How Glutathione Can Save Your Life - Prohealth

What if I told you that Ponce de Leon was off base looking for the Fountain of Youth in Florida, because that fountain is in your own healthy liver? That may be a bit of a stretch, but your cells, especially in your liver, make a master antioxidant and detox accelerator that controls critical aspects of aging and preventing disease. That compound is called glutathione. Virtually every person with disease-related frailty is depleted in glutathione.

High glutathione levels are associated with longevity – in fact, healthy people over 100 years of age have significantly higher levels of glutathione than the general population. There are over 90,000 studies published on different aspects of glutathione, on everything from Parkinson's disease, to cardiovascular damage, to cancer treatment and prevention, to autoimmune diseases, to even autism and related disorders. I could write the rest of this page on diseases for which glutathione is crucial.

Unfortunately, in the presence of disease, environmental exposures, and genetics, our body's ability to make this critical compound diminishes greatly. With certain genetic inefficiencies, glutathione production can be reduced 50% or more, and it is estimated that nearly 1 in 3 people has this genetic variant! Age reduces glutathione production, too. By age 40, we are making 30% less, and by 65, as much as 50% less – and that is in healthy individuals. Anyone with liver stress or disease is going to be making significantly less. Since glutathione is so powerful, and the lack of adequate levels is associated with too many diseases to count, why don't we all just load up on glutathione every day?

The answer is simple. Glutathione loses its super powers with digestion. It becomes oxidized, and then it adds to your body's oxidative stress burden. It is not a matter of enteric coating, or stomach acid – it is the digestive process itself that transforms glutathione into its unfavorable form. That's why elite integrative medical clinics give this life-saving compound intravenously (directly into the bloodstream), sometimes at a cost of thousands of dollars to their patients. You just couldn't take glutathione orally – until now.

Terry's Bottom Line There is no other compound quite like glutathione. It is so important that your body makes its own supply to protect us from tumors, keep DNA-damaging oxidative stress at bay, help the body rid itself of toxins, and keep every cell rejuvenated and healthy.

Unfortunately, our glutathione levels tend to drop due to aging, genetics, disease, environment, and dozens of other factors out of our control. Trying to boost glutathione levels with standard supplements or N-acetylcysteine just doesn't work. But a revolutionary, slow-melt form of this crucial compound developed in France is powerful and effective. Taken daily, it will:

- Prevent brain and nerve damage
- Rid you of health-threatening toxins

- Protect you from DNA-damaging oxidative stress
- Reduce the risk and slow the progression of Parkinson's, Alzheimer's and other conditions
- Promote longevity by protecting telomeres
- Boost levels of active, protective glutathione
- Improve the ratio of active versus oxidized glutathione

In France, research scientists have developed a way to keep glutathione stable and deliver it intact. This patented process involves complexing it with protective antioxidants, and creating a slow melt tablet that dissolves under the tongue over the course of a few minutes. The tissues beneath your tongue are rich in capillaries that connect with the entire blood circulation system. Small amounts of glutathione are released as the tablet melts, and are absorbed by buccal cells, bypassing the damaging effects of digestion.

Fighting Free Radicals and Oxidative Stress

Glutathione has been described as "the mother of all antioxidants" and this is true, but it does much more. It also boosts and prolongs the protective activity of other antioxidants in the body, like vitamin C and E. This is called antioxidant recycling, and it is crucial as we strive to protect the blueprints inside our cells – DNA – from the damaging effects of oxidative stress. This is important because unchecked oxidative stress is associated with so many diseases – including cancers, neurodegenerative diseases such as Parkinson's and Alzheimer's, and heart disease – that it can aptly be considered a killer. Oxidative stress is certainly involved in the death of damaged individual cells, and contributes significantly to the progression of life-threatening diseases.

Removing Dangerous Toxins from the Body

As the liver snags toxins out of circulation, it must prepare them for disposal. This process is called phase l and phase II glucuronidation. This process cannot take place without adequate levels of glutathione. More glutathione = enhanced removal of toxins from your body. This can include drug metabolites, heavy metals, pesticide/ herbicides, xenoestrogens like BPA, alcohol, and other toxic chemicals. We are swimming in a sea of tens of thousands of chemicals that never existed before 50 years ago. While we cannot always avoid these toxic exposures, it is important to get them out of our bodies as quickly as possible. This reduces our cumulative exposure to substances linked to cancer and many other potentially devastating diseases.

Immune System Power

The foot soldiers of the immune system are white blood cells. There are a wide variety of soldiers to help protect us from multiple threats, such as disease-causing bacteria, viruses, and fungal infections. Your body cannot make white blood cells without adequate glutathione. It has also been shown to stimulate natural killer cell activity, which is especially useful in destroying cancer cells.

Also, higher levels of glutathione are known to preserve telomeres, which are the tail ends of genes that dictate how

many times the cell can regenerate. This process is intimately connected to longevity.

The Importance of Glutathione Ratios

Glutathione is made in the body from three amino acids: glutamic acid, cysteine, and glycine. Glutathione molecules have their own "life cycle." As glutathione (GSH) is utilized and oxidized, it becomes oxidized glutathione (GSSG). In a healthy, youthful person, 90% of the body's glutathione should be in the GSH form. This is also called "reduced glutathione." Only about 10% of the body's glutathione should be in the GSSG (oxidized) form. The ratio between these forms of glutathione is crucially important and is a strong indication of health.

When glutathione is ingested in an unprotected form, meaning it becomes oxidized before it is even absorbed, it contributes to the wrong side of the equation! This increases the oxidative burden in the body because of the excessive amounts of oxidized glutathione waiting to be recharged by antioxidants. In this manner, oxidized glutathione actually depletes antioxidants.

Some practitioners use a precursor compound called N-acetylcysteine (NAC). By increasing raw materials, they hope to make it easier for the body to make more glutathione. This can be somewhat useful for healthier people, because it is reliant on the strength of that individual's ability to make glutathione. Older adults and people with more serious chronic challenges are less fortunate, and some people have adverse effects with high levels of NAC use.

Blood ratios of active glutathione to oxidized glutathione between day 1 and day 21 after supplementationThe unique, patented glutathione has been shown in human studies to boost the healthy ratio in the body 65% better than NAC. It was also shown to boost the healthy ratio 230% better than unprotected glutathione. That can mean a life changing impact on health.

As for increasing levels of glutathione (GSH), this special patented form was compared to NAC and unprotected glutathione, and in just 11 days, raised levels by 38 points. Unprotected glutathione decreased levels of the active form. In studies of other specially formulated glutathione products, 1,000 mg a day for 6 months was needed to boost glutathione in the body. But in the French process, only 450 mg daily boosted levels 38 points after only 11 days of use, making it a powerful form of this nutrient.

Parkinson's Disease

While glutathione is useful for virtually any disease or health challenge, it is particularly useful for debilitating neurological diseases like Parkinson's disease (PD). There are studies using intravenous (IV) glutathione that demonstrate its ability to improve Parkinson's symptom. People with this chronic progressive neurological disorder have high levels of oxidative stress and premature cellular die off in a part of the brain called the substantia nigra. Another hallmark of PD is the loss of the brain's ability to make dopamine. While more studies are needed to further determine the ways in which glutathione helps PD, we have some solid medical theories, the premise of which continues to be borne out as research progresses.

We know that glutathione reduces specific free radical activity that interferes with the proper levels of both dopamine and acetylcholine, which is believed to be the neurochemical imbalance underlying Parkinson's disease (PD).

As early as 1996, a study entitled "Reduced intravenous glutathione in the treatment of early Parkinson's disease" found that the progression of PD was reduced, and symptoms improved by 42% after only 30 days of treatment. However, the practice of using glutathione for PD was not widespread, because it had to be administered directly into the veins (IV), necessitating clinic visits and medical staff inserting needles for proper administration.

In another 2009 study, Dr. David Perlmutter, a neurologist at The Perlmutter Health Center, oversaw a human pilot study on the use of IV glutathione for PD, the results of which he published in Movement Disorders. The researchers reported significant improvement during one month of glutathione treatment. When the treatments stopped, the symptoms worsened again. Dr. Perlmutter's group stated that glutathione was safe and well tolerated.

Research on using therapeutic glutathione is incredibly encouraging for this incurable neurological disease. The stumbling block has always been that it has to be given IV, in a clinic licensed for administration of intravenous drugs, in order to be effective. There are not many clinics nationwide offering this service, and it is very expensive. It is truly a medical break-through to be able to provide this glutathione in an oral form that is still absorbed in its most effective form, without the need for needles, clinics, and huge amounts of medical bills.

Lyme Disease

Many health issues are made even more challenging by the burden of free radicals. Consider the tick-borne Lyme disease, caused by the *Borrelia* burgdorferi bacteria, which sometimes manifests itself in "bulls eye" pattern skin lesions, but can later progress to muscle dysfunction, arthritis, facial palsy, and more. The body's glutathione levels are depleted in an effort to reduce the damage and spread of the disease.

However, antibiotic treatment doesn't address the need for the body to help heal itself. In fact, Polish researchers found that patients using antibiotics to treat the skin lesion phase of the disease, still had heavy free-radical activity. Even though antibiotics in this case are standard medical procedure, the resulting oxidative damage weakens the system. This is why glutathione, because it replenishes the body's own levels, has become a standard practice in integrative treatment of Lyme disease. I believe it is good practice to bolster your glutathione ratio with an oral form anytime you are going to spend extended time outdoors, or if you live in a particularly tick-heavy environment during the spring, summer, and fall months. If you already have Lyme disease, an oral form should help reduce recurring flare-ups.

Rheumatoid Arthritis

Serbian researchers examined the relationship between oxidative stress, free-radical activity, and rheumatoid

arthritis (RA). Even though patients with RA showed higher plasma levels of superoxide dismutase (another of the body's "super antioxidants"), they also had high levels of pro-oxidants, and increased nitric oxide, an inflammatory marker. Other research with RA patients in Italy showed a strong correlation between inflammation, oxidative stress, and lowered glutathione levels in the bloodstream. In fact, a clinical study in Jordan found that patients with RA showed a 50% depletion of reduced glutathione compared to healthy controls. The researchers concluded that "defense mechanisms against reactive oxygen species are impaired in RA." To me, this sounds like a strong reason for anyone with RA to add active glutathione to their daily regimen.

Since rheumatoid arthritis is an autoimmune disease – meaning the body is working against itself – many of the treatment options can seem limited to pain reduction, rather than helping the body get its immune balance back in shape. However, many current studies examining the relationship between RA, oxidative stress, and inflammation seem to share the conclusion that getting those factors under control is critical to stopping the arterial stiffness and damage of the disease.

Autism and Autism Spectrum Disorders

The incidence of autism and related disorders has skyrocketed in our modern, industrialized, toxin-laden world. Doctors have known for quite a while that people with autism are especially challenged when it comes to their ability to handle toxic exposures. Their detoxification systems are rarely robust, and much of this has been traced to an insufficient amount of glutathione activity.

A group of researchers performed a metaanalysis of studies on aspects of autism as it relates to glutathione. They looked at the results of 39 published studies, and determined there is significant evidence that two specific pathways for detoxification are impaired in autism, and that large trials are needed for children with autism to determine if boosting the function of these two pathways will likewise improve autistic behaviors. Both these pathways respond to improved ratios of active glutathione.

Alzheimer's Disease

Virtually all neurological diseases have some level of oxidative damage as a root cause or major contributor to dysfunction. Therefore, it is not surprising that Alzheimer's disease (AD) and mild cognitive impairment (MCI) have been the focus of much glutathione research.

A recent study entitled "Elevation of glutathione as a therapeutic strategy in Alzheimer's disease" concludes: "Increasing glutathione remains a promising therapeutic strategy to slow or prevent MCI and Alzheimer's disease." Considering that glutathione levels continue to decline as we age, and that both AD and MCI increase with age, supplementation with effective glutathione can play an important role in prevention, or slowing the progression of this disease.

Blood Levels of GSH on Day 11 After Supplementation

Human Immunodeficiency Virus (HIV)

One hallmark of HIV is the inability of the immune system to function properly. People with HIV often develop infections that can become life-threatening, and one such infection is tuberculosis. Researchers extracted immune system cells from people with HIV to see how well these cells would control the mycobacterium that causes tuberculosis. They found that the infection itself caused a depletion in glutathione, and that the immune cells, in turn, could not control the mycobacteria. By boosting the body's levels of active glutathione, once again the cells could control the mycobacteria.

The researchers theorized that glutathione depletion may play at least a partial causative role in reduced immune response in people with HIV, and that increasing systemic glutathione could improve immune system function in this group.

Special Glutathione Challenges

There are medications that deplete your body of glutathione. One is acetaminophen (one brand name is Tylenol®). Acetaminophen is the number one cause of acute liver failure in the U.S. and the only treatment for a dangerous acetaminophen overdose is life-saving glutathione injected into the bloodstream. Certain anti-seizure drugs deplete glutathione, and there is evidence that birth control pills and antidepressant medication can also cause depletion. Therefore, it is especially important to supplement with effective glutathione if you must be on one or more of these drugs.

You Can't Live Without Glutathione

If you go 24 hours without food, your liver will steal amino acids from the protein in your muscles to make this critical compound. It is absolutely necessary for health and vigor. I can't promise you the fountain of youth, but I can promise that you will live a longer, healthier, more youthful life with optimal levels of glutathione.

When in doubt, always consult your physician or health care practitioner. This column is to provide you with information to maintain your health.

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