An In-Depth Look at the Function and Efficacy of Oral Glutathione for Skin Care
What is Glutathione?

Glutathione is an extremely powerful antioxidant with numerous applications within the realms of health and nutrition. Its antioxidant and detoxifying properties safeguard cells from damage caused by reactive oxygen species and heavy metals. Because of its essential role in protecting the human body, it has earned the nickname “The Master Antioxidant”. For years, doctors have treated their patients with glutathione to relieve ailments ranging from liver disease to cancer.

Doctors and patients began to notice an interesting side effect; patients receiving glutathione looked brighter and more radiant. Dark, sallow skin lightened up giving a healthy glow. Glutathione is now at the forefront of skin lightening esthetics due to its virtually nonexistent risk of side effects and astonishing natural results.

Glutathione for Skin Whitening

Glutathione skin whitening works by interrupting melanin synthesis¹. Melanin is the pigment that gives the skin its color, so by preventing it from developing, glutathione whitening brings the skin back to its purest, fairest tone. It is clinically shown to reduce dark spots and whiten skin by inhibiting melanin synthesis³. It is often said that one’s health is reflected in the condition of his or her skin, and that is notably true when it comes to this method of skin whitening. Glutathione benefits the skin by boosting overall health. Since it is an antioxidant, it neutralizes and eliminates the free radicals that damage the skin at the cellular level to cause aging and discoloration.

‘The Master Antioxidant’

Glutathione acts on a number of biological pathways in the skin. Its primary purpose is protection from skin’s greatest enemy, oxidation. By acting as an antioxidant, glutathione can reduce skin damage from acne or sun exposure before it creates unsightly dark spots⁴.

This is part of the glutathione cycle, a perpetual cycle in which active glutathione is expended and restored to neutralize free radicals and other damaging oxidative chemicals.

The two enzymes within the glutathione cycle are glutathione peroxidase and glutathione reductase. Glutathione peroxidase allows reduced glutathione to efficiently neutralize free radicals and peroxides. At the end of this reaction, glutathione is left in its inactive, oxidized, form.
Oxidized glutathione is reduced back to its active state by glutathione reductase. The enzymatic regeneration of active glutathione allows for it to be highly effective even against chronic stressors like sun exposure.

A 2010 publication by Reuter et al, details the close link between these oxidative stresses with chronic inflammation and, ultimately, diseases such as cancer and diabetes. Oxidative stress activates a number of pro-inflammatory mediators, notably NF-κB and PPAR-γ, which cause the expression of inflammatory genes.

**Melanin & Tyrosinase**

Most people are already familiar with melanin, the pigment responsible for brown and yellow skin tones. It is born in the melanocyte, deep in the epidermis, and travels to the outer epidermis where it is expressed as darkened skin tone. But, the real driving force of skin darkening is the enzyme tyrosinase. Tyrosinase catalyzes the formation of melanin during three separate stages of synthesis. Therefore, in the resistance of skin darkening, tyrosinase inhibition is key.

Many molecules have been found to possess a tyrosinase inhibiting effect. Unsurprisingly, glutathione is a powerful inhibitor. This may be due to glutathione’s ability to prevent a chain reaction in which reactive oxygen species induce tyrosinase.

**How to Supplement Glutathione**

Cellular glutathione can be supplemented through injection, oral ingestion and

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**“The Pink Glow”**

Fans of glutathione rave about the pink glow they achieve from using it. This phenomenon is actually completely real! The human body produces two types of melanin: eumelanin and pheomelanin. Eumelanin, the dark pigment, is responsible for brown and yellow coloration. Pheomelanin, on the other hand, causes red and pink pigmentation, such as that found on lips and areolas. Glutathione and N-Acetyl-Cysteine contain cysteine groups which shift melanin production from eumelanin to pheomelanin, lightening skin and giving a beautiful pink glow.
- Glutathione
- N-Acetyl-L-Cysteine
- Alpha Lipoic Acid
- L-Methionine
- Vitamin E
- Vitamin B2
- Selenomethionine
- Milk Thistle
- Green Tea Extract
- Rosehips
- Citrus Bioflavonoids
- Hesperedin
- Quercetin
- Soy Isoflavone

- Whitening blend contains glutathione and many natural antioxidants to maximize potency, synergy and skin support
- Powerful age-fighting ingredients including Green Tea, Rosehips and flavonoids
- Promotes and protects collagen and elastin
- Reduces inflammation and cell damage from internal or external stresses
- Bolsters natural skin immunity
sublingual administration. Injection is popular among people looking for rapid results. When glutathione is introduced directly into the bloodstream, it can quickly reach the melanocytes and keratinocytes where melanin is produced and stored.

Sublingual administration is very similar to intravenous. A glutathione solution is held under the tongue where it diffuses through the mucous membrane into underlying capillaries. This causes it to rapidly enter circulation and allows the glutathione to bypass the digestive tract. Many brands have begun to offer sprays or drops of liquid glutathione for the purpose of sublingual administration.

Lastly, glutathione capsules are becoming increasingly popular due to the ease of use compared to the other methods. Daily oral doses of glutathione have been clinically proven to lighten skin. Additionally, glutathione capsules can come with an array of glutathione boosting glutathione, but actually produce a sustained level of elevated glutathione due to supporting ingredients and precursors. This is thanks to the 4 key elements of the supplement blend: High Dose Glutathione, Phytonutrient Complex, GlutaBoost Complex, and Bioflavonoid Complex.

**Relumins 15X Glutathione Complex**

Relumins Labs is now offering the first ever full-spectrum skin support and whitening supplement, the 15x Glutathione Complex. The ingredients in this blend not only rapidly increase cellular

**Phytonutrient Complex**

- Green Tea & Rosehips (Lutein and Zeaxanthin)
- Protect the skin from UV damage
- Antioxidant and inflammation fighting power
- Helps prevent skin discoloration from sun exposure

**Bioflavonoid Complex**

- Quercetin, Hesperidin, Milk Thistle, Citrus Bioflavonoids, Soy Isoflavone
- Antioxidant And Anti-inflammatory Properties
- Enhance vitamin C activity and blood flow
- Clinically proven anti-aging properties

**GlutaBoost Complex**

- N-Acetyl-L-Cysteine, Alpha Lipoic Acid, L-Methionine, Vitamin E, Vitamin B2, Selenium/Minerals
- Boosts glutathione activity and production
- Extends effects of glutathione
- Promotes pro-glutathione enzymes

**Glutathione**

- Gold Standard of Safe, Effective, Skin Whitening
- Tyrosinase Inhibitor, prevents melanin synthesis
- Gives skin a beautiful pink glow
- “Master Antioxidant” With Cell Protective Properties Can Prevent Skin Damage

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well as the carotenoids Lutein and Zeaxanthin. These ingredients demonstrate anti-inflammatory effects on the skin to help protect against the aging and darkening effects of acne and sun related skin damage. Furthermore, their antioxidant properties support sustained glutathione levels.

Green tea is a known tyrosinase inhibitor which may be due to its ability to quench free radicals and peroxides. Furthermore, green tea polyphenols possess the unique ability of reducing the severity of sunburn when taken orally. This is especially important due to the aging and darkening effects of sunburn.

Rosehips also demonstrate a unique and powerful skin protecting effect. Lutein and Zeaxanthin, carotenoids found in rosehips, inhibit the amount and activity of matrix metalloproteinases (MMPs). MMPs are enzymes that are released into the dermis following exposure to UV. They break down important structural proteins, destroying collagen and elastin and aging skin.

**Glutabooost Complex**

High dose glutathione will only go so far, as it is limited by its slow accumulation in cells. To combat this factor, the Relumins 15x Glutathione Complex contains ingredients that increase the body’s own glutathione production and activity. This glutathione is produced inside your cells, so it does not need to pass through the stomach, intestines or blood.

N-acetyl-L-cysteine and Alpha Lipoic Acid supplement the body’s available cysteine, an essential precursor of cellular glutathione. This creates a sustained production of glutathione to minimize fluctuations between doses. Furthermore, Alpha Lipoic Acid was shown to protect against the depletion of reduced glutathione in irradiated cells. This effect indicates that these boosters may prevent glutathione fluctuations even when stressors such as sun exposure are present.

The Glutabooost Complex also contains Selenomethionine and Vitamin B2. Each molecule contributes a benefit to the enzymes of the glutathione cycle. Selenomethionine provides the selenium needed to form glutathione peroxidase, which maintains glutathione activity, while Vitamin B2 is a cofactor of glutathione reductase.

**Bioflavonoid Complex**

The Bioflavonoid Complex consists of a number of antioxidant and anti-inflammatory ingredients including carotenoids to combat skin damage. This complex exhibits clinically proven anti-aging effects by promoting collagen, reducing under eye circles and improving blood flow.

Hesperidin and other citrus bioflavonoids strengthen blood vessels and reduces dark circles under eyes. Soy Isoflavone improves the appearance of fine wrinkles and increases dermal blood vessels and papillae while also supporting collagen production. The citrus bioflavonoids have been observed to synergistically
increase the effect of vitamin C and improve capillary strength.

**Effects and Efficacy**

The skin benefits of Relumins 15x Glutathione Complex fall into 6 main categories:

1. Glutathione Support
2. Tyrosinase Inhibition
3. Antioxidation
4. Anti-inflammation
5. Protection from Environmental Damage
6. Anti-Aging

**Glutathione Support**

This new synergistic formula is designed for maximum absorption, utilization and efficacy of glutathione. Quercitin, Vitamin B2 and Alpha Lipoic Acid aid in the maintenance of glutathione activity. N-acetyl-L-cysteine and Alpha Lipoic Acid supplement available cystein, an essential precursor of cellular glutathione. Selenomethionine provides the selenium needed to form glutathione peroxidase, which maintains glutathione activity.

Reduced glutathione is oxidized by reactive oxygen species (ROS) including free radicals and peroxides. Because reduced glutathione is active in inhibiting the melanogenic pathway, it is important to keep levels high. Quenching ROS will maintain a higher reduced:oxidized glutathione ratio. Every ingredient in this formula contains potent antioxidants that protect and prolong glutathione activity.

**Tyrosinase Inhibition**

Tyrosinase is the master enzyme in melanogenesis, by inhibiting it, melanogenesis is slowed. This formula contains many tyrosinase inhibitors, including: glutathione, vitamin E, quercetin, hesperidin, citrus bioflavonoids, green tea extract and soy isoflavones. Tyrosinase activity can also be

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*Skin damage from UV radiation and the resulting increase in free radicals and matrix metalloproteinases and other protein destroying enzymes*

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induced by free radicals and peroxides\(^1\), so antioxidants will demonstrate an inhibitive effect on tyrosinase.

**Antioxidation**

Each ingredient in the formula was thoughtfully chosen for its effect and synergy. It is no surprise that all 15 of them are antioxidants. These protective molecules have an extremely broad range of skin protective benefits that aid in whitening and anti-aging.

**Anti-Inflammation**

Postinflammatory hyperpigmentation is common among darker skinned individuals\(^1\). This is a phenomenon in which inflammatory injury, such as sunburn or acne, causes skin discoloration. Preventing or inhibiting inflammation can minimize discoloration from injuries\(^2\). We acheived the desired effect through the inclusion of milk thistle\(^3\), quercetin\(^4\), hesperidin\(^5\), rose hips\(^6\), green tea \(^7\), and vitamin E\(^8\).

**Protection from Environmental Damage**

Sunlight can damage skin by increasing oxidative stress, but antioxidants will effectively reduce UV induced ROS in the skin. UV radiation also causes an influx of matrix-metalloproteinases and neutrophils containing proteolytic enzymes into the dermis. These enzymes destroy collagen and elastin and age skin\(^9\). Lutein & Zeaxanthin, carotenoids found in rosehips, inhibit the amount and activity of these enzymes\(^10\).

Many of the naturally occurring phytochemicals in Relumins 15x Glutathione Complex protect against UV induced inflammation, oxidative stress, immunosuppression and skin cancer\(^11\). These ingredients include vitamin E, green tea polyphenols, silymarin and lutein.

**Anti-Aging**

Relumins 15x Glutathione Blend is the first oral glutathione product to truly rival the effectiveness of intravenous or sublingual administration. By balancing high dose glutathione with sustained natural production, users can experience an immediate boost to cellular glutathione levels that won’t dwindle as quickly as other products. The effects are a total spectrum of skin whitening, repair and anti-aging. This is truly the perfect formula!

Relumins 15x Glutathione Complex helps to reverse the signs of aging by supporting collagen production. We have included L-methionine & soy isoflavone\(^20\) for their scientifically proven effects on collagen production. Boosting collagen is essential in older skin, where reduced collagen levels cause wrinkles and sagging skin.

Soy Isoflavone is a phytoestrogen which improves the appearance of fine wrinkles and increases dermal blood vessels and papillae\(^20,21\). This is a huge benefit to overall skin health, as older skin receives less nourishment from the blood and loses the structural support of papillae. Furthermore, hesperidin and other citrus bioflavonoids strengthen blood vessels and reduce dark circles under eyes\(^22\).

**Summary**


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