



# BioCoenzymated™ METHYLFOLATE plus Methylcobalamin B12

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RESEARCH INFORMATION

## Feature summary

Natural Factors BioCoenzymated Methylfolate plus Methylcobalamin B12 represents the next generation of nutritional supplements, providing bioactive forms of two essential B vitamins.

This one-a-day formula features coenzymated forms of folate and vitamin B12 – two vital nutrients needed for normal early fetal development, energy metabolism, red blood cell production, and to help maintain cardiovascular and cognitive health.

Quatrefolic® L-5-Methyltetrahydrofolic acid (L-5-MTHF) is a metabolically active and coenzymated form of folate. Preformed coenzyme forms of B vitamins offer immediate, direct nutritional support – even for those with genetic differences that impair metabolism of standard B vitamins. Emerging research has shown that Quatrefolic ensures a higher folate uptake and can help increase blood folate levels more effectively than regular folic acid.

This unique biocoenzymated formula features proprietary EnviroSimplex® technology, combining Farm Fresh Factors™, an organic whole food blend of land and sea vegetables, with the coenzyme form of the B vitamins. The result is a synergistic phytochemical formula that delivers the most metabolically active nutrients to your cells.

Natural Factors BioCoenzymated Methylfolate is gluten free, non-GMO, suitable for vegetarians, and sublingual – no need to swallow pills! This advanced formula is ideal for anyone who wants the highest quality, most bioactive forms of these two key nutrients.

## How it works

Vitamins B12 and folate are essential for energy metabolism, red blood cell formation, and cardiovascular and cognitive health. They help protect DNA and are vital for normal development during early pregnancy.

B vitamins are water soluble, can be excreted quickly, and depleted by stress, poor diet, certain prescription medications, low stomach acid, alcohol, and smoking. In addition, most B vitamins – including folate – cannot be stored in the body, increasing risk of deficiency.

Standard forms of these nutrients require conversion by the liver into their active forms. In people with genetic variations that compromise absorption, these nutrients are excreted before the body can use them.

Coenzymated forms of B vitamins are metabolically active compounds that the body can use directly and effectively to promote essential metabolic reactions necessary for human health.

Quatrefolic is the stabilized glucosamine salt of (6S)-5-methyltetrahydrofolate (6S-5-MTHF), a biologically active coenzymated form of folate. This form is absorbed mainly in the small intestine by an unsaturated carrier-mediated mechanism, enabling a higher folate uptake.

Directly usable by the body, Quatrefolic works alongside methylcobalamin, a coenzymated form of vitamin B12, to help maintain normal levels of homocysteine; elevated levels of homocysteine have been linked with an increased risk of cardiovascular disease.

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## Research

The body cannot make folate on its own and must obtain it from foods or dietary supplements. Before dietary folate can be absorbed, however, it must be partially digested by enzymes in the small intestine, requiring a pH of 6–7 (Suitor & Bailey, 2000). Even after absorption, dietary folate and other B vitamins require conversion into their metabolically active coenzyme forms before they can be utilized effectively by the body.

Genetic variations (including polymorphisms) affecting a key enzyme, methyltetrahydrofolate reductase (MTHFR), may impair the conversion of folic acid into its active form. Such variations are estimated to affect up to 67% of the population (Meshkin & Blum, 2007).

The coenzyme form of folic acid, 5-methyltetrahydrofolate (5-MTHF), allows the body to use the active B vitamin directly, overcoming problems related to genetic variations. Quatrefolic is the highly water-soluble and absorbable stabilized glucosamine salt of (6S)-5-MTHF and has demonstrated several key advantages over standard folic acid supplements and other forms of folate, including those from food sources.

5-MTHF is well absorbed even by those with metabolic differences and altered gastrointestinal pH (Scaglione & Panzavolta, 2014). In vivo research in animals found that Quatrefolic increased peak blood levels 3.1 times more than folic acid supplementation and 1.8 times more than a 5-MTHF calcium salt (Miraglia et al., 2016). 5-MTHF's direct metabolism also reduces the potential for masking symptoms of vitamin B12 deficiency (Scaglione & Panzavolta, 2014).

Methylcobalamin is one of two biologically active forms of vitamin B12 and is an essential cofactor for the enzyme methionine synthase. This enzyme is crucial for intracellular metabolism, including the synthesis of nucleic acid, which controls growth and cellular division. Vitamin B12 deficiency leads to pernicious anemia and cobalamin-associated neuropathy in which the spinal cord, brain, optic nerve, and peripheral nerves may be affected (Jeffery, 1999; Weir & Scott, 1999).

Taking 800–1000 mcg of folic acid daily supports normal levels of homocysteine, a substance associated with an elevated risk of cardiovascular disease, stroke, and Alzheimer's disease (Wald et al., 2001). Folic acid and vitamin B12 work together to lower plasma levels of homocysteine, and have also been seen to decrease markers for inflammation (Chang et al., 2007).

Folate and vitamin B12 also support cognitive and psychological well-being. In one population study involving almost 3,000 people aged 1–39, low folate status was significantly associated with low mood (Morris et al., 2003).

Folate is especially important in early pregnancy, when Health Canada recommends a daily intake of 400–1000 mcg of folic acid to support rapid DNA formation in the developing fetus and support normal early development of the fetal brain and spinal cord. Folic acid supplementation at least three months pre-conception and during early pregnancy has been seen to reduce the overall incidence of neural tube birth defects by 42–87% (Imdad et al., 2011).

## Ingredients

### Each tablet contains:

Folate (from (6S)-5-methyltetrahydrofolic acid (MTHF), glucosamine salt, Quatrefolic®) ..... 1000 mcg  
Vitamin B12 (methylcobalamin)..... 50 mcg

## Dosage

**Recommended adult dose:** Dissolve 1 tablet daily under the tongue or as directed by a health care practitioner.

## Cautions

Keep out of the reach of children.

## References

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