



Vitamin B12: What Vegans Need to Know

What is vitamin B12?

Vitamin B12, also known as cobalamin, is made by bacteria. Animals eat food containing these bacteria, and then the animals become sources of vitamin B12.

Why do you need vitamin B12?

- To form and maintain healthy red blood cells
- To form and maintain healthy nerve cells
- To make DNA, the genetic material in cells

What happens if you don't get enough vitamin B12?

- Pernicious Anemia – a type of anemia characterized by large red blood cells. Symptoms include fatigue, breathlessness, listlessness, and poor resistance to infection.
- Nerve damage. Symptoms may include numbness and tingling in the hands and feet.
- In infants: delayed growth and development, movement disorders, anemia
- Other problems: constipation, loss of appetite, weight loss, depression, confusion, difficulty keeping balance, dementia, poor memory

Most deficiencies can occur because of a problem absorbing B12 in the intestine, though strict vegans (who consume no animal products) can also develop deficiencies over an extended period of time. Since the body stores some B12, it can take years for vegans to develop a deficiency.

How much vitamin B12 do you need?

Adults need to consume 2.4 micrograms (μg) of B12 per day. Pregnant women should get 2.6 μg , and lactating women should consume 2.8 μg . Consuming high amounts of B12 has not been shown to be harmful.

What foods are good sources of vitamin B12?

Animal products, especially fish and seafood, are good sources of B12. Foods such as milk, yogurt, and eggs can provide B12 for lacto-ovo vegetarians. Vegans can get B12 from fortified foods, nutritional yeast, and dietary supplements. Fortified foods are made with the B12-producing bacteria, not animal products.

It was once thought that tempeh, miso, and sea vegetables could provide B12. However, these foods do not contain the active forms of the vitamin. Instead, they contain inactive forms, which may actually interfere with B12 absorption and metabolism.

When looking at Nutrition Facts labels, you will see vitamin B12 expressed as a percent of Daily Value. Daily Values are helpful in deciding whether the food is a good source of the vitamin. Foods with 20% or more of the Daily Value for B12 are considered very good sources. Foods that provide 5% or less of the Daily Value are considered low sources.

Adults should include at least three good sources of vitamin B12 each day. It is best to include a variety of different fortified foods in your diet, rather than solely relying on one source. Examples of good B12 sources include:

- $\frac{1}{2}$ cup cow's milk
- $\frac{3}{4}$ cup yogurt
- 1 large egg
- 1 cup fortified soymilk (such as Silk™, 8th Continent™)
- 1 oz. fortified breakfast cereal (such as Total™, Nature's Path Optimum Power™, Kashi, Honey Frosted Oats™, Special K™, Cheerios™)
- 1-1/2 oz. fortified meat analog (such as Yves Meatless Barbeque "Beef" Skewers™, Worthington canned Vegeburger™, Worthington frozen Stakelets™)
- Nutritional yeast (such as Red Star Vegetarian Support Formula™)

How should I select a supplement?

Nutritional yeasts and B12 pills are considered dietary supplements and are not regulated as strictly as food and drug products. Companies that make these supplements can change their formula at any time, and the product may or may not be a good source of B12. Use caution when selecting a supplement. Read labels carefully and only purchase reputable brands. Look for these seals on labels:



www.usp.org



www.consumerlab.com

These seals indicate that the product has passed voluntary testing for identity, strength, purity, and bioavailability. In other words, the product has been found to meet recognized quality standards (identity), contain the amount of ingredients it claims on the label (strength), is not contaminated (purity), and can be properly utilized by the body (bioavailability).

If you take large quantities of vitamin B12 at one time, you will absorb less of it. Therefore it is recommended to take either small quantities (5-10 μ g) daily or 2000 μ g once per week. Also, vitamin B12 is sensitive to light, so be sure to store supplements and nutritional yeast in cool, dark areas.

References

Dietary Supplement Fact Sheet. "Vitamin B12" Office of Dietary Supplements, NIH Clinical Center.

Mangels, Reed, Ph.D., R.D. "Vitamin B12 in the Vegan Diet." The Vegetarian Resource Group Web site, search for Vitamin B12

Messina et al. (2003) "A New Food Guide for North American Vegetarians." Canadian Journal of Dietetics Practice and Research, 64(2), 82-86.

"Vitamin B12" Information Sheet. The Vegetarian Society Web site, search for Vitamin B12

Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. (2003). Journal of the American Dietetic Association, 103(6), 748-765.

Norris, Jack R.D. "Vitamin B12: are you getting it?" Vegan Health Organization Web site, search for Vitamin B12 (This is a very helpful Web site with a lot of reliable information).

If you are a registered University of Illinois student and you have questions or concerns, or need to make an appointment, please call: **Dial-A-Nurse at 333-2700**

If you are concerned about any difference in your treatment plan and the information in this handout, you are advised to contact your health care provider.

Visit the McKinley Health Center Web site at: <http://www.mckinley.uiuc.edu>