



Clinical Applications

- Neutralizes Oxygen Radicals, Ionized Metals and a Variety of Other Free Radicals
- Coenzyme for Whole Body Glucose Utilization
- Increases Intracellular Glutathione Levels Reduced by Aging, Moderate/ Strenuous Exercise
- Reduces Oxidative Stress
- Regenerates Vitamins C&E and Maintains Balance between Oxidized & Reduced CoQ10

NutriTRALA, a potent oxidative stress antagonist, is a proprietary, orally active, controlled-release formulation of racemic α -lipoic acid (containing both R and S-enantiomers) that has a pharmacokinetic advantage over other alpha lipoic acid formulas. Whereas other brands may only remain in the plasma for 2-3 hours, levels of NutriTRALA can be maintained for up to five hours.^[1]

All NutriMedical Formulas Meet or Exceed cGMP Quality Standards

Discussion

Alpha-Lipoic acid (ALA) is an eight-carbon disulfide water- and fat-soluble compound that is synthesized in small quantities in the liver and other tissues. Orally supplementation readily crosses the blood brain barrier after it is absorbed in the small intestine, goes into the portal vein and is distributed via systemic circulation. Once in the tissues, ALA can be found inside and outside the cells including inside the mitochondria where it functions naturally as a coenzyme for the oxidation of pyruvate, alpha ketoglutarate and branched-chain amino acids.

Researchers recently identified lipoic acid's mechanisms of action related to maintaining metabolic health. It has a direct binding site at the insulin receptor tyrosine kinase domain suggesting it has an insulin-like action. ALA appears to modulate 5'-AMP-activated protein kinase and PPAR-regulated genes, to activate PPAR-alpha and PPAR-gamma and to upregulate expression of PPAR-gamma mRNA and protein in heart tissue and smooth muscle of the aorta.^[2]

Controlled-release technology improves the efficacy of alpha-lipoic acid in helping to maintain blood sugar already in the normal range. Data from a 12-week clinical study indicate that supplementation with NutriTRALA (1200 mg per day, divided doses) significantly reduced C-peptide, an indication of increased insulin sensitivity.^[3,4]

Alpha Lipoic Acid is a natural antioxidant that effectively neutralizes a variety of free radicals, including oxygen radicals and ionized metals. This action is particularly beneficial for people with diabetes who have higher levels of oxidative stress. It increases tissue levels of glutathione, typically reduced with aging, during moderate-to-strenuous exercise, and other conditions. α -Lipoic acid regenerates vitamins C and E, and helps maintain the proper ratio of reduced to oxidized coenzyme Q10 in the mitochondria. It helps repair oxidized proteins, preventing DNA damage. In addition, alpha lipoic acid has metal-chelating activity.

Healthy endothelial-mediated vasodilation is accepted as a surrogate marker for cardiovascular health and can be affected by synthesis, bioavailability or action of nitric oxide (NO). Increased oxidative stress appears to play a significant role in neutralizing or inactivating NO. (59-62). ALA's antioxidant properties, along with its demonstrated safety and potency qualify it as a prime candidate to evaluate for its ability to improve endothelial dysfunction.^[5]

The ability of α -lipoic acid to improve energy metabolism and decrease oxidative stress alludes to its ability to at least partially reverse the decline in mitochondrial function and increase in oxidative stress associated with normal aging.

Biotin has been added because chronic administration of lipoic acid lowers the activities of pyruvate carboxylase and beta-methylcrotonyl-CoA carboxylase in vivo by competing with biotin.^[6]

Supplement Facts

Serving Size: 1 Tablet
 Servings Per Container: 60

	Amount Per Serving	%Daily Value
Biotin	450 mcg	150%
Alpha-Lipoic Acid (as thioctic acid)	600 mg	**

** Daily Value not established.

Other Ingredients: Calcium Phosphate, Croscarmellose Sodium, Magnesium Stearate.*

* Derived from non-bovine (vegetable) sources only.

Directions

Take 1 tablet 30 minutes before breakfast and 1 tablet 30 minutes before dinner or as directed by your healthcare professional.

References

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3. Evans JL, Goldfine ID: α -Lipoic acid: a multi-functional antioxidant that improves insulin sensitivity in patients with type 2 diabetes. *Diabetes Technol Therap* 2:401-413, 2000
4. Jacob S, Ruus P, et al. Oral administration of RAC-alpha-lipoic acid modulates insulin sensitivity in patients with type 2 diabetes mellitus: a placebo-controlled pilot trial. *Free Radic Biol Med* 27:309-314, 1999
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6. Zempleni J, Trusty TA, Mock DM. Lipoic acid reduces the activities of biotin-dependent carboxylases in rat liver. *J Nutr.* 1997 Sep;127(9):1776-81 [PMID: 9278559]
7. Foster TS. Efficacy and safety of {alpha}-lipoic acid supplementation in the treatment of symptomatic diabetic neuropathy. *Diabetes Educ.* 2007 Jan-Feb;33(1):111-7 [PMID: 17272797]
8. Alpha Lipoic Acid. www.naturaldatabase.com {accessed 3.06.07}
9. Diesel B. et. al. Alpha-lipoic acid as a directly binding activator of the insulin receptor: protection from hepatocyte apoptosis. *Biochemistry.* 2007 Feb 27;46(8):2146-2155. Epub 2007 Feb 3 [PMID: 17274632]

Cautions

Diabetics, those being treated for serum glucose control, and women who are pregnant or lactating should consult their physicians before using this product and take appropriate precautions. Consult your physician before use if you are allergic to alpha-lipoic acid or other sulfur-containing compounds.

*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.

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DRS-151

REV. 02/08/12