

Glutathione: A Real Cinderella Story

If you would for a minute consider yourself in the role of Prince Charming, there's a lovely Cinderella we would like you to meet.

She doesn't have a very "musical" name: glutathione. And you've probably overlooked her just like her step-sisters did. But this 'Cinderella' is not only hardworking, she's powerful enough to take you to the Ball and have you looking and feeling like the regal royal you were meant to be!

Okay. Glutathione is not really a storybook princess, it's a lovely tripeptide molecule found in every cell in your body. Glutathione is versatile and hardworking, more vital to your health than you can possibly imagine! But most people have never even heard of glutathione.

You are about to read some of the astounding ways glutathione impacts the way your body works. The metabolic processes described below are all documented by peer-reviewed studies available on the website of the U.S. National Library of Medicine and the National Institutes of Health: www.pubmed.gov. You don't have to be a scientist to locate these studies. A simple search on this website will show you scientific confirmation of the benefits of this amazing substance: glutathione.

DeBest DeTox!

What a polluted world we live in! Mothers-to-be are warned not to eat certain fish that are contaminated with neurotoxic mercury. Cows are treated with genetically engineered

growth hormones to make them give unnatural amounts of milk. Their milk gives you a dose of unneeded hormones along with the famous milk mustache. Fruits and vegetables contain traces of herbicides and pesticides. Cigarette smoke (even secondhand smoke) causes serious free-radical damage to our cells.

Life has become a giant chemical stew and we desperately need to be detoxified.

There are minerals like copper and zinc that are essential to our health

when taken in trace amounts. When we are exposed to higher amounts, the same helpful substances become toxic. And we are sometimes exposed to the chemical element arsenic, a dangerous poison.

Glutathione to the rescue! Studies found on PubMed show that glutathione steps up to the plate when we are exposed to arsenic¹, cadmium², copper³, mercury^{4,5} and zinc.⁶ Glutathione binds to these heavy metals and transports them to the liver where even more glutathione resides, ready to finish the detox job and escort the metals out of the body.

Unfortunately, heavy metals can overwhelm intracellular glutathione. For example, a 2005 study stated that "Intracellular glutathione (GSH) was significantly depleted by [arsenic] exposure."⁷ This shows how important it is for the body to be able to restore glutathione levels after detoxifying.

Not-So-Holy Smoke

It's fairly common knowledge that cigarette smoke generates incredible amounts of

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damaging free radicals. Perhaps not so well known is the danger that second-hand smoke presents in generating those same dangerous free radicals.

Glutathione is the body's most powerful antioxidant. Recent research showed ways that smoking compromises the body's immune system. Cigarette smoke slowed down production of immune system cells called cytokines and reduced the activation of the molecule nuclear factor-kappa beta (NFkB) which detects free radicals and infectious agents. Treatment with glutathione, reported the study, "reversed both these effects" of cigarette smoking.⁸

Chemicals in Food

A special mechanism is triggered in the digestive tract when xenobiotic (not normally produced by the body) chemicals are detected in food. Examples of xenobiotic chemicals found in food are remnants of pesticides, herbicides or hormones given to animals. Dr. Robert H. Keller said that there are some things "that we eat in food that we would never put in our mouth if we knew what they really were!" Unique detecting proteins, called "heat shock proteins," trigger cellular glutathione levels to rise which then protects cells exposed to the chemicals.⁹

Blitzing Bad Bugs

A nasty germ responsible for many respiratory infections is called *Pseudomonas aeruginosa*. Part of this bug's arsenal of tricks is causing oxidative stress in cellular systems with a factor called pyocyanin. Research in Australia showed that one of the cell-damaging effects of pyocyanin was "inhibited by the antioxidant, glutathione."¹⁰

Protecting Elite Athletes

Exercise is vital to good health! But the oxidation process that naturally occurs during intense exercise can deplete inadequate stores of glutathione. One animal study showed decreased glutathione content in older skeletal muscle.¹¹ Glutathione is so important to the health of athletes that Italian sport researchers concluded that measuring antioxidant levels of glutathione reductase [the enzyme that "reduces" glutathione to its most antioxidant state] and other such markers "may be useful to a clinician to better assess and evaluate the benefits of training and/or supplementation programs."¹²

In fact, this study showed that trained elite soccer players had significantly higher levels of blood glutathione reductase activity compared to subjects who were sedentary. Intense exercise requires high levels of glutathione!

**INTENSE EXERCISE
REQUIRES HIGH LEVELS
OF GLUTATHIONE!**

The Eyes Have It!

Yet another benefit from the marvelous antioxidant glutathione is that it supports good eye health. Reactive oxygen species (ROS) decrease glutathione levels allowing a more oxidized environment which can cause cloudy vision.¹³

Healthy levels of cellular glutathione "put out the fires" started by reactive oxygen species allowing the eyes to function properly.

Happy Ending for this Cinderella Story

Wouldn't you agree that glutathione has more than earned the right to be recognized as one of the most important factors of good health? Now you can share the true story of this mighty antioxidant!

Glutathione is versatile and hardworking, more vital to your health than you can possibly imagine!

Notes

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