



Vitamin B12 Deficiency and its Diagnosis

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ABOUT THE STUDY

Cobalamin, often known as vitamin B12, is a water-soluble vitamin which can be found in foods including dairy, eggs, and red meat. Glycoprotein is an intrinsic factor that can be produced by parietal cells present in the stomach which is used for B12 absorption in the terminal ileum. B12 acts as a cofactor for enzymes which have significant role in the synthesis of DNA and fatty acids. Deficiency of vitamin B12 leads to hematologic and neurologic symptoms. Cobalamin is stored in massive quantities in the liver, but where it cannot be absorbed for a long time (due to dietary deficiencies, or a lack of glycoprotein) the liver's reserves are depleted, and it causes the deficiency of vitamin B12.

Lack of vitamin B12 can cause the following general health symptoms

- Being overly exhausted.
- Feeling queasy, throwing up, or having diarrhoea.
- Having less appetite than normal.
- Losing weight.
- Mouth and tongue soreness
- Exhibiting yellow skin.

Vitamin B12 insufficiency can cause the following neurological symptoms

- Your arms and feet may feel numb.
- Issues with vision.
- Having trouble in recalling details or frequently confused.
- Being unable to move or speak as normally as before.

It's possible that neurological issues brought on by vitamin B12 deficiency won't be recoverable.

Causes

Insufficient intrinsic factor: Glycoprotein is the intrinsic factor produced by the parietal cells of stomach. It is necessary for vitamin B12 absorption. Pernicious anaemia is the name for this kind of B12 deficient anaemia. Bypass surgery that removes small intestine is where vitamin B12 absorption occurs inability

to produce intrinsic factor may result from a number of factors, including:

Auto-immune disorder is a disorder where the body destroys its own tissues, thyroid disease and type 1 diabetes may be associated with some kinds of megaloblastic anaemia.

It is advised to test for vitamin B12 deficiency in those who have risk factors mentioned above.

Diagnosis

A blood (serum or plasma) test is the first and sometimes the only test required to diagnose a B12 deficiency. This examination will examine your serum vitamin B12 levels as well as your total blood count.

According to the majority of laboratories, a vitamin B12 shortage is when

- B12 concentrations less than 200 pg/mL or 250 pg/mL
- Your healthcare professional may request extensive testing if the results of the initial examination are unclear.
- Treatment for vitamin B12 deficient anaemia typically involves vitamin B12 injections.

Injections of vitamin B12 come in two varieties:

- Hydroxocobalamin
- Cyanocobalamin

You will initially receive these injections every other day for the first two weeks or until your symptoms start to subside. Initial phase, your treatment will depend on whether your vitamin B12 insufficiency is caused by dietary factors or by neurological issues, such as issues with consciousness, memory and behaviour. There are additional foods that include vitamin B12, such as yeast extract (including Marmite) and soy products, if you're a vegetarian or vegan or seeking for alternatives to meat and dairy products. While grocery shopping, check the nutrition labels to see how much vitamin B12 certain items contain. You will typically require Hydroxocobalamin injections for the remainder of your life if your vitamin B12 insufficiency is not brought on by a deficiency in your diet

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If a patient has been on metformin for longer than four months, proton pump inhibitors or H2 blockers for longer than 12 months, or both, doctors should think about evaluating them for vitamin B12 deficiency due to possible interactions from long-term pharmaceutical use. The recommended dietary allowance for adult men and non-pregnant women is 2.4 mcg per day, and for pregnant women, it is 2.6 mcg per day.

The average daily intake of vitamin B12 in the United States is 3.4 mcg. 30 Patients over 50 should eat foods that have been fortified with vitamin B12 since they may not be able to absorb it from food sources as well. To avoid deficiencies, fortified cereals or supplements should be recommended to vegans and severe vegetarians.