UF IFAS Extension UNIVERSITY of FLORIDA

FCS8701
doi.org/10.32473/EDIS-fy214-2006

Facts About Vitamin B12 [1]

Linda B. Bobroff[2]

Why do we need vitamin B12?

Vitamin B12 works with folate, another B vitamin, to make DNA, our body's genetic material. B12 is needed for proper formation of red blood cells and protection of nerve cells. It also helps keep blood levels of the amino acid homocysteine low. High levels of homocysteine are associated with heart disease. Lowering homocysteine levels with B vitamins is effective, but may not decrease heart disease risk (Chrysant and Chrysant 2018). Everyone needs vitamin B12, but older adults and strict vegetarians (vegans) need to eat fortified foods or take a B12 supplement to get enough B12.



Figure 1. People of all ages need vitamin B12, but it is critical when new cells are being made, as in pregnancy and early childhood, or when you have a risk of poor absorption, such as in old age.
Credit: izusek/getty images

What happens if we do not get enough vitamin B12?

Vitamin B12 deficiency causes megaloblastic anemia. With this type of anemia, the body cannot make normal red blood cells that carry oxygen to all the cells in the body. Lack of oxygen makes people weak and tired. In addition, vitamin B12 deficiency can cause nerve damage, leading to confusion, numbness in the hands and feet, and loss of balance.

How much vitamin B12 do we need?

Table 1. Recommended daily intakes of vitamin B12.

Life Stage	Vitamin B12 (mcg/day)
Adults, ages 19+	2.4
Pregnant women	2.6
Breastfeeding women	2.8

mcg = micrograms

Source: (Institute of Medicine 1998)

How can we get enough vitamin B12?

Foods of animal origin, such as meat, fish, poultry, eggs, milk, and dairy foods, naturally contain vitamin B12. Fortified breads and cereals contain vitamin B12 in a form that is easily absorbed. Check the ingredient list on food labels to see if vitamin B12 has been added. Here is a sample ingredient list from a fortified cereal:

INGREDIENTS: Wheat bran, sugar, raisins, whole wheat, partially hydrogenated soybean oil, corn syrup, brown sugar syrup, nonfat milk, salt, honey, vitamin C (sodium ascorbate), vitamin B2 (riboflavin), vitamin B1 (thiamin mononitrate), folic acid, **vitamin B12** (cobalamin).

Table 2. Foods and the amount of vitamin B12 they contain.

Food	Vitamin B12 (mcg/serving)
Oysters, cooked, 3 oz.	30
Beef, ground, extra lean, cooked, 3 oz.	1.8
Tuna, canned, 2 oz.	1.6
Fortified cereal, 1 serving	1.5
Yogurt, plain, 8 oz.	1.3
Chicken, roasted, 3 oz.	0.3

mcg = micrograms

oz = ounces

Source: (U.S. Department of Agriculture and U.S. Agricultural Research Service n.d.)



Figure 2. Vitamin B12 is naturally found in foods of animal origin. Vegans need to eat fortified foods or take a dietary supplement to get their B12. Credit: photohaydar/istock/Getty Images Plus

How should foods be prepared to retain vitamin B12?

Vitamin B12 is not easily destroyed by cooking. This is good to know since the main food sources of vitamin B12, including meat, fish, and poultry, need to be well cooked. Other sources, like fortified cereals, may not need cooking.

What about supplements?

If you don't get enough vitamin B12 from foods, you can take an oral dietary supplement. Strict vegetarians (or vegans) who do not eat fortified cereals or fortified soy foods need to take vitamin B12 as a supplement. Also, adults over the age of 50 often do not absorb vitamin B12 very well due to decreased acidity in the stomach, for example. If they don't get adequate B12 from fortified foods, they are advised to take a supplement.

Where can I get more information?

Your local UF/IFAS Extension Family and Consumer Sciences (FCS) agent may have more information and nutrition classes for you to attend. You can find your local UF/IFAS Extension office at https://sfyl.ifas.ufl.edu/. A registered dietitian (RD or RDN) can also provide reliable information. Below are a few online sources that provide reliable nutrition information:

Office of Dietary Supplements/National Institutes of Health: http://ods.od.nih.gov

References

Chrysant, Steven G., and George S Chrysant. 2018. "The Current Status of Homocysteine as a Risk Factor for Cardiovascular Disease: A Mini Review." Expert Review of Cardiovascular Therapy 16 (8): 559–65. https://doi.org/10.1080/14779072.2018.1497974

Institute of Medicine. 1998. "Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline." Washington (DC). Accessed May 13, 2021. https://www.nap.edu/read/6015/chapter/1

U.S. Department of Agriculture and U.S. Agricultural Research Service. n.d. "FoodData Central." n.d. Accessed May 13, 2021. https://fdc.nal.usda.gov/index.html

[1] This document is FCS8701, one of a series of the UF/IFAS Department of Family, Youth and Community Sciences. Original publication date June 2001. Revised January 2018 and May 2022. Visit the Ask IFAS website at https://ask.ifas.ufl.edu/ for the currently supported version of this publication.

[2] Linda B. Bobroff, professor emeritus, UF/IFAS Department of Family, Youth and Community Sciences; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information, and other services only to individuals and institutions that operate in compliance with applicable federal and state non-discrimination laws and policies. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A&M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Andra Johnson, Dean for UF/IFAS Extension.