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# Keratoconjunctivitis Sicca -'sik-ə

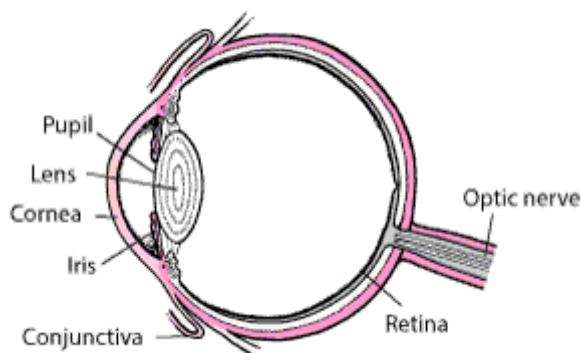
## (Dry Eye; Keratitis Sicca)

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*Keratoconjunctivitis sicca is dryness of the conjunctiva (the membrane that lines the eyelids and covers the white of the eye) and cornea (the clear layer in front of the iris and pupil).*

- Too few tears may be produced, or tears may evaporate too quickly.
- The eyes become irritated and sensitive to light and usually burn and itch.
- Tear production may be measured by placing a strip of paper at the edge of the eyelid.
- Artificial tears and punctum plugs help relieve symptoms.

### Locating the Cornea



## Causes

Dry eyes may be due to inadequate tear production (aqueous tear-deficient dry eyes). With this type of dry eyes, the tear gland (lacrimal gland) does not produce enough tears to keep the entire conjunctiva

dry eyes may be a symptom of diseases such as **rheumatoid arthritis** or **systemic lupus erythematosus** (lupus).

Dry eyes may also be due to an abnormality of tear composition that results in rapid evaporation of the tears (evaporative dry eyes). Although the tear gland produces a sufficient amount of tears, the rate of evaporation is so rapid that the entire surface of the eye cannot be kept covered with a complete layer of tears during certain activities or in certain environments.

Drying can also result from the eyes being partly open for periods of time at night (nocturnal lagophthalmos) or from an insufficient rate of blinking (as can occur in **Parkinson disease**).

## Symptoms

Symptoms of dry eyes include irritation, burning, itching, a pulling sensation, pressure behind the eye, and grittiness or a feeling as if something is in the eye (foreign body sensation). Damage to the surface of the eye increases discomfort and sensitivity to bright light. Symptoms are worsened by

- Activities in which the rate of blinking is reduced, specifically those that involve prolonged use of the eyes, such as reading, working at a computer, driving, or watching television
- Windy, dusty, or smoky areas and dry environments, such as in airplanes or in shopping malls; areas with low humidity; and areas where air conditioners (especially in the car), fans, or heaters are being used
- The use of certain drugs, including isotretinoin and some tranquilizers, diuretics, antihypertensives, oral contraceptives, and antihistamines, and other drugs with **anticholinergic effects**

Symptoms lessen during cool, rainy, or foggy weather and in humid places, such as in the shower.

Even with the most severe dry eyes, it is rare that vision is lost. However, people sometimes feel that their blurred vision or eye irritation is so severe, frequent, and prolonged that it is difficult to function normally. In some people with severe dryness, the surface of the cornea can thicken, or ulcers and scars can develop. Occasionally, blood vessels can grow across the cornea. Scarring and blood vessel growth can impair vision.

## Diagnosis

- A doctor's evaluation

Doctors diagnose dry eyes by the symptoms and appearance of the eyes and by doing some tests.

The Schirmer test—in which a strip of filter paper is placed at the edge of the eyelid—is used to measure the amount of tears produced during the 5-minute test.

Doctors examine the eyes with a **slit lamp** to determine whether the eye has been damaged.

They may also measure how long it takes for the eye to become dry when the person stares (called the tear breakup time).

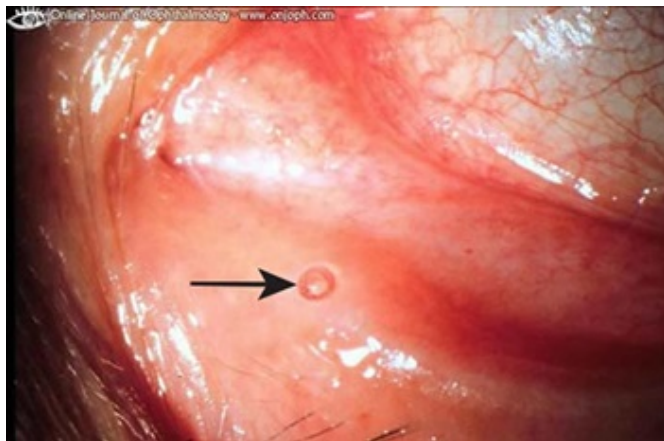
## Treatment

- Artificial tears
- Cyclosporine eye drops
- Punctum plug

Artificial tears applied every few hours can generally control the problem. Artificial tears are eye drops prepared with substances that simulate real tears and help keep the eyes coated with moisture. Lubricating ointments applied before bed last longer than artificial tears and help prevent dryness in the morning. Such ointments are not usually used during the day because they may blur vision.

Eye drops that contain cyclosporine can decrease the inflammation associated with dryness. These drops sting and take months before an effect is noticed. Inflammation can lessen significantly, although the drops work only in a fraction of people. Avoiding dry, drafty environments and smoke and using humidifiers can also help.

An ophthalmologist (a medical doctor who specializes in the evaluation and treatment—surgical and nonsurgical—of eye disorders) can do a minor in-office procedure to help people with dry eyes. During the procedure, an ophthalmologist inserts plugs into the puncta (the small openings at the inner corners of the eyelids near the nose) to keep tears from leaving the eye by blocking the flow of tears off of the eye surface, through the tear duct, and into the nose. This way more tears are available for longer to bathe the eyes. In people with extremely dry eyes, the eyelids may be partially sewn together to decrease tear evaporation.



### Punctum Plug

Photo courtesy of Professor J. Wollensak via the Online Journal of Ophthalmology ([www.onjoph.com](http://www.onjoph.com)).



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