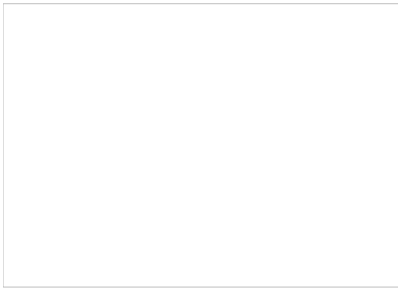


Hyaluronic acid - hope or hype?



As dermatologists, we often hear questions from patients about ingredients in beauty and skincare products. Recently, hyaluronic acid (HA) has been hitting the shelves in a variety of products, from serums and moisturizers to sheet masks, night creams, and lip products. So what is HA? What benefits does it offer? And what are the most effective ways of using this ingredient?

What is hyaluronic acid?

Technically, it's a group of sugar molecules called polysaccharides, according to a past study. These molecules work to cushion and lubricate, and they're found naturally in the body's connective tissues, notes the Cleveland Clinic.

Over time, your body's stores of hyaluronic acid decline. Age is one reason, research shows, but environmental factors — such as smoking and air pollution — also accelerate this process, according to another past study. That's the bad news.

The good news is that topical products that feature hyaluronic acid, whether as part of the ingredients list in a moisturizer or as the star of a serum, can help rebuild those depleted stores, says Bonnie Gasquet, MD, an internal medicine physician at Studio Health medical center in Belle Chasse, Louisiana.

"Hyaluronic acid attracts and binds to water molecules and increases the water content of the skin," says Shari Marchbein, MD, a board-certified dermatologist in private practice in New York City. It can absorb more than 1,000 times its weight in water, Dr. Marchbein says.

What Are the Benefits of Hyaluronic Acid?

The key benefit of hyaluronic acid is hydration and that unbelievable ability to retain moisture. To understand how important moisture is for the skin, you have to first know that dehydrated skin — when the top layer of skin doesn't have enough water — appears dry, rough, and flaky, Marchbein says.

It's not just a matter of aesthetics. Dry skin can be dangerous. "Poorly hydrated skin is unable to maintain an appropriately intact skin barrier, leaving the skin more vulnerable to damage from external and environmental sources," Marchbein says. When the skin barrier is not intact, it can let bacteria in, which can lead to infection, according to a study in *BMC Research Notes*. Compromised skin barriers can play a role in many skin conditions, including dry skin, atopic dermatitis, rosacea, and acne, according to a study in the *Journal of Allergy & Therapy*.

Hydrated skin, then, is what you want. "Skin hydration is important because hydrated skin looks more plump, healthier, and more vibrant," Marchbein says. And younger, too, if that's one of your goals. According to some research, skin aging is associated with loss of skin moisture, and hyaluronic acid is the key ingredient when it comes to combating or reversing these signs. "Because of its water-pulling qualities, hyaluronic acid can refine and age-rewind in those dry, sunken, or 'crepe' areas," Dr. Gasquet says. A small study published in May 2016 in *MMW Fortschritte der Medizin* found that over-the-counter anti-wrinkle creams containing hyaluronic acid decreased the depth of wrinkles around the

lips and eyes by 10 to 20 percent over a three-month period. Skin tightness also improved by 13 to 30 percent.

Gasquet recommends applying products with hyaluronic acid during the winter especially, when the skin tends to be at its driest. But even those who aren't battling dryness will want to add hyaluronic acid to their skin-care routine. Kenneth Rothaus, MD, a board-certified plastic surgeon with Rothaus Plastic Surgery in New York City, says it's responsible for giving the skin a healthy glow.

The 3 Types of Hyaluronic Acid: How They Differ

There are three types of hyaluronic acid:

1. **Hydrolyzed hyaluronic acid** is hyaluronic acid that has been broken down into elements small enough to penetrate the skin. It's moisturizing, but not the most moisturizing option, so it's best for people who have oily or combination skin, since these skin types want to avoid over-moisturizing.
2. **Sodium hyaluronate** goes deeper into the skin and delivers even better results, though the effects aren't very long lasting. Sodium hyaluronate is best for people who have normal skin. This is the ingredient you'll likely find in serums.
3. **Sodium acetylated hyaluronate** has the benefits of sodium hyaluronate but with longer-lasting results. It's best for people who need moisture, such as those with dry skin, those who live in dry climates, or those looking for a product for the dry winter months.

Lotions, potions, and injectable HA

Many skincare products containing HA claim to increase hydration within the skin. But is this true? The answer requires a closer look at the type of HA in the product. HA comes in different molecular sizes. Larger HA molecules, despite being the best at binding water and offering hydration, cannot penetrate into the skin. When applied topically (to the skin), these molecules sit on top of the skin, offering hydration only at the very surface. Smaller HA molecules, which bind less water than larger HA molecules, can penetrate deeper into the skin (though only into the epidermis, the topmost layer of skin). For maximum surface hydration, look for a product that contains HA molecules in a variety of sizes.

Some Surprising Benefits of Hyaluronic Acid

Hyaluronic acid, also known as hyaluronan, is a clear, gooey substance that is naturally produced by your body. The largest amounts of it are found in your skin, connective tissue and eyes. Its main function is to retain water to keep your tissues well lubricated and moist. Hyaluronic acid has a variety of uses. Many people take it as a supplement, but it's also used in topical serums, eye drops and injections. Here are some scientifically backed benefits of taking hyaluronic acid.

1. Promotes Healthier, More Supple Skin

Hyaluronic acid supplements can help your skin look and feel more supple. Roughly half of the hyaluronic acid in your body is present in your skin, where it binds to water to help retain moisture. However, the natural aging process and exposure to things like ultraviolet radiation from the sun, tobacco smoke and pollution can decrease its amounts in the skin. Taking hyaluronic acid supplements may prevent this decline by giving your body extra amounts to incorporate into the skin. Doses of 120–240 mg per day for at least one month have been shown to significantly increase skin moisture and reduce dry skin in adults. Hydrated skin also reduces the appearance of wrinkles, which may explain why several studies show that supplementing with it can make skin appear smoother. When applied to the surface of the skin, hyaluronic acid serums can reduce wrinkles, redness and dermatitis. Some dermatologists even inject hyaluronic acid fillers to keep skin looking firm and youthful

2. Can Speed Wound Healing

Hyaluronic acid also plays a key role in wound healing. It's naturally present in the skin, but its concentrations increase when there is damage in need of repair. Hyaluronic acid helps wounds heal faster by regulating inflammation levels and signaling the body to build more blood vessels in the damaged area. Applying it to skin wounds has been shown to reduce the size of wounds and decrease pain faster than a placebo or no treatment at all. Hyaluronic acid also has antibacterial properties, so it can help reduce the risk of infection when applied directly to open wounds. What's more, it's effective at combating gum disease, speeding up healing after tooth surgery and eliminating ulcers when used topically in the mouth. While the research on hyaluronic acid serums and gels is promising, there has been no research to determine whether hyaluronic acid supplements can provide the same benefits. However, since oral supplements boost the levels of hyaluronic acid found in the skin, it's reasonable to suspect they may provide some benefit.

3. Relieve Joint Pain by Keeping Bones Well Lubricated

Hyaluronic acid is also found in the joints, where it keeps the space between your bones well lubricated. When the joints are lubricated, the bones are less likely to grind against each other and cause uncomfortable pain. Hyaluronic acid supplements are very helpful for people suffering from osteoarthritis, a type of degenerative joint disease caused by wear and tear on the joints over time. Taking 80–200 mg daily for at least two months has been shown to significantly reduce knee pain in people with osteoarthritis, especially those between the ages of 40 and 70 years old. Hyaluronic acid can also be injected directly into the joints for pain relief. However, an analysis of over 12,000 adults found only a modest reduction in pain and a greater risk of adverse effects. Some research shows that pairing oral hyaluronic acid supplements with injections can help extend pain-relieving benefits and increase the amount of time between shots.

4. Relieve Dry Eye and Discomfort

Approximately 1 out of 7 older adults suffer from symptoms of dry eye due to reduced tear production or tears evaporating too quickly. Since hyaluronic acid is excellent at retaining moisture, it's often used to treat dry eye. Eye drops containing 0.2–0.4% hyaluronic acid have been shown to reduce dry eye symptoms and improve eye health. While applying them directly to the eyes has been shown to reduce dry eye symptoms and improve overall eye health, it is unclear whether oral supplements have the same effects. To date, no studies have examined the effects of hyaluronic acid supplements on dry eye, but it may be a future area of research.

5. Preserve Bone Strength

New animal research has begun to investigate the effects of hyaluronic acid supplements on bone health. Two studies have found that hyaluronic acid supplements can help slow the rate of bone loss in rats with osteopenia, the beginning stage of bone loss that precedes osteoporosis. Test-tube studies have also shown that high doses of hyaluronic acid can increase the activity of osteoblasts, the cells responsible for building new bone tissue. While its effects on human bone health have not yet been studied, early animal and test-tube studies are promising.

HA hope or hype?

So is topical HA worth the hype? First, let's establish that topical HA will never be as effective as an injectable HA filler for replacing lost volume, even though some topical HA products are misleadingly marketed as topical "fillers." Topical HA is an excellent moisturizer. However, if the goal is to improve volume loss and laxity of the skin that naturally occurs with aging, injectable HA, rather than topical HA, is the preferred treatment method.

Topical HA has many positive attributes: it is generally well tolerated; it does not frequently cause

allergic reactions or irritate sensitive skin; and it is safe to use on the skin during pregnancy and while breastfeeding.

For individuals with dry skin, or for those who crave a more dewy, moisturized feel to their skin during the cooler months, a serum or moisturizer containing HA can be a great choice. But keep in mind that topical HA will provide hydration on a surface level, not deep within the skin.

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#hyaluronic acid #HA #hydration #water #dry #supplements

Prepared by Viktorija Stučytė based on online sources