



Methyl B12 Intraoral Liposomal

Vitamin B12 is an essential water-soluble nutrient for the normal function of several body systems, including the cardiovascular, nervous, and digestive systems. It also helps support liver function and the detoxification process. A diet without adequate B12 can adversely affect the production of basic building blocks, like RNA and DNA, but also production of red blood cells. Research shows that many people can have difficulties metabolizing and absorbing B-12, especially when digestive and/or intestinal functioning is suboptimal. For these people, intravenous therapy or intraoral liposomal delivery are the best methods for achieving rapid shifts in blood levels of this key nutrient.⁽¹⁾

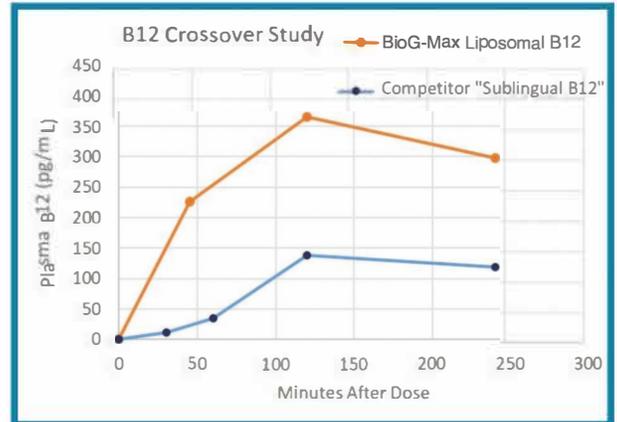


Patient populations that suggest potential B12 deficiency:

- Patients with gastrointestinal disorders (including those that have had a diagnosed H. Pylori infection)
- The elderly⁽²⁾
- Persons following a vegan or vegetarian diet. It's important to note that recent studies have shown deficiency in these populations even when participants eat B12-fortified foods.⁽³⁾
- Hematological disorders (especially pernicious anemia)
- Osteoporosis and bone health issues⁽⁴⁾
- Fertility issues
- Vascular disorders
- Neurological or neuropsychiatric conditions. Studies have confirmed a likely link between vitamin B12 deficiency and depression.^{(5),(6)}

Certain prescription drugs, like metformin and proton pump inhibitors, can also induce a B12 deficiency with continued use. Patients who have undergone a gastrointestinal bypass surgery are also at greater risk for deficiency of B12 and other key nutrients.⁽⁷⁾

Methylcobalamin is an active form of B12 (one of two coenzyme forms) and the only form that can actively participate in homocysteine metabolism.⁽⁸⁾ B12 is one of a handful of key nutrients that supports the methylation process, which has far-reaching implications for the support of healthy bodily functioning and detoxification.⁽⁹⁾ The nano-sized liposomes of BioG-Max B12 achieve rapid absorption and improve oral uptake of B12 for those patients struggling with nerve, brain, energy, and digestive assimilation challenges. It is unlike any B12 product you have ever used before!



Supplement Facts

Serving Size: 2 pumps (0.33 mL)
Servings Per Container: 90

| | Amount per Serving | % Daily Value |
|--|--------------------|---------------|
| Vitamin B12 (as methylcobalamin) | 1000mcg | 41667% |
| Phosphatidylcholine (from purified sunflower lecithin) | 32mg | † |

† Daily Value not established.

Other Ingredients: Water, Glycerin, Ethanol, Vitamin E (as d-alpha tocopheryl polyethylene glycol 1000 succinate and as natural mixed tocopherols)

References

1. Izumi K, F. T. (2013). Methylcobalamin improved pernicious anemia in an elderly individual with Hashimoto's disease and diabetes mellitus. *Nihon Ronen Igakkai Zasshi*, 50 (4):542-5.
2. Kaylen J, Pfisterer, Mike T, Sharratt, George G, Heckman, Heather H, Keller. Vitamin B12 status in older adults living in Ontario long-term care homes: prevalence and incidence of deficiency with supplementation as a protective factor. *Applied Physiology, Nutrition, and Metabolism*, 2016; 1
3. Anna-Liisa Elorinne, Georg Alfthan, Iris Erlund, Hanna Kivimäki, Annukka Paju, Irma Salminen, Ursula Turpeinen, Sari Voutilainen, Juha Laakso. Food and Nutrient Intake and Nutritional Status of Finnish Vegans and Non-Vegetarians. *PLOS ONE*, 2016; 11 (2): e0148235
4. Pablo Roman-Garcia, Isabel Quiros-Gonzalez, Lynda Mottram, Liesbet Lieben, Kunal Sharan, Arporn Wangwiwatsin, Jose Tubio, Kirsty Lewis, Debbie Wilkinson, Balaji Santhanam, Nazan Sarper, Simon Clare, George S. Vassiliou, Vidya R. Velagapudi, Gordon Dougan, Vijay K. Yadav. Vitamin B12-dependent taurine synthesis regulates growth and bone mass. *Journal of Clinical Investigation*, 2014
5. Hutto BR. Folate and cobalamin in psychiatric illness. *Compr Psychiatry*. 1997;38(6):305-314
6. Tiemeier H, van Tuijl HR, Hofman A, Meijer J, Kiliaan AJ, Breteler MM. Vitamin B12, folate, and homocysteine in depression: the Rotterdam Study. *Am J Psychiatry*. 2002;159(12):2099-2101
7. Xanthakos SA. Nutritional Deficiencies in Obesity and After Bariatric Surgery. *Pediatric clinics of North America*. 2009;56(5):1105-1121. doi:10.1016/j.pcl.2009.07.002.
8. O'Leary F, Samman S. Vitamin B12 in health and disease. *Nutrients*. (2010)
9. Anderson OS, Sant KE, Dolinoy DC. Nutrition and epigenetics: an interplay of dietary methyl donors, one-carbon metabolism and DNA methylation. *J Nutr Biochem*. (2012)