About Tears

Normal healthy tears contain a complex mixture of proteins and other components that are essential for ocular health and comfort (Figure 1). Tears are important because they:

- *Provide nutrients and support the health of cells in the cornea.*
- *Lubricate the ocular surface.*
- *Protect the exposed surface of the eye from infections. Clear vision depends on even distribution of tears over the ocular surface.*

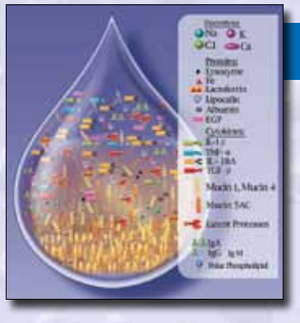

Figure 1
Normal healthy tears

For Sjögren's syndrome patients, inflammation of tear-secreting glands reduces tear production, resulting in chronic dry eye. In addition, changes in the composition of tears contribute to dry eye (Figure 2). In people with dry eye, thin spots in the tear film may appear and the tears no longer adequately protect and support the health of ocular surface tissues.

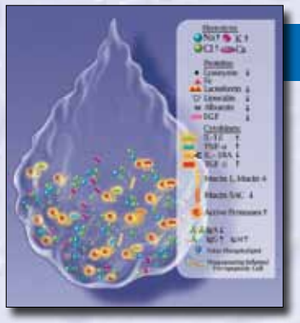

Figure 2
Tears in chronic dry eye

What is Sjögren's Syndrome?

Sjögren's (pronounced SHOW-grins) syndrome is a chronic autoimmune disorder in which the body's immune system mistakenly attacks its own moisture-producing glands, the tear-secreting and salivary glands as well as other organs. The hallmark symptoms of Sjögren's syndrome are dry eyes and dry mouth. Visit www.sjogrens.org for further information.

Sjögren's Syndrome Foundation

For a free information package to learn more about Sjögren's syndrome and the services we provide, please contact us.

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Dry Eyes

A hallmark symptom of Sjögren's syndrome

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Dry Eye and Sjögren's Syndrome

Millions of Americans suffer from dry eye. There are two main causes: decreased secretion of tears by the lacrimal (tear-producing) glands and loss of tears due to excess evaporation. Both can lead to ocular surface discomfort, often described as feelings of dryness, burning, a sandy/gritty sensation, or itchiness. Visual fatigue, sensitivity to light, and blurred vision are also characteristic of dry eye.

Dry eye is a hallmark symptom of Sjögren's syndrome, a chronic systemic autoimmune disorder in which white blood cells mistakenly invade tear- and saliva-producing glands, causing inflammation and reducing secretion. The age of onset for Sjögren's syndrome is typically in the late 40s, and 90% of Sjögren's patients are women. About half of patients with Sjögren's also have other autoimmune disorders such as rheumatoid arthritis, systemic lupus, and systemic sclerosis (scleroderma).

Diagnosis of Dry Eye

Treatment options for dry eye depend on its causes and severity, so it is important to be examined by an eye care professional who is trained to diagnose and treat ocular diseases. The doctor may use tests to assess tear production, tear stability, and tear distribution. A slit-lamp examination using dyes that temporarily stain unhealthy tissue will reveal any abnormality or damage to the ocular surface. These tests typically cause little discomfort and are performed in the doctor's office.

Treatments for Dry Eye Disease

Artificial tears are available over the counter. They can provide temporary relief from dry eye symptoms. Artificial tears contain water, salts, and polymers but lack the proteins found in natural tears (Figure 3). Patients who frequently use drops should choose a brand without preservatives or one with special non-irritating preservatives. Artificial tears are used to treat mild forms of dry eye or to supplement other treatments.

Punctal occlusion blocks the small openings in the eyelid that normally drain tears away from the eye. Usually this is done by inserting plugs made of silicone or other materials into the openings. This simple procedure helps to retain the patient's tears on the ocular surface for a longer time. It can improve symptoms and increase comfort for some patients.

Cyclosporine ophthalmic emulsion (Restasis®) treats an underlying cause of chronic dry eye by suppressing the inflammation that disrupts tear secretion. Many patients report a noticeable increase in tear production and comfort with continued use of Restasis®.

Hydroxypropyl cellulose ophthalmic insert (Lacrisert®) is a preservative-free prescription insert that dissolves gently over the course of a day, continually lubricating and protecting the eye while reducing moderate to severe dry eye symptoms with one application daily into the pocket of the lower eyelid.

Topically applied corticosteroids (cortisone) are occasionally prescribed to treat acute episodes of inflammation in dry eye. The use of these medications should be limited in frequency and duration to avoid potential complications of glaucoma and cataract.

Figure 3
Artificial tears

Other Treatment Options and Considerations

Cevimeline (Evoxac®) and pilocarpine (Salagen®) are medications taken orally to increase salivation in Sjögren's syndrome patients. Recent studies have shown some improvement in dry eye symptoms; however, tear production was either not increased or not measured in these studies. These medications are approved for treating dry mouth; treatment for dry eye is considered an off-label indication for use.

Because excess evaporation of the tearfilm can occur when there is irritation of the eyelids (conditions known as blepharitis or meibomian eyelid gland dysfunction), it is often helpful to maintain eyelid hygiene by using warm compresses and eyelid massage. Any infections of the eyelid margin should be treated with appropriate antibiotics as prescribed by the patient's physician. Allergy and certain skin disorders (such as rosacea) also can aggravate dry eye and should be treated appropriately.

There is accumulating evidence to suggest that taking essential fatty acid supplements (Omega 3) by mouth may improve dry eye symptoms and signs. Further clinical trials are underway to confirm this potential benefit. Essential fatty acids are also available in flaxseed oil and fish oil supplements and in some over-the-counter products.

Ongoing clinical trials of other dry eye treatments may eventually result in new FDA-approved treatments for stimulating the production of specific tear components in dry eye patients.

Coping with Dry Eye

Making changes in your environment, habits, and medications can help minimize dry eye symptoms. Here are some suggestions:

- *Avoid environmental stresses that worsen dry eye, such as low humidity, drafts from air conditioners or fans, smoke, dust, or excessive makeup.*
- *When possible, avoid taking drugs that cause dryness as a side effect, such as certain drugs for blood pressure regulation, antidepressants, and antihistamines (e.g. Benadryl®). These drugs and others may decrease tear secretion and worsen dry eye. Your eye care professional can help determine whether any drugs you take may be contributing to your condition.*
- *Try blinking on purpose or taking a short break with your eyes closed when reading or working at a computer. We tend to blink less often during these activities, potentially aggravating dry eye.*
- *Wear special glasses or goggles to lessen dry eye. These items decrease tear evaporation by blocking air drafts and increasing humidity around the eyes. Increased humidity has proven to prevent the evaporation of natural and artificial tears.*
- *Use specially-formulated ophthalmic gels or ointments. Although these may blur vision, they can be used overnight to keep eyes moist. Alternatively, use artificial tears before bedtime and in the morning.*
- *Apply warm compresses on the eyes. Compresses can soothe dry, irritated tissues and improve secretion of oil from meibomian glands in the eyelids. Try applying them after waking in the morning and periodically during the day.*
- *Keep your eyes lubricated throughout the day, even if you don't have dryness symptoms. Don't wait until your eyes hurt to seek treatment for dry eye because this could lead to damage to the eye. Patients should use one or more of the treatments listed above and ask their eye care professional about any FDA-approved medications.*

Glossary

Blepharitis: Inflammation of the eyelids, often decreasing secretions from meibomian glands. Excess evaporation of tears can result, leading to dry eye.

Cornea: The clear dome on the front of the eye that covers the pupil and iris. Clear vision depends on a healthy, undamaged cornea.

Lacrimal glands: Glands that secrete the water and most of the important proteins in tears.

Puncta: Small openings on the eyelids into which tears normally drain.

Meibomian glands: Glands in the eyelids that secrete oils. These oils form a thin layer on top of the tear film, retarding evaporation.

Tear film: Protects and lubricates the cornea and the rest of the ocular surface. Natural tears are mostly water containing a complex mixture of proteins and other components.

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