

B Activ™

B Complex with Benfotiamine and Quatrefolic®



Available in 90 capsules

Clinical Applications

- » Supports Carbohydrate Metabolism*
- » Supports Healthy Nervous System/Adrenal/Immune Function*
- » Supports Cardiovascular Health*
- » Supports Healthy Mental Function and Mood*

*B Activ™ contains the entire spectrum of B vitamins to support adrenal and neurological functions. It features activated forms of vitamins B2, B6, and B12; benfotiamine, a fat soluble, more physiologically active form of thiamine; and folate as Quatrefolic®†, which is proven to have greater stability, solubility, and bioavailability over calcium salt forms of 5-MTHF.**

Discussion

The water-soluble B vitamins have to be absorbed in the small intestine and then go to the liver where they are biotransformed into their active coenzyme forms. B Activ contains vitamins B1 (thiamine), B2 (riboflavin), B6 (pyridoxine), and B12 (cobalamin) in their physiologically-active form making them easier to absorb and “ready-for-use.” For example, in patients receiving pyridoxine HCl, only 33 percent responded with an increase in plasma pyridoxal-5'-phosphate (P5P); however, the level increased in all of the patients receiving P5P.*^[1]

Folate is provided as 5-methyltetrahydrofolate (5-MTHF), which bypasses metabolic steps to folate bioactivity. Despite research showing that folic acid and 5-MTHF have equivalent bioavailability and that supplementation with large doses of folic acid can “force” its conversion to the more active form, 5-MTHF may be the preferred form to replenish folate. This may be especially applicable to those with digestive challenges or genetic variations in folate metabolism.^[2-4] In this formula, 5-MTHF is provided as Quatrefolic—the glucosamine salt of 5-MTHF. In vitro and in vivo studies have proven that Quatrefolic has greater stability, solubility, and bioavailability over calcium salt forms of 5-MTHF. Folate is stored in small amounts in red blood cells (RBC), and RBC folate has been shown to be higher after supplementation with 5-MTHF compared to folic acid and placebo. Likewise, patients given 5 mg of 5-MTHF experienced plasma levels of 5-MTHF 700% greater than patients given folic acid.*^[5]

Another unique ingredient in this formula is benfotiamine (S-benzoylthiamine O-monophosphate), a safe, fat-soluble analog of thiamine. One study showed that it not only raised blood and tissue levels of thiamine at least five times higher than the water-soluble salt, but it also remained bioavailable after oral administration up to 3.6 times longer than thiamine salt.^[6] Benfotiamine is the most potent of a class of thiamine-derived compounds present in small quantities in members of the *Allium* genus. The superiority of its biological activity compared to thiamine rests in its structure—a thiazole ring

opens to allow easy diffusion through a membrane and then closes to become structurally active.*

Benfotiamine increases transketolase activity, thereby diverting from three natural, yet destructive metabolic pathways: 1) it decreases the glucose metabolites that lead to the buildup of certain types of detrimental advanced glycation end products (AGEs); 2) it normalizes protein kinase C activity; 3) it protects the retina by preventing the activation of NF-kappaB therein.^[7] Research suggests it may also protect the kidneys and endothelial cells.^[8] Benfotiamine is useful for replenishing thiamine, this may be especially true in individuals that use the vitamin at a higher rate or in those with lifestyle habits that deplete it.*^[9-11]

B Activ™ Supplement Facts

Serving Size: 1 Capsule

	Amount Per Serving	%Daily Value
Thiamin (20 mg as thiamine HCl and 20 mg as benfotiamine)	40 mg	2,667%
Riboflavin (as riboflavin-5'-phosphate)	20 mg	1,176%
Niacin (130 mg as niacinamide and 10 mg as niacin)	140 mg	700%
Vitamin B6 (as pyridoxal-5'-phosphate)	20 mg	1,000%
Folate (as 5-methyltetrahydrofolate [†])	400 mcg	100%
Vitamin B12 (as methylcobalamin)	400 mcg	6,666%
Biotin	400 mcg	133%
Pantothenic Acid (as d-calcium pantothenate)	150 mg	1,500%
Choline (as choline dihydrogen citrate)	30 mg	**

** Daily Value not established.

Other Ingredients: Vegetable capsule (HPMC and water), cellulose, silicon dioxide, and magnesium stearate.**DIRECTIONS:** Take one capsule once or twice daily, or as directed by your healthcare practitioner.**DOES NOT CONTAIN:** Wheat, gluten, corn protein, yeast, soy, animal or dairy products, artificial colors, sweeteners, or preservatives.**CAUTIONS:** Consult your healthcare practitioner before use. Keep out of reach of children. Avoid if allergic to any ingredient.**STORAGE:** Keep tightly closed in a cool, dry place.

Quatrefolic † Quatrefolic® is a registered trademark of Gnosis S.p.A. Patents Pending.
**References**

1. Labadarios D, Rossouw JE, McConnell JB, et al. Vitamin B6 deficiency in chronic liver disease – evidence for increased degradation of pyridoxal-5-phosphate. *Gut*. 1977;18:23-27. [PMID: 838399]
2. Yakut M, Ustün Y, Kabaçam G, et al. Serum vitamin B(12) and folate status in patients with inflammatory bowel diseases. *Eur J Intern Med*. 2010 Aug;21(4):320-23. [PMID: 20603044]
3. Halsted CH, Villanueva JA, Devlin AM. Folate deficiency, methionine metabolism, and alcoholic liver disease. *Alcohol*. 2002 Jul;27(3):169-72. [PMID: 12163145]
4. Kluijtmans LA, Van den Heuvel LP, Boers GH, et al. Molecular genetic analysis in mild hyperhomocysteinemia: a common mutation in the methylenetetrahydrofolate reductase gene is a genetic risk factor for cardiovascular disease. *Am J Hum Genet*. 1996 Jan;58(1):35-41. [PMID:8554066]
5. Willems FF, Boers GH, Blom HJ, et al. Pharmacokinetic study on the utilisation of 5-methyltetrahydrofolate and folic acid in patients with coronary artery disease. *Br J Pharmacol*. 2004 Mar;41(5):825-30. [PMID: 14769778]
6. Loew D. Pharmacokinetics of thiamine derivatives especially of benfotiamine. *Int J Clin Pharmacol Ther*. 1996 Feb;34(2): 47-50. [PMID: 8929745]
7. Thornalley PJ. The potential role of thiamine (vitamin B1) in diabetic complications. *Curr Diabetes Rev*. 2005 Aug;1(3):287-98. [PMID: 18220605]
8. Stirban A, Negrean M, Stratmann B, et al. Benfotiamine prevents macro- and microvascular endothelial dysfunction and oxidative stress following a meal rich in advanced glycation end products in individuals with type 2 diabetes. *Diabetes Care*. 2006 Sep;29(9):2064-71. [PMID: 16936154]
9. Woelk H, Lehl S, Bitsch R, et al. Benfotiamine in treatment of alcoholic polyneuropathy: an 8-week randomized controlled study (BAP I Study). *Alcohol*. 1998 Nov-Dec;33(6):631-38. [PMID: 9872352]
10. Ayazpoor U. Chronic alcohol abuse. Benfotiamine in alcohol damage is a must [in German]. *MMW Fortschr Med*. 2001 Apr 19;143(16):53. [PMID: 11367995]
11. Schupp N, Schmid U, Heidland A, et al. New approaches for the treatment of genomic damage in end-stage renal disease. *J Ren Nutr*. 2008 Jan;18(1):127-33. [PMID: 18089459]

All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.