

# Education protects against pre-Alzheimer's memory loss

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ST. PAUL, Minn. – People with more education and more mentally demanding occupations may have protection against the memory loss that precedes Alzheimer's disease, according to a study published in the October 21, 2008, issue of *Neurology*.

The study involved 242 people with Alzheimer's disease, 72 people with mild cognitive impairment, and 144 people with no memory problems. Mild cognitive impairment is a transition stage when some memory problems are occurring beyond what is normal for a person's age but not the serious problems of Alzheimer's disease.

Researchers tested the participants' memory and cognitive skills and used brain scans to measure the amount of brain glucose metabolism, which shows how much the brain has been affected by the plaques and tangles of Alzheimer's disease. The participants were followed for an average of 14 months. During that time, 21 of the people with mild cognitive impairment developed Alzheimer's disease.

The study found that in people with the same level of memory impairment, people with more education and more mentally demanding jobs had significantly more changes and damage in their brains from Alzheimer's disease than people with less education and less mentally demanding jobs.

"The theory is that education and demanding jobs create a buffer against the effects of dementia on the brain, or a cognitive reserve," said study author Valentina Garibotto, MD, of the San Raffaele University and Scientific Institute and the National Institute of Neuroscience in Milan, Italy. "Their brains are able to compensate for the damage and allow them to maintain functioning in spite of damage. There are two possible explanations. The brain could be made stronger through education and occupational challenges. Or, genetic factors that enabled people to achieve higher education

and occupational achievement might determine the amount of brain reserve. It isn't possible to determine which accounts for our findings."

The results were found in both people with Alzheimer's and people with mild cognitive impairment who developed Alzheimer's during the study, suggesting that the cognitive reserve is already in effect during the mild cognitive impairment phase before Alzheimer's begins, Garibotto said.

People with Alzheimer's disease and people with mild cognitive impairment who developed Alzheimer's during the study had metabolic dysfunction in the areas of the brain consistent with Alzheimer's disease, whereas the healthy people and those with mild cognitive impairment who did not develop Alzheimer's disease had no brain metabolism problems.

Source: American Academy of Neurology

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