



dry eye

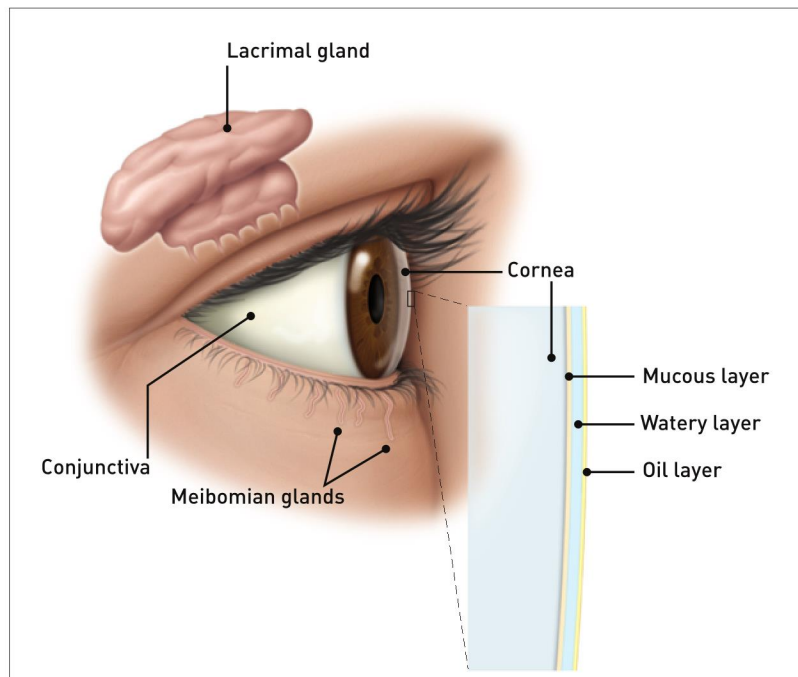
a closer look

WHAT IS DRY EYE?

Normally, the eye constantly bathes itself in tears. By producing tears at a slow and steady rate, the eye stays moist and comfortable.

Sometimes people do not produce enough tears or the appropriate quality of tears to keep their eyes healthy and comfortable. This condition is known as dry eye.

The eye uses two different methods to produce tears. It can make tears at a slow, steady rate to maintain normal eye lubrication. It can also produce large quantities of tears in response to eye irritation or emotion. When a foreign body or dryness irritates the eye, or when a person cries, excessive tearing occurs.



WHAT ARE THE SYMPTOMS OF DRY EYE?

The usual symptoms include:

- Stinging or burning eyes;
- Scratchiness;
- Stringy mucus in or around the eyes;
- Excessive eye irritation from smoke or wind;
- Excess tearing;
- Discomfort when wearing contact lenses.

Excess tearing from “dry eye” may sound illogical, but it can be understood as the eye’s response to discomfort. If the tears responsible for maintaining lubrication do not keep the eye wet enough, the eye becomes irritated. Eye irritation prompts the gland that makes tears (called the **lacrimal gland**) to release a large volume of tears, overwhelming the tear drainage system. These excess tears then overflow from your eye.

To learn more about dry eye, scan this code with your smartphone or visit http://sn.im/_dryeye.





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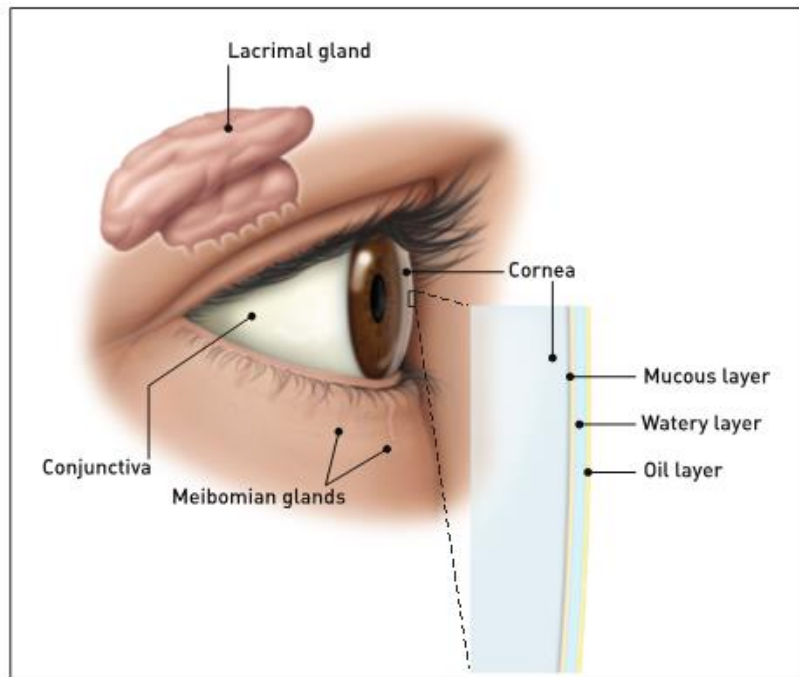
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WHAT IS THE TEAR FILM?

When you blink, a film of tears spreads over the eye, making the surface of the eye smooth and clear. Without this tear film, good vision would not be possible.

The tear film consists of three layers:

- An oily layer;
- A watery layer;
- A layer of mucus.

Each layer has its own purpose.

The oily layer, produced by the **meibomian glands**, forms the outermost surface of the tear film. Its main purpose is to smooth the tear surface and reduce evaporation of tears.

The middle watery layer makes up most of what we ordinarily think of as tears. This layer, produced by the **lacrimal glands** in the eyelids, cleanses the eye and washes away foreign particles or irritants.

The inner layer consists of mucus produced by the **conjunctiva**. Mucus allows the watery layer to spread evenly over the surface of the eye and helps the eye remain moist. Without mucus, tears would not stick to the eye.

WHAT CAUSES DRY EYE?

Tear production normally decreases as we age. Although dry eye can occur in both men and women at any age, women are most often affected. This is especially true after menopause.

Dry eye can also be associated with other problems. For example, people with dry eyes, dry mouth and arthritis are said to have Sjögren's syndrome. (For more information on Sjögren's syndrome, see the "resource" section of this handout.)

People with similar systemic diseases like lupus, rheumatoid arthritis or some types of thyroid disease will often have dry eye.

A wide variety of common medications — both prescription and over-the-counter — can cause dry eye by reducing tear secretion.

Be sure to tell your ophthalmologist (Eye M.D.) the names of all the medications you are taking, especially if you are using:

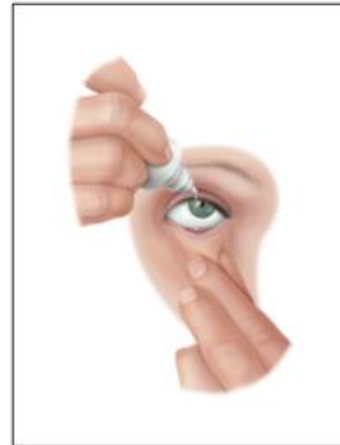
- Diuretics for high blood pressure;
- Beta-blockers for heart or high blood pressure;
- Antihistamines for allergies;
- Sleeping pills;
- Medications for "nerves"; or
- Pain relievers.

Since these medications are often necessary, the dry eye condition may have to be tolerated or treated with eyedrops called artificial tears.

People with dry eye are often more prone to the toxic side effects of eye medications, including artificial tears. For example, the preservatives in certain eyedrops and artificial tear preparations can irritate the eye. These people may need special, preservative-free artificial tears.

HOW IS DRY EYE DIAGNOSED?

An ophthalmologist is usually able to diagnose dry eye by examining the eyes. Sometimes tests that measure tear production are necessary. One test, called the Schirmer tear test, involves placing filter-paper strips under the lower eyelids to measure the rate of tear production under various conditions. Another test uses diagnostic drops to look for certain patterns of dryness on the surface of the eye.



HOW IS DRY EYE TREATED?

ADDING TEARS

Eyedrops called artificial tears are similar to your own tears. They lubricate the eyes and help maintain moisture.

Artificial tears are available without a prescription. There are many brands on the market, so you may want to try several to find the one you like best.

Preservative-free eyedrops are available for people who are sensitive to the preservatives in artificial tears. If you need to use artificial tears more than every two hours, preservative-free brands may be better for you.

You can use the artificial tears as often as necessary — once or twice a day or as often as several times an hour.

Other treatment options may include ointments, gels and inserts.

CONSERVING YOUR TEARS

Conserving your eyes' own tears is another approach to keeping the eyes moist. Tears drain out of the eye through a small channel into the nose (which is why your nose runs when you cry). Your ophthalmologist may close these channels either temporarily or permanently. The closure conserves your own tears and makes artificial tears last longer.

A temporary method of closing the channels may involve the use of punctal plugs. The plugs are inserted into the punctum (tear duct) and work much like a dam by blocking your eye's drainage system. Your Eye M.D. may also choose to permanently close your tear ducts by using heat to seal the puncta closed.