

DRY EYE

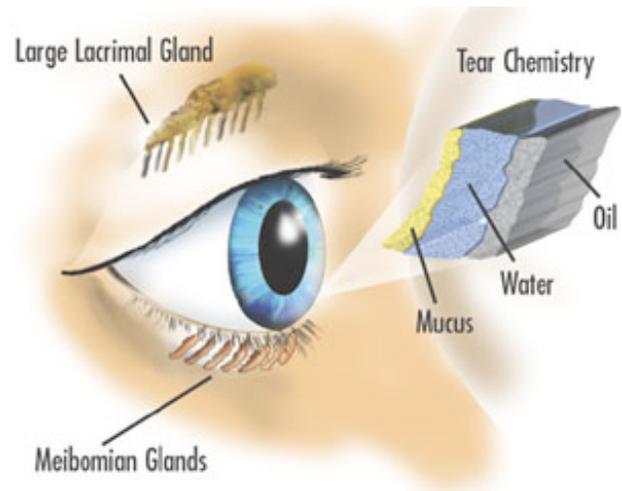
Dry eye is a complex condition that results in the **reduction in tear quality and/or quantity**. Dry eye can lead to uncomfortable symptoms such as burning, excessive tearing, foreign body sensation, redness, swelling, styes, and fluctuations in vision. There are multiple contributing factors to dry eye such as age, female sex, environmental factors, hormonal changes (e.g. menopause), pharmaceutical agents (e.g. oral contraceptive pill, beta-blockers, anti-histamines) and inflammatory conditions (e.g. blepharitis, eczema, acne rosacea, rheumatoid arthritis, Sjogren's syndrome). There is increasing evidence that dry eye is a result of inflammatory processes.

What are the functions of tears?

A healthy tear film spreads uniformly over the front surface of the eye and provides a smooth optical surface that allows for a clear, crisp image of our world. The tear film nourishes the front surface of the eye with oxygen and nutrients, and protects the eye by destroying and flushing out any toxins or bacteria that it may come in contact with. The tear film is made up of three different layers; mucus layer, aqueous layer, and oil layer. Each layer is crucial in a healthy tear film, and lack of quality or quantity in any of the layers will result in a poor tear film. Dry eye symptoms occur when the tear film is compromised and there is no longer a smooth surface over the cornea. This leads to visual disturbances such as blurrier vision that fluctuates with blinking. The tear film is extremely important to your ocular comfort, health and vision.

Meibomian gland dysfunction (MGD) is the leading cause of evaporative dry eye, and occurs when there is a poor tear film due to the insufficient amount or poor quality of the lipid layer. Meibomian glands lining the upper and lower eyelid margin secrete a lipid layer, which is then spread evenly over the tear film by our natural blinks. Inflammation of the meibomian glands can lead to abnormally thick oil

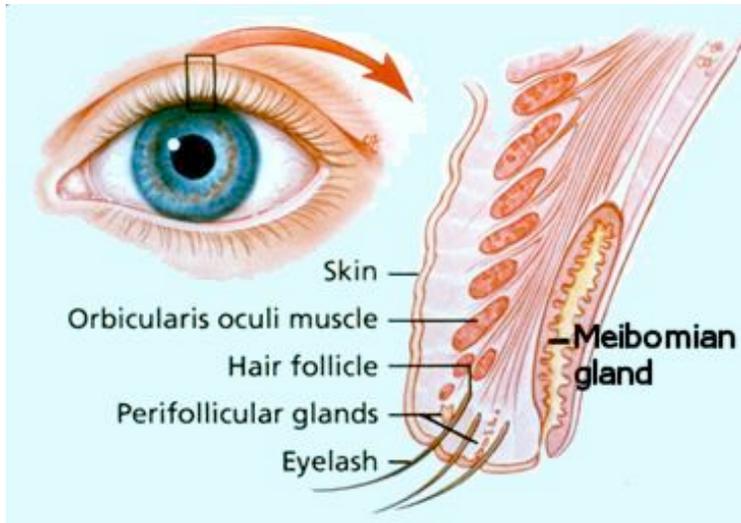
secreted from the glands, which may completely block the glands and further decrease the amount of lipids in the tear film. Meibomian gland dysfunction is a result of chronic inflammation, which results in the permanent dysfunction of the meibomian glands. Causes of inflammation that may lead to MGD may include although are not limited to; blepharitis, eczema, acne rosacea, and rheumatoid arthritis. MGD is a lifelong condition that may come and go. Consult your eye doctor for the best form of treatment to reduce your MGD symptoms and to improve your ocular health.



Treatment of Dry Eye

Pay attention to your diet and environmental factors because some may worsen your dry eye symptoms. Remember to:

- **Stay hydrated.** Drink 2 L of water a day; avoid dehydrating fluids such as excessive coffee and alcohol
- Use a **humidifier** in your bedroom/office.
- Avoid sitting directly in front of a fan or air-conditioning unit.
- Give your eyes a break during prolonged periods of concentration tasks, such as computer use. Look away every hour, and **blink fully**.



Treatment of dry eye depends on the severity of the inflammation present on your eyelids. **Your eye doctor will discuss which option is most suitable for you.** Treatment may include one or several of the following:

- **Artificial tears** 4-5 times a day. There are 3 options that act as lubricants and are recommended by the eye doctor; Liposic, Systane Balance, and Hylo. Liposic is a gel that clings to the surface of the eye and therefore is not washed out easily. Systane Balance and Hylo are both eye drops, however Hylo is preservative-free.
- Lubricating ointment at night
- **Hot compresses and lid massage**- heat can help to 'soften' thick oils in inflamed meibomian glands, and massage can help to push the oils out of the glands.
- **Lid hygiene** - Use Lid Scrub products to clear some inflammatory debris from eyelids.
- **Topical anti-inflammatory and/or antibiotic** - Your eye doctor may prescribe an anti-inflammatory drop for 1-2 weeks to help calm down inflammation of the eyelids. In some instances, your doctor may prescribe and a combination drop containing anti-

inflammatory and antibiotic eye drops to help decrease inflammation and decrease the amount of bacteria and bacterial toxins that may cause inflammation

- **Punctal plugs** - our puncta are located on the inner corners of our upper and lower eyelids, and they function to drain tears from our eyes. Punctal plugs are made of biologically inert materials and are inserted into our puncta in our office. Punctal plugs can decrease the tear drainage in your eye and therefore increase your tear reservoirs. This treatment is most useful for patients who have tear-deficient dry eye.

- **Restasis** - This is a stronger anti-inflammatory eye drop that's used twice a day for a 6 month cycle for severe dry eye cases. Restasis stings upon instillation. It is very important to continue to use this drop for the full 6 months. It is normal not to feel its effects right away, as it will begin to take effect after 2-3 months of use. Your eye doctor may pair Restasis with an additional anti-inflammatory to relieve your dry eye symptoms.

- **Oral antibiotics (doxycycline)** - Some oral antibiotics actually have an anti-inflammatory function and are especially useful for patients with acne rosacea. Your eye doctor may prescribe these antibiotics for 6 weeks to 3 months to decrease the inflammation and improve your symptoms of dry eye.

- **Omega 3 fatty acids oral supplements** - Omega 3 FAs are anti-inflammatory in nature and naturally occur in fatty fishes such as sardines, wild salmon and mackerel. You can purchase Omega-3s supplements at your local health food store - ensure that you are purchasing the triglyceride form and not the ester form. PRN and Omega Max are two brands of Omega 3 FAs in triglyceride form that are recommended by the eye doctor. Both brands of Omega 3 FAs are alcohol free, which helps to not dry out your eyes.