

Vitamin B6 (pyridoxal-phosphate)

Unlike the ingredients; Ashwagandha, Bacopa monnieri, Vinpocetine and Huperzine which when taken have direct documented favorable effects on stress/anxiety and memory, Vitamin B-6 is included predominantly as a cofactor for physiological processes that can indirectly affect stress/anxiety, memory and depression: like insufficient synthesis of the neurotransmitters serotonin and dopamine.

[Med Hypotheses](#). 2000 May;54(5):803-7.

High-dose pyridoxine as an 'anti-stress' strategy.

[McCarty MF](#)¹.

Abstract

Pyridoxine nutritional status has a significant and selective modulatory impact on central production of both serotonin and GABA - neurotransmitters which control depression, pain perception, and anxiety - owing to the fact that the decarboxylases which produce these neurotransmitters have a relatively low affinity for pyridoxal phosphate (PLP). Pyridoxine deficiency leads to increased sympathetic outflow and hypertension in rodents, possibly reflecting decreased central production of these neurotransmitters; conversely, supplemental pyridoxine lowers blood pressure in many animal models of hypertension, and there is preliminary evidence for antihypertensive activity in humans as well. Additionally, physiological levels of PLP interact with glucocorticoid receptors to down-regulate their activity. Thus, high-dose pyridoxine, by amplifying tissue levels of PLP, may be expected to have a favorable impact on certain dysphoric mental states, while diminishing sympathetic output and acting peripherally to blunt the physiological impact of corticosteroids. In light of growing evidence that chronic dysphoria, particularly when accompanied by hopelessness or cynicism, has a major negative impact on morbidity and mortality from a wide range of disorders, high intakes of pyridoxine may have the potential to improve prognosis in many individuals. With respect to cardiovascular health, reduction of homocysteine levels should contribute to this benefit. These predictions are consistent with recent epidemiology correlating plasma PLP levels with risk for vascular events and overall survival.

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Association between intake of B vitamins and cognitive function in elderly Koreans with cognitive impairment.

[Kim H](#), [Kim G](#), [Jang W](#), [Kim SY](#), [Chang N](#)¹.

Abstract

BACKGROUND:

It is possible that blood B vitamins level and cognitive function may be affected by dietary intake of these vitamins, no study however has yet been conducted on relationships between B vitamins intake and cognitive function among elderly population in Korea. This study examined the relationship between B vitamins intake and cognitive function among elderly in South Korea.

METHODS:

Participants consisted of 100 adults with mild cognitive impairment (MCI), 100 with Alzheimer's disease (AD), and 121 normal subjects. Dietary intake data that included the use of dietary supplements were obtained using a 24-hour recall method by well-trained interviewers. Plasma folate and vitamin B12 concentrations were analyzed by radioimmunoassay, and homocysteine (Hcy) was assessed by a high performance liquid chromatography-fluorescence method.

RESULTS:

Plasma levels of folate and vitamin B12 were positively correlated with B vitamins intake; and plasma Hcy was negatively correlated with total intake of vitamin B2, vitamin B6, vitamin B12 and folate. In the AD group, a multiple regression analysis after adjusting for covariates revealed positive relationships between vitamin B2 intake and test scores for the MMSE-KC, Boston Naming, Word Fluency, Word List Memory and Constructional Recall Tests; and between vitamin B6 intake and the MMSE-KC, Boston Naming, Word Fluency, Word List Memory, Word List Recognition, Constructional Recall and Constructional Praxis Tests. Positive associations were observed between vitamin B12 intake and the MMSE-KC, Boston Naming, Constructional Recall and Constructional Praxis Tests, and between folate intake and the Constructional Recall Test. In the MCI group, vitamin B2 intake was positively associated with the MMSE-KC and Boston Naming Test, vitamin B6 intake was positively associated with the Boston Naming Test, and folate intake was positively associated with the MMSE-KC and Word List Memory test. No associations were observed in the normal group.

CONCLUSION:

These results suggested that total B vitamins intake is associated with cognitive function in cognitively impaired AD and MCI elderly, and the association is stronger in AD patients.

[Psychopharmacology \(Berl\)](#). 1992;109(4):489-96.

Vitamin B-6 supplementation in elderly men: effects on mood, memory, performance and mental effort.

[Deijen JB¹](#), [van der Beek EJ](#), [Orlebeke JF](#), [van den Berg H](#).

Abstract

This study evaluates the effects of vitamin B-6 supplementation (20 mg pyridoxine HCL daily for 3 months) on mood and performance in 38 self-supporting healthy men, aged between 70-79 years. Effects were compared with 38 controls who received placebo and were matched for age, plasma pyridoxal-5'-phosphate (PLP) concentration and intelligence score. Before and after drug intervention vitamin B-6 status was determined, and mood and performance were measured by means of a computerized testing system. In addition, the phasic pupil response was measured in order to assess mental effort. Positive effects of vitamin B-6 supplementation were only found with respect to memory, especially concerning long-term memory. In view of the finding that mental performance improvement and delta PLP values were most strongly correlated within an intermediate range of delta PLP, it is suggested that cognitive effects are primarily associated with a certain range of vitamin B-6 status increment. The general conclusion is that vitamin B-6 supplementation improves storage of information modestly but significantly.

[J Nutr](#). 2012 Aug;142(8):1554-60. doi: 10.3945/jn.112.161828. Epub 2012 Jun 27.

Status of vitamins B-12 and B-6 but not of folate, homocysteine, and the methylenetetrahydrofolate reductase C677T polymorphism are associated with impaired cognition and depression in adults.

[Moorthy D¹](#), [Peter I](#), [Scott TM](#), [Parnell LD](#), [Lai CQ](#), [Crott JW](#), [Ordovás JM](#), [Selhub J](#), [Griffith J](#), [Rosenberg IH](#), [Tucker KL](#), [Troen AM](#).

Abstract

The C677T polymorphism of the methylenetetrahydrofolate reductase (MTHFR) gene differs in frequency in various ethnic groups that have differing prevalence of age-related cognitive impairments. We used a series of neuro-psychological tests to examine the association of the MTHFR C677T polymorphism with cognition and depression and also to assess whether genotype modifies the association of folate and homocysteine with these outcomes. This study analyzed pooled cross-sectional data from 2 ethnically diverse cohorts of community-living adults: the Boston Puerto Rican Health Study (n = 939) and the Nutrition, Aging, and Memory in Elders study (n = 1017). Individuals in both cohorts underwent anthropometric and laboratory measurements and dietary and health assessments using validated questionnaires between the years 2003 and 2007. **Cognitive outcomes included measures of global cognition [Mini-Mental Status Exam (MMSE)], depression (Center for Epidemiological Studies Depression Scale), and 3 factor scores for the domains of attention, executive function, and memory that were derived from a detailed set of neuropsychological tests. Low plasma vitamin B-12 concentrations were associated with poorer MMSE scores and higher depression scores, and low vitamin B-6 concentrations were associated with**

lower MMSE and worse attention and executive function in the multivariate analysis. In contrast, MTHFR genotype, folate, and homocysteine were not associated with cognition or depression in either ethnicity-pooled or stratified analysis. The current study did not find evidence of an association between the MTHFR C677T TT genotype and impaired cognition or depression in a population with adequate folate status and a high prevalence of cognitive impairment and depression.