

Saliva test for stress hormone levels may identify healthy older people with thinking problems

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Testing the saliva of healthy older people for the level of the stress hormone cortisol may help identify individuals who should be screened for problems with thinking skills, according to a study published in the August 19, 2015, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

The study found that people with [higher levels](#) of cortisol in the evening were more likely to have a smaller total [brain volume](#) and to perform worse on tests of thinking and [memory skills](#).

"Studies have shown that depression increases the risk for dementia, but we don't know much about how this relationship occurs," 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. "High levels of the [stress hormone cortisol](#) have been found in people with depression, and the theory is that cortisol has a toxic effect on the hippocampus area of the brain, which plays an important role in memory."

The study involved 4,244 people with an average age of 76 who did not have dementia. Participants had a brain scan to look at brain volume and took tests of their thinking and memory skills. Saliva samples were taken from the participants once in the morning and in the evening to determine [cortisol levels](#). Participants were divided into three groups

based on cortisol levels of high, medium and low.

People with the highest level of cortisol were more likely to have a smaller overall brain volume than those with lower levels of cortisol, with a difference of 16 milliliters between the two groups. Those with the highest level of cortisol also performed worse on the memory and thinking tests than those with low levels of the hormone.

"Since this study just looked at a snapshot in time, we don't know which came first: the high levels of cortisol or the loss of brain volume," Launer said. "It's possible that the loss of brain volume that can occur with aging leads to a lesser ability of the brain to stop the effects of cortisol, which in turn leads to further loss of brain cells. Understanding these relationships may help us develop strategies to reduce the effects of cortisol on the brain and [thinking skills](#)."

Launer noted that a limitation of the study was that [cortisol](#) was tested only during one day, but said that the large size of the study may balance out that limitation.

Provided by American Academy of Neurology

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