

Alzheimer's changes detectable in healthy elderly

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A team of UCL researchers, part-funded by the Alzheimer's Research Trust, has discovered that combining spinal fluid testing with MRI scans could provide an early indication of a person's risk of developing Alzheimer's.

The approach could allow scientists to test treatments or preventions far earlier in the disease, when experts believe they could be more effective.

The findings of the study are published online this week in [Annals of](#)

Neurology.

The researchers studied 105 cognitively normal individuals from the Alzheimer's Disease Neuroimaging Initiative (ADNI). They split this group into those with high and low levels of cerebrospinal fluid (CSF) amyloid, a protein which is typically reduced in the CSF of patients with Alzheimer's disease.

MRI scan measurements over 12 months were used to calculate the brain shrinkage rate. The team also checked other characteristics such as the presence of known Alzheimer's risk gene APOE4.

The results revealed that the brains of those normal individuals with low CSF levels of amyloid (38% of the group), shrank twice as quickly as the other group. They were also five times more likely to possess the APOE4 risk gene and had higher levels of another culprit Alzheimer's protein, tau.

Study lead author Dr. Jonathan Schott from the Dementia Research Centre (UCL Institute of Neurology) said: "In this study of healthy people in their 70s and 80s we found that about one in three had a spinal fluid profile consistent with Alzheimer's disease. Using MRI scanning, we showed that these individuals also had increased brain shrinkage over the following year.

"The significance of these findings will only be clear with longer clinical follow-up, but may suggest that these individuals are at increased risk of developing dementia. If so these results add to a growing body of work suggesting that Alzheimer's disease starts many years before the onset of symptoms."

Rebecca Wood, Chief Executive of the Alzheimer's Research Trust, the leading UK dementia research charity, said: "We are hamstrung by our

inability to accurately detect Alzheimer's, but these findings could prove to be pivotal. Spotting Alzheimer's early is essential to the global research effort to beat the disease. We know that treatments for many diseases can be more successful if given early and this is likely to be true for Alzheimer's. It will be crucial to keep following the study group to see how many develop Alzheimer's, and to expand the research to test the approach further.

“Findings like these underline the importance of research, but detecting Alzheimer's is only the first step. If we are to defeat the disease, we must invest in research into preventions and treatments now before our dementia crisis spirals out of control.”

More information: More on the research paper in *Annals of Neurology*: [onlinelibrary.wiley.com/doi/10 ... 2/ana.22315/abstract](https://onlinelibrary.wiley.com/doi/10.1002/ana.22315/abstract) .

Provided by University College London

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