Liposomal B Supreme

designs for health®

B Complex vitamins using liposomal technology for superior absorption and bioavailability

By David M. Brady, ND, DC, CCN, DACBN & Amy Berger, MS, CNS

Designs for Health's Liposomal B Supreme is an exciting B complex product formulated with liposomal technology for optimal absorption and bioavailability. Each 1 mL serving (approximately 2 pumps) of this mildly citrus flavored formula provides clinically relevant amounts of thiamin, riboflavin, niacin, pantothenic acid, B6, folate, biotin, and B12. Betaine (trimethylglycine, or TMG) is included to support methylation.

B vitamins are essential for cellular energy production and for a host of biochemical reactions throughout the body. Although B vitamins are abundant in omnivorous diets based on whole, unprocessed foods, restrictive diets are increasing in popularity, and several lifestyle factors interfere with or impair absorption of nutrients, which means that many people may not be getting adequate levels of these crucial vitamins. Alcohol intake, chronic stress, advanced age, and commonly prescribed medications may lead to lower levels of B vitamins in the body. For those who have not yet transitioned to a healthier diet, despite the fortification of processed foods with B vitamins, suboptimal levels and outright deficiencies may result from excessive alcohol consumption, long term use of antacids, oral contraceptives, metformin, and diuretics.[1-5]

Liposomal B Supreme also includes milk thistle extract to enhance bile flow to match with the stimulation of liver detoxification reactions that may be induced by B vitamins. Folinic acid (5-formyltetrahydrofolate, provided as calcium folinate) is a derivative of tetrahydrofolic acid. This form of folate circumvents genetic issues affecting folate transport or metabolism.[6]

Supplement Facts

Serving Size 1 mL (approx. 2 pumps)
Servings Per Container 50

Amount Per Serving		% Daily Value
Thiamin (as Thiamine HCl)	12.5 mg	1042%
Riboflavin (as Riboflavin-5-Phosphate)	5.6 mg	431%
Niacin (as Niacin, Niacinamide)	10 mg NE	63%
Vitamin B-6 (as Pyridoxine HCl)	6.8 mg	397%
Folate (as Calcium Folinate)	850 mcg DFE	213%
Vitamin B-12 (as Methylcobalamin)	500 mcg	20833%
Biotin	500 mcg	1667%
Pantothenic Acid (as Calcium d-Pantothenate)	25 mg	500%
Milk Thistle Extract (*Silybum marianum*)(seed)	50 mg	*
Betaine (Trimethylglycine) (as Betaine Anhydrous)	20 mg	*

*Daily Value not established.

Other Ingredients: Water, glycerine, phospholipids (from sunflower lecithin), ethanol, vitamin E (as tocofersolan and natural mixed tocopherols), EDTA (preservative), natural citrus oils, natural flavoring.

QUICKSILVER DELIVERY SYSTEMS®

B Vitamin Fundamentals

Thiamin (Vitamin B1): For Energy
Vitamin B1 is needed for energy production, heart function, and the health of the brain and nervous system.

Riboflavin (Vitamin B2): Antioxidant
Riboflavin helps the body turn food into energy and is also a powerful antioxidant. (Its coenzyme form, flavin adenine dinucleotide or FAD, is required by glutathione reductase for the recycling of glutathione.) Flavocoenzymes also work in conjunction with P-450 enzymes to metabolize drugs and toxins.[7]

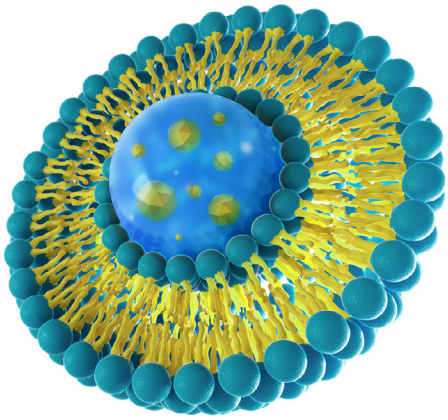
Niacinamide: Antioxidant Aiding Glucose Control
Niacinamide is needed to metabolize food into energy. Niacinamide is converted into the coenzymes nicotinamide adenine dinucleotide (NAD) and NADP, which function in oxidation-reduction reactions. (The liver converts niacin into niacinamide.) Biological responses to niacin, nicotinic acid and niacinamide are virtually equivalent when taken in common doses.

Vitamin B6: For Good Health
Vitamin B6 plays an important role in vital processes including amino acid metabolism, hemoglobin production, proper functioning of the nervous and immune systems and the modulation of blood sugar. B6 also supports overall female hormonal balance and is useful in the management of PMS, as well as nausea and vomiting that may accompany pregnancy.[8,9] The depression some experience on oral contraceptives may be improved with supplemental B6, possibly owing to the role of B6 as a cofactor in enzymes involved in dopamine and serotonin synthesis.[10]

Folate: For Wellness
Folates (formerly known as B9) are essential cofactors in one-carbon metabolism. Deficiency is associated with health risks such as neural tube defects, cancers and elevated homocysteine. "Folic acid" and "folate" are often used interchangeably, but folic acid typically refers to the fully oxidized synthetic compound often used in lower cost and retail dietary supplements and in fortified foods, while folate refers to the various tetrahydrofolate derivatives naturally present in foods, and the folinic acid used in Liposomal B Supreme.

Vitamin B12: A Must-Supplement for Strict Vegetarians
Vegetarians and vegans are particularly susceptible to low vitamin B12 levels, as B12 is the only B vitamin found exclusively in animal products. Long term B12 deficiency may result in irreversible neurological damage and may contribute to failure to thrive in children fed a vegetarian or vegan diet.[11-16] Owing to declining stomach acid production and frequent use of medications that impair nutrient absorption, older adults may be at increased risk for B12 deficiency compared to the general public. Laboratory reference ranges for B12 may be too wide, as many individuals exhibit signs and symptoms of insufficiency while at the low end of the "normal" range and may benefit from supplementation to raise them to the midpoint or higher.[16]

Biotin: Strengthening Nails and Balancing Blood Sugar
Biotin (originally called vitamin B7) can help strengthen nails by as much as 25% in those with weak or brittle nails.[17,18] A high intake of biotin, particularly when paired with chromium picolinate, has been shown to improve blood sugar control, insulin sensitivity and lipid profiles in subjects with type 2 diabetes.[19-21] Effects were greater in those with poor glycemic control even while on oral diabetes medication.



Stru ct ure of a Liposom e

Pantothenic Acid: For Stress and Wound Healing
Pantothenic acid, previously known as vitamin B5, helps immune function, energy generation, adrenal function and the body's production of stress hormones.

Liposomal Technology
Liposomal nutrient delivery technology bypasses gastrointestinal obstacles that adversely affect the absorption of B vitamins. These may include intestinal bacterial overgrowth, inadequate stomach acid (hypochlorhydria), malabsorptive conditions and more. B vitamins encased in phospholipids directly enter into circulation by way of the lymphatic system, thereby circumventing these common roadblock to nutrient assimilation.

What are liposomes?
Liposomes are spheres made of phospholipids—the primary building blocks of cell membranes. Owing to this structure, liposomes bond easily with cell membranes to facilitate intracellular delivery of their nutrient cargo. Thanks to this enhanced delivery and absorption, nutrients delivered in liposomal form at lower doses may have equal or greater efficacy than higher doses provided in forms that are less bioavailable.

Designs for Health's Liposomal B Supreme employs liposome particles that are 50-100nm in size, in contrast to 200-600nm particles that are more commonly available from other manufacturers. The smaller sized particles result in increased oral and cellular uptake and faster transmucosal absorption in the mouth, in addition to enhanced absorption throughout the rest of the gastrointestinal tract. In fact, it is recommended to hold the product in the mouth for 30 seconds before swallowing to take advantage of this effective route of absorption. Additionally, clearance of these particles from the bloodstream (via the liver and spleen) is inversely related to size: the smallest particles circulate the longest, increasing the likelihood of absorption at their target tissues. Note that the phospholipids used in this product are derived from sunflower lecithin (soy-free, non-GMO material).

Benefits of Liposomal Delivery

- Superior absorption and intracellular delivery of nutrients
- Phospholipid structure allows for effective delivery of compounds with different solubilities carried within the same particle (e.g., water- and lipid-soluble compounds)
- Liposomes penetrate the blood-brain barrier, an obstacle for other various formulations
- While there is an opportunity for quick absorption in the mouth, liposomes also survive the acidic environment of the stomach, ensuring intestinal uptake and delivery to the lymphatic system
- Liquid liposomal formulations are convenient for those who prefer to swallow fewer pills; also allow for easy dosing

Recommended Use:

- As a dietary supplement, take 1 mL (approx. 2 pumps) and hold in mouth for 30 seconds before swallowing, or as directed by your health care practitioner.

For a list of references cited in this document, please visit:
https://www.designsforhealth.com/api/library-assets/literature-reference---liposomal-b-supreme-tech-sheet-references

*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.

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.

Liposomal B Supreme

designs for health®

References

1. Mohn ES, Kern HJ, Saltzman E, Mitmesser SH, McKay DL. Evidence of Drug–Nutrient Interactions with Chronic Use of Commonly Prescribed Medications: An Update. Pharmaceutics. 2018;10(1):36. doi:10.3390/pharmaceutics10010036.
2. Valuck RJ, Ruscin JM. A case-control study on adverse effects: H2 blocker or proton pump inhibitor use and risk of vitamin B12 deficiency in older adults. J Clin Epidemiol. 2004 Apr;57(4):422-8. doi: 10.1016/j.jclinepi.2003.08.015.
3. Dharmarajan TS, Kanagala MR, Murakonda P, Lebelt AS, Norkus EP. Do acid-lowering agents affect vitamin B12 status in older adults? J Am Med Dir Assoc. 2008 Mar;9(3):162-7. doi: 10.1016/j.jamda.2007.10.004.
4. Rampersaud GC, Kauwell GP, Bailey LB. Folate: a key to optimizing health and reducing disease risk in the elderly. J Am Coll Nutr. 2003 Feb;22(1):1-8.
5. De Jager J, Kooy A, Lehert P, et al. Long term treatment with metformin in patients with type 2 diabetes and risk of vitamin B-12 deficiency: randomised placebo controlled trial. The BMJ. 2010;340:c2181. doi:10.1136/bmj.c2181.
6. Watkins D, Rosenblatt DS. Update and new concepts in vitamin responsive disorders of folate transport and metabolism. J Inherit Metab Dis. 2012 Jul;35(4):665-70. doi: 10.1007/s10545-011- 9418-1.
7. Linus Pauling Institute Micronutrient Information Center. Oregon State University. Riboflavin. https://lpi.oregonstate.edu/mic/vitamins/riboflavin. Accessed Sept 26, 2018.
8. Sharma P, Kulshreshtha S, Singh GM, Bhagoliwal A. Role of bromocriptine and pyridoxine in premenstrual tension syndrome. Indian J Physiol Pharmacol. 2007 Oct-Dec;51(4):368-74.
9. Sahakian V, Rouse D, Sipes S, Rose N, Niebyl J. Vitamin B6 is effective therapy for nausea and vomiting of pregnancy: a randomized, double-blind placebo-controlled study. Obstet Gynecol. 1991 Jul;78(1):33-6.
10. Bermond P. Therapy of side effects of oral contraceptive agents with vitamin B6. Acta Vitaminol Enzymol. 1982;4(1-2):45-54.
11. Dror DK, Allen LH. Effect of vitamin B12 deficiency on neurodevelopment in infants: current knowledge and possible mechanisms. Nutr Rev. 2008 May;66(5):250-5. doi: 10.1111/j.1753- 4887.2008.00031.x.
12. Roed C, Skovby F, Lund AM. Severe vitamin B12 deficiency in infants breastfed by vegans. Ugeskr Laeger. 2009 Oct 19;171(43):3099-101.
13. Chalouhi C, Faesch S, Anthoine-Milhomme MC et al. Neurological consequences of vitamin B12 deficiency and its treatment. Pediatr Emerg Care. 2008 Aug;24(8):538-41. doi: 10.1097/PEC.0b013e318180ff32.
14. Weiss R, Fogelman Y, Bennett M. Severe vitamin B12 deficiency in an infant associated with a maternal deficiency and a strict vegetarian diet. J Pediatr Hematol Oncol. 2004 Apr;26(4):270-1.
15. Smolka V, Bekárek V, Hlídková E et al. Metabolic complications and neurologic manifestations of vitamin B12 deficiency in children of vegetarian mothers. Cas Lek Cesk. 2001 Nov 22;140(23):732-5.
16. Pacholok S, Stuart J. Could It Be B12? An Epidemic of Misdiagnoses. Quill Driver Books. 2011.
17. Hochman LG, Scher RK, Meyerson MS. Brittle nails: response to daily biotin supplementation. Cutis. 1993 Apr;51(4):303-5.
18. Colombo VE, Gerber F, Bronhofer M, Floersheim GL. Treatment of brittle fingernails and onychoschizia with biotin: scanning electron microscopy. J Am Acad Dermatol. 1990 Dec;23(6 Pt 1):1127-32.
19. McCarty MF. High-dose biotin, an inducer of glucokinase expression, may synergize with chromium picolinate to enable a definitive nutritional therapy for type II diabetes. Med Hypotheses. 1999 May;52(5):401-6.
20. Singer GM, Geohas J. The effect of chromium picolinate and biotin supplementation on glycemic control in poorly controlled patients with type 2 diabetes mellitus: a placebo-controlled, doubleblinded, randomized trial. Diabetes Technol Ther. 2006 Dec;8(6):636-43.
21. Albarracin CA, Fuqua BC, Evans JL, Goldfine ID. Chromium picolinate and biotin combination improves glucose metabolism in treated, uncontrolled overweight to obese patients with type 2 diabetes. Diabetes Metab Res Rev. 2008 Jan-Feb;24(1):41-51.

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.