



# The Hidden Benefits of Glutathione

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## The hidden benefits of glutathione

Healthcare trends seem to come go as the wind blows, and it can be confusing to know what is just a fad, or what is worth the hype. A newly understood ingredient that has become increasingly popular over the last few years is glutathione. A powerful antioxidant that has a wide range of life changing health benefits. Glutathione was originally discovered in 1888 and is nicknamed the "Master" or the "Mother" of antioxidants for its ability to recycle all the other antioxidants and its willingness to sacrifice itself for the 'greater good' in our bodies. The evidence that glutathione is an untapped powerhouse within our bodies continue to grow. But don't just take our word for it - we've summarized the science for you, so that you can see the legitimacy for yourself.

## What is glutathione?

It's likely that you have not heard of glutathione as it's only recently emerging into the healthcare industry, but actually it's one of the most abundant compounds in your body, in amounts comparable to glucose; which you've definitely heard of. In fact, inside every cell in your body you can find the naturally occurring compound that is glutathione.

It's known as a tripeptide, because it comprises of three amino acids: cysteine, glutamine and glycine; and exists in a [reduced form \(GSH\) and an oxidized form \(GSSG\)](#). The difference between the reduced and oxidized form is the redox status, i.e. how powerful of an antioxidant it is.

Antioxidants are all the rage in beauty, nutrition and healthcare products, but many people don't understand their role in the body. Antioxidants like glutathione are responsible for protecting the body and cells from free radical damage. Oxidative stress can be caused by numerous factors including stress, aging or smoking, causing oxygen molecules to split into single, unstable molecules; generating free radicals. Free radicals are [extremely damaging](#) to the body at a cellular level, damaging cells, DNA and collagen production.

Antioxidants can be split into enzyme and non-enzymatic antioxidants. [Glutathione exists as in both forms](#) - glutathione peroxidase (GPx); and a non-enzymatic antioxidant - glutathione (GSH), proving how integral it is to antioxidative processes.

Antioxidants fight the damage caused by free radicals, before the free radicals attack other molecules and spread the damage. The spread of free radical damage is associated with [premature aging, cancer, neurological diseases like Parkinson's](#), and a range of other [inflammatory conditions](#).

Based on this information, it's clear why boosting antioxidants is a good idea. In fact, in today's world there's an increased need for antioxidants due to the increasing amount of dangerous chemicals we're exposed to in our food, beauty products and environment. The more free radical damage we're exposed to, the harder our cells have to work to reach homeostasis. Consuming antioxidants in the form of food or supplements will give your body the boost it needs.

## What are the functions of glutathione?

As mentioned, glutathione is one of the most abundant and potent antioxidants found naturally in the body. It's also thought to be an integral cofactor for numerous antioxidant enzymes (coenzymes), meaning that without sufficient glutathione, those enzymes cannot fulfil their important antioxidant activities in the body.

Alongside neutralizing free radicals and working as a [cofactor](#), glutathione also plays a key role in detoxification and the functionality of mitochondria. [Mitochondria is crucial to many biochemical processes](#) in the body including cellular metabolism, producing energy, cellular apoptosis and regeneration.

Mitochondrial damage is incredibly dangerous for the maintenance of human health, affecting nerves, the brain and major organs. A [study published in the National Academy of Sciences of the USA \(PNAS\)](#) looked at glutathione deficiency as a precursor for mitochondrial damage in the brain. The study conducted on rats found that with the absence of glutathione, hydrogen peroxide accumulates in the cells and damages neurological functioning.

Research has found glutathione to be very beneficial to human health. One [study by Traverso et al \(2013\)](#) found that it can prevent the progression of cancer in cancer patients. This is thought to be because it regulates cell apoptosis and proliferation, implying that it has anticarcinogenic properties. This has been getting attention in the medical field more recently, but studies date back to the 1990s that explore the potent benefits of glutathione in cancer treatment. A [study conducted in 1996](#) found that glutathione inhibits oral carcinogenesis, and was associated with the p53 gene which is responsible for suppressing tumors. These studies give a useful insight into how glutathione may be used as a completely natural treatment for cancer.

But it's not just beneficial for cancer suppression, numerous pieces of research have been published about the role of glutathione in anti-aging treatments. A [clinical trial published in 2008](#) tested the effects of glutathione on middle aged rats, finding that over a six month period, the rats who were given glutathione supplements had more high-functioning mitochondria, a lower stress response and better antioxidative enzyme activities. The researchers concluded that supplementing with glutathione was just as preventative against aging as a successful dietary intervention.

It's also associated with reducing viral overload, as shown in a [1998 meta-analysis](#) that found direct correlation between glutathione levels and viral activity for hepatitis. This is largely thought to be because glutathione is used by the liver to assist with breaking down and removing toxins in the body. Those with low glutathione levels are more likely to suffer with a chronic infection or flare up, and treating viral overload with glutathione can reduce symptoms.

Another interesting benefit of glutathione is its ability to improve insulin sensitivity. Insulin resistance is a precursor to type 2 diabetes, which can be life threatening. [Research](#) has found a link between low glutathione concentrations and insulin resistance, thought to be because insufficient glutathione increases the damage caused by oxidative stress. The researchers in the aforementioned study found that giving glutathione supplements to patients with type 2 diabetes resulted in lower oxidative stress and lipid peroxides, as well as improved insulin sensitivity. Ultimately, glutathione is one of the most key compounds needed for health maintenance and disease prevention, but is still largely unknown to the general population. The increasing number of studies being conducted on this magic molecule is slowly bringing it into the forefront of conversation in the health and wellness industry. It's ability to fight free radicals and oxidative stress, aid detoxification, promote cell regeneration and boost mitochondria confirms how powerful it can be for human health.

### References

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