



Presents for your consideration:

BioLiv™

- Phytonutrient and antioxidant liver protection
- Support for healthy liver function
- Chologogues for healthy gallbladder function
- Enhanced liver detoxification capacity

Pyridoxal 5'-phosphate (vitamin B6) is involved in the metabolism of amino acids and glycogen. It is a coenzyme in the synthesis of nucleic acids, hemoglobin, neurotransmitters (serotonin, dopamine, norepinephrine and gamma-aminobutyric acid) and many other compounds. P 5'-P is a coenzyme for over 100 enzymes, including the transaminases (some liver specific) and decarboxylases. Along with folic acid and Vitamin B12, Vitamin B6 lowers Homocysteine an independent risk factor for arteriosclerosis and heart disease.

Folic Acid, like vitamin B6 is a member of the B vitamin family. B vitamins play key roles in healthy liver detoxification pathways. Folic acid appears to be more important than either B6 or B12 in reducing elevated Homocysteine levels. Folate specializes in one carbon or methyl transfers. As such it aids the liver in establishing healthy methyl transfer functions. Folate is essential for DNA replication and repair. It is indicated for the prevention of some birth defects, reduces the risk of cardiovascular disease as well as some forms of cancer.

Vitamin B12 is part of the trinity of B Vitamins shown to reduce the risk of arteriosclerosis and coronary heart disease through its role in lowering Homocysteine levels. B12, along with Folate is involved with DNA and RNA synthesis, genetic and neurological integrity. B12, Folate and B6 are important cofactor in red blood cell production. The liver uses B vitamins as cofactors necessary for healthy detoxification processes.

BioLiv™ (Lipotropic Support Formula)	Amounts per serving
Serving size	3 capsules
Number of servings per container	30
Vitamin B6 (Pyridoxal-5-Phosphate)	5 mg.
Folic Acid	100 mcg.
Vitamin B12 (Cyanocobalamin)	10 mcg.
Magnesium (Citrate)	4.5 mg.
Choline (Bitartrate)	200 mg.
Liver (Bovine)	150 mg.
DL Methionine	100 mg.
Inositol	100 mg.
L-Taurine	50 mg.
Trimethylglycine	50 mg.
OxBile (Bovine)	50 mg.
Turmeric Extract (Curcuminoids)	50 mg.
Dandelion Root Powder	50 mg.
Milk Thistle Seed	50 mg.
Green Tea Extract (Catechins)	50 mg.
Celandine Leaf	25 mg.
Fringe Tree Root Bark	25 mg.
Black Radish Root	25 mg.
Beet Leaf	25 mg.
Suggested Dose: Take 1 capsule, three times per day, or as directed by a health care professional.	

Choline is necessary for the structure and function of all cells. Choline is the precursor to phosphatidyl choline, sphingomyelin, acetylcholine, as well as the methyl donor betaine (**Trimethylglycine**). A low choline diet can result in fatty infiltration of the liver. Choline prevents fat deposition in the liver through its lipotropic action. Other well-known lipotropics would include folic acid, vitamin B12 and Methionine. Choline prevents liver damage. Adequate Intake (AI) of choline was determined to be that level required preventing elevation of the liver enzyme ALT (also called SGPT). Choline may be helpful in some disorders of the liver.

Methionine may protect against the hepatotoxic effects of acetaminophen. By virtue of its sulfur content, its chelating ability and its antioxidant activity Methionine has anti-hepatotoxic activity. Methionine supports the production of the antioxidant glutathione.

Inositol is also a lipotropic agent. As such it may help protect against increases in total cholesterol and fatty acids in the liver.

Taurine is an antioxidant. It reported to have hypocholesterolemic, antiatherogenic and detoxifying activity. Taurine enhances bile acid synthesis. It has been shown in animal and human studies to reduce blood pressure in

hypertensives, but not normotensive individuals. Taurine administration reduces fat in the stool (steatorrhea) in cystic fibrosis patients. Taurine may decrease insulin resistance explaining its antidiabetic activity in animals. Taurine is inotropic. Cardiomyopathy and congestive heart failure patients benefit from its use. Taurine is essential for healthy liver detoxification processes.

Trimethylglycine acts as a lipotropic agent reversing or preventing fatty degeneration of the liver (steatosis). Choline and Methionine have also been shown to possess these qualities. Trimethylglycine, along with choline act as methyl donors necessary for the production of the bodies' principal methyl donor: SAME. It is thought that through its enhancement of SAME production, Trimethylglycine has its protective effect against ethanol and carbon tetrachloride hepatic damage in animals. Like B6, Folate and B12, Trimethylglycine helps to lower elevated Homocysteine levels.

Glandulars: Liver extract and Ox Bile act as trophic agents to enhance regenerative capacity and normalize bile flow.

Botanical Base: Turmeric, Dandelion, Milk Thistle, Green Tea, Celandine, Fringe Tree, Black Radish and Beet leaf

These botanicals have been noteworthy for their hepatoprotective properties. **Turmeric** (Curcuma) acts as a choleric, antihepatotoxic and anti-inflammatory. **Dandelion** (Taraxicum) has cholagogue, diuretic and appetite stimulant properties. It has been commonly used in liver and gallbladder disorders. **Milk Thistle** (Silymarin) is also a cholagogue, but has the additional quality of acting as a hepatoprotectant and stimulant of hepatocyte regenerative capacity. **Green Tea Extract** (Camellia Sinensis) is known for its hepatoprotectant properties due to its content of various catechins. **Celandine** (Chelidonium Majus) acts as an antispasmodic, reducing pain of the bile ducts and the gastrointestinal tract. Its common use has been for liver and gallbladder complaints. **Fringe Tree** (Chionanthus Virginicus) is used for liver and gallbladder conditions (including gallstones). **Black Radish** (Raphanus Sativus) acts as a secretagogue for the upper gastrointestinal tract, enhancing motility. **Beet Leaf** (Beta Vulgaris) is high in betaine (trimethylglycine). It acts to reduce fatty infiltration of the liver.

References:

- Schneider G, Kack H, Lindquist Y. **The manifold of vitamin B6 dependent enzymes.** *Structure.* 2000; 8:R1-R6.
- Bender DA. **Non-nutritional uses of vitamin B6.** *Br J Nutrition.* 1999; 81:7-20.
- Anon. **How folate fights disease.** *Nature Struct boil.* 1999; 6:293-294.
- Lucock M. **Folic acid: nutritional biochemistry, molecular biology, and role in disease processes.** *Mol Genet Metab.* 2000; 71:121-138.
- Battersby AR. **How nature builds the pigments of life: The conquest of vitamin B12.** *Science* 1994; 264:1551-1557.
- Carmel R. **Subtle cobalamin deficiency.** *Ann Intern Med.* 1996; 124:338-339.
- Blusztajn JK. **Choline, a vital amine.** *Science.* 1998; 281:794-5.
- Canty DJ, Zeisel SH. **Lecithin and choline in human health and disease.** *Nutr Rev.* 1994; 52:327-339.
- Vale JA, Meredith TJ, Goulding R. **Treatment of acetaminophen poisoning. The use of oral Methionine.** *Arch Int Med.* 1981; 141(3 Spec No):394-396.
- Gavin G, McHenry EW. **Inositol as a lipotropic agent.** *J Biol Chem.* 1944; 148:275.
- Chesney RW. **Taurine: its biological role and clinical implications.** *Advances in Pediatrics.* 1985; 22:1-42.
- Hayes KC, Sturman JA. **Taurine in metabolism.** *Ann Rev Nutr.* 1981; 1:401-425.
- Barak AJ, Tuma DJ. **Betaine, metabolic by-product or vital methylating agent?** *Life Sci.* 1983; 32:771-774.
- Barak AJ, Beckenhauser HC, Badakhsh S, Tuma DJ. **The effect of betaine in reversing alcoholic steatosis.** *Alcohol Clin Exp Res.* 1997; 21:1100-1102.
- PDR for Nutritional Supplements, 1st Ed.** *Medical Economics/Thompson Healthcare,* 2001.
- PDR for Herbal Medicines, 1st Ed.** *Medical Economics/Thompson Healthcare,* 1998.

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.

*For Quality and Value without
Compromise*



Is the logical choice!