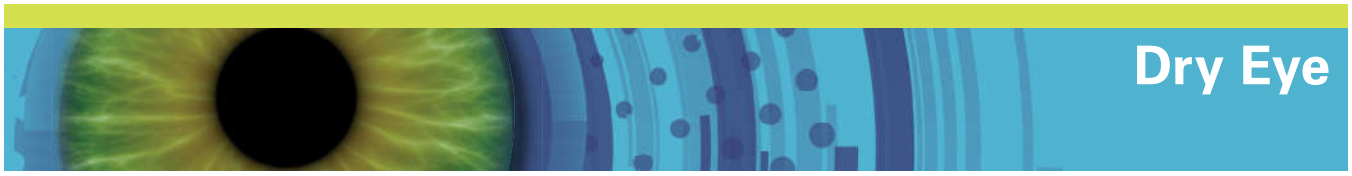


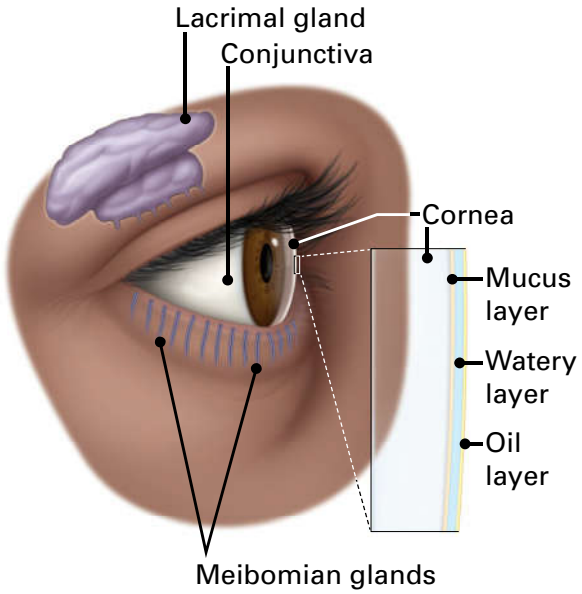
Dry Eye

What is dry eye?

Our eyes need tears to stay healthy and comfortable. If your eyes do not make enough tears, it is called dry eye. Dry eye also happens when tears are not made of the right mix of elements (see diagram below), or when the tear film is not as it should be.

How do tears work?

When you blink, a film of tears spreads over the eye. This keeps the eye's surface smooth and clear. The tear film is important for good vision.



The tear film is made of three layers:

- An oily layer
- A watery layer
- A mucus layer

Each layer of the tear film serves a purpose.

The **oily layer** is the outside of the tear film. It makes the tear surface smooth and keeps tears from drying up too quickly. This layer is made in the eye's **meibomian glands**.

The **watery layer** is the middle of the tear film. It makes up most of what we see as tears. This layer cleans the eye, washing away particles that do not belong in the eye. This layer comes from the **lacrimal glands** in the eyelids.

The **mucus layer** is the inner layer of the tear film. This helps spread the watery layer over the eye's surface, keeping it moist. Without mucus, tears would not stick to the eye. Mucus is made in the **conjunctiva**. This is the clear tissue covering the white of your eye and inside your eyelids.

Normally, our eyes constantly make tears to stay moist. If our eyes are irritated, or we cry, our eyes make a lot of tears. But, sometimes the eyes don't make enough tears or something affects one or more layers of the tear film. In those cases, we end up with dry eyes.

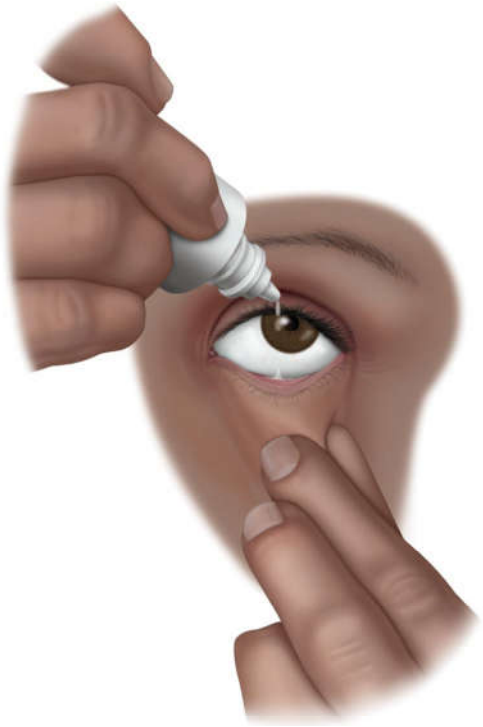
What are symptoms of dry eye?

Here are some of the symptoms of dry eye.

- You feel like your eyes are stinging and burning
- There is a scratchy or gritty feeling like something is in your eye
- There are strings of mucus in or around your eyes

- Your eyes are red or irritated. This is especially true when you are in the wind or near cigarette smoke
- It is painful to wear contact lenses
- You have lots of tears in your eyes

Having a lot of tears in your eyes with "dry eye" might sound odd. But your eyes make more tears when they are irritated by dry eye.



What causes dry eye?

People tend to make fewer tears as they get older due to hormonal changes. Both men and women can get dry eye. However, it is more common in women—especially those who have gone through menopause.

Here are some other causes of dry eye.

- Certain diseases, such as rheumatoid arthritis, Sjögren's syndrome, thyroid disease, and lupus
- Blepharitis (when eyelids are swollen or red)
- Entropion (when eyelids turn in); ectropion (eyelids turn outward)
- Being in smoke, wind or a very dry climate
- Looking at a computer for a long time, reading and other activities that reduce blinking
- Using contact lenses for a long time
- Having refractive eye surgery, such as LASIK
- Taking certain medicines, such as:
  - Diuretics (water pills) for high blood pressure
  - Beta-blockers, for heart problems or high blood pressure
  - Allergy and cold medicines (antihistamines)
  - Sleeping pills
  - Anxiety and antidepressant medicines
  - Heartburn medicines

Tell your ophthalmologist about all the prescription and non-prescription medicines you take.

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How is dry eye diagnosed?

Your ophthalmologist will begin with an eye exam. He or she will look at your eyelids and the surface of the eye. They will also check how you blink.

There are many different tests that help diagnose dry eyes. Your ophthalmologist may do a test that measures the quality or the thickness of your tears. He or she may also measure how quickly you produce tears.

How is dry eye treated?

Adding tears. Your ophthalmologist might tell you to use artificial tears. These are eye drops that are like your own tears. You can use artificial tears as often as you need to. You can buy artificial tears without a prescription. There are many brands. Try a few until you find a brand that works best for you.

If you use artificial tears more than six times a day or are allergic to preservatives, you should use preservative-free tears. This is because if the tears with preservatives are used a lot, these chemicals may start to irritate your eyes.

Saving tears. Your ophthalmologist may suggest blocking your tear ducts. This makes your natural tears stay in your eyes longer. Tiny silicone or gel plugs (called punctal plugs) may be inserted in your tear ducts. These plugs can be removed later as needed. Your ophthalmologist could also recommend surgery that permanently closes your tear ducts.

Dry eye prevention tips

- Try not to use a hair dryer, if possible.
- Stay away from very warm rooms. In the winter, add moisture to the air with a humidifier. Or put a pan of water near your heater or radiator.
- Protect your eyes from drying wind by wearing wrap-around glasses outside.
- Talk to your ophthalmologist about adding omega-3 fatty acids to your diet for dry eye relief. They are found naturally in oily fish (such as salmon, sardines, tuna, trout, and anchovies), and in flaxseeds. Omega-3 fatty acids can be added as a dietary supplement (pill or tablet).
- Do you wake up with dry and scratchy eyes? Use artificial tear ointment or thick eye drops just before you go to bed.

Increasing your tears. Your ophthalmologist might have you use a special eyedrop medication. This helps your eyes make more of their own tears.

Treating dry eye culprits. If your eyes are irritated, your ophthalmologist can treat those problems. They may recommend:

- prescription eye drops or ointments
- warm compresses on the eyes
- massaging your eyelids
- certain eyelid cleaners

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Summary

Tears keep your eyes healthy and comfortable. Dry eye is when you do not produce enough tears or the right type of tears.

Your ophthalmologist might suggest using artificial tears or ointments. He or she may also prescribe eye drops that treat your dry eye symptoms or help your eyes make tears. Other treatment options include blocking your tear ducts with tiny plugs or with surgery. This keeps tears in your eyes longer.

Avoiding overly warm, dry and windy places can help combat dry eye. Also, some people find relief by adding omega-3 fatty acids to their diets.

It is important to see your ophthalmologist regularly to check for eye and vision changes.

If you have any questions about your vision, speak with your ophthalmologist. He or she is committed to protecting your sight.

Watch a dry eye video from the American Academy of Ophthalmology's EyeSmart program at **aao.org/dry-eye-link**.

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