

# Abstract

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## Update on vitamin B12 deficiency.

Langan RC, Zawistoski KJ.

St. Luke's Hospital, Bethlehem, PA, USA.

**BACKGROUND:** Vitamin B12 (cobalamin) deficiency is a common cause of megaloblastic anemia, a variety of neuropsychiatric symptoms, and elevated serum homocysteine levels, especially in older persons. There are a number of risk factors for vitamin B12 deficiency, including prolonged use of metformin and proton pump inhibitors. No major medical organizations, including the U.S. Preventive Services Task Force, have published guidelines on screening asymptomatic or low-risk adults for vitamin B12 deficiency, but high-risk patients, such as those with malabsorptive disorders, may warrant screening.

**DISCUSSION:** The initial laboratory assessment of a patient with suspected vitamin B12 deficiency should include a complete blood count and a serum vitamin B12 level. Measurements of serum vitamin B12 may not reliably detect deficiency, and measurement of serum homocysteine and/or methylmalonic acid should be used to confirm deficiency in asymptomatic high-risk patients with low normal levels of vitamin B12. Oral administration of high-dose vitamin B12 (1 to 2 mg daily) is as effective as intramuscular administration in correcting the deficiency, regardless of etiology. Because crystalline formulations are better absorbed than naturally occurring vitamin B12, patients older than 50 years and strict vegetarians should consume foods fortified with vitamin B12 and vitamin B12 supplements, rather than attempting to get vitamin B12 strictly from dietary sources. Administration of vitamin B12 to patients with elevated serum homocysteine levels has not been shown to reduce cardiovascular outcomes in high-risk patients or alter the cognitive decline of patients with mild to moderate Alzheimer disease.

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