



**Susan Merenstein, RPh/Owner**, Holistic Clinical Pharmacist

---

**34 years of Independent Clinical Pharmacy Practice**  
**MAApgh.com | LabNaturals.com | YourGoddessRoom.com**  
Friend us on Facebook

---

4227 Murray Avenue between Lilac and Loretta Streets  
Part of South Murray Shops  
412.421.4996 or 1.888.799.4247 | fax 412.421.6500

## **Glutathione: the Master Antioxidant, Detoxifier and Immune Booster of the body.**

The buzz words in today's healthcare settings for humans and animals alike are Glutathione, Telomeres, Enhanced Performance, Anti-aging, and Detoxification.

It is often said that "We are what we absorb" and this has never been truer than with Glutathione (GSH).

Most people take L-Glutathione which is the "reduced" inactive form.

Murray Avenue Apothecary is the only compounding pharmacy to compound products with Acetylated Glutathione and topical Palmitated Glutathione.

A new product on the market is Liposomal Glutathione. This is merely Reduced Glutathione (GSH) dissolved in Phosphatidylcholine. This liposomal GSH is 50-60% better absorbed than plain L-Reduced Glutathione oral but once in the bloodstream it is acted upon by peptidase enzymes which reduce it and inactivate it and therefore it cannot be utilized by the cell. It does not pass the blood brain barrier. Adding an ACETYL group to the Glutathione molecule protects it from the peptidases so it can cross the blood brain barrier unlike L-Reduced Glutathione. It also allows the molecule to cross the membrane barrier of the cell. Once inside the cell the Acetyl group is cut or cleaved and glutathione is available to detoxify the Reactive Oxygen Species (ROS) or free radicals created in the Krebs cycle of energy.

The ROS are acted upon by Super Oxide Dismutase to turn them into Hydrogen Peroxide which is then acted upon by Glutathione to create Oxygen and Water.

IV Glutathione is popular but very expensive and the same peptidase inactivation principles apply. People feel great while it is dripping into their veins but in 10-15 minutes the peptidase enzyme has deactivated it.

Even inhaled Glutathione becomes inactivated very quickly.

Topically, PALMITATED Glutathione acts longer and is protected even longer from the peptidases. One teaspoon of our topical Palmitated Glutathione will yield 250mg Glutathione.

So in conclusion, why use a more expensive, bad tasting, inefficient molecule of Glutathione such as L-Reduced glutathione when the above options are available.

Every patient who is toxic, has ANY inflammation like COPD, Emphysema, Asthma, Liver disease, Arthritis, Psoriasis, Eczema, Alzheimer's Dementia, Parkinson's Disease, a high CRP, High Sed rate or who reaches for Advil® or Aspirin is a candidate for our Acetyl Glutathione oral or Palmitated Glutathione topical.

Disclaimer: Use only as directed. Not for use in pregnancy or lactation. If you have a medical condition see your doctor or health-care provider, before using this product. Keep this and all medication out of reach of children. This statement has not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.

## Selected Medical References

### Aging

It is well known that aging is accompanied by a precipitous fall in glutathione levels. Lower glutathione levels are implicated in many diseases associated with aging including cataracts, Alzheimer's disease, Parkinson's atherosclerosis and other

Journal of Clinical Epidemiology 47: 1021-26, 1994

### Antioxidant Functions

Antioxidants are well documented and known to possess vital roles in health maintenance and disease prevention. Glutathione is your cell's own major antioxidant. Maintaining elevated glutathione levels aids the body's natural antioxidant function.

Biochemical Pharmacology 47: 2113-2123, 1994

### Neurological Disease

Low glutathione levels have been associated with neuro-degenerative diseases such as MS (multiple sclerosis), ALS (Lou Gehrig's disease), Alzheimer's disease and Parkinson's disease, among others.

The Lancet 344: 796-798, 1994

### Cancer

Glutathione plays a role in eliminating many carcinogens and also maintains and optimized immune function, providing stronger anti-tumor defenses.

Cancer letters 57: 91-94, 1991

### Athletic Performance

Raised glutathione levels help increase strength and endurance. Those interested in physical fitness can benefit from a definite athletic edge.

Journal of Applied Physiology 87: 1381-1385, 1999

### Toxins, Pollution, Radiation

Glutathione detoxifies a variety of pollutants, carcinogens and poisons, including many found in fuel exhaust and cigarette smoke. It also retards damage from radiation exposure due to the eroding ozone layer.

Annual Reviews of Biochemistry 52: 711-760, 1983

### AIDS

Low glutathione levels correspond to poor survival in AIDS patients. Much documentation demonstrates the role of enhanced glutathione levels in AIDS.

Proceedings of the National Academy of Science, USA 94: 1967-72, 1997

### Heart Disease, Stroke and Cholesterol

Raised glutathione levels fight the oxidation of circulating fats in the bloodstream, including cholesterol, retarding the process of plaque formation in the arteries – the underlying cause for most heart disease and stroke.

Nutrition Reviews 54: 1-30, 1996

### Diabetes

Diabetics are more prone to infections and circulatory problems leading to heart disease, kidney failure and blindness. Glutathione protects against the complications of diabetes.

Clinical Science 91: 575-582, 1996

### Lung disease

Doctors have used glutathione-promoting drugs to treat many lung diseases including asthma, chronic bronchitis and emphysema. Newer potential therapeutic roles can be found for cigarette smoke damage, pulmonary fibrosis and other illnesses.

American Journal of Medical Science 307: 119-127, 1994

### Digestive diseases

Glutathione protects the body from the inflammation of gastritis, stomach ulcers, pancreatitis and inflammatory bowel disease including ulcerative colitis and crohn's disease.

Gut 42: 485-492, 1998

### Hepatitis

The liver is the major storehouse for glutathione. Glutathione is impaired in alcoholic hepatitis as well as in viral hepatitis including hepatitis A, B, and C. Raised glutathione levels restore liver function.

American Journal of Gastroenterology 91: 2569-2573, 1996

### Kidney Disease

People with kidney failure or dialysis suffer from higher levels of oxidative stress and decreased glutathione levels. Raised glutathione levels help prevent anemia.

Nephron 61: 404-408, 1992

### Pregnancy, Lactation and Childbirth

Glutathione's role in fetal and placental development is crucial. It also acts in the placenta to detoxify pollutants before they can reach the developing child. Many complications of pregnancy have been linked with poor glutathione levels.

Early Human Development 37: 167-174, 1994