



## Glutathione IV Infusion

Glutathione is an antioxidant produced in cells. It's comprised largely of three amino acids: glutamine, glycine, and cysteine.

Glutathione levels in the body may be reduced by a number of factors, including poor nutrition, environmental toxins, and stress. Its levels also decline with age.

In addition to being produced naturally by the body, glutathione can be given intravenously, topically, or as an inhalant. It's also available as an oral supplement in capsule and liquid form. However, oral form of glutathione therapy may not be as effective as intravenous delivery for some conditions.

Glutathione is a powerful antioxidant that's made in the body's cells. Its levels decrease as a result of aging, stress, and toxin exposure. Boosting glutathione may provide many health benefits, including reduction of oxidative stress.

# Glutathione benefits

## 1. Reduces oxidative stress

Oxidative stress occurs when there's an imbalance between the production of free radicals and the body's ability to fight them off. Too-high levels of oxidative stress may be a precursor to multiple diseases. These include diabetes, cancer, and rheumatoid arthritis. Glutathione helps stave off the impact of oxidative stress, which may, in turn, reduce disease.

An article cited in *Journal of Cancer Science and Therapy* indicated that glutathione deficiency leads to increased levels of oxidative stress, which might lead to cancer. It also stated that elevated glutathione levels raised antioxidant levels and resistance to oxidative stress in cancer cells.

## 2. May improve psoriasis

A small study indicated that whey protein, when given orally, improved psoriasis with or without additional treatment. Whey protein had been previously demonstrated to increase glutathione levels. Study participants were given 20 grams as an oral supplement daily for three months.

## 3. Reduces cell damage in alcoholic and nonalcoholic fatty liver disease

Cell death in the liver may be exacerbated by a deficiency in antioxidants, including glutathione. This can lead to fatty liver disease in both those who misuse alcohol and those who don't. Glutathione has been shown to improve protein, enzyme, and bilirubin levels in the blood of individuals with alcoholic and nonalcoholic chronic fatty liver disease.

A study reported that glutathione was most effective when given to people with fatty liver disease intravenously, in high doses. Participants in the study also showed reductions in malondialdehyde, a marker of cell damage in the liver.

Another study found that orally administered glutathione had positive effects on people with nonalcoholic fatty liver disease following proactive lifestyle changes. In this study, glutathione was provided in supplement form in a dose of 300 milligrams per day for four months.

#### **4. Improves insulin resistance in older individuals**

As people age, they produce less glutathione. Researchers at Baylor School of Medicine used a combination of animal and human studies to explore the role of glutathione in weight management and insulin resistance in older individuals. Study findings indicated that low glutathione levels were associated with less fat burning and higher rates of fat storing in the body. Older subjects had cysteine and glycine added to their diets to increase glutathione levels, which spiked within two weeks, improving insulin resistance and fat burning.

#### **5. Increases mobility for people with peripheral artery disease**

Peripheral artery disease occurs when the peripheral arteries become clogged by plaque. It most commonly happens in the legs. One study reported that glutathione improved circulation, increasing the ability of study participants to walk pain-free for longer distances. Participants receiving glutathione rather than a saline solution placebo were given intravenous infusions two times daily for five days, and then analyzed for mobility.

#### **6. Reduces symptoms of Parkinson's disease**

Parkinson's disease affects the central nervous system and is defined by symptoms such as tremors. It currently has no cure. One older study documented intravenous glutathione's positive effects on symptoms such as tremors and rigidity. While more research is needed, this case report suggests that glutathione may help reduce symptoms, improving quality of life in people with this disease.

## 7. May help fight against autoimmune disease

The chronic inflammation caused by autoimmune diseases can increase oxidative stress. These diseases include rheumatoid arthritis, celiac disease, and lupus. According to one study, glutathione helps reduce oxidative stress by either stimulating or reducing the body's immunological response. Autoimmune diseases attack the mitochondria in specific cells. Glutathione works to protect cell mitochondria by eliminating free radicals.

## 8. May reduce oxidative damage in children with autism

Several studies indicate that children with autism have higher levels of oxidative damage and lower levels of glutathione in their brain. This increased susceptibility to neurological damage in children with autism from substances such as mercury.

The eight-week clinical trial on children aged 3 to 13 used oral or transdermal applications of glutathione. Autistic symptom changes were not evaluated as part of the study, but children in both groups showed improvement in cysteine, plasma sulfate, and whole-blood glutathione levels.

## 9. May reduce the impact of uncontrolled diabetes

Long-term high blood sugar is associated with reduced amounts of glutathione. This can lead to oxidative stress and tissue damage. A study found that dietary supplementation with cysteine and glycine boosted glutathione levels. It also lowered oxidative stress and damage in people with uncontrolled diabetes, despite high sugar levels. Study participants were placed on 0.81 millimoles per kilogram (mmol/kg) of cysteine and 1.33 mmol/kg glycine daily for two weeks.

## 10. May reduce respiratory disease symptoms

N-acetylcysteine is a medication used to treat conditions such as asthma and cystic fibrosis. As an inhalant, it helps to thin mucus and make it less paste-like. It also reduces inflammation.

Glutathione is found in some foods, although cooking and pasteurization diminish its levels significantly. Its highest concentrations are in:

- raw or very rare meat
- unpasteurized milk and other unpasteurized dairy products
- freshly-picked fruits and vegetables, such as avocado, and asparagus.

## Side effects and risks

A diet rich in glutathione-boosting foods does not pose any risks. However, taking supplements may not be advisable for everyone. Talk to your doctor about glutathione to determine if it's right for you. Possible side effects may include:

- abdominal cramps
- bloating
- trouble breathing due to bronchial constriction
- allergic reactions, such as rash

