

## What Is Glutathione?

Reduced L-glutathione, most commonly called glutathione or GSH, is the most powerful antioxidant naturally occurring in all human cells. It is a tripeptide composed of the amino acids glutamic acid, cysteine, and glycine. Glutathione is found in all cells in the body, including the bile, the epithelial lining fluid of the lungs, and – at much smaller concentrations – in the blood.

GSH is the smallest intracellular non-protein thiol (molecule containing an S-H or sulfhydryl group) molecule in the cells. This characteristic emphasizes its potent antioxidant action and enzyme cofactor properties, and supports a multifaceted thiol exchange system – which regulates cell activity.

The highest concentration of glutathione is found in the liver, making it critically important in the detoxification and elimination of free radicals. Accumulation of these dangerous compounds can result in oxidative stress, which occurs when the generation of free radicals in the body exceeds the body's ability to neutralize and eliminate them. Free radicals are highly reactive compounds created in the body during normal metabolic functions; they can also enter the body through the environment.

Metabolically, glutathione has many functions. For example, glutathione plays a substantial role in the functioning of the body's immune system. Its antioxidant property makes it vital to white blood cells (lymphocytes) – as it allows them to reach their full potential during the oxygen-requiring activity of the body's immune response.

Similar to the liver, white blood cells in their immune response also aid in detoxification of the body – and as glutathione levels decrease, so does the body's ability to eliminate dangerous toxins. This leads to the death of white blood cells – thereby weakening the body's immune system.

Other antioxidants in the body depend on glutathione as well. Glutathione recycles vitamins C and E after they have been oxidized – therefore playing a decisive role in their normal function.

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### **GLUTATHIONE DEFICIENCIES HAVE BEEN OBSERVED IN:**

**ASD (Autism) ♦ Cancer ♦ Parkinson's Disease ♦ Chronic Obstructive Pulmonary Disease (COPD) ♦ Chronic Fatigue Syndrome ♦ HIV ♦ Cardiovascular Disease ♦ Liver Disease ♦ Diabetes ♦ Alzheimer's Disease ♦ Heavy Metal Toxicity ♦ Acetaminophen Toxicity**

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### **OXIDATIVE STRESSORS THAT CAN DEplete GLUTATHIONE INCLUDE:**

**Ultraviolet and Other Radiation ♦ Household Chemicals ♦ Acetaminophen ♦ Cigarette Smoke ♦ Exhaust From Motor Vehicles ♦ Heavy Metals ♦ Other Environmental Toxins ♦ Viral Infections ♦ Surgery ♦ Inflammation ♦ Burns ♦ Septic Shock ♦ Dietary Deficiencies of GSH Precursors ♦ Enzyme Cofactors**

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Patients can sometimes achieve subtle long-term stabilization of the listed conditions and gradual improvement with oral supplementation. A more potent antioxidant and detoxification effect is often achieved by intravenous infusions. Thousands of IV infusions have been performed by nutritionally-oriented physicians without significant adverse effects and with positive benefits. The glutathione we use is purchased from reputable pharmacies ([www.wellnesshealth.com](http://www.wellnesshealth.com)) and administered with tested and commonly used protocols.