

VITAMIN B₁₂ DEFICIENCY

Vitamin B₁₂ deficiency can cause pernicious anaemia and megaloblastic anaemia. A deficient dietary intake is quite rare and Vitamin B₁₂ deficiency is usually caused by a failure of absorption.

Aim

To give appropriate advice to improve dietary intake of Vitamin B₁₂ for those at risk of, or with, low levels. This includes vegans and people with malabsorptive conditions such as gastric atrophy, hypochlorhydria or Chron's disease.

Practical dietary advice

Vitamin B₁₂ is only found naturally in animal foods. In the British diet the main sources are liver, meat and meat products, milk and dairy products, fish and fish dishes and eggs. Small amounts come from fortified foods such as breakfast cereals. Good sources of Vitamin B₁₂ are more limited for people with dietary restrictions such as vegetarians or vegans. Suitable foods are listed below.

For meat/fish eaters:	For vegetarians:	For vegans:
<ul style="list-style-type: none"> • Liver • Meat and meat products • Fish and fish dishes • Milk and dairy products • Eggs • Fortified breakfast cereals 	<ul style="list-style-type: none"> • Milk and dairy products • Eggs • Fortified breakfast cereals 	<ul style="list-style-type: none"> • Fortified breakfast cereals • Fortified soya milk • Fortified textured soya protein • Fortified yeast extract • Fortified vegetable stock

All vegans, as well as vegetarians who limit dairy foods or eggs, should regularly include a reliable source of vitamin B₁₂ in their diet or take a vitamin B₁₂ supplement.

Brief rationale

The vitamin B₁₂ compounds (cobalamins) are synthesised by micro-organisms in animals and are not found in plants. Vitamin B₁₂ is required for the production of enzymes involved in isomeric reactions, in recycling of folate co-enzymes and in the synthesis of methionine from homocysteine.

Although vitamin B₁₂ deficiency anaemia is usually caused by a failure of absorption, and less commonly due to a dietary deficiency, higher intakes may be beneficial for older people. The vitamin B₁₂ intakes of older people who are vegans/strict vegetarians, or with conditions such as gastric atrophy, hypochlorhydria/achlorhydria or Chron's disease, or who have had a gastrectomy require particular consideration ¹. There are cases of vitamin B₁₂ deficiency relating to young children on vegan, macrobiotic or Rastafarian diets that also exclude fortified foods ². Low serum levels of vitamin B₁₂ have been reported in the breast milk of vegan women ³. Low blood levels of B₁₂ with associated neurological symptoms have also been found in exclusively breast-fed infants of vegan mothers ⁴.

Unlike most water-soluble vitamins, vitamin B₁₂ can be stored in the liver, so even long periods of low intake may not affect B₁₂ status.

References

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