

Type 2 diabetes linked to worse cognitive performance after a stroke

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People with Type 2 diabetes, but not those with prediabetes, had worse cognitive performance three to six months after a stroke than those with normal fasting blood sugar levels, according to new research published today in *Stroke*, a journal of the American Stroke Association, a division of the American Heart Association.

"Type 2 [diabetes](#) increases the risk of stroke and has been associated with cognitive impairment and may increase dementia risk. That's why Type 2 diabetes is another important target in the prevention of dementia, and the focus should be on early treatment for prediabetes to delay or prevent the progression to Type 2 diabetes," said Perminder Sachdev, M.D., Ph.D., senior author of the study and Scientia professor at UNSW Sydney's Centre for Healthy Brain Ageing (CHeBA) in Kensington, Australia.

Previous research by Sachdev and colleagues found that stroke patients with a history of Type 2 diabetes have worse cognitive function compared to stroke patients without Type 2 diabetes.

"In this study, we wanted to know if stroke patients

with prediabetes also have worse cognitive function compared to stroke patients without prediabetes or diabetes," Sachdev said. "This is important because prediabetes is very common, and individuals can have prediabetes for several years before progressing to Type 2 diabetes. Early and aggressive treatment of prediabetes can delay or prevent Type 2 diabetes. If we target the treatment of prediabetes, could this prevent the development of dementia in some individuals?" said Sachdev.

Researchers combined data from 1,601 [stroke patients](#) (average age 66; 63% male; 70% Asian; 26% white; 2.6% African American) who participated in one of seven international studies from six countries. Almost all had clot-caused strokes, and a variety of cognitive functions were assessed between three to six months after the stroke. Patients' fasting blood sugar levels measured at hospital admission and medical history were used to define Type 2 diabetes and prediabetes.

After adjusting for age, sex and education, researchers found:

- Compared to patients with normal fasting blood sugar, those with Type 2 diabetes scored significantly lower in different areas of cognitive function, including memory, attention, speed of processing information, language, visual ability to copy or draw shapes or figures or lines, mental flexibility and executive functioning.
- Patients with prediabetes did not score significantly worse than those with normal blood sugar in any areas of cognitive function.
- The comparisons remained the same after researchers adjusted for additional factors, including type of stroke, ethnicity, high blood pressure, smoking, previous stroke, abnormal heart rhythm and body mass index.

"The deficits we found in all areas of cognitive function highlight the importance of assessing the capacity for self-care in patients with Type 2 diabetes following a stroke," said Jess Lo, M.Sc., lead author of the study and research associate at UNSW Sydney's Centre for Healthy Brain Ageing (CHeBA), in Kensington, Australia. "We need to ensure that stroke survivors have the mental competency to manage the complex and intertwined tasks to effectively treat Type 2 diabetes, which can include measuring [glucose levels](#) multiple times a day, managing glucose monitoring devices, adjusting medication doses, self-administering insulin or other medications, and understanding food labels and portion sizes to adjust what is eaten at each meal or snack."

"While our study is focused on cognition after a [stroke](#), there is strong evidence that Type 2 diabetes is associated with [cognitive impairment](#). This is an important message for the general public. Since our study shows no evidence that prediabetes is associated with worse cognitive performance, this emphasizes the importance of the early diagnosis and treatment of prediabetes (which is often under-diagnosed) in order to delay or prevent the progression to Type 2 diabetes," Lo said.

The study is limited by not having information on the duration and severity of diabetes, and having only one measurement of blood sugar levels.

More information: *Stroke* (2020). [DOI: 10.1161/STROKEAHA.119.028428](https://doi.org/10.1161/STROKEAHA.119.028428)

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