

Taking B vitamins won't prevent Alzheimer's disease

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Taking B vitamins doesn't slow mental decline as we age, nor is it likely to prevent Alzheimer's disease, conclude Oxford University researchers who have assembled all the best clinical trial data involving 22,000 people to offer a final answer on this debate.

High levels in the blood of a compound called homocysteine have been found in people with Alzheimer's disease, and people with higher levels of homocysteine have been shown to be at increased risk of Alzheimer's disease. Taking [folic acid](#) and [vitamin B-12](#) are known to lower levels of homocysteine in the body, so this gave rise to the 'homocysteine hypothesis' that taking B vitamins could reduce the risk of Alzheimer's disease.

The new analysis was carried out by the B-Vitamin Treatment Trialists' Collaboration, an international group of researchers led by the Clinical Trial Service Unit at the University of Oxford. The researchers brought together data from 11 randomised clinical trials involving 22,000 people which compared the effect of B vitamins on cognitive function in older people against placebo. Participants receiving B vitamins did see a reduction in the levels of homocysteine in their blood by around a quarter. However, this had no effect on their mental abilities.

When looking at measures of global cognitive function – or scores for specific mental processes such as memory, speed or executive function – there was no difference between those on B vitamins and those receiving placebo to a high degree of accuracy.

'It would have been very nice to have found something different,' says Dr Robert Clarke of Oxford University, who led the work. 'Our study draws a line under the debate: B vitamins don't reduce cognitive decline as we age. Taking folic acid and vitamin B-12 is sadly not going to prevent Alzheimer's disease.'

The study was funded by the British Heart Foundation, the UK Medical Research Council (MRC), Cancer Research UK, the UK Food Standards Agency and the Department of Health. The findings are published in the *American Journal of Clinical Nutrition*.

'Taking supplements like B vitamins doesn't prevent heart disease, stroke or [cognitive decline](#),' says Professor Clarke. 'About 25–30% of the adult population take multi-vitamins, often with the idea that they are also good for the heart or the brain, but the evidence just isn't there. Much better is to eat more fruit and vegetables, avoid too much red meat and too many calories, and have a balanced diet.'

Maternal folic acid intake before and during early pregnancy reduces a woman's risk of having a neural tube defect birth defect and those thinking of having a baby are routinely advised to take folic acid supplements. Countries that have adopted mandatory population-wide folic acid fortification programmes have also demonstrated reductions in neural-tube defect associated pregnancies without any adverse effects.

Dr Simon Ridley, Head of Research at Alzheimer's Research UK, said:

'Although one trial in 2010 showed that for people with high [homocysteine](#), B vitamins had some beneficial effect on the rate of brain shrinkage, this comprehensive review of several trials shows that B vitamins have not been able to slow mental decline as we age, nor are they likely to prevent Alzheimer's. While the outcome of this new and far reaching analysis is not what we hoped for, it does underline the need

for larger studies to improve certainty around the effects of any treatment.

'Alzheimer's is feared by many and it's natural that people want to take action to try to prevent the disease, but people should always speak to their GP before changing their diet to include vitamin supplements. Research to understand how to prevent Alzheimer's must continue, and in the meantime evidence shows that a number of simple lifestyle changes can help reduce the risk of the disease. Eating a healthy, balanced diet, taking regular exercise and keeping blood pressure and weight in check can all help lower the risk of Alzheimer's.'

Dr James Pickett, Head of Research at Alzheimer's Society said:

'Given that many previous studies have shown that vitamin B doesn't slow the progression of dementia or reduce risk, it's not a huge surprise that a review of all of the evidence finds much the same. While taking B vitamins may not help everyone, they may have some benefits in specific groups of people with dementia. However, this study suggests that we need much more work to establish more evidence for this.'

'One in three people over the age of 65 will develop dementia and yet research funding lags behind other conditions and we haven't seen a new treatment made available in a decade. We need to see significantly more investment and recruit the next generation of leaders in research in order to deliver breakthroughs that could prove so vital to those affected by the condition.'

Hugh Perry, chair of the MRC Neurosciences and Mental Health Board, said:

'Science progresses through testing and re-testing previous research and sometimes overturning existing theories. Health advice always needs to

be based on the best available data from the largest possible studies and this is even more important when the findings have implications for what we do or don't eat and drink.'

More information: Clarke R, Bennet D, Parish S, Lewington S, Skeaff M, Eussen SJPM, Lewerin C, Stott DJ, Armitage J, Hankey GJ, Lonn E, Spence D, Galan P, de Groot LC, Halsey J, Dangour AD, Collins R, Grodstein F, on behalf of the B-Vitamin Treatment Trialists' Collaboration. Effects of homocysteine lowering with B vitamins on cognitive aging: meta-analysis of 11 trials with cognitive data on 22,000 individuals. *American Journal of Clinical Nutrition*.2014; 100:657-66. [ajcn.nutrition.org/content/ear113.076349.abstract](http://ajcn.nutrition.org/content/ear...113.076349.abstract)

Provided by Oxford University

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