

# Brain size may predict risk for early Alzheimer's disease

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New research suggests that, in people who don't currently have memory problems, those with smaller regions of the brain's cortex may be more likely to develop symptoms consistent with very early Alzheimer's disease. The study is published in the December 21, 2011, online issue of *Neurology*.

"The ability to identify people who are not showing [memory problems](#) and other symptoms but may be at a higher risk for [cognitive decline](#) is a very important step toward developing new ways for doctors to detect Alzheimer's disease," said Susan Resnick, PhD, with the National Institute on Aging in Baltimore, who wrote an accompanying editorial.

For the study, researchers used brain scans to measure the thickness of regions of the brain's [cortex](#) in 159 people free of dementia with an average age of 76. The brain regions were chosen based on prior studies showing that they shrink in patients with Alzheimer's [dementia](#). Of the 159 people, 19 were classified as at high risk for having early Alzheimer's disease due to smaller size of particular regions known to be vulnerable to Alzheimer's in the brain's cortex, 116 were classified as average risk and 24 as low risk. At the beginning of the study and over the next three years, participants were also given tests that measured memory, problem solving and ability to plan and pay attention.

The study found that 21 percent of those at [high risk](#) experienced cognitive decline during three years of follow-up after the [MRI scan](#), compared to seven percent of those at average risk and none of those at

low risk.

"Further research is needed on how using MRI scans to measure the size of different [brain regions](#) in combination with other tests may help identify people at the greatest risk of developing early Alzheimer's as early as possible," said study author Bradford Dickerson, MD, of Massachusetts General Hospital in Boston and a member of the American Academy of Neurology.

The study also found 60 percent of the group considered most at risk for early Alzheimer's disease had abnormal levels of proteins associated with the disease in cerebrospinal fluid, which is another marker for the disease, compared to 36 percent of those at average risk and 19 percent of those at low risk.

Provided by American Academy of Neurology

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