ABSORPTION IS KEY WITH VITAMIN B-12

How intrinsic factor and folate help patients avoid B-12 deficiency by increasing absorption

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THE BODY USES VITAMIN B-12 (COBALAMIN) TO MAKE RED BLOOD CELLS AND DNA. If your patients are deficient in this nutrient, they may feel tired and weak, have a loss of appetite, experience heart palpitations, and even face fertility issues.[1]

Most people get enough B-12 in their diet. However, patients with certain diseases — such as those that involve micronutrient absorption issues — may be at risk of a B-12 deficiency. Fortunately, intrinsic factor can help these patients, as can folate.

Vitamin B-12 deficiency and disease

Some medical conditions reduce the body's ability to absorb and/or use vitamin B-12. This instigates a need to find not only ways for the patient to take in more of this nutrient, but also to make it more bioavailable.

Diseases that have been associated with a vitamin B-12 deficiency include pernicious anemia, irritable bowel syndrome, and exocrine pancreatic insufficiency.

Pernicious anemia is characterized by a decrease in red blood cells. In patients with this condition, their stomach makes inadequate amounts of intrinsic factor. This stops the intestine from properly absorbing B-12 and other vital nutrients. Pernicious anemia can be caused by a weak stomach lining and/or gastrectomy surgery. It can also be caused by an autoimmune condition in which the immune system mistakenly attacks the intrinsic factor or the cells in the stomach lining that make it.[2]

Irritable bowel syndrome (IBS) impacts the digestive tract. It often causes uncomfortable gastrointestinal symptoms such as bloating, gas, abdominal pain, diarrhea, and constipation. Many patients with IBS try to manage the condition with the help of specific diets, such as the low-FODMAP diet which is designed to eliminate certain gastrointestinal triggers. But this can often result in low B-12 levels.[3]

Exocrine pancreatic insufficiency (EPI) occurs when the pancreas doesn't produce enough digestive enzymes. This hinders the body's ability to properly digest food. Some small-scale animal studies have found that, after supplementing with cobalamin for between 19-199 days, the subjects' serum cobalamin concentrations increased significantly.[4]

How increasing intrinsic factor helps

Increasing vitamin B-12 intake may be helpful in reducing the risk of deficiency related to these conditions. To break down and absorb vitamin B-12 from foods, the body goes through a two-step process:

1. The first step involves separating the nutrient from the protein to which it is attached. This occurs in the stomach with the help of hydrochloric acid (consequently, it's also why taking a gastric acid inhibitor can lead to a B-12 deficiency since these drugs slow the release of hydrochloric acid).

2. The second step involves attaching the now-free vitamin B-12 to a new stomach protein. This protein is called intrinsic factor. It is required for the body to absorb nutrients, especially B-12, and is even more important when B-12 is consumed via a supplement.[1]

Folate's role in B-12 deficiency

Folate is perhaps best known for helping to prevent neural-tube defects in a growing fetus during pregnancy. Some studies have also connected low folate and low vitamin B-12 statuses in women of childbearing age, particularly if those women also follow a vegan or vegetarian diet.[5]

Part of the reason for this is that vitamin B-12 comes from animal-based foods. It is found in fish, meat, poultry, and eggs. You also get B-12 from dairy products. Non-animal food products are fortified with this nutrient, including some certain breakfast cereals and nutritional yeasts.

Covering all the bases

Choosing a B-12 supplement that also contains intrinsic factor and folate helps cover all the bases. It provides the body with the vitamin B-12 it needs, also supplying the intrinsic factor required to assist with the nutrient's absorption.

When the supplement also contains folate, this can help meet the nutritional needs of certain demographics of patients. This includes women in their childbearing years, but also those that follow a plant-based diet or suffer conditions that inhibit absorption. CE

[1]National Institutes of Health, Office of Dietary Supplements. Vitamin B12: Fact Sheet for Consumers. https://ods.od.nih.gov/factsheets/VitaminB12-Consumer/. Published July 07, 2021. Accessed September 05, 2022.

[2]U.S. National Library of Medicine. Medline Plus. Pernicious anemia. https://medlineplus.gov/ency/article/000569.htm. Accessed September 05, 2022.

[3]Bek S, Teo Y, Tan X, Fan K, Siah K. Association between irritable bowel syndrome and micronutrients: A systematic review. *Journal of Gastroenterology and Hepatology*. 2022. doi:10.1111/jgh.15891

[4]Toresson L, Steiner J, Spodsberg E, et al. Effects of oral cobalamin supplementation on serum cobalamin concentrations in dogs with exocrine pancreatic insufficiency: A pilot study. The Veterinary Journal. 2021;269:105619. doi:10.1016/j.tvjl.2021.105619

[5]Vora R, Alappattu M, Zarkar A, Soni M, Karmarkar S, Antony A. Potential for elimination of folate and vitamin B12 deficiency in India using vitamin-fortified tea: a preliminary study. *BMJ Nutrition Prevention & Health*. 2021;4(1):293-306. doi:10.1136/bmjnph-2020-000209