

B12 is an exceptional vitamin. It is required in smaller amounts than any other known vitamin. All vitamins except B12 are recognised as being reliably supplied from a varied wholefood plant-based diet. Vitamin B12 is produced by neither plants nor animals but by bacteria and need never be a problem for well-informed vegetarians and vegans.

What does Vitamin B12 do?

Vitamin B12, or cobalamin, is necessary for the synthesis of red blood cells, the maintenance of the nervous system and growth and development in children. Recent scientific evidence suggests that it is an important nutrient in the prevention of cancer. B12 is stored in the body in the liver.

Meat contains Vitamin B12 because the animal has eaten food with B12 micro-organisms growing on it. Plant foods can only contain Vitamin B12 if they have been fortified with the vitamin, or if they also have these micro-organisms growing. However, these micro-organisms are usually destroyed by pesticides or when preparing food for eating.

Vitamin B12 sources

Sources of Vitamin B12 for vegetarians are dairy products (such as milk or vegetarian cheese) or free-range eggs. However, these can be relatively poor sources of B12 due to the loss of this vitamin in cooking plus difficulties in absorption, particularly amongst the elderly.

The best source of B12 is fortified plant foods. The B12 in fortified plant foods is more easily absorbed than in meat and dairy. Usually, fortified food contain between 0.5-1 µg per serve. Check the label to ascertain a food's Vitamin B12 status.

Foods which are typically fortified include yeast spreads (such as Marmite) and plant milks (such as So Good Essential soya milk or Rice Dream Original Enriched). Some protein foods (such as Sanitarium Veggie Delights sausages and luncheon) and non-dairy ice creams (such as So Good Essential Bliss) are also fortified.

Plant foods (e.g. mushrooms, seaweeds, tempeh, miso and algae such as spirulina) do not contain Vitamin B12 in a usable form. Sufficient Vitamin B12 is not provided by eating unwashed food, or by not washing your hands before eating - these practices may create other health issues.

How much Vitamin B12?

We only need tiny amounts of this essential vitamin. In fact, a whole lifetime's requirement adds up to less than half the size of the average aspirin tablet. Although

An example of a daily Vitamin B12 intake:

- Marmite on toast for breakfast
- a fortified veggie sausage for dinner
- a glass or two of fortified soya milk for a drink



advice varies as to how much is required daily, an intake of between 2 to 3 micrograms of Vitamin B12 for adults, and between 1 to 2 micrograms for children, spread over a day should provide all that is necessary. Pregnant and breastfeeding mothers should ensure a daily supply of B12 of 3mcg. The B12 needs of babies can be met through breast milk.

Eating fortified foods two or three times a day should supply sufficient amounts for health as B12 is best absorbed in small regular amounts. There is no harm in exceeding the recommended amounts as Vitamin B12 has very low toxicity.

If fortified foods are not eaten regularly and daily, take a Vitamin B12 supplement. Either take one Vitamin B12 supplement daily providing at least 10 micrograms or take a weekly Vitamin B12 supplement providing at least 2,000 micrograms.

Vitamin B12 deficiency

Deficiency may be caused by either insufficient Vitamin B12 in the diet, or a problem with absorbing it during the digestive process. The elderly are at greatest risk of deficiency. Most vegetarians and vegans consume enough B12 to avoid clinical deficiency which is extremely rare.

Symptoms such as loss of energy, tingling, numbness, reduced sensitivity to pain or pressure, blurred vision, abnormal gait, sore tongue, poor memory, confusion, hallucinations and personality changes may indicate Vitamin B12 deficiency. These symptoms are usually reversible on administration of Vitamin B12 (commonly given by injection). If you suspect you have a problem, see a health professional as each of these symptoms can also be caused by problems other than Vitamin B12 deficiency.

Extreme Vitamin B12 deficiency may cause anaemia, irreversible nervous system damage and can be life threatening (especially for the young). Therefore, it is vital that everyone, particularly pregnant and breastfeeding mothers, ensures a sound Vitamin B12 intake.

Testing Vitamin B12 status

B12 blood testing has been a very unreliable measure of B12 status as there are many foods (such as algae, mushrooms etc.) which contain B12 analogues (false B12). These analogues can imitate true Vitamin B12 in blood tests, while actually interfering with Vitamin B12 metabolism. Blood counts are also unreliable since high folate intakes suppress the anaemia symptoms of Vitamin B12 deficiency that can be detected by blood counts.

Request the Abbott Architect B12 testing method if it is available in your area as this new blood test produces more accurate B12 readings. Blood homocysteine testing is also a reliable indicator of B12 status, with levels less than 10 mmol/l being desirable. The most specific test for Vitamin B12 status is methylmalonic acid (MMA) testing. If this is in the normal range in blood (less than 370 nmol/L) or urine (less than 4 mcg/mg creatinine) then your body has enough Vitamin B12.

Further information

Leaflet sets available from the NZ Vegetarian Society

Vegetarian families set
Reasons for vegetarianism set
Vegetarian nutrition set:

- Overview
- Iron
- Protein
- Vitamin B12
- Calcium and Vitamin D

Each set contains 5 information leaflets

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Websites

www.vegetarian.org.nz
www.vegan.org.nz
www.vegansociety.com
www.vrg.org
www.viva.org.uk

Well planned vegan and other types of vegetarian diets are appropriate for all stages of the life cycle, including during pregnancy, lactation, infancy, childhood, and adolescence. From: *Position of the American Dietetic Association and Dieticians of Canada: Vegetarian Diets*. 2003. Endorsed by the New Zealand Dietetic Association.

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VEGETARIAN NUTRITION



New Zealand Vegetarian Society