



COMMENTARY



## Impacts of Blood Sugar levels on Brain

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### Description

Glucose is the body's principle source of fuel. The pancreas produces insulin that helps in converting glucose from food into energy. In individuals resistant to insulin, cells don't respond sufficiently to insulin, inciting the pancreas to generate a greater amount of the hormone. In the long run, the pancreas fails to keep up. Without insulin, sugar levels ascend in the circulatory system, which can harm the kidneys and different organs-including, perhaps, the brain. While the brain is liable for somewhere around 2% of body weight, it consumes around 25% of the body's glucose, highlighting the significance of sugar in keeping up with normal brain function.

Insulin resistance is related with shrinkage of the hippocampus and amygdala, the similar regions of the brain affected by Alzheimer's Disease (AD) and other dementias. Having high-normal or pre-diabetic blood glucose levels might have a comparative impact. An excess sugar in the circulatory system starts to glom onto proteins and make them sticky. Over the long run, that excess sugar adds to narrowing and stiffening of the arteries (atherosclerosis). Since the brain is dependent on the arteries to carry oxygen and nutrients, when there are microvascular injuries, the brain is affected. Individuals with type 2 diabetes were 2.5 times bound to develop vascular dementia and 1.5 times bound to develop AD compared to people without the disease.

While individuals with diabetes and pre-diabetes need to hold blood sugar levels within proper limits, letting glucose levels sink too low is even dangerous. Among those with diabetes, both hyperglycemia (elevated blood sugar) and hypoglycemia (low blood sugar) can affect brain function

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and cognition, and increase dementia risk. Indeed, even one episode of low blood glucose can decrease the brain's supply of sugar so much that brain damage sets in. Patients with extreme hypoglycemia are over two times likely to foster dementia than the people who didn't have episodes of hypoglycemia, even as long as after 15 years. Vice-versa patients with dementia likewise have twice the risk of hypoglycemia. Certain individuals with diabetes who have mild cognitive problems, like slight decrements in memory or attention, is at high risk of developing hypoglycemia since they could experience difficulty dealing with their medications, which can prompt dangerously low levels of blood sugar.

Hypoglycemia events impair nutrient delivery to the brain, repress the development of new neurons, and increase the inflammatory proteins in the brain. Low blood glucose levels used to be an issue principally for individuals with type 1 diabetes, however with the expanded utilization of insulin secretagogues (medications that increase insulin production) in combination with other diabetes treatments, and the increased utilization of insulin in advanced type 2 diabetes, low blood glucose events are turning out to be progressively normal among individuals with type 2 diabetes also. The most likely types of brain damage from hypos can result in mild paralysis on one side of the body, memory loss, diminished language skills, decreased abstract thinking capabilities, and muscle coordination and balance issues. Some of the consequences of diabetes on the brain aren't immediately apparent, especially when they're linked to high blood sugar. Diabetes increases the risk of blood vessel damage over time, including damage to the tiny blood arteries in your brain.