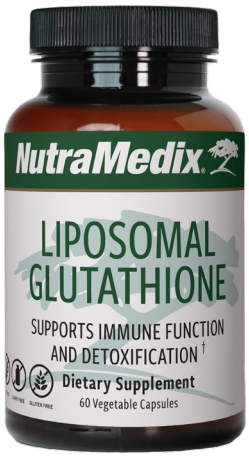
LIPOSOMAL GLUTATHIONE

NutraMedix

APPLICATIONS

- Antioxidant Support
- Healthy Immune-Function Support
- Detox Support
- Healthy Inflammatory-Response Support



INTRODUCTION

Glutathione is the most significant endogenous intracellular antioxidant and exists as part of an endogenous antioxidant defense system that helps maintain redox homeostasis.[*1,2] Glutathione is a tripeptide consisting of glutamate, cysteine, and glycine. At any given time, 10–15% of cellular glutathione is located within the mitochondria, and because mitochondria are unable to synthesize their own glutathione, they must import it from the cytosol.[3] Maintaining intracellular glutathione levels helps protect the body from oxidative stress.[*1]

Endogenous glutathione helps protect from free radicals and xenobiotics; protects membranes from lipid peroxidation; and participates in protein synthesis and degradation, including DNA synthesis and cell proliferation.[*3] Glutathione is most concentrated in the liver, kidney, erythrocytes, and leukocytes, and is a sensitive indicator of cell health and function.[*4] Glutathione's role as an antioxidant is perhaps its most well-known function, followed by its role in supporting healthy detoxification, though its importance in various bodily processes extends beyond these two functions.[3]

Though glutathione is present in some foods, blood levels do not appear to correspond to dietary intake.[5] There have been similar challenges with supplements, in that most glutathione supplements are poorly soluble, have inadequate membrane solubility, and undergo extensive first-pass metabolism.[1] When encapsulated in a lipid bilayer, liposomal glutathione is more absorbable in the small intestine, with better bioavailability, and may help maintain intracellular glutathione levels already within the normal range.[*2] Compared to regular glutathione, the liposomal form is able to provide up to 100-fold support.[*2]

NutraMedix Liposomal Glutathione contains LiposoMax®, a highly bioavailable form of glutathione that is encapsulated in a lipid bilayer to improve absorption. NutraMedix rigorously follows current good manufacturing practices (cGMPs), as do our suppliers, including stringent ID testing, microbial testing, and heavy-metal testing. This testing is conducted on both the raw material and after encapsulation.

ANTIOXIDANT SUPPORT

Studies show glutathione may help maintain endogenous antioxidant support.[*6,7]

In a double-blind, placebo-controlled trial with non-liposomal glutathione, 54 participants were randomly assigned to 250 mg of glutathione, 1,000 mg of glutathione, or a placebo, daily for 6 months. In the 250 mg group, there was significant support for maintaining normal glutathione levels in plasma and erythrocytes.[*] In the 1,000 mg group, there was significant support for maintaining healthy glutathione levels in lymphocytes in addition to plasma and erythrocytes.[*] At 3 months, the 1,000 mg group experienced significant support for NK cell activity.[*] The researchers concluded that daily glutathione consumption increased body-compartment stores of glutathione.[*6]

In a clinical pilot study, 12 healthy participants ages 50 to 80 were randomly assigned to either 500 mg or 1,000 mg of liposomal glutathione daily for 1 month. Participants' blood and urine samples were analyzed at 1, 2, and 4 weeks. Within 2 weeks, there was significant support of glutathione levels in whole blood, plasma, erythrocytes, and peripheral blood mononuclear

cells.* The researchers added that larger studies with more participants are needed, as are studies directly comparing liposomal and non-liposomal glutathione supplementation.*[7]

An older mouse study comparing liposomal and non-liposomal glutathione showed that while both raised glutathione levels, liposomal glutathione resulted in better hepatic antioxidant support.*

Because endogenous glutathione plays an important role in many cellular processes, disruptions to glutathione homeostasis affect cell function, which may impact health.*[9] One study found an inverse relationship between total serum glutathione (GSH) and several health conditions.*[10] Glutathione levels also decrease with age.[10]

HEALTHY IMMUNE-FUNCTION SUPPORT

For healthy immune function, lymphoid cells—the NK cells of innate immunity and the B and T cells of adaptive immunity—must have sufficient glutathione, and changes to this glutathione supply can affect a healthy immune response.*[11] Endogenous glutathione, as the most significant intracellular antioxidant, plays a major role in the immune response.*[12,13] Consequently, when there is a redox imbalance, the immune response may be negatively affected.

Human studies have shown that supplementation with 1,260 mg of liposomal glutathione may help maintain levels of TH_1 cytokines, IL-1-beta, IL-12, interferon-gamma, and TNF-alpha already within the normal range, helping maintain a normal immune response.*[12]

In one study, participants were randomly assigned to 1,260 mg of liposomal glutathione or a placebo in addition to standard treatment, daily for 3 months. The addition of liposomal glutathione helped support a healthy immune response, maintaining TH_1 cytokines, interferon-gamma, TNF-alpha, IL-2, and IL-6 levels already within the normal range.*[14]

In a similar clinical study, participants were given 1,260 mg of liposomal glutathione daily for 3 months. The participants were able to maintain normal redox homeostasis in all blood compartments, as well as glutathione levels already within the normal range.*[15]

DETOX SUPPORT

Glutathione is an important part of the body's endogenous detoxification system, protecting from oxidative stress, alcohol, heavy metals, and persistent organic pollutants.* Endogenous glutathione supports both phase I and phase II hepatic detoxification and facilitates excretion from both cells and body.*[16]

HEALTHY INFLAMMATORY-RESPONSE SUPPORT

Glutathione may help with healthy inflammatory-response support.* In one study, mice were given either intravenous glutathione or liposomal glutathione daily for 30 days. While both forms of glutathione helped maintain normal antioxidant capacity and healthy inflammatory-response support, the liposomal glutathione exhibited stronger support.*[17]

SAFETY AND CAUTIONS

Glutathione is generally well tolerated. Side effects appear to be limited to non-oral forms of use, including rash in topical application and shortness of breath in nebulization.[5] There are no currently known interactions with pharmaceutical drugs.[5]

Safety is not documented in breastfeeding or pregnant women, or in children under age 3, due to insufficient safety research.

***This statement has not been evaluated by the Food and Drug Administration. This product is not intended to treat, cure, or prevent any diseases.**

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NutraMedix®

KEEP OUT OF REACH OF CHILDREN.

STORAGE: Keep tightly closed in a dry place at room temperature (59-86° F or 15-30° C)

SUGGESTED USE: Take one capsule once or twice daily on an empty stomach or as directed by your physician. Do not use if pregnant or nursing. Stop use if adverse reactions develop.

†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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LIPOSOMAL GLUTATHIONE

SUPPORTS IMMUNE FUNCTION AND DETOXIFICATION †

SOY FREE DAIRY FREE GLUTEN FREE

Dietary Supplement

60 Vegetable Capsules

Supplement Facts

Serving Size 1 Capsule
Servings Per Container 60

Amount Per Serving	% Daily Value*
Reduced L-Glutathione	340 mg *
Fatty Acids	50 mg *
Phospholipids	75 mg *

*Daily Value (DV) not established

V361526

Other ingredients: Vegetable Capsule,Vegetable Magnesium Stearate

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