

Vitamin B12 Supplementation

Why is Vitamin B12 important?

Vitamin B12 (cobalamin) is a water soluble vitamin and an essential nutrient that helps keep the body's nerve and blood cells healthy and helps make DNA, the genetic material in all cells.

Vitamin B12 deficiency can often take several years to manifest and symptoms can range from fatigue to permanent neurological damage.

Vitamin B12 deficiency can cause a type of anaemia, known as megaloblastic anaemia and independent of the anaemia, B12 deficiency can damage the nervous system which is very serious.

Vitamin B12, in combination with vitamin B-6 and folate (vitamin B-9), has been shown to control high levels of homocysteine in the blood. Elevated homocysteine might increase the risk of cardiovascular disease.

Vitamin B12 deficiency is associated with dementia and low cognitive function, but it's not clear whether vitamin B12 supplements might help prevent or treat dementia.

Where is Vitamin B12 made?

B12 is only produced in nature by certain bacteria (microbes) that blanket the surface of the earth. We used to get it naturally by drinking water from ponds and streams and from eating fruit and vegetables that still had soil on them.

Nowadays, we drink water and fruits and vegetables that have been treated to avoid serious infections, so we don't get our Vitamin B12 through this source. Even animal feed is now often supplemented with B12 as cows and sheep rarely graze outside, when they would normally get their B12 from the soil.

Vitamin B12 is also synthesized by some bacteria in our gut but humans cannot absorb this as it is made in the colon, downstream from the small intestine, where the absorption of most nutrients occurs.

What is the best way to take Vitamin B12?

While nutritional yeast, animal foods as well as fortified plant milks and cereals contain

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some Vitamin B12, the best way to ensure satisfactory levels is to take a supplement of cyanocobalamin or methylcobalmin. The dose depends on age and other medical conditions. I recommend people following a plant-based diet to take a B12 supplement unless there is a good reason not to. If you choose to obtain B12 from enriched foods, like yeast extract or nutritional yeast, then a serving will need to be eaten at least twice a day.

The recommended daily intake (RDI) of vitamin B12 is 2.4 mcg for both men and women, though pregnant and breastfeeding women have a higher need. Only 10 mcg of a 500 mcg B12 supplement is absorbed in people without a deficiency, hence the higher commercial doses.

It is advised to take a Vitamin B12 supplement (25 - 100 mcg daily or 2000 mcg/week of cyanocobalmin, if under 65 or if >65 year (1000 mcg/daily). Vitamin B12 is better absorbed in smaller, frequent doses as a substance called intrinsic factor released in the stomach is needed for the absorption of Vitamin B12. Only enough intrinsic factor is excreted per meal to absorb 2-4 micrograms of B12. If taken less frequently than daily, then higher doses are required.

Vitamin B12 injections may be needed if a deficiency is diagnosed as it raises the levels quicker. Some people cannot absorb Vitamin B12 due to certain digestive conditions and may need Vitamin B12 injections under the guidance of a health professional.

If skin breakouts are noticed, Vitamin B12 dose may need to be adjusted after a blood test with help from a health professional.

Vitamin B12 supplements are generally safe as it's a water soluble vitamin, which means any excess will pass through the urine. Too high a dose however may cause side effects such as dizziness, headaches, nausea and vomiting. Vitamin B12 supplements may also interact with other drugs such as Metformin for diabetes and Vitamin C amongst others, so its wise to check with the doctor if in any doubt.

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