



# *The Glutathione Corporation*

## *Beacon*

The following is a reply to a group of similar e-mails  
we received from several of our customers

Dear Maria,

Please review our web site, [www.glutathionescience.com](http://www.glutathionescience.com).

There are three economical programs that I can suggest. All provide excellent, pure, scientific products that are not available from any other company. Weight loss will help lower your blood pressure and also relieve the Rheumatoid Arthritis. The three supplement programs that you can choose from are:

### Number 1

One packet of Daily Essentials™, daily.

Order: 1 box of Daily Essentials,  
Directions: take at any meal, with a glass of water.

### Number 2

One packet of Ultrathione Performance®, daily.

Order: 1 box of Ultrathione Performance,  
Directions: take at breakfast or lunch, with a glass of water.

### Number 3

One packet of Ultrathione Health Pack, daily.

Order: 1 box of Ultrathione Health Packs®,  
Directions: take at breakfast or lunch, with a glass of water.

People who are overweight, and over 45 years of age have a compounded insufficiency of glutathione. In view of your being past 45, your body has probably responded like most of us, with a precipitous decline in glutathione production. The extra 25 pounds you carry very likely has pushed your glutathione levels down, further. You probably have not heard much about this substance, and I am taking this opportunity to briefly tell you about it:

- It is made by all humans and almost all other living things on Earth, including fish, plants, insects, and so on;
- It has been one of the essential biochemical molecules since the dawning of life;

- If glutathione levels were to suddenly drop by ~80% in **all** cells in the body, survival would be limited to a few hours;
- Glutathione is artfully produced by two massive protein systems that “sew together” just three amino acids and it is termed a tripeptide (amino acids are the building units of proteins, ~several thousand amino acids are “sewn together” like box cars in a long freight train, to make proteins);
- Glutathione, abbreviated as “**GSH**”, contains: glutamic acid, cysteine, glycine; the glutamic acid is attached to the cysteine in a completely unorthodox way, sort of “backward and upside down”, as if you took the caboose in a model train set and attached it that way; GSH is called gammaglutamyl cysteinyl glycine;
- GSH is used in similar ways by most life forms that make it; in humans, the GSH, as produced in our body, is used in the following ways:
  1. It is a powerful endogenous (“homemade” inside your cells) antioxidant; GSH can stop rampant free radicals and at the same time also dismantle toxic fats that have become peroxidized (“rancid”). It’s a bit like James Bond and Rambo getting rid of a lot of bad guys coming at them from all directions. We eat many rancid fats in our diets, and we also make fats turn rancid within our cells. Rancid fats start “double” free radical chain reactions. When there is excessive, uncontrolled peroxidation of fats the following can occur in humans:
    - ◆ Sensitive cells in the Retina, and other brain cells may burst as a result of the loss of GSH. Uncontrolled free radicals have the ability to tear the membranes enclosing each cell. The results may include vision loss as in Macular Degeneration, and Alzheimer’s.
    - ◆ DNA may be altered by uncontrolled free radicals in ways that foster growth of cancer cells.
    - ◆ The immune system may become impaired, with more infections, low defenses against cancers, and increased problems following immunizations.
    - ◆ The arteries throughout the body may be more likely to develop atherosclerosis, like “lead pipes with ragged bumps on the inside that can lead to clogging”. Diabetic complications are thought to largely be the result of this type of damage in small and medium sized arteries.
  2. GSH is mandatory within all the mitochondria. Mitochondria are microscopic, sausage shaped structures in the cytoplasm of cells (in a hard boiled egg analogy, the egg yolk is the nucleus with coiled up DNA, and the egg white is the cytoplasm which contains ~100 mitochondria); mitochondria efficiently make the energy for a cell, ATP (adenosine triphosphate).

ATP is needed for brain cells to function, for heart muscle cells to beat 60-80 times a minute for life, for immune system cells to attack and kill germs and cancer cells, for skin cells to continue to renew themselves, and for liver cells to continue to detoxify toxic substances. But to make all that ATP, GSH, as produced in our body, is mandatory.

3. GSH is not made inside the mitochondria, and must be transported into them via GSH transporters. GSH destroys hydrogen peroxide ( $H_2O_2$ ) in all mitochondria. That's one of its major jobs. If not destroyed,  $H_2O_2$  will attack proteins, DNA, cells membranes, the immune system cells, arteries, and more.
4. When GSH levels are insufficient in mitochondria, they release corrosive substances that cause the cell to die, literally fragmenting into small pieces by a process termed **apoptosis**; it's real. This is thought to be a factor in:

Macular Degeneration of the Retina,  
Diabetic Arterial Complications,  
Heart Failure,  
Alzheimer's,  
Parkinson's,  
AIDS,  
Active Viral Hepatitis, and  
Sepsis among others.

5. Normally, humans produce ~10 grams of GSH every 24 hours, in our Prime. This is ~2.5 teaspoons of white powder. It is aided in its numerous functions by helper enzymes (specialized proteins).
6. GSH, unfortunately, is vulnerable to improper health maintenance: excess fat deposits, excess dietary fat, excess dietary carbohydrates, tobacco smoke, excess alcohol meaning more than 1 glass of wine/24 hours for adult males and more than one half (0.5) glass of wine/24 hours for adult females, excess aerobics, baking yourself in the sun, excess quantities of acetaminophen as in some pain relievers and cold remedies, excess stress and sleeplessness, and unrelenting anxiety, among others;
7. The body's GSH is required by cells that are the "first responders" to infectious agents. These "first responders" include cells with interesting names: dendritic cells, B type lymphocytes, and macrophages. The latter are large cells that literally ingest and kill germs, in a big way. After killing them, the macrophages carry out molecular dissections, to create fragments for proper antibody production and other types of immune system defenses. When humans recover from an infection, there is generally an immunity that lasts for a few years. This is the basis for protective immunizations against childhood infectious diseases, influenza, viral hepatitis, and, lately, considerations against smallpox using live, vaccinia virus.

8. The body's GSH, as it circulates in the blood from its production site in the liver, is mandatory to keep the insides of arteries slick and smooth by helping the production of a molecule called PGI-<sub>2</sub>, or Prostacyclin; it is analogous to a Teflon coating inside a series of tubes or pipes.
9. The body's GSH is essential to keep arteries wide open by protecting the actions of nitric oxide (●NO). This enhances good blood flow to vital organs and to the skin. Nitric oxide is extinguished almost as rapidly as it is produced. But the body's GSH combines with it and safely protects it and transports it to the smooth muscle cells of the arteries to keep them relaxed.

There is more about the wonders of our body's glutathione; referring to [www.pubmed.org](http://www.pubmed.org) in the National Library of Medicine reveals ~70,000 GSH publications. For example you can type into the indicated search box **glutathione AND mitochondria**, or **glutathione AND other topics**, and receive references and even abstracts of the published papers, gratis. Please feel free to e-mail; or fax your questions. I will provide non-medical suggestions that may help you. The advice provided by your health professionals, or personal trainers, or nutrition consults, is of paramount importance and must be followed.

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