Trizomal™ Glutathione
with S-Acetyl L-Glutathione
In a Unique Liposomal Solution

Double Protection

Advanced Formula

S-Acetyl L-Glutathione

Reduced Glutathione  +  N-Acetyl L-Cysteine
Trizomal™ Glutathione is a breakthrough new approach to glutathione supplementation. It features, for the first time in a liposomal solution, S-acetyl L-glutathione (SAG), combined with reduced glutathione (GSH), and N-acetyl L-cysteine (NAC). This formulation utilizes three ways to support glutathione—intracellular with SAG, intracellular biosynthesis with NAC, and extra/intracellular (systemic) support with GSH.* Moreover, this formula provides a double layer of protection for the glutathione molecule (SAG), with acetylation and liposomes, to further support intracellular bioavailability.*

Benefits
- Supports intracellular and mitochondrial antioxidant processes*
- Supports healthy brain function*
- Supports the liver and detoxification activity*
- Supports balanced immune system function*

Features
- Gives the body three ways to increase and optimize glutathione levels*
- Soy free, gluten free, and dairy free, as confirmed by testing
- Liposomes are composed of non-hydrogenated phospholipids, derived from GMO-free sunflower lecithin

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

How glutathione can support your body

Glutathione is a simple molecule that is produced within the body. It is a combination of three amino acids—cysteine, glycine, and glutamic acid. For its simplicity, glutathione has many complex roles. It plays a significant role in detoxification, recycling of vitamins C and E, cell cycle regulation, DNA synthesis, and repair, regulation of protein synthesis, and immune function. TH1/TH2 balance, enzyme activation, and regulating pathways needed for the body's homestasis.

Many believe that glutathione is the body's magic molecule due to its importance and widespread effects in organs and systems. From the elite athlete to the elderly or infirmed, everyone can benefit from optimal glutathione levels. Glutathione is essential to good health vitality, and even longevity. Unfortunately, many factors can decrease the body's glutathione. Such factors include the following:

- Toxins/Pollution
- Illness/infections
- Stress
- Alcohol
- Psychosocial stress
- Trauma (burns, ischemia, surgery, etc.)
- Strenuous aerobic exercise
- Aging
- Medications
- And many other factors

Liposomes may release glutathione in the blood stream and help quench extracellular free radical activity.
**S-Acetyl L-Glutathione**

First described in 1995, the acetylation of glutathione is another method of improving glutathione stability and delivery. In this process, an acetyl functional group is added to the reactive sulfur atom. This allows the new molecule, S-acetyl L-glutathione (SAG), to enter the cell more easily. Once inside the cell, the acetyl group is cleaved by enzymatic (thioesterase) action and the glutathione is released. Thus, the S-acetyl group in SAG protects the glutathione molecule until utilized within the cell. The acetyl group is naturally occurring in humans.

Compared to glutathione, it appears that SAG is more stable in blood plasma and has a better ability to pass through the cell membrane. This is because (a) it can be recognized as substrates by γ-glutamyl-transpeptidase (γ-GT), and (b) in theory, SAG possess more lipophilic properties than glutathione due to the acetyl group. There is evidence that several viral infections are typically associated with glutathione depletion, either by inhibiting the synthesis or overconsumption of glutathione. In cell cultures infected with herpes simplex virus type 1 (HSV1), SAG efficiently and dose-dependently restored intracellular glutathione levels that had been depleted by the virus, which was more efficient than that observed by glutathione supplementation. In the same study, evaluating infected mice, only SAG significantly decreased virus-caused mortality. One explanation for SAG being more effective than glutathione, or even NAC for that matter, is that glutathione synthesis or re-synthesis is usually affected negatively by viral infections.

**Liposomal Delivery**

A liposome is a miniature sphere-like particle encapsulating a nutrient in a lamellar phospholipid layer that resembles a natural cell membrane. The phosphatidyl layers are composed of phosphatidylcholine or mixed lipid chains with surfactant properties (an ionic attraction which forms and maintains the spheres). Since a properly formed liposomal structure shields the glutathione from enzymatic degradation and facilitates intracellular delivery, it facilitates greater bioavailability of glutathione. The liposome, therefore, acts as a protective layer to maintain the integrity and stability of the glutathione molecule through the system and into the cells.

A clinical trial using liposomal (liposomal) glutathione in 13 children diagnosed with an autism spectrum disorder showed that the oral treatment group displayed significant increases in plasma-reduced glutathione, but not in whole blood. There were also significant elevations in plasma sulfate, cysteine, and taurine following the supplementation, attributed to the conversion of glutathione.
Apex Energetics Trizomal™ Glutathione

A breakthrough approach to supporting glutathione levels includes a new liposomal SAG, to target intracellular glutathione levels, combined with liposomal glutathione and liposomal NAC. This combination helps to increase glutathione levels in three ways: intracellular with SAG, intracellular biosynthesis with NAC, and extra/intracellular (or systemic) support with glutathione. Moreover, this combination provides layers of delivery protection and bioavailability support by using both liposomes and acetylation, thereby helping to ensure and optimize glutathione intracellular delivery and activity.

Liposomes can merge with the cell membrane and deliver their nutrients through engulfment. In the case of liposomal leakage during circulation, the NAC and SAG, due to their lipophilic properties, still have the ability to pass the cell membrane and increase intracellular glutathione content via biosynthesis and hydrolysis, respectively. Any glutathione released from a liposome is a ready-to-use scavenger antioxidant molecule that supports the extracellular environment.

References

18. Neuwelt EA, Pagen MA, Hasler BP, Delougoux TG, Maddox LL. Therapeutic efficacy of acetic administration of N-acetylcysteine as a chemoprotectant against bone marrow toxicity after intracarotid administration of alkylators, with or without glutathione depletion in rat model. Cancer Res 2001 Nov 1;61(21):7968-74.
Maximizing the Taste

This formula contains ingredients that are rich in sulphur. As a result, the user may experience a hint of this taste coming through.

To enhance your experience, consider the following:

- Use 10-15 minutes before meals
- Drink flavored sparkling water after use
- Combine with other liquid Apex Energetics formulas such as Turmero™ Active or Resvero™ Active, to enhance the taste. Fill the syringe up to 5 ml with the Trizomal™ Glutathione. Then, fill the rest of the syringe with Turmero™ Active or other liquid formulas recommended by your health practitioners.
- After taking Trizomal™ Glutathione, use other liquid formulas, such as Super EFA, if recommended by your health practitioner
- Taking Trizomal™ Glutathione after consuming sulphur-rich foods, such as garlic, onions, shallots, and leeks, can affect the taste negatively
- Do not take close to bed time

Apex Energetics™ industry-leading commitment to purity, performance, and quality professional products.

Manufactured under strict cGMP (current Good Manufacturing Practice) guidelines.
Strict testing of raw materials and finished products for purity, potency, and composition.
FDA-registered US facility inspected and certified by independent third-party auditors.
QA and QC audit process includes testing by leading third-party accredited US labs.