

# Stabilized R-Lipoic Acid Supreme™

100 mg of Bioavailable RLA



By David M. Brady, ND, DACBN, IFMCP, FACN; Cristiana Paul, MS; and Kendra Whitmire, MS, CNS

This information is provided as a medical and scientific educational resource for the use of physicians and other licensed health-care practitioners ("Practitioners"). This information is intended for Practitioners to use as a basis for determining whether to recommend these products to their patients. All recommendations regarding protocols, dosing, prescribing, and/or usage instructions should be tailored to the individual needs of the patient considering their medical history and concomitant therapies. This information is not intended for use by consumers.

Stabilized R-Lipoic Acid Supreme™ features a highly bioavailable form of R-lipoic acid (RLA), Bio-Enhanced® RLA. RLA is the naturally occurring and more biologically active enantiomer of lipoic acid. This compound supports antioxidant status in the body and promotes a healthy inflammatory response and normal glucose metabolism.\* Due to the enhanced bioavailable form, 100 mg of Bio-Enhanced® RLA may be equivalent to 300 mg of standard RLA, which in turn may be equivalent to 600 mg of alpha-lipoic-acid (ALA).<sup>1-4</sup> Stabilized R-Lipoic Acid Supreme™ also contains the amino acid taurine to support antioxidant status and mitochondrial function.\*

## Ingredient Highlights

- 100 mg of R-lipoic acid as Bio-Enhanced® RLA to support normal glucose metabolism and antioxidant status and promote a healthy inflammatory response\*
- 500 mg of taurine to support normal glucose metabolism and mitochondrial function\*

**R-Lipoic Acid (as Bio-Enhanced® RLA)** is the naturally occurring and more biologically active enantiomer of lipoic acid that may also have better gastrointestinal tolerability in some patients.<sup>3</sup> Lipoic acid (also known as thioctic acid) is a broad-spectrum, lipid- and water-soluble compound that acts directly as an antioxidant to support redox balance and protect against oxidative damage. It also supports the repletion of other antioxidants, including glutathione and vitamins A and C.<sup>4-7</sup> Lipoic acid can cross the blood-brain barrier helping to protect against the neuronal damage caused by oxidative stress by supporting the body's antioxidant defenses in the brain.\*<sup>4-7</sup>

Studies have demonstrated the potential for lipoic acid supplementation to support antioxidant status, increase glutathione levels, support immune function, support energy production, promote a healthy inflammatory response, support glucose metabolism, impart neuroprotective properties, chelate toxic metals, and support the enhancement of blood flow to nerves.\*<sup>2,8-11</sup> This may support conditions associated with excess oxidative stress and inflammation, such as autoimmune diseases, cardiovascular disease, Alzheimer's disease, and diabetes.<sup>2,3,8-11</sup>

Studies have demonstrated the enhanced bioavailability of RLA compared to ALA. Studies that looked at the bioequivalence of standard RLA compared to ALA found RLA to be roughly two times more bioavailable based on plasma levels achieved after supplementation.<sup>3,4</sup> This is likely due to ALA containing 50% RLA and 50% S-isomer of lipoic acid (SLA).<sup>12</sup> The S-isomer of lipoic acid may interfere with the actions of the R-isomer, reducing the efficacy of ALA compared to RLA.<sup>12</sup> The S-isomer cannot bind with critical mitochondrial enzymes and may inhibit ATP production.<sup>12</sup> RLA may be more efficacious by itself and in lower doses compared to when it is supplemented in combination with SLA, as part of the ALA. One study compared the effects of 600 mg of ALA and 600 mg of RLA alongside hyperbaric oxygen therapy in patients with chronic leg wounds. Both groups experienced enhanced healing compared to the hyperbaric oxygen therapy alone.<sup>13</sup> The ulcers improved more in the group taking the RLA compared to ALA, and RLA also led to a decrease in the interleukin-6 levels, whereas ALA did not.<sup>13</sup>

Bio-Enhanced® RLA, the version used in Design for Health's Stabilized R-Lipoic Acid Supreme™, has superior bioavailability compared to other forms of RLA. Studies on Bio-Enhanced® RLA demonstrate its bioavailability compared to RLA and ALA.<sup>1</sup> In one study, Bio-Enhanced® RLA had an approximately three times higher area under the curve compared to that of standard RLA for a dose of 600 mg.<sup>1</sup> This may be due in part to the fact that lipoic acid is absorbed on the sodium-dependent multivitamin transporter.<sup>1,14</sup> Another study demonstrated a dose-dependent increase in plasma RLA using doses ranging from 50 mg to 600 mg.<sup>2</sup> This means that the 100 mg of sodium-bound RLA (Na-RLA) in the Design's for Health formula could potentially be equivalent to 300 mg of standard RLA in regard to plasma levels.

**Taurine** is an amino acid found ubiquitously in all mammalian tissues, but not in plant foods. Taurine is synthesized from methionine and cysteine, but biosynthetic capacity is estimated to be very low in humans, making taurine a conditionally essential amino acid.<sup>15-17</sup> Taurine has been shown in animal and human studies to exert a variety of biological actions, including helping to stabilize mitochondria, support antioxidant status, modulate ion movement, regulate osmosis, and conjugate bile acids, which all contribute to physiological homeostasis.<sup>15-17</sup>

## Benefits\*

- Supports normal glucose metabolism
- Supports antioxidant status in the body
- Promotes a healthy inflammatory response
- Supports mitochondrial function

## Supplement Facts

Serving Size 1 capsule

| Amount Per Serving                | % Daily Value |
|-----------------------------------|---------------|
| Taurine                           | 500 mg *      |
| R-Lipoic Acid (Bio-Enhanced® RLA) | 100 mg *      |

\*Daily Value not established.

**Other Ingredients:** Cellulose (capsule), ascorbyl palmitate, silicon dioxide.

Taurine supports antioxidant status and mitochondrial function and promotes a healthy inflammatory response.\* Taurine, especially in higher concentrations, may scavenge free radicals to support redox balance.\*<sup>15</sup> Taurine may support the stabilization of mitochondrial membranes and inhibit the effects of reactive oxygen species-producing enzymes.<sup>15-17</sup> Studies have demonstrated that taurine deficiency may increase oxidative stress by compromising the electron transport chain in the mitochondria, leading to more free radicals produced during energy production.<sup>15,16</sup> Taurine may also inhibit the nuclear factor kappa B pathway and downstream inflammatory effects, likely through modulation of toll-like receptors.<sup>18,19</sup>

A randomized, controlled trial on patients with heart failure compared taking 500 mg of taurine three times a day or a placebo for 2 weeks and performed exercise. The group taking the taurine supplementation experienced lower levels of the inflammatory marker C-reactive protein (CRP) compared to the placebo. There was also a reduction in atherogenic indices.<sup>19</sup> A systematic review and meta-analysis found that supplementing with taurine reduced the levels of the oxidative stress marker malondialdehyde and CRP with a greater effect 56 days after supplementation.<sup>20</sup>

Taurine also promotes normal glucose metabolism.\* Studies demonstrate a potential protective effect of taurine against the complications of insulin resistance and type 1 and type 2 diabetes by reducing advanced glycation end-products (AGEs) and scavenging byproducts of oxidized fats (aldehydes), which results in a reduction of oxidized LDL. Animal studies have found a protective effect regarding retinopathy, nephropathy, neuropathy, atherosclerosis and cardiomyopathy, independent of hypoglycemic effects.<sup>21</sup> In a small clinical trial of subjects with type 1 diabetes, taurine supplementation resulted in improved carbohydrate metabolism and a decrease in blood triglycerides within just 30 days.<sup>22</sup> A separate study in type 1 diabetics showed that taurine supplementation improved endothelial function, evidenced by restoration of impaired brachial artery flow-mediated dilatation to that of healthy controls.<sup>23</sup>

**Recommended Use:** Take 1 capsule per day with a meal 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---stabilized-r-lipoic-acid-supreme-tech-sheet-references>

Bio-Enhanced® RLA is a registered trademark of GeroNova Research, Inc.

**\*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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