

# How high blood pressure in middle age may affect memory in old age

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New research suggests that high blood pressure in middle age plays a critical role in whether blood pressure in old age may affect memory and thinking. The study is published in the June 4, 2014, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"Our findings bring new insight into the relationship between a history of [high blood pressure](#), blood pressure in old age, the effects of blood pressure on brain structure, and memory and thinking," said study author Lenore J. Launer, PhD, of the National Institute on Aging in Bethesda, Md., and a member of the American Academy of Neurology.

For the study, 4,057 older participants free of dementia had their blood pressure measured in middle-age, (average age of 50). In late life (an average age of 76) their blood pressure was remeasured and participants underwent MRIs that looked at structure and damage to the small vessels in the brain. They also took tests that measured their memory and thinking ability.

The study found that the association of blood pressure in old age to brain measures depended on a history of blood pressure in middle age. Higher systolic (the top number on the measure of blood pressure) and diastolic (the bottom number on the measure of blood pressure) blood pressure were associated with increased risk of [brain lesions](#) and tiny brain bleeds. This was most noticeable in people without a history of high blood pressure in middle age. For example, people with no history of high blood pressure in middle age who had high [diastolic blood pressure](#) in old age were 50 percent more likely to have severe brain lesions than people with low diastolic blood pressure in old age.

However, in people with a history of high blood pressure in middle age, lower diastolic blood pressure in older age was associated with smaller total brain and gray matter volumes. This finding

was reflected in memory and thinking performance measures as well. In people with high blood pressure in [middle age](#), lower [diastolic blood pressure](#) was associated with 10 percent lower memory scores.

"Older people without a history of high blood pressure but who currently have high blood pressure are at an increased risk for brain lesions, suggesting that lowering of blood pressure in these participants might be beneficial. On the other hand, older people with a history of high blood pressure but who currently have lower [blood pressure](#) might have more extensive organ damage and are at risk of brain shrinkage and memory and thinking problems," said Launer.

Provided by American Academy of Neurology

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