



WHAT IS VITAMIN B12?

Vitamin B12, also called cobalamin, is a water-soluble vitamin made by bacteria. It is needed for the maintenance of the nervous system and in the formation of red blood cells.

DIETARY SOURCE

Unlike other B vitamins, which are abundant in whole-food plant-based diets, vitamin B12 is the only vitamin that is not reliably supplied, therefore extra care is necessary.

Some fermented foods (such as tempeh), seaweed, spirulina, unfortified nutritional yeast and certain mushrooms may contain some vitamin B12, but we must never rely on these sources. Vegans must regularly consume reliable sources—meaning B12-fortified foods or supplements that contain B12—or you could become deficient.

Our livers can store vitamin B12 for a few years, so you don't need to worry about this vitamin immediately after going plant-based.¹

DOESN'T THAT JUST MEAN THAT PLANT-BASED DIETS ARE UNNATURAL?

No. Vitamin B12 is not made by animals. It's made by bacteria, and animals obtain it by eating manure-laden plants and drinking unsanitised water. Bacteria also line the gut of animals that meat-eaters consume. Bacteria in our colons make B12 too, but that's not absorbed.

Early humans probably got vitamin B12 from eating dirt on unwashed plants and drinking water from mountain streams or well water, but since we now chlorinate our water supply we kill off the bacteria.

It is no longer 'natural' to get vitamin B12 from animal sources, either. Most farmed animals are also getting B12 supplements, because they are no longer able to get B12 anymore due to water treatment, pesticides, herbicides, etc. killing off bacteria. So why not 'cut out the middle man' and simply consume the supplement yourself?

ABSORPTION

There are two ways we absorb B12:

- Through our receptor system (with the help of intrinsic factor): B12 receptors can become saturated with amounts as small as 1 to 1.5mcg
- Passive diffusion – can absorb about 1% of the intake

As we age, our ability to absorb vitamin B12 decreases. Therefore, **the Institute of Medicine (IOM) recommends that everyone aged over 50 (meat-eaters included!) should take B12 supplements.**⁵ Dr Greger's recommendation for those over 65 years of age is that they should take at least 1,000 mcg (µg) cyanocobalamin every day.

HOW TO OBTAIN ADEQUATE VITAMIN B12

Although our daily needs are miniscule, 2.4 mcg/day (that's 2.4 millionths of a gram) for adults, our absorption rates are low too, therefore the following consumption is recommended for those on a plant-based diet:

- **Supplement:**
 - 50 mcg daily of supplemental cyanocobalamin, OR
 - at least 2,000 mcg cyanocobalamin once each week, ideally as a chewable, sublingual, or liquid supplement taken on an empty stomach, OR
- **Fortified foods:** servings of B12-fortified foods three times a day, each serving containing at least 4.5 mcg (other recommendations are much lower, 2mcg/ serving – at any rate it may be easier to combine fortified foods with occasional supplementation).²

Even though B12 is a water-soluble vitamin, we don't have to take it every day because as humans evolved, our bodies became used to getting such tiny amounts and we developed ways to reabsorb it.³

WHAT ABOUT VEGETARIANS?

Vegetarians who consume dairy and eggs can get B12 from these sources:

- 2 large eggs - 1.1 mcg of B12
- 1 cup of low-fat milk - 1.2 mcg of B12

As our B12 absorption rate is low and animal products are high in saturated fat and cholesterol, it is not healthy to eat enough of these products to get adequate amounts of vitamin B12.⁴ It is safer and healthier to consume fortified foods or supplements.

HOW MUCH VITAMIN B12 IS TOO MUCH?

B12 is a water soluble vitamin, so exceeding recommended intakes is considered safe – the excess is simply excreted in the urine.¹

SIGNS OF B12 DEFICIENCY:

Symptoms of deficiency can be diverse, so if you are concerned it is best to seek medical advice and have a test done. Symptoms can include fatigue, weakness, light-headedness, shortness of breath and loss of appetite.¹

BOTTOM LINE

Although shortfalls are easy to avoid, vitamin B12 deficiency is one of the main reasons plant-based diets get bad press. Make sure you have a reliable source by taking a vitamin supplement or eating B12-fortified plant foods (or both).

REFERENCES:

1. Davis, B. RD and Melina V. MS. RD. (2014). *Becoming Vegan*. Comprehensive Edition. Book Publishing Company, Summertown, US.
2. Greger, M. (2019). Optimum Nutrition Recommendations. Available at: <https://nutritionfacts.org/2011/09/12/dr-gregers-2011-optimum-nutrition-recommendations/>
3. Greger, M. (2012). Cheapest Source of Vitamin B12. Video file Available at: <https://nutritionfacts.org/video/cheapest-source-of-vitamin-b12/>
4. Greger, M. (2012). Safest Source of B12. Video file Available at: <https://nutritionfacts.org/video/safest-source-of-b12/>
5. National Institutes of Health (2019) Vitamin B12. Fact Sheet for Health Professionals. Available at: <https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/>



(09) 523-4686
info@vegetarian.org.nz
www.vegetarian.org.nz
PO Box 26664, Epsom, Auckland 1344

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