

Diabetes and brain tangles may be linked independently of Alzheimer's disease

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Diagram of the brain of a person with Alzheimer's Disease. Credit: Wikipedia/public domain.

Diabetes may be linked to the buildup of tangles or tau in the brain, separate from Alzheimer's disease, according to a new study published in the September 2, 2015, online version of *Neurology*, the medical journal of the American Academy of Neurology.

"Evidence shows that people with type 2 diabetes have double the risk of developing dementia," said study author Velandai Srikanth, MD, PhD, from Monash University in Melbourne, Australia. "This interesting development further defines how the diseases may be connected."

The study involved 816 people with an average age of about 74. Of those, 397 had mild cognitive impairment, which can be a precursor to dementia, 191 had Alzheimer's disease dementia and 228 people had no memory and thinking problems. A total of 124 of the participants had diabetes.

The study looked at the relationship between type 2 diabetes, the loss of brain cells and their connections, the levels of beta amyloid (a sticky buildup of plaques) and tau or tangles of protein in the [spinal fluid](#) of the participants.

The study found that those with diabetes had on average 16 picograms per milliliter greater levels of the tau protein in the spinal and brain fluid irrespective of the diagnosis of dementia. Greater levels of tau in spinal fluid may reflect a greater build-up of tangles in the brain. These tangles may eventually contribute to the development of dementia.

It also found that diabetes was associated with a reduced thickness of the cortex, the layer of the brain with most [nerve cells](#). People with diabetes had cortical tissue that was an average of 0.03 millimeter less than those who did not have diabetes, whether they had no thinking and memory problems, [mild cognitive impairment](#) or [dementia](#) due to Alzheimer's disease. The buildup of tangles may contribute to this loss of brain tissue.

"Due to the fact that nerve cells in the brain do not replace themselves, it is extremely important to find ways to reduce the death of current brain cells. Studies such as ours seek to understand how diseases like diabetes may directly or indirectly affect [brain cell death](#)," said Srikanth.

He noted that because the study looked at participants' data at one point in time, it does not determine whether there is a cause-and-effect relationship between [diabetes](#) and the [brain](#) tangles.

Provided by American Academy of Neurology

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