

## B Complex + Minerals

### DESCRIPTION

B Complex + Minerals, provided by Douglas Laboratories, supplies essential B vitamins and minerals for optimal health.

### FUNCTIONS

As co-enzymes, the B vitamins are essential components in most major metabolic reactions. They play an important role in energy production, including the metabolism of lipids, carbohydrates, and proteins. B vitamins are also important for blood cells, hormones, and nervous system function. As water-soluble substances, B vitamins are not generally stored in the body in any appreciable amounts (with the exception of vitamin B12). Therefore, the body needs an adequate supply of B vitamins on a daily basis.

Thiamin, riboflavin, and niacin are all essential coenzymes in energy production. Thiamin is converted quickly into thiamin pyrophosphate, which is required for glycolytic and Krebs's cycle reactions. Thiamin also appears to be related to nerve impulse transmission. Riboflavin is a component of coenzymes FAD and FMN, which are intermediates in many redox reactions, including energy production and cellular respiration reactions. Niacin is also a component of the coenzymes NAD and NADP, which are involved in energy production.

Vitamin B6 is a coenzyme in amino acid metabolism. It is necessary for the metabolism of homocysteine and the conversion of tryptophan into niacin. Vitamin B6-dependent enzymes are also needed for the biosynthesis of many neurotransmitters, including serotonin, epinephrine, and norepinephrine. Vitamin B12 is a coenzyme in DNA and RNA metabolism and assists in homocysteine metabolism.

Pantothenic acid is also a coenzyme essential for energy production from dietary fats, carbohydrates, and proteins. Pantothenic acid is a component of coenzyme A and of phosphopantetheine, and is therefore essential for Krebs's cycle operation.

While not truly vitamins, choline, inositol, and para-aminobenzoic acid are important, related nutrients to B vitamins. Choline serves as a methyl donor for homocysteine metabolism following conversion to betaine; as a structural component of cellular membranes as phosphatidylcholine; and as a neurotransmitter as acetylcholine. Inositol aids in the cellular response to hormonal signals, serves as a source of arachidonic acid, and is active in cellular membranes as phosphatidylinositol. Finally, para-aminobenzoic acid has antioxidant properties.

Minerals play a variety of essential roles throughout the body. Calcium is the principal mineral constituent of bone and is thus essential for healthy bone structure and function. Calcium also participates fundamentally in blood clotting, nerve conduction, and muscle contraction. Iodine is necessary for the synthesis of the thyroid hormones thyroxine and triiodothyronine. These thyroid hormones regulate the body's metabolic rate. Magnesium is involved in energy metabolism, and is notably important in the heart, skeletal muscles, and nervous system. In the human body, iron is present in all cells and has several vital functions -- as a carrier of oxygen to the tissues from the lungs in the form of hemoglobin (Hb), as a facilitator of oxygen use and storage in the muscles as myoglobin, as a transport medium for electrons within the cells in the form of cytochromes, and as an integral part of enzyme reactions in various tissues. Iodine is a structural component of the hormones thyroxine and triiodothyronine. These hormones control metabolism throughout the body. Proper functioning of thyroid metabolism depends upon optimum dietary levels of iodine

Copper regulates iron metabolism and activates superoxide dismutase, a powerful endogenous antioxidant. Zinc is important for growth, immune system function, protein synthesis, antioxidant mechanisms, and wound healing. Manganese is essential for antioxidant systems in the body, bone growth, fat metabolism, and protein, nucleic acid, and cartilage synthesis. Potassium is involved in normal muscle tone, nerve function, and many enzymes.

## B Complex + Minerals

### INDICATIONS

B complex + Minerals may be a useful dietary adjunct for individuals who wish to supplement their diets with a complete array of B vitamins and minerals for overall good health.

### SUGGESTED USE

Adults take 4 tablets daily with meals or as directed by physician.

### SIDE EFFECTS

**WARNING:** Accidental overdose of iron-containing products is a leading cause of fatal poisoning in children under 6. Keep this product out of reach of children. In case of accidental overdose, call a doctor or poison control center immediately

### STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

### REFERENCES

Chan S, Gerson B, Subramaniam S. The role of copper, molybdenum, selenium, and zinc in nutrition and health. *Clin Lab Med* 1998;18:673-85.  
Colodny, L, Hoffman, RL. Inositol--clinical applications for exogenous use. *Altern Med Rev* 1998;3:432-47.  
Durlach J, Bac P, Durlach V, et al. Magnesium status and ageing: an update. *Magnes Res* 1998;11:25-42.  
Guyton, JR, Capuzzi, DM. Treatment of hyperlipidemia with combined niacin-statin regimens. *Am J Cardiol* 1998;82:82U-84U; discussion 85-86U.  
Halperin ML, Kamel KS. Potassium. *Lancet* 1998;352:135-40.  
Jansonius, JN. Structure, evolution and action of vitamin B6-dependent enzymes. *Curr Opin Struct Biol* 1998;8:759-69.  
Lakshmi, AV. Riboflavin metabolism--relevance to human nutrition. *Indian J Med Res* 1998;108:182-90.  
Prasad AS. Zinc and immunity. *Mol Cell Biochem* 1998;188:63-9. Reid IR. The roles of calcium and vitamin D in the prevention of osteoporosis. *Endocrinol Metab Clin North Am* 1998;27:389-98.

**For more information on B Complex + Minerals visit [douglaslabs.com](http://douglaslabs.com)**

† 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.

Manufactured by  
Douglas Laboratories  
600 Boyce Road  
Pittsburgh, PA 15205  
800-245-4440  
[douglaslabs.com](http://douglaslabs.com)



**You trust Douglas Laboratories.  
Your patients trust you.**