

# A healthy lifestyle may counteract diabetes-associated brain aging

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Type 2 diabetes and prediabetes are associated with accelerated brain aging, according to a new study from Karolinska Institutet in Sweden published in the journal *Diabetes Care*. The good news is that this may

be counteracted by a healthy lifestyle.

Type 2 [diabetes](#) is a known risk factor for [dementia](#), but it is unclear how diabetes and its early stages, known as prediabetes, affect brain aging in people without dementia. Now, a comprehensive brain imaging study shows that both diabetes and prediabetes can be linked to accelerated brain aging.

The study included more than 31,000 people between 40 and 70 years of age from the UK Biobank who had undergone a brain MRI scan ([magnetic resonance imaging](#)). The researchers used a machine learning approach to estimate brain age in relation to the person's chronological age.

Prediabetes and diabetes were associated with brains that were 0.5 and 2.3 years older than chronological age, respectively. In people with poorly controlled diabetes, the brain appeared more than four years older than chronological age. The researchers also noted that the gap between brain age and chronological age increased slightly over time in people with diabetes. These associations were attenuated among people with high physical activity who abstained from smoking and heavy alcohol consumption.

"Having an older-appearing brain for one's chronological age can indicate deviation from the normal aging process and may constitute an [early warning](#) sign for dementia," says the study's lead author Abigail Dove, a Ph.D. student at the Department of Neurobiology, Care Sciences and Society, Karolinska Institutet. "On the positive side, it seems that people with diabetes may be able to influence their brain health through healthy living."

Repeated MRI data were available for a small proportion of the study participants. Follow-up MRI scans are ongoing and researchers are now

continuing to study the association between diabetes and brain aging over time.

"There's a high and growing prevalence of type 2 diabetes in the population," says Abigail Dove. "We hope that our research will help prevent [cognitive impairment](#) and dementia in people with diabetes and prediabetes."

**More information:** Diabetes, prediabetes, and brain aging: the role of healthy lifestyle, *Diabetes Care* (2024). [DOI: 10.2337/dc24-0860](#)

Provided by Karolinska Institutet

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