a test assessing global cognition where scores ranged from zero to 30,

those with early cardiovascular disease had an average score of 21.4 compared to others without cardiovascular disease who had an average score of 23.9. A score of 26 or higher is considered typical, while people with [mild cognitive impairment](#) have an average score of 22.

Of the total participants, 656 people had brain scans to look at white matter hyperintensities and white matter integrity. White matter hyperintensities typically indicate vascular injury to the brain's white matter. After adjusting for cardiovascular risk factors such as diabetes and [high blood pressure](#), researchers found that early cardiovascular disease was associated with more [white matter hyperintensities](#) in the brain as well as higher white matter mean diffusivity, which indicates a decrease in brain tissue integrity.

For participants who had two sets of cognitive tests 25 and 30 years into the study, researchers found early cardiovascular disease was associated with three times greater likelihood of accelerated cognitive decline over five years, with 13% of people with early cardiovascular disease experiencing accelerated cognitive decline compared to 5% people who did not have the disease.

"Our research suggests that a person's 20s and 30s are a crucial time to begin protecting brain health through cardiovascular disease prevention and intervention," Jiang said. "Preventing these diseases may delay the onset of cognitive decline and promote a healthier brain throughout life."

A limitation of the study is that [cognitive tests](#) were not given at the start of the study.

**More information:** Xiaqing Jiang et al, Premature Cardiovascular Disease and Brain Health in Midlife: The CARDIA Study, *Neurology* (2023). DOI: 10.1212/WNL.0000000000206825 , [dx.doi.org/10.1212/WNL.0000000000206825](https://doi.org/10.1212/WNL.0000000000206825)

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