

[IMAGE]

Help Your Brain Age Gracefully With Vitamin B₁₂

By James P. Meschino, DC, MS

An important study appeared in *JAMA Psychiatry* in June 2016, providing additional evidence that high blood levels of vitamin B₁₂ can slow the shrinking of the brain that commonly occurs after age 60. Previous studies have shown that vitamin B₁₂ and other B vitamins (folic acid and vitamin B₆) can slow the rate of brain atrophy in older subjects with mild cognitive impairment and decrease the risk of progression to Alzheimer's disease.

Overall, the emerging evidence suggests if you can slow or prevent the shrinking of the brain, which is common after age 60, you may decrease your risk of dementia and Alzheimer's disease quite substantially.

The latest study presented data from the Swedish National Study on Aging and Care. The study followed 501 subjects, ages 60 years and older, from 2001-2009. All subjects were free of dementia at the beginning of study. MRI imaging of their brains were conducted in 299 of the subjects routinely during the six-year follow-up period. Results showed individuals with higher blood levels of vitamin B₁₂ showed a significant decrease in the rate of total brain tissue volume loss (atrophy) compared to individuals with lower blood levels of B₁₂.

Understanding the B₁₂ / Homocysteine Connection

Vitamin B₁₂ is required to make a number of brain neurotransmitters and has been shown to have neuroprotective effects, which may directly slow brain shrinking. It also lowers a chemical in the blood called homocysteine. High homocysteine is known to be extremely damaging to the brain and cerebrovascular blood vessels, and high blood levels of homocysteine are strongly correlated with brain atrophy and risk of Alzheimer's disease in many studies.

vitamin b6 - Copyright â Stock Photo / Register Mark In the *JAMA Psychiatry* study, higher homocysteine also was linked to more rapid brain volume shrinkage. So, there are at least two ways by which vitamin B₁₂ may slow brain shrinking – by directly preventing loss of brain cells and by lowering homocysteine blood levels.

What's more, study participants with lower vitamin B₁₂ levels and/or high homocysteine levels also showed increased white matter hyperintensity (WMI) on their MRI scans, which is strongly tied to increased risk for cognitive decline and other mental health disorders.

Why Preventing Brain Shrinkage Matters

These studies are important because we know mild cognitive impairment (MCI) is the step that precedes development of Alzheimer's disease.¹ We also know people older than age 60 who do not have MCI still have a brain shrinkage rate of 0.5 percent a year; while people with MCI have a brain shrinkage rate of 1 percent – double that of someone with no cognitive decline. Alzheimer's patients show an average brain shrinkage of 2.5 percent per year. Thus, anything that slows brain shrinkage is considered to be an invaluable way to preserve cognition as we age.

Other B Vitamins Matter, Too

This brings us to the Oxford Project to Investigate Memory and Aging (OPTIMA study and VITACOG study), for which researchers recruited 172 individuals older than age 70 who already had MCI. They gave half the subjects folic acid (800 mcg), vitamin B₁₂ (500 mcg) and vitamin B₆ (20 mg) per day for two years; the other half received a placebo pill. B-vitamin supplementation slowed brain atrophy by 30 percent, on average, and in some cases up to 53 percent. Cognitive tests showed that the greater the rate of brain atrophy, the more rapid the decline in cognitive function.²

What We've Learned

The overall evidence suggests slowing brain atrophy is an important feature of maintaining cognitive function with aging. Thus far, only B-vitamin supplementation has been able to show this effect in human clinical intervention studies. No drugs have been able to do this, at least not this dramatically.

I think preventing total brain atrophy as we age is a fascinating area that is strongly linked to healthy life expectancy and quality of life, so I believe it is a topic all people age 60 and older should discuss with their doctor. Simple blood tests can determine homocysteine, vitamin B₁₂ and red blood cell folic acid levels; if necessary, these blood levels can be optimized using a simple B-vitamin supplementation regimen.

References

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