

Achieving Youthful Looking Skin, Naturally

by Courtney Johnson

INSIDER's Take

- Ingredients such as hyaluronic acid (HA), collagen, carotenoids and MSM have been shown to support healthy skin.
- A popular category of beauty and skin health is nutricosmetics, where ingredients improve the appearance of the skin from within.
- The high-water content of anti-aging ingredients can be a formulation challenge for manufacturers.

Beauty, specifically as it relates to anti-aging, is important to many consumers as they look to maintain healthy, beautiful skin and turn to natural remedies for help. Finding dietary ingredients that have proven studies to support claims of improving the health and sight of skin can be difficult, as unsubstantiated claims cloud the marketplace.

“There is a relatively short list of dietary ingredients that have demonstrated solid efficacy on skin anti-aging in a well-controlled clinical environment and yet, at the same time, there is a long list of dietary ingredients that claim to have this or that kind of benefit for skin health and longevity,” said Golan Raz, vice president of health and nutrition at Lycored, part of Adama Group.

Ingredients that work to tackle oxidative stress, sunlight and other environmental factors should be considered for anti-aging formulas. “Stress, and to be more specific oxidative stress, should be managed as should our exposure to environmental factors like sunlight, pollution and dry weather,” Raz advised.

However, skin shouldn't be considered mutually exclusive from overall health. “Looking on the skin as a standalone isn't a recommended approach for brands who are aiming for effective new products,” Raz said. “Just as an example, our skin's health is directly connected to the quality of sleep we get and to the levels of the overall stress we experience; these parameters and others should be taken in consideration when we focus on improving skin appearance in a healthy way.”

Combining ingredients that work together synergistically, such as in nutricosmetics, has become a popular method brand owners use to help consumers achieve optimal skin health. “Accordingly, more emphasis is being placed on developing nutricosmetics with high levels of ingredients linked to anti-aging effects such as hyaluronic acid (HA), antioxidants, botanicals, topical peptides,

sunscreens, and ceramides that have been shown to help maintain skin structure and function,” said Mal Evans, scientific director at KGK Science.

A study found topical and oral administration of the carotenoid zeaxanthin via dietary supplement and topical gel was shown to be effective in improving skin hydration, as well as improved facial lines and wrinkles, compared to a supplement-only group and a placebo group.¹ “As ingredients, carotenoids are considered very friendly to our skin’s longevity and will certainly support sustainable anti-aging goals,” Raz said.

“Photo-oxidation is the primary reason for aging skin because of free radicals produced during exposure to sunlight,” explained Lynda Doyle, vice president of global sales and marketing, OmniActive. “Carotenoids play a similar role in the skin as they do in the plants they come from: filtering high-energy light and reducing oxidative stress. Many of the carotenoids have been shown to increase minimal erythemal dose (MED), the amount of UV light that will produce a ‘burn’ response (a higher MED means greater protection from UV light).”

Fellow carotenoids lycopene and lutein have been shown in studies to help protect against ultraviolet (UV) radiation. Both ingredients can be found in tomatoes, in various amounts, but lutein is more abundant in marigold flowers. A double-blind placebo controlled study examined the capacity of natural lycopene from lycopene-rich tomatoes, and lutein from Marigold flowers to protect against UV radiation at a molecular level.² The study demonstrated lycopene and lutein co-protect the skin through a natural synergistic effect.

Doyle highlighted the research on lutein and zeaxanthin isomers. A recent study found a naturally derived marigold extract containing lutein and zeaxanthin isomers in a five-to-one ratio as found in nature (as Lutemax[®] 2020, from OmniActive Health Technologies) showed a combination of benefits not seen with other carotenoids, improved overall skin tone, increased minimal erythemal dose (MED), and improved skin elasticity.³ However, Doyle cautioned, with carotenoids can come carotenosis, a yellowing of the skin from consuming foods high in these nutrients. “This is often seen with bet-carotene,” she noted. “Unlike other carotenoids, lutein and zeaxanthin isomers don’t cause carotenosis, but can have the opposite effect.”

The challenge with carotenoids are they are an oil-soluble ingredient. “To ensure sufficient bioavailability, an oil-based matrix is required,” Raz noted, recommending soft gels as the best method for this ingredient. “With the right know-how, sophisticated emulsions can be developed, and potentially, manufacturers of shots, gels and beverages can develop products that are stable, bioavailable and affective. Stability should be also looked at as in some cases these ingredients can be sensitive to oxidation.”

Another major factor contributing to signs of aging is water loss. Evans explained as we age, the epidermis loses a principal molecule responsible for retaining water molecules and supporting micro vessels. This growing deficiency leads to increased wrinkling of skin, altered skin elasticity and loss of facial volume.⁴

“We lose water, when we actually want it to stick around and help us maintain that youthful appearance and stay agile,” added Steve Holtby, president and CEO, Soft Gel Technologies Inc.

Hyaluronic acid (HA) is naturally found in the skin and is a glucose-based polymer able to bind and retain water molecules. HA declines as humans age, and it is depleted quickly in the epidermis. “Depletion of HA in the extracellular matrix of the skin causes elastin to dry up and become brittle, which leads to fine lines and rough, dry, brittle skin,” Holtby said. “HA helps to retain water and acts as a natural hydrator.”

Soft Gel Technologies’ Injuv[®], containing HA, was shown to increase smoothness and firmness of skin.⁵ The study found it improved moisture content in the skin compared to placebo after taking two 70 mg/d soft gels twice daily. In a pre-clinical trial conducted in Japan, researchers reported 96 women between the ages of 22 and 65 took Injuv for 45 days, and questionnaires after the trial revealed 84 percent reported improved moisture level in skin and 83 percent reported improvement in softness of skin.

One formulation challenge with HA is its tendency to cause an inflammatory response when applied topically.⁶ In addition, anti-aging products usually contain a high-water content—often due to HA—which can be a challenge during the formulation process. “High water activity increases that chance of spoilage of products that must be addressed with the addition of preservatives,” Evans said.

Antioxidants are one of the most studied ingredients for skin health, according to Evans. “While vitamin C and E have been popular for a long time, newer antioxidants are beginning to play a role in healthy skin aging by helping to maintain redox balance in the skin,” Evans said. “For this reason, dietary antioxidants such as polyphenols have been associated with beneficial effects on skin health.”

A study found an oral supplement containing antioxidants (as SkinAX^{2™}, from Seppic) improved skin radiance for women between the ages of 40 and 70 with facial dull complexion by reducing skin coloring and imperfections, as well as improving skin firmness.⁷

Polyphenols are plant compounds with antioxidant activity and have been associated with beneficial effects on skin. A study found resveratrol, a polyphenol from grapes, and procyanidins improved skin elasticity, roughness, depth of wrinkles, and intensity of age spots after 60 days of supplementation compared to placebo.⁸

Another study found **fermented papaya**, a polyphenol-rich ingredient, showed significant improvement in skin evenness, moisturization and elasticity than compared to the control group.⁹

Collagen is a popular ingredient in the supplement market for anti-aging products, as it is the main structural protein found in skin. “Primarily located in connective tissue, collagen is responsible for giving the dermis its firm structure,” said Lara Niemann, marketing director, Gelita. “During the aging process, however, the skin suffers a loss of moisture and becomes increasingly dry.” Collagen is thought to reduce wrinkles by helping repair and rebuild collagen within the body, Evans added.

A randomized, double-blind, placebo-controlled study investigated the effect of oral supplementation with hydrolyzed collagen peptides on skin health in 69 healthy women aged 35 to 55 years for eight weeks.¹⁰ Researchers found the group who took 2.5g/d of hydrolyzed collagen showed statistically significant increases in skin elasticity when compared to the placebo group. This translated into reduced wrinkle depth around the eyes by 20 percent over the study period, Evans explained.

Gelita’s VERISOL[®], containing collagen peptides, was found to improve skin elasticity, as well as wrinkle reduction.¹¹ “With their special nutritional and technological properties, these pure proteins are enjoying increasing popularity in the food and dietary supplements market, and not just because they can easily be incorporated into various types of applications,” Niemann said.

Methylsulfonylmethane (MSM) is an organic sulfur compound shown to influence key genes that affect moisture and barrier function, extracellular matrix production and inflammation control.¹² “MSM is a rich source of sulfur—a key component of collagen and keratin—that supports the structural integrity of hair, skin, and nails to help people ‘look as young as they feel,’” said Tim Hammond, vice president of sales and marketing at Bergstrom Nutrition.

An unpublished study found topical MSM (as OptiMSM[®], from Bergstrom Nutrition) helped reduce wrinkles and increase skin moisture content, according to Rod Benjamin, director of research and technical services, Bergstrom Nutrition. A study published in *the Natural Medicine Journal* found participants who took MSM supplementation showed fewer wrinkles and had improvements in skin elasticity and firmness.¹² “This, coupled with the fact that MSM is made up of 34 percent sulfur, suggests that MSM may play a vital role supporting collagen in the extracellular matrix,” Hammond concluded.

As sun damage and exposure to UVA and UVB radiation affect skin health and appearance, another topical solution can be natural sunscreen containing **zinc**, which has been shown to protect against UVA and UVB rays, while also reducing the effects of photoaging.¹³ “For example, oxidized zinc that occurs in nature as the mineral zincite is a common ingredient in many ‘natural’

sunscreens,” Evans said. “Zinc oxide does not dissolve in sunscreen formulations and is not absorbed into the skin, making it different from other chemical-based sunscreens. Further, oxidized zinc is one of 17 active ingredients approved by the FDA as a sunscreen.”

Evans added that coconut oil is a natural sunscreen carrying an SPF of 5, but due to its low SPF value, it is not recommended to replace sunscreens. Evans suggested it be offered as an alternative approach to complement sunscreens.

“To achieve cosmetics formulation with proven efficacy from natural components you need something special,” said Barbara Pacchetti, scientific affairs manager, Linnea.

Ultimately, skin health is directly related to environmental and lifestyle factors such as stress, lack of sleep, diet and exposure to UV radiation. “The skin reflects on key wellness parameters and these include both physical and emotional touchpoints,” Raz concluded. Natural ingredients delivered via supplements and topical products can help enhance the appearance of skin by managing these factors and warding off signs of aging.

For more studies and research on natural ingredients that boast anti-aging benefits and improve skin health, check out **INSIDER**'s [Ingredients for Graceful Aging](#) Digital Magazine.

For a list of references, email references@naturalproductsinsider.com.

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