



# B VITAMINS



## Summary

What we often call “vitamin B” is actually a group of eight B vitamins (B1,2,3,5,6,7,9, and 12). All of them dissolve in water and most are broken down by light and heat. We can’t store most of them, so need to eat some each day.

Grains, leafy vegetables, seeds, eggs, dairy, fish and meat are good sources of B vitamins. We only get vitamin B12 from animal foods. Some B vitamins are added to foods like breakfast cereals, breads and spreads to help us get enough.

Most B vitamins help us to get energy from our foods and to grow. Some help us make healthy blood, or with our nerves and eyesight. Others make hormones (chemical messengers). Too few B vitamins (a deficiency) can lower our energy levels, and make our blood and nerves work less well. Pregnant women need vitamin B9 so their babies’ nervous systems can develop properly.

## What are the B vitamins?

Eight of them form a group that is often called the **Vitamin B complex**. They are **thiamin (Vit B1), riboflavin (B2), niacin (B3), pantothenic acid (B5), pyridoxine (B6), biotin (B7), folate or folic acid (B9), and cobalamin (B12)**. All the B Vitamins are water soluble (dissolve in water). Apart from B12, we can’t store them in our bodies and need some every day.

## Why do we need B vitamins?

Most B vitamins play an important role in the processes in our body that get the energy out of food and into our cells. We need them for energy and growth. Vitamins B1 and B3 also help to regulate appetite. Vitamins B2 and B3 are needed for a healthy nervous system and B9 is vital for its development. We need Vitamin B2 for good vision and B2 and B3 for healthy skin. Vitamins B6, B9 and B12 help make red blood cells, and B6 and B9 with making haemoglobin (the substance that carries oxygen in our bodies); Vitamin B6 helps make the hormone insulin and B5 helps with producing other hormones.

## What happens if we have too much or too little?

It’s very rare to have too little (a deficiency) of most B vitamins if you are eating a normal diet in New Zealand. Vitamin B12 deficiency can show up as tiredness, anaemia (too few healthy red blood cells) and nerve disorders - including tingling fingers. A deficiency of B9 (folate) can also cause anaemia and seriously affect how the nervous system develops in babies during pregnancy. Other B vitamin deficiencies could affect our energy levels, growth, or cause problems with our vision or skin. There is no real problem with having too much of most B vitamins - we’ll probably just get rid of them in our urine (wee). However, very high levels of B3 aren’t good for our liver and too much B9 could hide a vitamin B12 deficiency.

## What foods can we get B vitamins from?

Grains and meats are good general sources. Leafy vegetables, nuts, seeds and legumes are good sources of some B vitamins but not all. People like long-term vegans who don’t eat animal foods (dairy, meat, eggs) may need to take supplements or eat B12- fortified\* foods.

B1 Thiamin	B2 Riboflavin	B3 Niacin	B5 Pantothenic acid	B6 Pyridoxine	B7 Biotin	B9 Folate	B12 Cobalamin
Whole grains, nuts, seeds, legumes	Dark green vegetables, grains Milk, eggs	Grain products, peanuts	Whole grains, potatoes, peanuts	Whole grains, some vegetables Eggs	Only found at very low levels in most foods but made by bacteria in our gut so we don't need to eat much	Leafy green vegetables, legumes, peanuts, avocados, berries, citrus	Eggs, milk
Meat - especially pork, fish	Liver	Liver and other meat, fish, poultry	Liver and all meat, poultry	Fish, poultry, pork, beef		Liver, kidney	Meat, liver, kidney, fish, shellfish
Fortified breakfast cereals and breads, yeast spreads like vegemite, marmite	Fortified breakfast cereals, yeast spreads like vegemite, marmite	Fortified breakfast cereals, yeast spreads like vegemite, marmite	Fortified breakfast cereals			Fortified breakfast cereals and breads, yeast spreads like vegemite, marmite	B12 fortified foods like Milo, soy milk, yeast spreads like marmite (but not vegemite)

\*If something is fortified it means that vitamins and minerals have been added to it. Vitamins B1,2,3 6 and 9 are often added to cereals and B9 to bread. Check the NIPs and claims to see if B5 and B12 have been added.

## Are they affected by processing or storage?

Vitamins B2, and probably B5 and B6 break down in light. The B vitamins in foods will leak out into rinsing or cooking water or start to break down so it's a good idea to use this liquid in a sauce. Vitamins B1, B6 B9 and B12 are the most sensitive to heat. Levels of some B vitamins may be less in foods that have been blanched (put in boiling water) and frozen but are roughly similar to fresh.

## How does the B vitamin content of some common foods compare?

No single natural food provides all the B Vitamins we need each day in one go, so it is important to eat a mixed diet and let everything add up. However, 100 g of sunflower seeds, ox liver, and many fortified cereals would exceed a non-pregnant adult's daily folate (B9) needs. And about 100 g of roast turkey, fried salmon, ox liver or greenshell mussels would also meet or exceed their daily niacin (B3) and cobalamin (B12) requirements.

### Funky fact

The "gaps" between B1 and B12 (B4, B8, B10 and B11) are there because some substances that we once thought were B Vitamins are not now generally thought of as vitamins. Biotin (B7) used to be called Vitamin H.

## USEFUL LINKS

Twenty Fun Facts About Vitamins. Retrieved from: <https://www.multivitaminguide.org/infographic/20-fun-facts-about-vitamins.html>



## REFERENCES

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