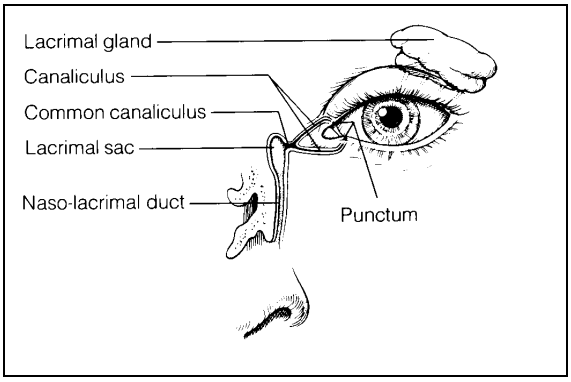
Dry Eyes (Keratitis Sicca)

Some people do not produce enough tears to keep the eye wet and comfortable. Stinging, burning, scratchiness, stringy mucus, light sensitivity and excess irritation from smoke are the usual symptoms. Dry eyes may hinder contact lens wear.

Surprisingly, increased tearing may be a symptom of dry eyes. If the secretion of high-quality lubricating tears is below normal the resulting irritation prompts excessive production of flushing tears that are little more than salt water. Even though the eye is basically dry, overflow tearing can occur, masking the dryness that caused the tearing in the first place.



What Is the Tear Film?

Tears run from our eyes when we cry or when our eyes are irritated but tears have a much more important everyday function. A film of tears, spread over the eye by a blink, makes the surface of the eye smooth and optically clear. Without our tear film, good vision is not possible.

The tear film comprises three layers: an oily layer, a watery layer, and a layer of mucus.

•The ***outer oily layer*** of the tear film is produced by small glands in the eyelids, called *meibomian glands*. The main purpose of this oily layer is to smooth the tear surface and reduce evaporation of tears.

•The ***middle watery layer***, the largest of the three layers, makes up most of what we ordinarily think of as tears. This watery layer is produced by small glands scattered through the *conjunctiva*, the delicate membrane lining the inside of the eyelid and covering the eyeball, and by the major tear gland, the large *lacrimal gland.* This layer cleanses the eye and washes away foreign particles or irritants.

•The ***innermost layer*** consists of mucus produced by other cells in the conjunctiva. This layer allows the watery layer to spread evenly over the surface of the eye and helps the eye to remain wet. Without mucus, tears would not adhere to the eye.

What Causes Dry Eyes?

Production of the middle *watery layer* of the tear film normally decreases with age. Although dry eyes can occur in both men and women at any age, women, especially after menopause, are most often afflicted. Inadequate watery tear production usually occurs without explanation but can be associated with Collagen Diseases such as Rheumatoid Arthritis, some medicines (vide infra), irradiation and facial nerve damage. Mucus accumulates in the tear film as it is not washed away. S*jogren's syndrome* includes dry eyes, dry mouth, and arthritis.

Inadequate inner *mucous layer* typically occurs in Vitamin A deficiency, pemphigus, trachoma, irradiation, Stevens-Johnson syndrome and burns.

Faulty outer *oily layer* production is occurs in Acne Rosacea and other meibomian gland disorders

How are Dry Eyes Diagnosed?

Often an ophthalmologist is able to diagnose dry eyes by simply examining the eyes. Sometimes tests which measure tear production may be necessary. One widely used test, the Schirmer tear test, involves placing filter-paper strips under the lower eyelids to measure the rate of tear production under various conditions.

Treatment

- *Tear Supplements*

Supplementing natural tears with artificial tears is the basis of treatment. Artificial tears are available without a prescription and are used as eyedrops to lubricate the eyes and replace the missing moisture. There are many brands of artificial tears on the market, and many people try several different brands to find one that suits them best. The tears may be used as often as necessary, only once or twice a day, or as often as several times an hour.

- *Conserving the tears*

Conserving the naturally produced tears is another approach to keeping the eyes moist. After bathing the eye's surface, tears enter a small opening in each lid, the *punctum,* and drain through a small canal, *the canaliculus,* into the *lacrimal sac* and down the *naso-lacrimal* duct into the nose. These channels may be closed temporarily, or permanently, by your ophthalmologist. The closure creates a reservoir of tears which allows the eyes to stay moist for longer periods of time.

- *Other Factors*

Preventing the evaporation of tears can also prove helpful. In winter, when heaters are turned on, a humidifier or a pan of water near the heater adds moisture to dry air. Wrap-around glasses may cut down evaporation of eye moisture due to wind.

Anything that dries the atmosphere - such as air conditioning, over-heating of a room or car, hair dryers, windy days - or anything that adds an irritant to the air will make a person with dry eyes more uncomfortable. Smoking is especially bothersome.

“Scratchy eyes” upon awakening are typical of *dry eyes* as tear production is further reduced during sleep. This symptom can be treated with a small amount of lubricating ointment at bedtime.

Related skin conditions - such as Blepharitis or Acne Rosacea - should be treated with lid toilet, skin care or antibiotic therapy as directed by your doctor

Although ointments containing vitamin A seem to be of some benefit to people with severe dry eye due to scarring from Stevens-Johnson syndrome or pemphigoid, vitamin A does not seem to help people with ordinary dry eyes.

Who Can Treat Dry Eyes?

A person suffering from dry eyes may only need over-the-counter artificial tears, but since extreme dryness can cause serious damage to the eye, an examination and diagnosis by your ophthalmologist is suggested.

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