

TOTAL ALPHA LIPOIC ACID

Ingredients: Each tablet supplies: Alpha Lipoic Acid 100mg, B-1 5mg, Thiamine Pyrophosphate 2mg, B-2 5mg, Riboflavin 5 Phosphate 5mg, B-6 10mg, Pyridoxal 5 Phosphate 5mg, Niacin 5mg, Pantothenic Acid 5mg, Betaine HCL 20mg, Magnesium Citrate 10mg, Zinc Chelate 3mg, Molybdenum Chelate 25mcg, Selenium Chelate 5 mcg, Manganese Chelate 1mg.

Supportive Function: This formula provides comprehensive nutritional support for antioxidant protection, glucose balance/insulin sensitivity.

When is Lipoic acid support helpful? Support of diabetes, liver, pancreas, kidneys, eyes, capillaries, skin, infection, glucose tolerance, and insulin sensitivity

Clinical Applications/Research: Alpha Lipoic Acid enhances glucose conversion for cell protection, maintenance, and rebuilding. In diabetes, cells starve from unconverted glucose, resulting in diabetic complications to tissues and organs. Lipoic Acid protects against capillary damage and cataract formation. Lipoic Acid helps regenerate and recycle other antioxidants, especially C, E, and glutathione. It protects against arterial plaque and oxidative damage to LDL cholesterol. It helps neutralize toxins in alcohol and tobacco smoke, mobilize and detoxify heavy metals. Lipoic Acid protects liver from alcohol damage, enhances glucose disposal in adult onset, Type II diabetes, improves insulin sensitivity; and protects against diabetic complications of nerve damage. It has been shown to improve nerve blood flow, reduce oxidative stress, improve distal nerve conduction, and improve reduced levels of deficient glutathione and deficient E in the nerves of diabetics. Lipoic Acid prevents cataracts in animals by increasing levels of C, E, and glutathione in the lens. It binds with the DNA of some viruses and prevents replication. Viral causes are implicated in some cases of diabetes. Supplements have been shown to improve neuropathy and reduce nerve pain.

B-1 works with B-2 and B-3 to release energy from glucose. Thiamine Pyrophosphate, the enzymatic form of B-1, is included because some people have difficulty-converting B-1 into its active enzymatic form.

B-2 is needed to convert amino acids, fats, and carbohydrates into energy. Restricted diabetic diets frequently result in B-2 deficiencies. Riboflavin 5 Phosphate, the enzymatic form of B-2, is included because some people have difficulty-converting B-2 into its active enzymatic form.

B-6 levels are low in diabetics. B-6 helps prevent diabetes caused by pregnancy and birth control pills. B-6 helps produce normal blood sugar levels. Pyridoxal forms of B-6, such as Pyridoxal 5 Phosphate, has been found to improve glucose tolerance dramatically.

Niacin, a form of vitamin B-3, has been shown to help people with diabetes in small milligram amounts; massive gram amounts of B-3 have been found to work against diabetics. B-3 is necessary to release energy from carbohydrates and is synergistic with B-1 and B-2.

Pantothenic Acid (vitamin B-5) works with vitamins B-1, B-2, and B-3 to produce ATP, the energy molecule the body needs to run on. B-5 deficiency can lead to hypoglycemia,

blood, and skin disorders. B-5 helps maintain the central nervous system and is necessary for the conversion of sugar and fat into energy.

Betaine HCL helps the digestion and absorption of nutrients, especially important in diabetes where the pancreas does not function well enough to produce adequate digestive, pancreatic enzymes.

Magnesium deficiencies create greater glucose intolerance and contribute to damaging nerves and organs. Magnesium supplements improve arterial health by reducing plasma lipids and improving vasodilation. Magnesium improves production of insulin in the elderly and helps prevent retinopathy.

Zinc “may have immunomodulatory activity. It may also have antioxidant activity. Zinc has putative antiviral, fertility-enhancing and retinoprotective activities” (*PDR Health*). Zinc deficiency is common in diabetes (*Ho E, Quan N, Tsai YH, Lai W, Bray TM Dietary zinc supplementation inhibits NFkappaB activation and protects against chemically induced diabetes in CD1 mice. Exp Biol Med (Maywood). 2001 Feb;226(2):103-11*). Zinc is essential for the production of insulin and the digestion of proteins (*Burton Goldberg Group. Alternative Medicine: The Definitive Guide. Future Medicine Publishing, Inc., Puyallup, Wa. 1994:652*). Zinc supplements have been shown to lower blood sugar levels in mice (*Simon SF, Taylor CG. Dietary zinc supplementation attenuates hyperglycemia in db/db mice. Exp Biol Med (Maywood). 2001 Jan;226(1):43-51*).

Molybdenum has been shown in animal studies to function as an insulin mimic that reduces hyperglycemia in genetically obese, insulin-resistant mice to blood sugar levels of normal lean mice. Molybdenum also improved glucose tolerance (Reul BA, et al., “Improvement of glucose homeostasis and hepatic insulin resistance in ob/ob mice given oral molybdate,” *J Endocrinol* 1997 Oct; 155 (1): 55-64; Ozcelikay AT, et al, “Improvement of glucose and lipid metabolism in diabetic rats treated with molybdate,” *Am J Physiol* 1996 Feb; 270 (2 Pt 1): E344-E352). Molybdenum is essential for the metabolism of sugar into energy.

Selenium deficiency has been associated with pancreatic insufficiency. Selenium is needed to maintain a healthy pancreas, a healthy liver, and heart as well as protect against harmful oxidation of fats, protect the immune system, and protect against damage to arteries and eyes (*Balch, J.F., M.D. and Balch, P.A., C.N.C. Prescription for Nutritional Healing. Avery Publishing, Garden City Park, NY. 1990:11,22,33*).

Diabetes is also known to predispose diabetics to infection. Selenium is a necessary co-factor for the enzyme glutathione peroxidase (GPx), which has well-documented activity against HIV activation (*Diamond AM, Hu YJ, Mansur DB. Glutathione peroxidase and viral replication: implications for viral evolution and chemoprevention. Biofactors. 2001;14(1-4):205-10*).

Selenium is believed to have an antiviral effect on the immune system (*Lukác N, Massányi P. Effects of trace elements on the immune system. Epidemiol Mikrobiol Immunol. 2007 Feb;56(1):3-9*).

Selenium can “alter mutagenesis rates in both viral genomes and the DNA of mammalian cells exposed to carcinogens” (*Diamond, AM et al., Ibid.*). Recent studies suggest that a viral cause may be implicated in some cases of diabetes (*Berg AK, Olsson A, Korsgren O, Frisk G. Antiviral treatment of Coxsackie B virus infection in human pancreatic islets. Antiviral Res. 2007 Apr;74(1):65-71*).

Manganese deficiency is common in people with diabetes. Deficiency is associated with glucose intolerance, among other complications of diabetes. Manganese is necessary to maintain and repair the pancreas, and it is a co-factor in the enzymes that regulate glucose

metabolism (Balch & Balch, 1997: 27-8; 228-32; *Manganese and glucose tolerance. Nutr Rev. 1968 Jul;26(7):207-9*).

Testimonials/Nutrient Tidbits: A doctor reports:...A patient was unsatisfied with the results they were getting from Glucophage, one of the diabetes type 2 drugs (their glucose levels averaged over 200). After starting on Total Alpha Lipoic acid (at just one a day!) the patient was excited that their blood sugar levels dropped to a range within 130-169 in just one week (Dr. Spacke, Denver, CO).

Suggested Dosage: 1 tablet 3 times daily or as directed

Size: 90 tablets

Vegetarian: Yes

Contraindications: In HIV infected individuals, doses up to 600mg have proven helpful in interrupting viral activation, but doses over 600mg may result in thrombocytopenia (this formula contains only 100 mg.)