# Can Prediabetes Worsen Brain Health?

People with prediabetes are at greater risk for cognitive decline and vascular dementia.

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New study findings published in the journal Diabetes, Obesity and Metabolism suggest that people with prediabetes are more likely to experience cognitive decline and vascular dementia (brain damage caused by reduced blood flow to various regions of the brain), reports UCL News.

When a person has above normal blood sugar levels that aren't high enough to warrant a type 2 diabetes diagnosis, doctors diagnose them with prediabetes. This condition increases a person's risk of developing diabetes.

For the study, UCL researchers reviewed data from 500,000 people with an average age of 58 involved in the UK Biobank inquiry, a large-scale biomedical database and research resource created to improve public health.

In particular, investigators looked at how assessments from MRI scans of varied blood glucose levels were linked with dementia diagnoses, cognitive test performance and brain structure.

Individuals were also required to undergo an HbA1c test to determine their average blood sugar levels over the past two to three months. Then, based on their test results, people were split into five groups: those with a low but normal level of blood sugar and participants with normoglycemia (a normal blood sugar level), prediabetes, undiagnosed diabetes or diabetes.

Results showed that people with prediabetes were 42% more likely to experience cognitive decline over an average of four years. Additionally, these individuals were 54% more likely to develop vascular dementia over an average of eight years.

Scientists also noted that prediabetes was associated with a smaller hippocampus—a part of the brain that plays a major role in learning and memory. What's more, prediabetes shared an even stronger connection with having white matter hyperintensities, or lesions, on the brain. (Both conditions are associated with age-related cognitive impairment.)

Nishi Chaturvedi, a UCL professor and researcher in the UCL MRC Unit for Lifelong Health & Ageing and the study's senior author, explained that the risks of cognitive decline and dementia were very low in the investigation's relatively young age group. But she emphasized that scientists must continue to investigate whether these problems persist as people age.

“Our findings also need to be replicated using other data sets,” said Chaturvedi. “If they are confirmed, they open up questions about the potential benefits of screening for diabetes in the general population and whether we should be intervening earlier.”

Researchers stressed that the study was observational and does not prove that higher blood sugar levels cause worsening brain health. But they agreed that the possibility needs to be further explored.

For related coverage, read “People Who Don’t Have Diabetes Also Experience Blood Sugar Spikes” and “Viola Davis Reveals Prediabetes Diagnosis.”

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