

# Diabetes in middle age may lead to brain cell loss later in life

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People who develop diabetes and high blood pressure in middle age are more likely to have brain cell loss and other damage to the brain, as well as problems with memory and thinking skills, than people who never have diabetes or high blood pressure or who develop it in old age, according to a new study published in the March 19, 2014, online issue of *Neurology*, the medical journal of the American Academy of Neurology. Middle age was defined as age 40 to 64 and old age as age 65 and older.

"Potentially, if we can prevent or control [diabetes](#) and high blood pressure in [middle age](#), we can prevent or delay the [brain damage](#) that occurs decades later and leads to [memory](#) and thinking problems and dementia," said study author Rosebud O. Roberts, MB, ChB, MS, of the Mayo Clinic in Rochester, Minn., and a member of the American Academy of Neurology.

For the study, the thinking and memory skills of 1,437 people with an average age of 80 were evaluated. The participants had either no thinking or [memory problems](#) or mild memory and thinking problems called [mild cognitive impairment](#). They then had brain scans to look for markers of brain damage that can be a precursor to dementia. Participants' medical records were reviewed to determine whether they had been diagnosed with diabetes or high blood pressure in middle age or later.

For diabetes, 72 people developed it in middle age, 142 in old age and 1,192 did not have diabetes. For high blood pressure, 449 people developed it in middle age, 448 in old age and 369 did not have it.

Compared to people who did not have diabetes, people who developed diabetes in middle age had total brain volume an average of 2.9 percent smaller. In the hippocampus area of the brain, the volume was 4 percent smaller. They were also

twice as likely to have thinking and memory problems.

Compared to people who did not have high blood pressure, people who developed high blood pressure in middle age were twice as likely to have areas of brain damage.

"People who developed diabetes even in old age were also more likely to have areas of brain damage. Conversely, there were not many effects from [high blood pressure](#) that developed in old age," Roberts said. "Overall, our findings suggest that the effects of these diseases on the brain take decades to develop and show up as brain damage and lead to symptoms that affect their memory and other thinking skills. In particular, diabetes has adverse effects regardless of the age at which diabetes develops."

Provided by American Academy of Neurology

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