

Ghost Glow: Look Good, Feel Great (2023 Update)

written by Mike Roberto | January 25, 2023

Skin health is something that doesn't get a lot of press in the sports nutrition industry. It's tempting to write this off as a relatively "superficial" concern in an industry that's geared towards helping people wring every last watt of mental and physical performance from their personal potential.

But as it turns out, *the health of your skin isn't just skin-deep*, and if there's one brand to bring *beauty* to the athletic masses, it's *Ghost Lifestyle*.



The state of your skin is often a visual clue to the health of your metabolism and internal organs. In recent years, we've seen a much more *holistic* approach to improving skin quality – one that focuses on supporting whole body health by improving antioxidant balance and accelerating detoxification.

Ghost Glow: Look Good, Feel Great

That's the idea behind **Ghost Glow**, the *skin health* formula from Ghost that's packed with ingredients to help hydrate the skin, control blood sugar, reduce inflammation, and boost antioxidant status – *all* of which can cause improvements to health that ultimately manifest as *noticeably better skin quality*.

Ghost Glow was originally released as a *powder* back in 2020, and we loved it then. In this version, Ghost replaced DIM with *hyaluronic acid* and reduced the *inositol* dosage in the powder. Additionally, there's *no more sucralose* – the sweetener has switched to *stevia*. All of these changes will make it easier on

the gut.

But Ghost has yet *another* surprise in store for us today:

New in 2023: Introducing Ghost Glow Capsules

Ghost Glow Caps are also here! This is a condensed formula with just one major change – there's no inositol! Aside from that, it's the same formula. More options for more skincare success.

Let's get into how the updated Ghost Glow formula works and how it can improve your skin health. But first, check PricePLOW's coupon-powered deals and Ghost Lifestyle news alerts:

Ghost Glow – Deals and Price Drop Alerts

Get Price Alerts

Get Glow Price Alerts Get GHOST alerts Get Skin Care price drops

Also get hot deal alerts

No spam, no scams.

Disclosure: PricePLOW relies on pricing from stores with which we have a business relationship. We work hard to keep pricing current, but you may find a better offer.

Posts are sponsored in part by the retailers and/or brands listed on this page.

Ghost Glow Ingredients

If you're interested in the Ghost Glow Caps ingredients, simply skip the *inositol* section listed first. In a single one scoop serving of the new Ghost Glow, you'll get the following:

- **Inositol – 2000 mg**



The one ingredient that's *only* in the powder version, it's a 2000 milligram dose of **inositol**, also known as *myo-inositol*, which is a *carbocyclic sugar* naturally found in the body and several foods. It has a very similar chemical structure to blood glucose and is involved in a diverse set of physiological processes. Inositol plays a key role in *osmoregulation, cell signaling in response to hormones, growth factors, and neurotransmitters* – it helps maintain a cell's *structural integrity*. [1,2]

A brain booster in a skin care supplement? Inositol is more than that...

Ghost Glow isn't the only product you can find inositol in – the Legends also include it in *Ghost Gamer*, which is a part of the *noolVL* nootropic ingredient. There, inositol provides brain-boosting benefits, but what can it do for overall health?

Metabolic improvements

In a study from 2011, researchers recruited 80 postmenopausal women with metabolic syndrome and divided them into two groups. [3] One group received a placebo and the other group was given tablets with 2g of inositol. [3] The researchers instructed the subjects to take the tablets 2 times per day for 6 months, equating to *4g of inositol per day*. [3]

At the end of the study, they found that **inositol supplementation led to reduced blood pressure by 11% on average, improved insulin sensitivity, reduced serum levels of triglycerides by 20% on average, and increased HDL cholesterol levels by approximately 22%**, [3] which are all very significant findings!

Reason being, there's often a connection seen between insulin sensitivity and reduced "AGEs" – *advanced glycation end products* – which are associated with the aging process.[4]

PCOS improvements



Ghost Gamer contains the nootropic ingredient nooLVL by Nutrition21, which includes inositol as well.

Other research has found that inositol is capable of *improving insulin sensitivity, ovarian function and fertility* in women with *polycystic ovary syndrome (PCOS)*. [5,6] PCOS is a hormonal disorder that can lead to enlarged ovaries and formation of small cysts. Some signs and symptoms include facial hair, acne, and irregular menstrual cycles.

In addition, there's some research suggesting that inositol can *improve mood* – but note that the studied dosages are much higher than 2 grams.[7]

Added carbs in the powder

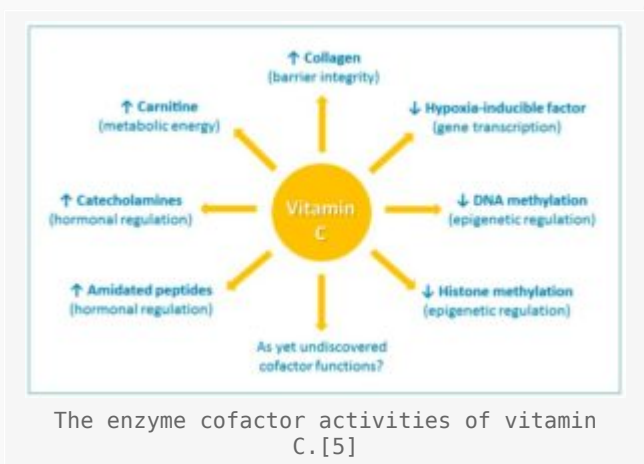
Also remember that Ghost Glow now contains around *4 grams* of carbohydrates – down from 5 grams in the original formula. Much of that is coming from inositol here, but the potential benefits far outweigh a few extra calories that you shouldn't fear. And if you *do*, then take a look at the *Ghost Glow Caps*, which are in the reset of the formula:

PureWay-C (Ascorbic Acid and Citrus Bioflavonoids) – 667 mg (yielding 500 mg Vitamin C) – 556% DV

Vitamin C is a water soluble vitamin[8] that's famous for its *antioxidant properties*. If you've been into supplements for any length of time, you've likely heard of Nobel laureate Linus Pauling's lifelong obsession with vitamin C, which he believed to be a *silver bullet* for human health. We wouldn't go *that* far, but still think the vitamin's pretty cool.

It's important for *protein assimilation*, as well as the production of *collagen, neurotransmitters, and carnitine*. [8-12] But it's also for *collagen synthesis!*

Vitamin C for the collagen win



According to a 2018 meta-analysis, vitamin C specifically boosts your body's production of *collagen type I*, [13,14] the most abundant kind of collagen in your body and skin. In fact, collagen type I synthesis *cannot occur* unless your skin cells have adequate vitamin C. [15] Consider it *essential*.

Combat oxidative stress

Vitamin C can also *protect your skin from damage caused by ultraviolet (UV) light*, which is key to minimizing *skin aging*. And *oral* vitamin C supplements (i.e., Ghost Glow capsules) seem to be best at this. [15]

We've all heard that runaway oxidative stress can increase one's risk for many diseases, [9] so it probably won't surprise regular readers of the PriceFlow Blog *too* much to learn that oxidative stress is a central part of *skin aging* as well. [16] Vitamin C's *antioxidant capacity* is actually what protects skin from UV light, [15] and is key to its potential as an anti-aging compound. [15,16]

- One thing to note about Ghost Glow is that the 667 milligram dose of PureWay-C provides 500 milligrams of vitamin C. The other bioflavonoids involved have

been shown to increase its bioavailability!

PureWay-C: Higher Bioavailability Vitamin C



Ghost Multi also contains PureWay-C

Ghost's customers may be familiar with **PureWay-C**, which is also in *Ghost Multi* and *Ghost Pump*. This is a type of vitamin C that includes *bioflavonoids* that are claimed to improve Vitamin C retention by 233%, based upon four clinical trials with no adverse events.[17-20]

In fact, a 2008 study put PureWay-C up against three competitors in *ascorbic acid*, *calcium ascorbate*, and *ascorbate-calcium threonate-dehydroascorbate (Ester-C)*, and came to the following conclusion:

PureWay-C supplementation leads to the highest absolute

serum vitamin C levels when compared to AA, CaA and Ester-C. PureWay-C provides a statistically significant greater serum level than calcium ascorbate at 1, 2, 4, and 6 hours post oral supplementation whereas Ester-C shows a less but slightly statistically significant increase at only 1 and 4 hours[17]

We appreciate the fact that Ghost spends more money on a better Vitamin C ingredient – especially one that takes up a bit more room in the capsules!

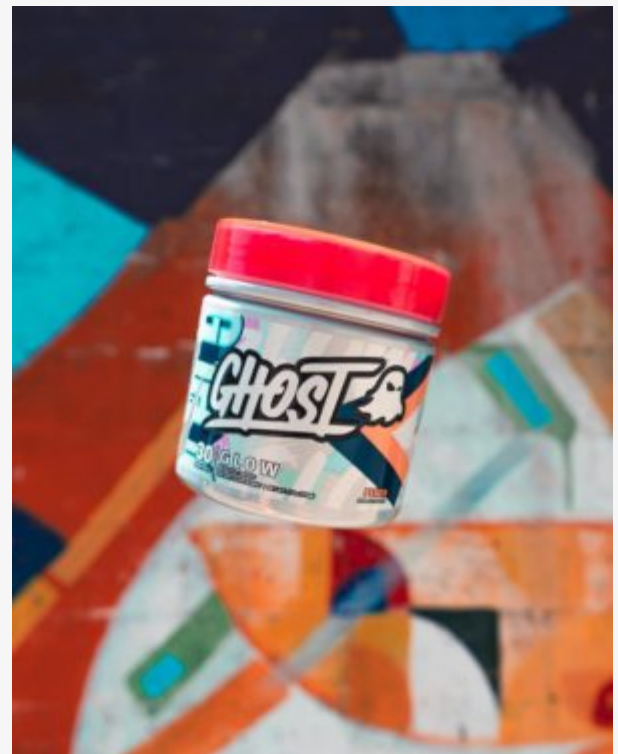
- **Astrion (Astragalus membranaceus (root) and Centella asiatica (whole plant)) extracts – 250 mg**

There are *three* primary factors in good skin health:

1. Collagen integrity
2. Hyaluronic acid levels
3. Matrix metalloproteinase (MMP) activity – less is better

Astrion from NuLiv Science is formulated to lend crucial support when it comes to *all three* factors. Let's see how it works:

Astragalosides in Astrion



Powered by Astrion, Ghost Glow will light up your health!

Astragalosides (ASTs) are *saponin molecules* sourced from *Astragalus membranaceus*, one of Astrion's two source plants. They've been shown to have *tons* of benefits for human health, including *antioxidant* and *cardioprotective* effects.

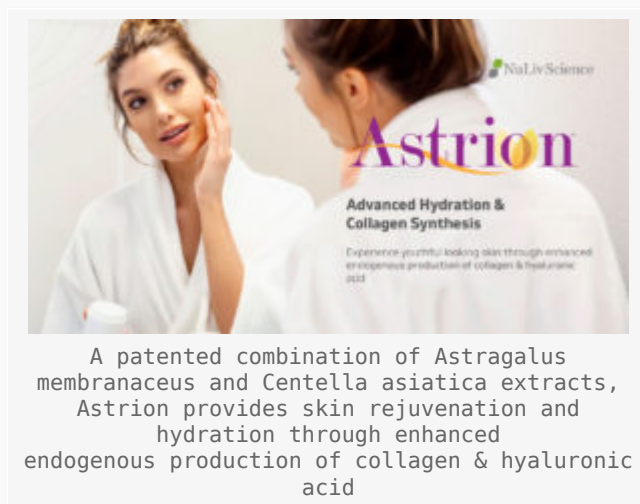
One thing that sets ASTs apart from most other antioxidants is they can cross the *blood-brain barrier*.^[21] This enables them to more effectively protect *brain tissue* from oxidative stress.

There are four types of ASTs, aptly named ASTs I, II, III, and IV.

- A 2014 study found that AST IV can both *protect collagen* from UV-induced damage, and also inhibit MMP activity in UV-irradiated skin cells.^[22]
- A 2012 study on *AST II* found that it can protect *dermis cells* (also known as *fibroblasts*) from UV damage, increasing their viability by an impressive 142.8%.^[23]
- *Both* studies also found collagen-related AST benefits for non-irradiated skin cells.^[22,23]

Asiaticosides in Astrion

Now that we've talked about *Astragalus*, let's focus on *Centella asiatica*, the other source of Astrion's bioactive constituents.



The key compound sourced from this plant is named – aptly – *asiaticoside*.

Asiaticoside is a *triterpene* molecule. According to a research review on *Centella* from 2013, this compound can do the following:

- Upregulate protein, collagen, and hydroxyproline during skin healing^[24]
- Support your body's metabolism of both proline and lysine, both collagen precursors^[24]
- Trigger the synthesis of hyaluronic acid in skin wounds^[24]

- Upregulate *collagen synthesis* in fibroblasts (dermis cells)[24]

There are *12 different in vitro studies* showing that Astrion can boost collagen type I production by about 60% in the epidermis and 80% in the dermis. It also upregulates the production and secretion of type III collagen in dermal cells – by 30% and 80%, respectively – and upregulates hyaluronic acid synthesis in the epidermis by about 20%.[25]

The *clinical trial* for Astrion found that it can decrease the appearance of skin wrinkles by 15%, and melanated sun spots by 17%.[25]

- **Setria L-Glutathione – 250 mg**



Setria L-Glutathione is a trademarked form of *glutathione* (GSH).

Because glutathione is a powerful and abundant antioxidant in the body, any strategy to boost GSH levels earns our appreciation – and Setria supplementation definitely qualifies.

Although the bioavailability of oral GSH supplements has been questioned in recent years, some studies do indicate that increased GSH levels can be observed 1-2 hours after ingestion of an oral GSH supplement.[26]

At least one *Setria-specific* study has attested to the efficacy of this orally-administered designer GSH. In this study, 60 healthy women between the ages of 20 and 50 were recruited for a *randomized, double-blind, placebo-controlled* study – the *gold standard* of scientific research – which concluded that supplementation with 250 mg Setria L-Glutathione “*effectively influences skin properties*” and “*showed a significant reduction in wrinkles compared with those taking placebo*”. The authors of the study conclude by saying that Setria has “*various beneficial effects on skin properties and is possibly an antiaging agent, at least in middle-aged female subjects*”.[27]

Effective GSH supplementation will come with *tons* of other benefits too – besides the *general* benefits of antioxidant supplementation that we discussed

in the vitamin C section, we should note that GSH is particularly good at *recycling* antioxidants in the body, including vitamins C and E. This can help promote *mercury detoxification* and mitochondrial function, among other things.[28]

And don't forget, *oxidative stress* is a prime factor in skin aging.[29]

- **L-Theanine – 200 mg**



Although **theanine** is most famous as an anxiolytic GABA-like complement to *caffeine*, it can actually have some pretty cool benefits for skin health too.

Theanine can downregulate the production of pro-inflammatory *interleukin cytokines*, both in the skin and systemically,[30,31] which is one of the reasons that topical theanine can significantly reduce *skin inflammation*.[32] The reason this matters is that *inflammation*, like oxidative stress, is closely linked to *skin aging* – so much so that the term *inflammaging* is often used in dermatology papers.[33]

The most common natural source of theanine, tea (*Camellia sinensis*) has been proposed for use as an anti-skin-aging compound.[34]

Theanine is also great for your *liver*,[35,36] which is key to maintaining good skin health. Many liver diseases actually manifest as poor skin quality.[37,38]

- **Hyaluronic Acid (as Sodium Hyaluronate) – 120 mg**

SUPPLEMENT FACTS		
Serving Size: 3 Capsules		
Servings Per Container: 30		
	Amount Per Serving	%DV
Calories	5	
Total Carbohydrate	1 g	<1%**
Vitamin C (as PureWay-C™)	500 mg	556%
Biotin	2500 mcg	8333%
Selenium (as Selenium Glycinate Chelate)	100 mcg	182%
Chromium (as Chromium Picolinate)	120 mcg	343%
GHOST® GLOW		
PureWay-C™ (Ascorbic Acid and Citrus Bioflavonoids)	667 mg	†
Astrion™ (Astragalus membranaceus (root) and Centella asiatica (whole plant)) extracts	250 mg	†
Setria® L-Glutathione	250 mg	†
L-Theanine	200 mg	†
Hyaluronic Acid (as Sodium Hyaluronate)	120 mg	†
Verbasol™ (Rehmannia glutinosa) Leaf extract	50 mg	†
** Percent Daily Values (DV) are based on a 2,000 calorie diet.		
† Daily Value not established.		
OTHER INGREDIENTS: Rice Flour, Vegetable Capsule (Hypromellose), Microcrystalline Cellulose, Rice Extract Blend (Rice Extract, Rice Hulls, Gum Arabic, Sunflower Oil), Ground Rice Hulls, Silicon Dioxide.		
MANUFACTURED FOR GHOST LLC 5651 S Edmond Street Las Vegas, NV 89118, U.S.A. 1-844-GHOST-88 (446-7888)		MANUFACTURED IN THE U.S.A. IN A GMP COMPLIANT FACILITY CONTAINS INGREDIENTS OF INTERNATIONAL AND DOMESTIC ORIGIN
1 VEGAN FRIENDLY GF GLUTEN FREE SF SOY FREE S SUGAR FREE		
Setria® Astrion Verbasol PUREWAY		

Hyaluronic acid (HA) is an *osmolyte*, meaning that it can increase the concentration of water in your cells by increasing the osmotic pressure around them.[39] This *hydrating* effect of HA can go a long way towards helping your skin stay moist and supple.

Not just a topical, and not just a joint supplement

It may be a little surprising to see hyaluronic acid used in an oral supplement, since the vast majority of skin care applications are topical. And those are great indeed, but there *are* oral benefits as well!

A research review on the subject shows that oral HA supplementation is effective.[40] Hyaluronic acid supplementation has been shown to moisturize skin across the entire body.[40,41]

This is one of the additions in the 2023 version of Ghost Glow, and we're very happy it made the cut. You may even get some joint health improvements!

- **Verbasol (Rehmannia glutinosa) Leaf extract – 50 mg**

Verbasol is another trademarked botanical extract from NuLiv science, sourced from *Rehmannia glutinosa*, a plant with a long history of use in traditional Chinese medicine (TCM).



Ghost Glow lights up the supplement industry!

This is another *powerful antioxidant* ingredient that helps improve skin quality by fighting *oxidative stress*, [42,43] but it *also* can improve skin hydration and elasticity. [42]

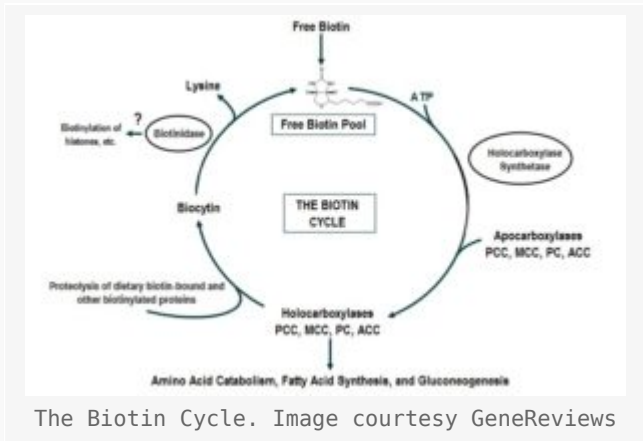
This is thanks to **verbascoside**, the primary bioactive constituent in *Rehmannia*. Verbascoside has been shown to: [42,43]

- *Increase procollagen type I* production
- Prevent the reproduction of acne-causing bacteria
- Downregulate inflammatory cytokines
- Inhibit the growth of yeast
- Fight oxidative stress
- Protect skin from photoaging

As a potent inhibitor of *5-alpha reductase*, the enzyme that converts testosterone to the more potent *dihydrotestosterone*, verbascoside might also *reduce sebum production*, which can alleviate *oily skin*. It also *downregulates* the production of melanin, so be aware of that if you're trying to tan. [42,43]

A human clinical trial found that 30 days of topical Verbasnol application significantly reduced the severity of acne lesions. [43]

- **Biotin – 2500 mcg (8333% DV)**



Biotin, also known as *vitamin B7*, is a mainstay ingredient in supplements for hair, skin and nail health due to the fact that *being deficient in biotin* can wreck all three of these – it can cause dermatitis[44] and hair loss[45,46] among other things.

At over 80 times the daily recommended value, this dose of biotin is obviously more than adequate for the purposes of preventing deficiency in this key nutrient. As with any vitamin, other factors may affect the absorption and elimination of biotin, but you've definitely got your *biotin intake* covered here.

- **Selenium (as Selenium Glycinate Chelate) – 100 mcg (182% DV)**

Many are familiar with the role of **selenium** in fighting oxidative stress and maintaining fertility, but it actually plays an important role in protecting your *skin* as well.



Specifically, like several other ingredients in this formula, selenium can prevent your skin from being damaged by UV light.[47] It does this by upregulating glutathione peroxidase and thioredoxin reductase, two enzymes that play a key role in your body's *endogenous antioxidant defense system*.

Psoriasis patients have been observed to have lower than expected levels of selenium, and supplementation can help improve their symptoms.[48]

On the other end, selenium *deficiency* can increase a person's risk of *skin cancer*, which we obviously want to avoid if possible.[49]

We like seeing *chelated* forms of minerals wherever possible, as they are generally more bioavailable than non-chelated forms. *Glycine* is one of our favorite supplemental aminos, so this *selenium glycinate* has a great partner to help boost absorption.

- **Chromium (as Chromium Picolinate) – 120 mcg (343% DV)**

As you've probably heard before, *out of control blood sugar* can cause premature skin aging, which is why people with chronic hyperglycemia (diabetics, usually) tend to look older than they really are.[50]



Chromium can help your body *properly regulate* blood glucose levels by modulating *insulin* signaling.[51-53] In people with high insulin and high blood glucose, this has the effect of decreasing both.[54,55]

And the *picolinate* form of chromium seems to be the most effective form available.[55]

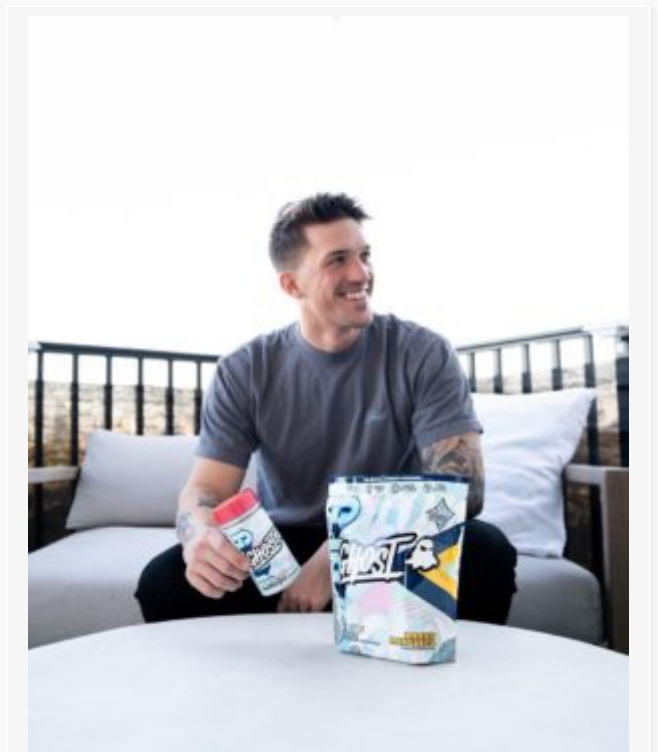
Research shows that people who supplement with chromium have a lower risk of type 2 diabetes than those who don't.[55] Correspondingly, *chromium deficiency* can seriously increase a person's risk of developing diabetes or other metabolic disorders.[56]

Finally, chromium can help improve *liver health* by defatting liver tissue.[57]

Chromium and selenium are two minerals that can be incredibly helpful for skin care health (as well as *whole body* health), but we don't see them much in skin care supplements. Leave it to Ghost Lifestyle – who actually knows a thing or two about formulation – to get the job done.

And you can always get *more* of these with *Ghost Multi* – chromium doses can safely go far higher, and bring even more benefits.

Flavors Available



Inositol is only in Ghost Glow powder and stick packs, not Glow caps.

Ghost has always flavored Glow incredibly well, and that shouldn't change with the new version, although the sweetening is now *natural* with stevia instead of the sucralose used from 2020-2022. All variations are listed below:

Conclusion: Look Great, Feel *Incredible!*

Ghost Glow is an awesome formula – the inclusion of so many great ingredients (even *chromium*) shows that Ghost has really done their homework and developed a holistic, comprehensive view of how skin aging occurs and can be prevented.

If this formula has a slant, it's definitely *protecting your skin against photoaging*, which is awesome because that's the primary factor in the aging of most people's skin.[58]

Finally, we love the capsule variation. Not everyone wants to drink yet another sweetened drink powder, and not everyone wants the extra carbs. But three capsules? Easy.

Ghost is really focusing on *wellness* in 2023, and proves once again that they have something for everyone to look good and feel even better.

Ghost Glow – Deals and Price Drop Alerts

Get Price Alerts

Get Glow Price Alerts Get GHOST alerts Get Skin Care price drops

Also get hot deal alerts

No spam, no scams.

Disclosure: PricePLOW relies on pricing from stores with which we have a business relationship. We work hard to keep pricing current, but you may find a better offer.

Posts are sponsored in part by the retailers and/or brands listed on this page.



Note: This article was originally published on June 23, 2020 and updated on January 25, 2023.

References

1. Michell, R H; "Inositol Phospholipids and Cell Surface Receptor Function."; *Biochimica Et Biophysica Acta*; U.S. National Library of Medicine; 25 Mar. 1975; <https://pubmed.ncbi.nlm.nih.gov/164246>
2. Levine, J; "Controlled Trials of Inositol in Psychiatry."; *European Neuropsychopharmacology*

- : the Journal of the European College of Neuropsychopharmacology; U.S. National Library of Medicine; May 1997; <https://pubmed.ncbi.nlm.nih.gov/9169302>
3. Giordano, Domenico et al.; "Effects of myo-inositol supplementation in postmenopausal women with metabolic syndrome: a perspective, randomized, placebo-controlled study."; *Menopause (New York, N.Y.)* vol. 18,1 (2011): 102-4. doi:10.1097/gme.0b013e3181e8e1b1; <https://pubmed.ncbi.nlm.nih.gov/20811299/>
 4. Twarda-Clapa, Aleksandra, et al. "Advanced Glycation End-Products (AGEs): Formation, Chemistry, Classification, Receptors, and Diseases Related to AGEs." *Cells*, vol. 11, no. 8, 1 Jan. 2022, p. 1312; doi:10.3390/cells11081312; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9029922/>
 5. Gerli, S et al. "Randomized, double blind placebo-controlled trial: effects of myo-inositol on ovarian function and metabolic factors in women with PCOS."; *European review for medical and pharmacological sciences* vol. 11,5 (2007): 347-54; <https://pubmed.ncbi.nlm.nih.gov/18074942/>
 6. Costantino, D et al.; "Metabolic and hormonal effects of myo-inositol in women with polycystic ovary syndrome: a double-blind trial."; *European review for medical and pharmacological sciences* vol. 13,2 (2009): 105-10; <https://pubmed.ncbi.nlm.nih.gov/19499845/>
 7. Levine, J et al.; "Double-blind, controlled trial of inositol treatment of depression."; *The American journal of psychiatry* vol. 152,5 (1995): 792-4. doi:10.1176/ajp.152.5.792; <https://pubmed.ncbi.nlm.nih.gov/7726322/>
 8. Office of Dietary Supplements; *Vitamin C – Fact Sheet For Health Professionals*; National Institutes of Health; 2020; <https://ods.od.nih.gov/factsheets/VitaminC-HealthProfessional/>
 9. Pham-Huy, Lien Ai et al.; "Free radicals, antioxidants in disease and health."; *International journal of biomedical science : IJBS* vol. 4,2 (2008): 89-96; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3614697/>
 10. Webb AL, Villamor E; "Update: effects of antioxidant and non-antioxidant vitamin supplementation on immune function"; *Nutr Rev.* 2007 May; 65(5):181-217; <https://academic.oup.com/nutritionreviews/article/65/5/181/1822809>
 11. Maggini S, et al; "Selected vitamins and trace elements support immune function by strengthening epithelial barriers and cellular and humoral immune responses"; *Br J Nutr.* 2007 Oct; 98 Suppl 1():S29-35; <https://pubmed.ncbi.nlm.nih.gov/17922955/>
 12. Carr AC, Maggini S; "Vitamin C and Immune Function"; *Nutrients.* 2017;9(11):1211; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5707683/>
 13. Shaw, Gregory et al; "Vitamin C-enriched gelatin supplementation before intermittent activity augments collagen synthesis."; *The American journal of clinical nutrition*; vol. 105,1; 2017; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5183725/>
 14. DePhillipo, Nicholas N., et al. "Efficacy of Vitamin c Supplementation on Collagen Synthesis and Oxidative Stress after Musculoskeletal Injuries: A Systematic Review." *Orthopaedic Journal of Sports Medicine*, vol. 6, no. 10, Oct. 2018, p. 232596711880454, 10.1177/2325967118804544; <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC6204628/>
 15. Pullar JM, Carr AC, Vissers MCM. *The Roles of Vitamin C in Skin Health.* *Nutrients.* 2017 Aug 12;9(8):866. doi: 10.3390/nu9080866. PMID: 28805671; PMID: PMC5579659. <https://pubmed.ncbi.nlm.nih.gov/28805671/>
 16. Papaccio, Federica et al. "Focus on the Contribution of Oxidative Stress in Skin Aging." *Antioxidants (Basel, Switzerland)* vol. 11,6 1121. 6 Jun. 2022, doi:10.3390/antiox11061121 <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/35740018/>
 17. Pancorbo, Dario, et al. "Vitamin C-Lipid Metabolites: Uptake and Retention and Effect on Plasma C-Reactive Protein and Oxidized LDL Levels in Healthy Volunteers." *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, vol. 14, no. 11, 1 Nov. 2008, pp. CR547-551; <https://pubmed.ncbi.nlm.nih.gov/18971870/>
 18. Weeks, Benjamin S., and Pedro P. Perez. "A Novel Vitamin c Preparation Enhances Neurite Formation and Fibroblast Adhesion and Reduces Xenobiotic-Induced T-Cell Hyperactivation." *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, vol. 13, no. 3, 1 Mar. 2007, pp. BR51-58; <https://pubmed.ncbi.nlm.nih.gov/17325628/>
 19. Weeks, Benjamin S., and Pedro P. Perez. "Absorption Rates and Free Radical Scavenging Values of Vitamin C-Lipid Metabolites in Human Lymphoblastic Cells." *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, vol. 13, no. 10, 1 Oct. 2007, pp. BR205-210 <https://pubmed.ncbi.nlm.nih.gov/17901843/>
 20. Weeks, Benjamin S., et al. "Natramune and PureWay-C Reduce Xenobiotic-Induced Human T-Cell Alpha5beta1 Integrin-Mediated Adhesion to Fibronectin." *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, vol. 14, no. 12, 1

- Dec. 2008, pp. BR279-285; <https://pubmed.ncbi.nlm.nih.gov/19043362/>
21. Costa IM, Lima FOV, Fernandes LCB, et al. Astragaloside IV Supplementation Promotes A Neuroprotective Effect in Experimental Models of Neurological Disorders: A Systematic Review. *Curr Neuropharmacol*. 2019;17(7):648-665. doi:10.2174/1570159X16666180911123341 <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC6712289/>
 22. Chen B, Li R, Yan N, Chen G, Qian W, Jiang HL, Ji C and Bi ZG: Astragaloside IV controls collagen reduction in photoaging skin by improving transforming growth factor- β /Smad signaling suppression and inhibiting matrix metalloproteinase-1. *Mol Med Rep* 11: 3344-3348, 2015; <https://pubmed.ncbi.nlm.nih.gov/25591734/>
 23. Hong, M.J., Ko, E.B., Park, S.K. and Chang, M.S. (2013), Inhibitory effect of Astragalus membranaceus root on matrix metalloproteinase-1 collagenase expression and procollagen destruction in ultraviolet B-irradiated human dermal fibroblasts by suppressing nuclear factor kappa-B activity. *Journal of Pharmacy and Pharmacology*, 65: 142-148; <https://academic.oup.com/jpp/article/65/1/142/6132955>
 24. Bylka W, Znajdek-Awiżeń P, Studzińska-Sroka E, Brzezińska M. Centella asiatica in cosmetology. *Postepy Dermatol Alergol*. 2013;30(1):46-49. doi:10.5114/pdia.2013.33378
 25. NuLiv Science. "Astrion Ingredient Research."; <https://blog.priceplow.com/wp-content/uploads/astrion-overview.pdf>
 26. Park, Eun Young, et al. "Increase in the Protein-Bound Form of Glutathione in Human Blood after the Oral Administration of Glutathione." *Journal of Agricultural and Food Chemistry*, vol. 62, no. 26, 2 July 2014, pp. 6183–6189, 10.1021/jf501338z; <https://pubmed.ncbi.nlm.nih.gov/24877771/>
 27. Weschawalit S, Thongthip S, Phutrakool P, Asawanonda P. Glutathione and its antiaging and antimelanogenic effects. *Clin Cosmet Investig Dermatol*. 2017 Apr 27;10:147-153. doi: 10.2147/CCID.S128339; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5413479/>
 28. Pizzorno, Joseph.; "Glutathione!"; *Integrative medicine (Encinitas, Calif.)* vol. 13,1 (2014): 8-12; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4684116/>
 29. Liguori, Ilaria et al. "Oxidative stress, aging, and diseases." *Clinical interventions in aging* vol. 13 757-772. 26 Apr. 2018, doi:10.2147/CIA.S158513 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5927356/>
 30. Xu, Yaohan et al. "L-Theanine Alleviates IMQ-Induced Psoriasis Like Skin Inflammation by Downregulating the Production of IL-23 and Chemokines." *Frontiers in pharmacology* vol. 12 719842. 26 Jul. 2021, doi:10.3389/fphar.2021.719842 <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/34381369/>
 31. Juszkiwicz, A et al. "The effect of L-theanine supplementation on the immune system of athletes exposed to strenuous physical exercise." *Journal of the International Society of Sports Nutrition* vol. 16,1 7. 15 Feb. 2019, doi:10.1186/s12970-019-0274-y <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/30770758/>
 32. Zeng, Wei-Jie, et al. "Topical Delivery of L-Theanine Ameliorates TPA-Induced Acute Skin Inflammation via Downregulating Endothelial PECAM-1 and Neutrophil Infiltration and Activation." *Chemico-Biological Interactions*, vol. 284, 25 Mar. 2018, pp. 69–79, doi:10.1016/j.cbi.2018.02.019; <https://www.sciencedirect.com/science/article/abs/pii/S0009279717311560>
 33. Zhuang, Yong, and John Lyga. "Inflammaging in skin and other tissues – the roles of complement system and macrophage." *Inflammation & allergy drug targets* vol. 13,3 (2014): 153-61. doi:10.2174/1871528113666140522112003 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4082166/>
 34. Feng, Meiyang, et al. "Research Progress on the Potential Delaying Skin Aging Effect and Mechanism of Tea for Oral and External Use." *Food & Function*, vol. 12, no. 7, 2021, pp. 2814–2828, 10.1039/d0fo02921a. Accessed 5 July 2022. <https://pubs.rsc.org/en/content/articlelanding/2021/fo/d0fo02921a>
 35. Li, Guilan et al. "L-Theanine prevents alcoholic liver injury through enhancing the antioxidant capability of hepatocytes." *Food and chemical toxicology : an international journal published for the British Industrial Biological Research Association* vol. 50,2 (2012): 363-72. doi:10.1016/j.fct.2011.10.036 [https://linkinghub.elsevier.com/retrieve/pii/S0278-6915\(11\)00542-4](https://linkinghub.elsevier.com/retrieve/pii/S0278-6915(11)00542-4)
 36. Zeng, Li et al. "L-Theanine attenuates liver aging by inhibiting advanced glycation end products in d-galactose-induced rats and reversing an imbalance of oxidative stress and inflammation." *Experimental gerontology* vol. 131 (2020): 110823. doi:10.1016/j.exger.2019.110823 [https://linkinghub.elsevier.com/retrieve/pii/S0531-5565\(19\)30664-3](https://linkinghub.elsevier.com/retrieve/pii/S0531-5565(19)30664-3)
 37. Satapathy, Sanjaya K, and David Bernstein. "Dermatologic disorders and the liver." *Clinics in liver disease* vol. 15,1 (2011): 165-82. doi:10.1016/j.cld.2010.09.001 [https://linkinghub.elsevier.com/retrieve/pii/S1089-3261\(10\)00078-4](https://linkinghub.elsevier.com/retrieve/pii/S1089-3261(10)00078-4)

38. Dogra, Sunil, and Rashmi Jindal. "Cutaneous manifestations of common liver diseases." *Journal of clinical and experimental hepatology* vol. 1,3 (2011): 177-84. doi:10.1016/S0973-6883(11)60235-1 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC25755383/>
39. Papakonstantinou, Eleni, et al. "Hyaluronic Acid: A Key Molecule in Skin Aging." *Dermato-Endocrinology*, vol. 4, no. 3, July 2012, pp. 253–258, 10.4161/derm.21923. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3583886/>
40. Kawada C, Yoshida T, Yoshida H, et al. Ingested hyaluronan moisturizes dry skin. *Nutr J*. 2014;13:70. Published 2014 Jul 11. doi:10.1186/1475-2891-13-70; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4110621/>
41. Kajimoto O, Odanaka W, Sakamoto W, Yoshida K, Takahashi T. Clinical effect of hyaluronic acid diet for Dry skin – objective evaluation with microscopic skin surface analyzer- *J New Rem & Clin*. 2001;50(5):548–560. (in Japanese); https://jglobal.jst.go.jp/en/detail?JGLOBAL_ID=200902152287940820
42. NuLiv Science; "Verbasol™ Ingredient Information"; 2020; <https://web.archive.org/web/20221126103414/https://nulivscience.com/ingredients/verbasol/>
43. NuLiv Science; "Verbasol™ Research Overview"; 2020; <https://blog.priceplow.com/wp-content/uploads/verbasol.pdf>
44. Mock, D. M. "Skin Manifestations of Biotin Deficiency." *Seminars in Dermatology*, vol. 10, no. 4, 1 Dec. 1991, pp. 296–302; <https://pubmed.ncbi.nlm.nih.gov/1764357/>
45. Lanska, Douglas J. "The Discovery of Niacin, Biotin, and Pantothenic Acid." *Annals of Nutrition and Metabolism*, vol. 61, no. 3, 2012, pp. 246–253, 10.1159/000343115; <https://pubmed.ncbi.nlm.nih.gov/23183297/>
46. Zemleni, Janos, et al. "Biotin and Biotinidase Deficiency." *Expert Review of Endocrinology & Metabolism*, vol. 3, no. 6, 1 Nov. 2008, pp. 715–724, 10.1586/17446651.3.6.715; <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC2726758/>
47. Park, Kyungho. "Role of micronutrients in skin health and function." *Biomolecules & therapeutics* vol. 23,3 (2015): 207-17. doi:10.4062/biomolther.2015.003 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4428712/>
48. Nazıroğlu, Mustafa et al. "Selenium and psoriasis." *Biological trace element research* vol. 150,1-3 (2012): 3-9. doi:10.1007/s12011-012-9479-5; <https://link.springer.com/article/10.1007/s12011-012-9479-5>
49. McKenzie, R C. "Selenium, ultraviolet radiation and the skin." *Clinical and experimental dermatology* vol. 25,8 (2000): 631-6. doi:10.1046/j.1365-2230.2000.00725.x; <https://academic.oup.com/ced/article/25/8/631/6628010>
50. Noordam, Raymond et al. "High serum glucose levels are associated with a higher perceived age." *Age (Dordrecht, Netherlands)* vol. 35,1 (2013): 189-95. doi:10.1007/s11357-011-9339-9; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3543736/>
51. Vincent JB.; "Quest for the molecular mechanism of chromium action and its relationship to diabetes"; *Nutr Rev*; 2000; 58(3 Pt 1); 67-72; <https://pubmed.ncbi.nlm.nih.gov/10812920/>
52. Vincent JB.; "Mechanisms of chromium action: low-molecular-weight chromium-binding substance"; *J Am Coll Nutr*; 1999; 18(1); 6-12; <https://pubmed.ncbi.nlm.nih.gov/10067653/>
53. Yamamoto, A et al; "Evidence that chromium is an essential factor for biological activity of low-molecular-weight, chromium-binding substance"; *Biochemical and biophysical research communications*; vol. 163,1; 1989; 189-93.; <https://pubmed.ncbi.nlm.nih.gov/2775259/>
54. Lydic, Michael L., et al. "Chromium Picolinate Improves Insulin Sensitivity in Obese Subjects with Polycystic Ovary Syndrome." *Fertility and Sterility*, vol. 86, no. 1, July 2006, pp. 243–246, 10.1016/j.fertnstert.2005.11.069; <https://pubmed.ncbi.nlm.nih.gov/16730719/>
55. Suksomboon, N et al; "Systematic review and meta-analysis of the efficacy and safety of chromium supplementation in diabetes"; *Journal of clinical pharmacy and therapeutics*; vol. 39,3; 2014; 292-306; <https://pubmed.ncbi.nlm.nih.gov/24635480/>
56. Davies, Stephen, et al. "Age-Related Decreases in Chromium Levels in 51,665 Hair, Sweat, and Serum Samples from 40,872 Patients—Implications for the Prevention of Cardiovascular Disease and Type II Diabetes Mellitus." *Metabolism*, vol. 46, no. 5, May 1997, pp. 469–473, 10.1016/S0026-0495(97)90179-7; <https://pubmed.ncbi.nlm.nih.gov/9160809/>
57. Kleefstra, Nanne, et al. "Characterization of the Metabolic and Physiologic Response to Chromium Supplementation in Subjects with Type 2 Diabetes Mellitus." *Metabolism*, vol. 59, no. 11, Nov. 2010, p. e17, 10.1016/j.metabol.2010.07.016; <https://pubmed.ncbi.nlm.nih.gov/20813383/>
58. Kang, S et al. "Photoaging: pathogenesis, prevention, and treatment." *Clinics in geriatric medicine* vol. 17,4 (2001): 643-59, v-vi. doi:10.1016/S0749-0690(05)70091-4 [https://linkinghub.elsevier.com/retrieve/pii/S0749-0690\(05\)70091-4](https://linkinghub.elsevier.com/retrieve/pii/S0749-0690(05)70091-4)