



Bioactive B Vitamins

Vitamins ain't vitamins

We've all seen bottles of vitamins for sale in the pharmacy or supermarket, often labelled "B vitamins": folate, thiamine, riboflavin, pyridoxine. Some of these vitamins may be in your breakfast cereal. But what are they?

The B vitamins are a disparate group of water-soluble chemicals that have important functions in the biochemical metabolism that powers each of your cells. Some vitamins are also needed to help process other vitamins!

The human body cannot make these vitamins, so we need to consume them in the foods that we eat. Without the right amounts of the right vitamins, delivered in a form that our bodies can use, one may become unwell—a vitamin deficiency

Vitamin deficiency

Each vitamin is processed by your body through a complex series of enzymatic reactions. Each step in these reactions may produce an "active" form of the vitamin—that is, a form that your body can use in other vital processes (e.g., metabolism or DNA replication).

Some people have a poor diet, and simply do not eat enough vitamins to keep them healthy—and thus they experience vitamin deficiency. Others may experience deficiencies because of the influence of other medications they may be taking. But there are some people who can get enough of a vitamin through a "healthy" diet, or by taking supplements, and still experience some of the symptoms of vitamin deficiency. Unfortunately for these people, their bodies may not produce fully functional enzymes to process the vitamins they eat into active forms (that is, their enzymes are mutated).

What are the symptoms of a defect in B vitamin metabolism?

Specific enzymes are required to process each B vitamin, and each may show signs of deficiency or defect that vary from enzyme to enzyme, and from mutation to mutation

As an example, dietary folate requires multiple enzymatic activation steps. One of these enzymes is 5-methylenetetrahydrofolate reductase (or MTHFR for short). Some estimates suggest that up to 50% of Australians have mutations in this gene that might cause symptoms, without being aware of their condition. While serious MTHFR mutations result in birth defects (e.g., spina bifida), more common mutations may still affect MTHFR's function, and cause symptoms like cardiovascular and thromboembolic diseases (specifically blood clots, high blood pressure, and heart disease), depression, anxiety, bipolar disorder, schizophrenia, migraine, chronic pain, or fatigue.

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THE ART & SCIENCE OF COMPOUNDING

What makes a vitamin “bioactive”?

Bioactive forms of vitamins are “pre-activated” forms of the regular dietary vitamins, chosen from our scientific knowledge of the most common biochemical defects in vitamin processing enzymes. Supplementation with already-activated forms of B vitamins “short-cuts” the usual vitamin activating pathways, providing vitamins in forms that are better absorbed and/or which do not require activation by the body:

- Folate (B9): provided as 5-methyltetrahydrofolate (the product of the MTHFR enzyme)
- Riboflavin (B2): provided as riboflavin 5-phosphate
- Pyridoxine (B6): provided as pyridoxal-5-phosphate
- Cyanocobalamin (B12): provided as methylcobalamin

Why take bioactive B vitamins?

Bioactive B vitamins are commonly taken when there is a known enzyme deficiency (which can be difficult to establish without expensive testing), or simply to give the body the nutrition it needs without any need for the body to do any vitamin processing.

Many find that Formulae’s Bioactive B Vitamins give them a “boost”, helping with constant poor health, with irritable bowel or poor digestion, with fatigue, or to clear brain fog. Others take them to complement their existing treatments for pain, depression, or anxiety.

How to take Formulae’s bioactive B vitamins

Take one capsule daily with a glass of water, or as directed by your doctor. It is best to take Bioactive B Vitamins in the morning, and they are generally better absorbed if taken on an empty stomach (i.e. 30 mins before food, or 2 hours after food)

Are there any side effects?

The vitamins in Formulae’s Bioactive B Vitamin supplement should have minimal side effects when taken as directed. Please discuss any concerns with our pharmacists

Customising Formulae’s bioactive B vitamins

Every individual has different nutritional needs, and we can customise your Formulae Bioactive B Vitamins to suit you. Many request one or more essential minerals be added, such as:

- Zinc picolinate (required for immune, thyroid, and reproductive function)
- Magnesium glycinate (may be helpful for a range of conditions including cramps and pain)
- Ferrous sulfate (to increase iron levels)
- Other micronutrients such as molybdenum (required for oxidative enzyme function), selenium (needed for thyroid function) or chromium (necessary for glucose metabolism).