

## What is Glutathione?

Glutathione (GSH) is the body's own health 'AID to Energy'– Antioxidant, Immune Booster, Detoxifier and Energy enhancer. This small protein, produced naturally in the body, supports these four crucial functions. In fact, your life depends upon glutathione. Without it, your cells would disintegrate from unrestrained oxidation, your body would have little resistance to bacteria, viruses and cancer, and your liver would cease functioning from the accumulation of toxins.

## The Roles of Glutathione

Medical science has described literally dozens of roles that glutathione plays in your body. However, the four most important **roles of glutathione** can be summarized by the acronym:

### **A I D = E2**

**These letters stand for:**

- Antioxidant
- Immune support
- Detoxifier
- Energy

## Let's look at these four critical processes driven by glutathione:

### **A – Glutathione – “Your Master A ntioxidant”**

Over the past thirty years, advances in the study of antioxidants have grown to the point that a whole new branch of medicine has developed called “Free Radical Biology” which focuses on oxidant/antioxidant balance. These scientists have elaborated upon several hundred different disease processes where antioxidants play a vital role. The shelves of natural food stores and pharmacies are resplendent with a large array of different antioxidants offered. However, although these antioxidants including vitamin C and vitamin E are usually “natural”, they are not natural to your body. If you do not ingest these vitamins, they will not be found in your cells naturally. Given the importance of antioxidation in hundreds of different disease processes, one poses the question – “What antioxidant does the body manufacture to ward off these processes?” Glutathione is the most abundantly produced antioxidant in the body. In fact, the presence of this small protein is crucial for the functioning of all of the other antioxidants we know of, gaining the title of “Master Antioxidant”.

### **I – Glutathione – “Food for the Immune System”**

Your immune system is constantly on the prowl for pathogens and foreign antigens—agents of cellular damage, toxicity and disease. These antigens include viruses, bacteria, parasites, fungi and even pre-cancerous cells. To neutralize these pathogens the body needs a ready supply of glutathione. If it doesn't have enough, some of the invaders will get through, infecting the body and/or contributing to aging, long-term accumulative damage—even eventual cancer. We can't avoid illness and aging altogether—although a few scientists are pursuing some age-old dreams—but by keeping our intracellular glutathione levels up we also keep our immune system on full alert and fully armed.

Dr. Gustavo Bounous, discoverer of Immunocal, has focused on glutathione as support for the immune system. “The limiting factor for the proper activity and multiplication of our lymphocytes (white blood cells) is the availability of glutathione”. Dr. Bounous' research at McGill University has spawned countless other research papers worldwide examining this phenomenon.

### **D – Glutathione – “Detoxification System”**

Hundreds of toxins are eliminated by the GSH enzyme system, including drug breakdown products, pollutants, carcinogens and radiation damage. It's no surprise that GSH concentrations are highest in the liver, the body's major detoxifying organ. We inhale and ingest natural and synthetic toxins every day of our lives and can't possibly avoid them, especially in our technological times, our congested and polluted cities and with our bio-engineered food supplies.

Experimental studies have shown that low glutathione levels lead to poor liver and kidney function, and result in unnecessarily large quantities of toxins circulating through the body. There, they continuously damage individual cells and organs. The list of toxins eliminated include cigarette smoke, automobile exhaust and heavy metals. Physicians regularly use drugs to elevate glutathione levels in critical illnesses like acetaminophen overdose and severe liver failure.

### **E<sup>2</sup> – Glutathione – “Energize Yourself”**

Our cells are like little machines, running 24 hours a day. Where does the energy to fuel this constant activity come from? The answer is quite complicated but science had identified tiny structures within our cells called “mitochondria” which serve as tiny batteries inside the cell. Like any source of fuel, inevitably burning and waste products are a result. The mitochondria literally burn up oxygen and as a result are prone to overload and damage and are limited in their ability to continue working unless these breakdown products like oxyradicals are removed. The major substance produced by the cell to keep these mitochondria “cool” and efficient is glutathione. This translates into more energy and more strength.

Raising glutathione has become a focus for many studies from sports medicine to anti-aging for this reason.

## **What Causes Us to LOSE Glutathione (GSH)**

Every day our bodies are exposed to factors that drain our levels of glutathione: stress, pollution, radiation, infection, drugs, poor diet, aging, injury and fatigue. These all contribute to glutathione depletion which, in turn, leads to cellular aging, disease and death. "Concern about maintaining one's glutathione level will eventually be on par with other health maintenance issues." says Dr. Bounous, discoverer of Immunocal.