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That shrinking feeling: B vitamins could halve brain shrinkage in elderly

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A major study funded by the Medical Research Council (MRC) has shown that daily tablets of B vitamins can halve the rate of brain shrinkage in elderly people who suffer from Mild Cognitive Impairment (MCI). Around half of people with MCI develop dementia, mainly Alzheimer's, within five years of diagnosis and it is hoped these findings could lead to a treatment to delay the onset of Alzheimer's disease.

The researchers found that, on average, the brains of those taking a treatment of B vitamins such as folic acid and vitamins B6 and B12, shrank at a rate of 0.76 per cent per year, while brains of those in the placebo group shrank at a rate of 1.08 per cent per year. Scientists have known for a while that certain B vitamins control levels of the amino acid homocysteine in the blood, high levels of which are associated with an increased risk of Alzheimer's. In this study, people with the highest levels of homocysteine benefited most from the treatment, showing half the amount of brain shrinkage compared to those on placebo.

Professor David Smith from Oxford University and co-leader of the trial, said:

"It is our hope that this simple and safe treatment will delay the development of Alzheimer's disease in many people who suffer from mild memory problems. These are immensely promising results but we need to do more trials to conclude whether these particular B vitamins can slow or prevent development of Alzheimer's. I wouldn't yet recommend that anyone getting a bit older and beginning to be worried about memory lapses should rush out and buy vitamin B supplements without seeing a doctor."

The two-year study assessed disease progression by measuring brain shrinkage in 168 volunteers with mild memory problems. Half of the group took the combined high dose B vitamin tablets while the other half took a placebo tablet. The scientists used MRI scans to measure the rate of brain shrinkage over the duration of the trial. Cognitive test scores were also monitored, and revealed that those with the slowest rate of shrinkage also scored more strongly.

Professor Chris Kennard, chair of the MRC's Neurosciences and Mental Health Board which co-funded the study, said:

"This MRC-funded trial brings us a step closer to unravelling the complex neurobiology of ageing and cognitive decline, which holds the key to the development of future treatments for conditions like Alzheimer's disease. The findings are very encouraging and we look forward to the further research that is needed to test whether B vitamins can be recommended as a suitable treatment."

About 1.5 million elderly people in the UK have mild memory problems. Around one in six people aged 70 years and older have MCI and experience problems with memory, language, or other mental functions, but not to a degree that interferes with their daily life.

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The paper, *Homocysteine-lowering B vitamins slows the rate of accelerated brain atrophy in mild cognitive impairment*. A randomised controlled trial, is published today in the journal *PLoS ONE*.

The scientists involved in this research form part of the Oxford Project to Investigate Memory and Ageing (OPTIMA). The trial was supported by grants from Charles Wolfson Charitable Trust, Medical Research Council, Alzheimer's Research Trust, Henry Smith Charity, Thames Valley Dementias and Neurodegenerative Diseases Research Network of the National Institute for Health Research, John Coates Charitable Trust, Sidney and Elizabeth Corob Charitable Trust, and Meda AB/Recip AB, who also donated the vitamin (TrioBe+) and placebo tablets.

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