

Natural Remedies for the Prevention of Dry Eyes

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STORY AT-A-GLANCE

- › More women than men suffer from a diagnosis of dry eye that often feels as if there is something gritty in the eye and may leave the sufferer at increased risk of infection
- › Your tears are made of three different layers of fluid secreted from three different glands around your eyes; you can influence the quantity and quality of your tears and thus reduce your potential for dry eye
- › Dry eye is triggered or aggravated by vitamin deficiencies, low omega-3 and environmental factors such as smoke, wind, dry air and screen time

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Although many accept declining eyesight as a part of natural aging, it is really more of a side effect of our modern lifestyle. Aging does not automatically equate to failing vision, cataracts or dry eyes, provided you've properly nourished your eyes through the years. Unfortunately, statistics demonstrate that many Americans are suffering the effects of years of poor lifestyle choices. In people over age 40:¹

- 24.4 million people have cataracts
- 2.7 million have glaucoma
- 4.2 million suffer impaired vision
- 4.88 million suffer dry eye

The risk of developing dry eye increases with age and women appear to suffer with the condition more than men.² You may have experienced some of the symptoms of dry eye after having been outside in windy conditions or a long day wearing contact lenses. These symptoms may include a scratchy sensation over your eye, or feeling as if there is something in your eye. It may feel as if your eyelids are heavy, be more difficult to blink or you may experience blurred vision.

The medical term for dry eye is keratoconjunctivitis sicca. Left untreated, the condition may lead to serious damage to your eyes. In the past, dry eye was treated by adding moisture, such as normal saline. Today, there is a better understanding of the complexity of some of the substances in your tears and how they function in your eye.³

Three Layers to a Teardrop

There are several layers to the tears your eyes produce naturally, and up to 1,500 proteins.⁴ Tears are actually a complex mix of mucus, water, fatty oils and different proteins designed to keep the surface of your eye smooth and protected from environmental pathogens and irritants. You have three different types of tears and each has a different chemical mix produced by three different glands.⁵

- Meibomian glands produce an outer, oily layer that keep your tears from evaporating too quickly, thus enabling the tears to remain on your eye and protect the organ.
- Lacrimal glands produce the middle layer of watery tears and water-soluble proteins that help to nourish the cornea and conjunctiva, or mucous membrane covering the entire front of the eye and inside of your eyelids.
- Goblet cells produce the innermost mucin layer of tears, or glycoprotein component of mucous. This binds the water from the aqueous layer produced by the lacrimal glands to ensure your eye remains wet.

When your eye is healthy, a continuous bath of basal tears will cover and protect your cornea. This is the clear, dome-shaped outer surface of the eye over the pupil.⁶ Every

time you blink, these basal tears nourish the cells of the cornea. The second type of tear is called reflex tears. These are produced in reflex to an irritant in the eye, or exposure to external irritants such as wind, smoke or onions.⁷

The third type of tear is the one you may be most familiar with: emotional tears. These are produced after a powerful emotional stimulation and may have higher amounts of proteins than other tears. However, science has not yet conclusively demonstrated this.

This process produces approximately 1.2 ml of tears each day and half a liter each year.⁸ When insufficient tears are produced, or the composition changes, it can affect both the health of your eye and your vision. Eyesight may be affected as adequate amounts of tears on the surface of your eye affect how your eye focuses light and color.

Your Tears Serve Several Functions

One function of your tears is to keep your eyes moist and functioning optimally. When your eyes become dry, the conjunctiva that covers the eye and inside of your eyelids also becomes dry. This is the condition called keratoconjunctivitis sicca.⁹ Tears serve other functions as well.

Emotional, or weeping, tears are formed when you experience great joy or sorrow. Actually, any powerful emotional response may generate tears, including anger. Women often cry more than men. According to one estimate, women cry on average 5.3 times per month compared to men who cry 1.4 times per month.¹⁰ However, the gender differences may also be related to cultural differences as Western cultures give greater freedom to women than they do to men to cry.

This emotional shedding of tears has healing power as it helps to release powerful emotional triggers, including stress, anger, sadness, grief and joy.¹¹ These emotional tears actually contain stress hormones and other toxins that accumulate during stress. William Frey, biochemist and director of the Psychiatry Research Laboratories at St. Paul-Ramsey Medical Center, commented on his research into the biological role emotional tears play in health, saying:¹²

"What now needs to be done is a study of the actual crying behavior of people with stress-related illnesses. People say they feel better after crying, and our data show this is so. Crying is an exocrine process.

That is, a process in which a substance comes out of the body. Other exocrine processes, like exhaling, urinating, defecating and sweating, release toxic substances from the body. There's every reason to think crying does the same, releasing chemicals that the body produces in response to stress."

Crying may also stimulate your body to produce endorphins, "feel good" hormones to help balance your emotional state.¹³ Even when the emotional or situational problem persists, crying may help you feel better and improve your decisions about that situation.

What Triggers Dry Eye?

Dry eye can result from an immediate environmental stimulus, such as a windy day, or can turn into a chronic condition if there's a problem with your tear glands. There are two main types of chronic dry eye:¹⁴

- **Deficiency** – Triggered by an inadequate production of tear volume
- **Evaporative** – More common, this condition is triggered by an acceleration of tear evaporation due to poor-quality tear production

There are health conditions that affect both the quality of the tears your body produces and the amount of tears produced. Health conditions that may trigger one of the two reasons for chronic dry eye include:¹⁵

Lasik surgery

Hormonal changes during pregnancy or menopause

Sjögren's syndrome

Rosacea

Lupus

Scleroderma

Diabetes

Rheumatoid arthritis

Thyroid disorders

Vitamin A deficiency

Environmental conditions that may contribute to the development of situational dry eye include:¹⁶

Wind

Smoke

Medications such as decongestants, antihistamines, antidepressants, hormone replacement therapy, birth control pills and medications for anxiety, Parkinson's disease and high blood pressure

Seasonal allergies

Prolonged periods without blinking

Extended period at the computer

Most people report symptoms such as feeling a gritty sensation in the eye during blinking or photosensitivity. You may experience blurred vision as your tears help focus light, or feel eyestrain or fatigue from consistent straining to see clearly. These symptoms usually fluctuate during the day as the amount of tear production or quality of your tears may vary.

Possible Complications

Your eyes thrive in a moist environment, so depriving the eye of moisture may lead to significant complications.¹⁷ Without a moist level of tears to protect your eye, you are open to a greater number of infections. These infections can result in inflammation of the conjunctiva that covers the eye and inside the eye lids. However, conjunctival

inflammation does not only occur with infection; it may be triggered from lack of moisture on the eye alone.

Left untreated, dry eye may increase the number of corneal abrasions and ulcerations to the cornea that may ultimately lead to deterioration of your vision. Ulcerations of the cornea is called keratitis, which may lead to permanent scarring.¹⁸

Natural Strategies to Help Prevent Dry Eyes

While recommended treatments may include tear-stimulating drugs, artificial tears or eye drops to control the inflammation caused by the dry eye, like all other health conditions, prevention is your best medicine. If you currently have dry eye, you'll want to incorporate these strategies while slowly weaning off your current medications with your physician, to reduce your risk for complications.

The following strategies may help prevent problems with reduced tear production or poor-quality tears, or help reverse the current pattern. Use them while reducing the environmental factors that increase your dry eye discussed below.

N-acetyl-cysteine (NAC) — A derivative of the amino acid L-cysteine, NAC has antioxidant properties and is widely used to reduce the viscosity (consistency) of secretions in bronchopulmonary disorders.¹⁹ Ophthalmologists use it to treat corneal abrasions and ulcers, and dry eye.

In the long term, you may develop mucus plaques on the corneal surface of your eye with dry eye. NAC can help to dissolve these plaques and improve the health of your eye.²⁰ Researchers believe NAC plays a role in protecting the surface of the eye. In animal research, NAC has been shown to suppress the inflammatory response.²¹

In a human study comparing NAC with artificial tears, objective findings in the group using NAC were significantly better than those using artificial tears, although there were no significant subjective findings in the patients.

The use of NAC increases the production of glutathione, which is the principal antioxidant for your eyes, protecting against oxidative damage. Researchers have found nearly all ophthalmological diseases are linked with low levels of glutathione.²²

Omega-3 – Your body begins using omega-3 fats before you're born to help develop your vision.²³ Those benefits continue through adulthood, and omega-3 may be a useful remedy for dry eye.

In a study with more than 450 participants, a daily dose of 360 mg eicosapentaenoic acid (EPA) and 240 mg docosahexaenoic acid (DHA), helped reduce symptoms of dry eye in people whose condition was aggravated by computer use.²⁴ At the end of the three-month trial, the individuals taking the omega-3 supplement enjoyed significantly fewer symptoms and reduced abnormal tear evaporation.

In another study using fish oil and flaxseed oil, nearly 70% were asymptomatic after three months as the supplement appeared to increase tear production.²⁵ A double-blind study of 38 postmenopausal women found omega-3 supplementation helped stabilize corneal surface regularity.

You can boost your omega-3 by eating foods like wild-caught salmon, sardines and anchovies, or by taking a fish oil supplement. Krill oil is another option. Krill oil has a unique combination of both omega-3 fats and astaxanthin, the latter of which also offers natural protection against ultraviolet light.²⁶

Astaxanthin – Astaxanthin is a carotenoid produced by a form of microalgae. This pigment is used by the algae to protect itself from the environment when water begins to dry up. It's the carotenoid that gives salmon, shrimp, **lobster** and **crab** their pink coloring. The highest concentration is found in the muscle of wild-caught salmon, which biologists believe give the fish the endurance they need to swim long distances upstream.²⁷

This powerful antioxidant helps to protect your eyes as it prevents unstable molecules from damaging cells and boosts your immune system by increasing the number and

activity of macrophages and T-cells. Astaxanthin also protects your eyes against macular degeneration, blindness and cataracts.²⁸

Light therapy and eyelid massage — Using a technique called intense-pulsed light therapy followed by massage of the eyelids helped 87% of people in a study with severe dry eye to experience reduced symptoms.²⁹

Vigorous exercise — According to Dr. Reza Dana, professor of ophthalmology at Harvard Medical School, "A lot of evidence supports the benefits of rigorous exercise. It fosters blood flow, helps regenerate tissues and, by increasing heat, promotes the release of oils in the eyes."³⁰

Reduce Environmental Factors That Increase Dry Eye

There are also environmental factors you can modify that may help reduce situational dry eye, and reduce the influences that may aggravate chronic dry eye. Although simple, the end results may improve your quality of life and reduce your daily discomfort. Tears are spread over your eyes as you blink, so activities that increase the time between blinking may aggravate your symptoms, such as sitting in front of a computer.

Cut back on screen time and take periodic breaks to rest your eyes.

Wearing blue-blocking glasses in the evenings reduces eyestrain and may also help increase your production of melatonin before sleep.

Closing your eyes for a couple of minutes or blinking repeatedly may help distribute your basal tear layer more evenly across your eye.

Smoking cessation and eliminating exposure to secondhand smoke may help reduce symptoms.

Wraparound sunglasses help protect against wind.

Wear water-tight goggles when swimming in fresh or salt water.

Reduce or eliminate your use of contact lenses.

Sit up high on the computer so you are looking down on the screen to minimize exposure of your eye surface.

Adjust the air flow from air conditioners and fans so they don't blow directly on your face.

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