

Vitamin B12 : What is it?

Vitamin B12, also called cobalamin, is important to good health. It helps maintain healthy nerve cells and red blood cells, and is also needed to make DNA, the genetic material in all cells (1-4). Vitamin B12 is bound to the protein in food. Hydrochloric acid in the stomach releases B12 from protein during digestion. Once released, B12 combines with a substance called intrinsic factor (IF) before it is absorbed into the bloodstream.

What foods provide vitamin B12?

Vitamin B12 is naturally found in animal foods including fish, milk and milk products, eggs, meat, and poultry. Fortified breakfast cereals are an excellent source of vitamin B12 and a particularly valuable source for vegetarians (5, 6, 7). The table of selected food sources of vitamin B12 suggests dietary sources of vitamin B12.

What is the Recommended Dietary Allowance for vitamin B12 for adults?

The Recommended Dietary Allowance (RDA) is the average daily dietary intake level that is sufficient to meet the nutrient requirements of nearly all (97 to 98 percent) healthy individuals in each life-stage and gender group (7). The 1998 RDAs for vitamin B12 (in micrograms) for adults (7) are:

Life-Stage	Men	Women	Pregnancy	Lactation
Ages 19+	2.4 mcg	2.4 mcg		
All ages			2.6 mcg	2.8 mcg

Results of two national surveys, the National Health and Nutrition Examination Survey (NHANES III-1988-91) (8) and the Continuing Survey of Food Intakes by Individuals (CSFII 1994-96) (7) found that most adult men and women consume recommended amounts of vitamin B12 (6-8).

When is a deficiency of vitamin B12 likely to occur?

Diets of most adult Americans provide recommended intakes of vitamin B12, but deficiency may still occur as a result of an inability to absorb B12 from food. It can also occur in individuals with dietary patterns that exclude animal or fortified foods (9). As a general rule, most individuals who develop a vitamin B12 deficiency have an underlying stomach or intestinal disorder that limits the absorption of vitamin B12 (10). Sometimes the only symptom of these intestinal disorders is anemia resulting from B12 deficiency.

Characteristic signs of B12 deficiency include fatigue, weakness, nausea, constipation, flatulence (gas), loss of appetite, and weight loss (1, 3, 11). Deficiency also can lead to neurological changes such as numbness and tingling in the hands and feet (7, 12). Additional symptoms of B12 deficiency are difficulty in maintaining balance, depression, confusion, poor memory, and soreness of the mouth or tongue (13). Some of these symptoms can also result from a variety of medical conditions other than vitamin B12 deficiency. It is important to have a physician evaluate these symptoms so that appropriate medical care can be given.

Table of Food Sources of Vitamin B12 (5)

Food	Micrograms	%DV*
Beef liver, cooked, 3 oz	60.0	1000
Fortified breakfast cereals, (100% fortified), 3/4 c	6.0	100
Trout, rainbow, cooked, 3 oz	5.3	90
Salmon, sockeye, cooked, 3 oz	4.9	80
Beef, cooked, 3 oz	2.1	35
Fortified breakfast cereals (25% fortified), 3/4 c	1.5	25
Haddock, cooked, 3 oz	1.2	20
Clams, breaded and fried, 3/4 c	1.1	20
Oysters, breaded and fried, 6 pieces	1.0	15
Tuna, white, canned in water, 3 oz	0.9	15
Milk, 1 cup	0.9	15
Yogurt, 8 oz	0.9	15
Pork, cooked, 3 oz	0.6	10
Egg, 1 large	0.5	8
American Cheese, 1 oz	0.4	6
Chicken, cooked, 3 oz	0.3	6
Cheddar cheese, 1 oz	0.2	4