Vitamin B12

Also known as: Cobalamin, cyanocobalamin, hydroxycyanocobalamin

What does it do? Vitamin B12 is needed for normal nerve cell activity, DNA replication, and production of the mood-affecting substance called SAMe (S-adenosyl-L-methionine). Vitamin B12 works with folic acid to control homocysteine levels. An excess of homocysteine, which is an amino acid (protein building block), may increase the risk of heart disease, stroke, and perhaps osteoporosis and Alzheimer's disease.

Vitamin B12 deficiency can cause fatigue, and some research indicates that individuals who are not deficient in this vitamin have increased energy after injections of vitamin B12.1 In one unblinded trial, 2,500–5,000 mcg of vitamin B12, given by injection every two to three days, led to improvement in 50–80% of a group of people with chronic fatigue syndrome (CFS), with most improvement appearing after several weeks of B12 shots.2 While the research in this area remains preliminary, people with CFS interested in considering a trial of vitamin B12 injections should consult a nutritionally oriented doctor. Oral or sublingual B12 supplements are unlikely to obtain the same results as injectable B12, because the body's ability to absorb large amounts is relatively poor.

Where is it found? Vitamin B12 is found in all foods of animal origin, including dairy, eggs, meat, fish, and poultry. Inconsistent but small amounts occur in seaweed (including spirulina) and tempeh.

Vitamin B12 has been used in connection with the following conditions (refer to the individual health concern for complete information):

Primary: Crohn's disease, Depression, High homocysteine, Pernicious anemia.

Secondary: Atherosclerosis, Bursitis, Chronic fatigue syndrome, Infertility (male) (shots).

Other: Alzheimer's disease, Asthma, Diabetes, Hepatitis, High cholesterol (protection of LDL cholesterol), HIV support, Injuries (minor), Retinopathy (associated with childhood diabetes), Shingles (herpes zoster)/postherpetic neuralgia, Tinnitus, Vitiligo.

Who is likely to be deficient? Vegans (vegetarians who also avoid dairy and eggs) frequently become deficient, though the process may take many years. People with malabsorption conditions may suffer from vitamin B12 deficiency. Individuals suffering from pernicious anemia require high-dose supplements of vitamin B12. Older people with urinary incontinence3 and hearing loss4 have been reported to be at increased risk of B12 deficiency.

How much is usually taken? Most people do not require vitamin B12 supplements. However, vegans should take at least 2–3 mcg per day. Treatment for pernicious anemia includes supplements of 1,000 mcg of vitamin B12 per day or vitamin B12 injections. Despite the beliefs of many medical doctors, scientific proof indicates that oral supplementation (1,000 mg per day) provides successful therapy and that vitamin B12 injections are not needed.5 6 7 8 9 In addition, the elderly may benefit from 10–25 mcg per day of vitamin B12.10 11 12

Are there any side effects or interactions? Vitamin B12 supplements are not associated with side effects.

If a person is deficient in vitamin B12 and takes 1,000 mcg of folic acid per day or more, the folic acid can improve anemia caused by the B12 deficiency, but not affect neurological symptoms. This is not a toxicity but rather a partial solution to one of the problems caused by B12 deficiency. The other problems caused by a lack of vitamin B12 (mostly neurological) do not improve with folic acid supplements.

Vitamin B12 deficiencies often occur without anemia (even in people who don't take folic acid supplements). Some doctors do not know that the absence of anemia does not rule out a B12 deficiency. If this confusion delays diagnosis of a vitamin B12 deficiency, the patient could be injured, sometimes permanently. This problem is rare and should not happen with doctors knowledgeable in this area using correct testing procedures.

Anyone supplementing more than 1,000 mcg per day of folic acid needs to be initially evaluated by a doctor of natural medicine to avoid this potential problem.

References:

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