

FACTS FOR CONSUMERS ABOUT SETRIA® GLUTATHIONE

What is glutathione?

Glutathione is a nutrient-like molecule that is one of the most powerful protective substances in the human body. Its many jobs include: eliminating toxic chemicals; maintaining cell proteins; supporting immunity; acting as an antioxidant; and maintaining the status of vitamins C and E.¹

Sources

Glutathione is both supplied by the diet and produced by the body. All cells can make glutathione, and the liver produces the highest amounts because of its central role in detoxification.

The best dietary sources of glutathione are freshly prepared meats, poultry and fish, and fresh fruits and vegetables (both raw and cooked).² In the United States, usual dietary intakes of glutathione span a wide range from 3 milligrams to nearly 250 milligrams a day.^{2,3} Most people obtain only about 50-60 milligrams from their daily diet.³

Some plant foods such as broccoli, Brussels sprouts, cauliflower, cabbage, onions and garlic can help boost internal synthesis of glutathione, while others including tea, prunes, blueberries and cherries are antagonistic to glutathione.^{1,4} Glutathione is also available as a dietary supplement marketed under the brand name Setria®, a highly pure and stable form of reduced glutathione.

Except for fresh-freezing, food processing methods destroy glutathione. Canned foods, cured and dried foods, cereal and grain products, dairy products, sweeteners, condiments and most juices (except orange juice) do not provide appreciable amounts of glutathione. Therefore, diets that are high in processed foods and low in fresh foods are a risk factor for glutathione inadequacy.

Foods that provide ample amounts of glutathione include:

Fruits	Vegetables	Meats
Apples	Acorn squash	Beef (grilled, roasted)
Bananas	Asparagus	Chicken (baked, fried)
Grapefruit	Avocado	Fish
Oranges	Broccoli	Ham (boiled)
Peaches	Carrots (raw)	Hamburger (pan fried)
Strawberries	Spinach	Pork
Watermelon	Tomatoes (raw)	Steak (grilled, pan fried)

Protective roles in the body

The highest amounts of glutathione are found in the liver and kidneys, intestines and lung lining fluid, where it detoxifies ingested chemicals and inhaled pollutants. Glutathione is present in the mucus lining of the entire GI tract and can intercept and neutralize toxins before they can be absorbed. In the lung lining fluid, glutathione not only acts as a barrier but also enhances the power of specialized immune cells that form the body's first line of defense.^{1,5}

Throughout the body glutathione acts as an antioxidant, reacting with free radicals so as to render them harmless. Glutathione also helps to regenerate vitamins C and E, two of the body's other important antioxidants. Thus, glutathione not only acts directly to prevent oxidative damage to cells, but also indirectly by supporting a powerful antioxidant team.¹

These protective functions occur continually in all major organ systems - not only the liver, kidneys, intestines and lungs, but also the brain, heart, skeletal muscle, skin and immune system.

Factors that deplete glutathione

Many factors affect glutathione status. One inescapable factor is **age**. Glutathione status generally begins to weaken around age 45 and declines quickly after age 60.^{7,8} The loss in glutathione protection may lead to an increase in oxidative stress, which in turn may lead to accelerated aging.

Lower glutathione status has been found in association with:

- **Lifestyle factors** – smoking, drinking alcohol excessively, or taking multiple prescription or over-the-counter drugs^{1,9,10,11}
- **Environmental factors** – ultraviolet radiation, ionizing radiation, oil fumes, saturated fats, pollutants and chemicals¹²
- **Obesity** – excess fat places added oxidative stress on the body which may deplete antioxidants^{13,14}
- **Diseases** – certain diseases such as type 2 diabetes, cardiovascular disease, cancer, kidney disease, Parkinson disease, lung disease, and age-related eye diseases such as cataracts and macular degeneration may lead to lower levels of glutathione^{1,3,15,16,17,18}

Whenever oxidative stress is increased in association with age, disease, lifestyle or environmental factors, glutathione may be used up faster than it can be produced. This increase in oxidative stress may lead to premature aging.

Definitive studies have not been conducted to determine the degree of protection glutathione might provide, because they are very costly and long-term. Still, there is evidence of benefit from other types of studies. For example, an observational study of older individuals found that those who enjoyed generally good health, such as better self-rated health and better cardiovascular health, had higher glutathione levels than those who scored lower on various measures of health.¹⁹

The role of glutathione supplementation

When the body cannot make enough glutathione to keep up with demand, increased dietary intake and/or supplementation may be beneficial. Studies have shown that taking dietary supplements of glutathione can raise glutathione levels in critical tissues such as the lungs, intestines and kidneys, as well as blood plasma.^{20,21,22,23,24}

Since the best diets provide about 250 milligrams of glutathione daily and most people have intakes that fall far below that, 150-200 milligrams appears to be a reasonable target for healthy people to close the gap. Those who desire additional support might want to consider more. An upper safety limit for supplemental glutathione has not been established, but high intakes of 3,000 milligrams per day have not caused any adverse symptoms.

When choosing a supplement, it is important to select a trusted name with high purity and to make sure the label reads “reduced glutathione.” Glutathione is marketed in supplements under the brand name, Setria® Glutathione, a pure and natural source of reduced glutathione produced by Kyowa Hakko Bio Co., Ltd., a leading global ingredient and pharmaceutical manufacturer. Setria® Glutathione is recommended for use both in dietary supplements and skincare products.

References

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