

Liposomal Glutathione



Applications

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

Introduction

NutraMedix Liposomal Glutathione contains LiposoMax®, a highly bioavailable form of **glutathione** that is encapsulated in a lipid bilayer to improve absorption. 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 Intracellular glutathione levels assist in protecting 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 is free of gluten, soy, and dairy. NutraMedix rigorously follows current good manufacturing practices (cGMP), 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.⁷ In the 1,000 mg group, there was significant support for maintaining healthy glutathione levels in lymphocytes in addition to plasma and erythrocytes.⁶ At 3 months, the 1,000

mg group experienced significant support for NK cell activity.⁶ 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.⁷ 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.⁸

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 TH₁ 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 TH₁ 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

Detoxification Support

Glutathione is an important part of the body's endogenous detoxification system, protecting from oxidative stress, alcohol, heavy metals, and persistent organic pollutants.¹⁶ Endogenous glutathione supports 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.¹⁷ 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.

References

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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 †

Dietary Supplement

60 Vegetable Capsules

SOY FREE
 DAIRY FREE
 GLUTEN FREE

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 *
<small>*Daily Value (DV) not established</small>	

Other ingredients: Vegetable Capsule, Vegetable Magnesium Stearate

NutraMedix

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V361526