

METHYL B-12 Scientific Research

THE FOLLOWING MEDICAL AND SCIENTIFIC MATERIAL IS FOR CONSUMER INFORMATIONAL AND EDUCATIONAL PURPOSES ONLY-- UNDER SECTION 5 OF DSHEA.

Vitamin B12 is a label for a group of compounds known as cobalamins. The most common form of vitamin B12 is called cyanocobalamin.

Cobalamin functions as a source of a methyl group (a carbon molecule) for a very important biochemical cycle known as the methylation cycle. In order to do this, cobalamins must be converted to the methyl donating form called methylcobalamin. Methylcobalamin is the “active” form of cobalamins.

SIGNS, SYMPTOMS, HEALTH PROBLEMS ASSOCIATED with B12 DEFICIENCY

Deficiency characteristics include anemia, fatigue, weakness, constipation, loss of appetite, and weight loss. Deficiency also can lead to neurological changes such as numbness and tingling in the hands and feet. Additional symptoms of vitamin B-12 deficiency are difficulty in maintaining balance, depression, confusion, dementia, poor memory, and soreness of the mouth or tongue.

Signs of vitamin B-12 deficiency in infancy include failure to thrive, movement disorders, delayed development, and megaloblastic anemia. (1)

ADULTS OVER 50

Up to 30 percent of adults aged 50 years and older may have atrophic gastritis, an increased growth of intestinal bacteria, and be unable to normally absorb vitamin B-12 in food. They are, however, able to absorb the synthetic vitamin B-12 added to fortified foods and dietary supplements. Vitamin supplements and fortified foods may be the best sources of vitamin B-12 for adults older than age 50 years. (1)

YOUNG ADULTS

One study suggests that the prevalence of vitamin B-12 deficiency in young adults may be greater than previously thought. This study found that the percentage of subjects in three age groups (26-49 years, 50-64 years, and 65 years and older) with deficient blood levels of vitamin B-12 was similar across all age groups but that symptoms of vitamin B-12 deficiency were not as apparent in younger adults. This study also suggested that those who did not take a supplement containing vitamin B-12 were twice as likely to be vitamin B-12 deficient as supplement users, regardless of age group. (1)

MENTAL FUNCTION

Methyl B-12 can be very effective in improving mental function. In a 1995 double-blind study of elderly people with low levels of B12, over 60% improved significantly with vitamin B-12

supplementation. It was suggested that those who did not improve had long-term (longer than 6 months) signs of mental impairment. (2)

AUTISM

Children with autism have been shown to be deficient in cysteine and glutathione and it appears that methylcobalamin can help restore the formation of the nutrients. (3)

...our study shows that in children with autism there are ...suboptimal levels of vitamin B12. (4)

CROHN'S DISEASE

Vitamin B12 abnormalities are common in patients with CD and patients with a prior ileal or ileocolonic resection are at particular risk. Routine screening for B12 deficiency in patients with CD is warranted. (5)

CAN I OVERDOSE ON VITAMIN B12?

The Institute of Medicine (an independent body that advises the government on science issues) did not establish a UL (upper intake level) for vitamin B-12 because it has a very low potential for toxicity. The IOM states that "no adverse effects have been associated with excess vitamin B-12 intake from food and supplements in healthy individuals". In fact, the IOM recommends that adults older than 50 years get most of their vitamin B-12 from vitamin supplements or fortified food because of the high incidence of impaired absorption in this age group of vitamin B12 from foods that come from animals. (1)

And from the US National Library of Medicine and the National Institutes of Health:
"Recommended dietary allowances (RDAs) are 2.4 micrograms per day for adults and adolescents aged 14 years and older, 2.6 micrograms per day for adult and adolescent pregnant females, 2.8 micrograms per day for adult and adolescent lactating females. Because 10-30% of older people do not absorb food-bound vitamin B12 efficiently, those over 50 years of age should meet the RDA by eating foods fortified with B12 or by taking a vitamin B12 supplement. Supplementation of 25-100 micrograms per day has been used to maintain vitamin B12 levels in older people."

You should consult your health care practitioner about how much vitamin B12 you should take.

(1) Office of Dietary Supplements, National Institutes of Health, Bethesda, Maryland.

(2) van Goor L, et al. Review: Cobalamin deficiency and mental impairment in elderly people. *Age Ageing* (1995) 24:536-42.

(3) James SJ, et al. Metabolic biomarkers of increased oxidative stress and impaired methylation capacity in children with autism. *Am J Clin Nutr* (2004) 80:1611-7.

(4) Pasca SP, et al. High levels of homocysteine and low serum paraoxonase 1 arylesterase activity in children with autism. *Life Sci*. 2006 Apr 4;78(19):2244-8.

(5) Headstrom PD, et al. Prevalence of and risk factors for vitamin B(12) deficiency in patients with Crohn's disease. *Inflamm Bowel Dis*. 2008 Feb;14(2):217-23.