



# BioCoenzymated™ ACTIVE B COMPLEX Full-Spectrum Coenzyme Bs

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RESEARCH INFORMATION

## Feature summary

Natural Factors Active B Complex with full-spectrum coenzyme B vitamins is a one-a-day formula suitable for vegetarians and vegans, and is ideal for energy support, especially at busy times. Genetic differences in nutrient metabolism make it difficult for some people to assimilate standard forms of B vitamins, which may also be excreted before the liver can convert them. This balanced formula provides meaningful amounts of eight essential B vitamins in their biologically active forms, which do not require conversion by the liver before they can be absorbed and utilized.

This unique biocoenzymated formula features proprietary EnviroSimplex® technology, combining Farm Fresh Factors™ – an organic whole food blend of land and sea vegetables – with coenzyme B vitamins including Quatrefolic®, vitamin B2 as riboflavin 5'phosphate sodium, and benfotiamine. The result is a synergistic phyto-chemical formula that delivers the most metabolically active nutrients to cells for direct nutritional support.

B vitamins are water soluble and easily depleted by a variety of factors, meaning that we require a good daily intake of these essential nutrients to convert carbohydrates, fats, and proteins into energy, and for healthy tissue and red blood cell formation.

## How it works

B vitamins are water-soluble nutrients that are essential for the activity of numerous enzymes in the body, including those involved in the metabolism of nutrients into energy. Taking a daily vitamin B complex can help prevent deficiencies of these essential nutrients.

Most B complexes contain forms that require activation by the liver, which can be especially problematic for people with certain common genetic differences in B vitamin metabolism. Biologically active preformed coenzyme forms such as Quatrefolic, the stabilized glucosamine salt of (6S)-5-methyltetrahydrofolate (5-MTHF), are well absorbed and directly usable by the body. Choline and inositol are also included in this complex to help support liver function, while folic acid supports normal early fetal development.

MTHF works alongside methylcobalamin (active B12) and pyridoxal 5-phosphate (active B6) to help regulate levels of homocysteine, a substance made in body during normal metabolism. Elevated blood homocysteine levels have been linked to an increased risk of poor cardiovascular health.

B vitamins are also needed for healthy red blood cell and tissue formation, normal growth and development, and for the creation of proteins including keratin (a major constituent of healthy skin, hair, and nails). Niacin, pantothenic acid, and other B vitamins support energy metabolism and cognitive function.

## Research

Not all forms of B vitamins are readily absorbed or used by the body, with research showing, for example, several key advantages of Quatrefolic, the stabilized glucosamine salt of (6S)-5-methyltetrahydrofolate (5-MTHF), compared to folic acid and folate.

5-MTHF is a reduced and active form of folic acid that is well absorbed even by those with metabolic differences and altered gastrointestinal pH (Scaglione & Panzavolta, 2014). 5-MTHF's direct metabolism also reduces the potential for masking symptoms of vitamin B12 deficiency (Scaglione & Panzavolta, 2014). Folic acid can be converted by the liver into active 5-MTHF, but this process is quickly overwhelmed, leading to high levels of inactive folic acid in the blood; active 5-MTHF may, therefore, be preferable for use in supplements (Patanwala et al., 2014).

Benfotiamine is an active form of vitamin B1 that appears to be roughly five times better absorbed than thiamine hydrochloride (Xie et al., 2014). This fat-soluble thiamine precursor has demonstrated a direct antioxidant effect, thought to help guard against DNA damage (Schmid et al., 2008).

In one study looking at people with peripheral neuropathy, a combination of methylcobalamin (an active form of B12), L-methylfolate, and pyridoxal 5'-phosphate (and active form of B6) taken daily for six months led to decreases in the frequency and intensity of symptoms in 82% of patients (Jacobs & Cheng, 2011).

Numerous studies have associated B vitamin complexes with decreased feelings of workplace stress and strain, including one double-blind, randomized, placebo-controlled trial (RCT) where participants receiving a high dose of vitamin B complex for three months had significantly lower personal strain and decreases in confusion and depressed or dejected mood compared to placebo (Stough et al., 2011).

In another RCT, involving 60 adults, a daily vitamin B complex was associated with significant and continuous improvements in depressive and anxiety symptoms, compared to placebo, after 60 days. The researchers noted significant improvements in mental health and improved quality of life scores in the B vitamin group compared to placebo (Lewis et al., 2013).

In addition to supporting psychological well-being, folic acid and vitamins B12 and B6 work together to support normal levels of homocysteine. In one randomized open-label study, 61 people on maintenance hemodialysis who received 5 mg of folic acid and a vitamin B complex daily for three months had significant decreases in homocysteine and inflammatory markers compared to control patients (Chang et al., 2007).

Choline is an important nutrient involved in detoxification, DNA synthesis, nervous system function and cell membrane health. Choline can be synthesized in the body, but requires the activity of phosphatidylethanolamine-N-methyltransferase (PEMT), an estrogen-dependent enzyme which breaks down dietary phosphatidylcholine. As such, postmenopausal women and people with a genetic polymorphism affecting PEMT are particularly susceptible to choline deficiency and have a higher dietary requirement for choline in its active form (Fischer et al., 2010).

## Ingredients

### Each vegetarian capsule contains:

Vitamin B1 (thiamine hydrochloride) .....	25 mg
Benfotiamine.....	10 mg
Vitamin B2 (riboflavin 5'-phosphate sodium).....	10 mg
Niacin (inositol hexanicotinate).....	100 mg
Pantothenic acid (calcium d-pantothenate).....	100 mg
Vitamin B6 (pyridoxal 5-phosphate).....	25 mg
Vitamin B12 (methylcobalamin).....	500 mcg
Folate (from (6S)-5-methyltetrahydrofolic acid (MTHF), glucosamine salt, Quatrefolic®).....	400 mcg
Biotin .....	250 mcg
Choline (citrate).....	50 mg
Inositol (inositol, inositol hexanicotinate).....	50 mg

### Farm Fresh Factors\*

\***Active Vegetables** – organic kale, organic alfalfa, organic cilantro leaf, organic parsley, caperberry, sprouted garlic, organic artichoke, organic black radish, organic dandelion, barley grass, pepper, organic celery seed, organic beetroot, organic tomato;

**Cruciferous Vegetables** – A broad spectrum of fully active glucosinolates and myrosinase enzymes from wasabi rhizome (*Wasabia japonica*) and fresh freeze-dried sprouted broccoli, organic upland cress, daikon, red radish, organic cauliflower, organic cabbage, organic arugula, organic watercress leaf;

**Ultra Fruit Polyphenols** – grape, pomegranate, strawberry, organic cranberry, organic blueberry, raspberry, bilberry, organic Indian gooseberry, schizandra berry, red orange, organic açai berry;

**Herbals and Plants** – Theracurmin® curcumin, organic decaffeinated green tea extract, organic ginger rhizome, organic echinacea, organic oregano, organic peppermint, organic spearmint; **Whole Plant Sea Vegetables** – organic spirulina, organic chlorella, red algae, blue green algae, kelp.

## Dosage

**Recommended adult dose:** 1 capsule daily with a meal or as directed by a health care practitioner.

## Cautions

Keep out of the reach of children.

## References

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