

Dry eyes and meibomian gland dysfunction

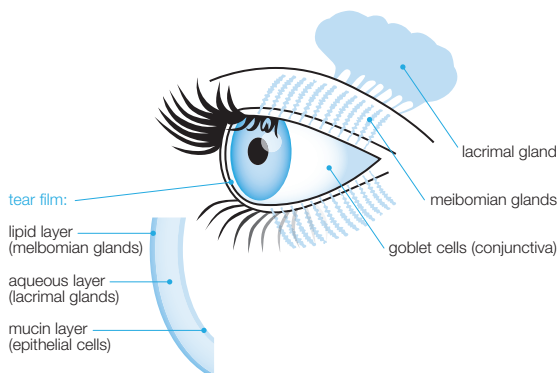
Dry eyes are a very common condition which can range from mild to severe and potentially sight threatening.

What do tears do?

Healthy tears are vital to eye function. Your cornea – the clear windscreen of your eye – does not have a blood supply so relies on tears for its nutrients, immunity and cleaning system. The tears form a film over the surface of the cornea – the tear film – and the tear film itself is an important part of the optical pathway.

There are three important layers in our tears – mucin, water and oil. They must all be present in balanced quantities for our tears to effectively moisturise the eyes. The innermost layer that sits against the cornea is the mucin layer. Next is the aqueous layer. This is made of water and is secreted by the lacrimal gland. It is rare for this gland to function abnormally. Each eyelid contains a row of meibomian glands. Their job is to secrete the very important oil layer of the tears.

Structures involved in tear production:



What causes dry eyes?

There are many causes of dry eye, including age, blepharitis or meibomian gland dysfunction (MGD), hormonal changes such as post menopause, medications, excess conjunctival tissue on the surface of the

eye, auto-immune conditions e.g. Sjögren's syndrome, or simply primary dry eyes with no cause identified.

Meibomian gland dysfunction, sometimes called blepharitis, describes inflammation of the eyelids and is the most common cause of dry eyes. It can lead to red, flaky skin on the eyelids and sore, red, gritty eyes. Often patients will feel as though their eyes are stuck together in the morning due to the sticky deposits on their lids and lashes. In MGD, the secretions from the meibomian glands become thick and viscous so not enough is secreted in the tear film. This creates an imbalanced and unhealthy tear film that leads to reduced quality of the tears, leading to dry patches on the surface of your eye dryness, blurred vision, redness and pain.

Many people have “mixed mechanism” dry eyes – that is a combination of factors. This means that when we treat dry eyes, we address each of the potential causes.

Why do dry eyes cause blurring and discomfort?

If the tear film is disrupted, and / or if the cornea becomes less healthy due to poor or insufficient tears then blurred vision and uncomfortable eyes can result. The tear film is the first optical surface that light hits when entering the eye – if it is disrupted then the image will be blurred (as if the lens of the camera is smeared). The surface of the eye has many nerve endings so dry eyes can be quite painful. Severe dry eyes can lead to scarring of the cornea and permanent vision loss.

When your eyes are dry you may experience: persistent eye “fatigue”, a pressure feeling behind the eyes, watering eyes, gritty eyes, itchy eyes, blurred vision and recurrent corneal infections or erosions.

Dry eyes and meibomian gland dysfunction *continued*

But my problem is my eyes water too much – how can they be dry?

When your tears are unhealthy, the three tear layers are not in the correct proportions. This can lead to there being more of the water layer and less of the oil layer. These “watery” (but not very effective) tears tend to trickle down your cheeks. Therefore, the treatment is actually to make the tears healthier by restoring the three important layers to healthy proportions. Using artificial tears will help stop them watering.

How can dry eyes be treated?

Treatment for dry eye is rarely a “quick fix” and dry eyes are generally not cured but managed. With a holistic approach you can eventually have comfortable eyes and good vision again.

Artificial tears, also called lubricants or lubricating drops, are the mainstay of treatment and will work to both relieve your symptoms and also to improve the overall health of your tears. If you are using them more than four times a day then it is best to use preservative free drops. When your eyes are dry, the tears become too salty. This high salt concentration can damage some of the cells on the surface of the eye that help to produce tears, thus making your eyes drier. It is important to use lubricating drops to reduce the salt concentration and break this cycle so that your eyes can have a chance to recover and return to a healthy comfortable state.

Specific eye drops or treatments

In certain cases, Dr Adams may suggest other drops such as cyclosporin or serum tears, or a course of oral antibiotics for anti-inflammatory properties.

Drink water! Remember that if you are dehydrated, your eyes will be as well. So make sure you drink plenty of water and avoid excessive tea and coffee. If possible, reduce medications that can cause or exacerbate dry eyes.

Treat blepharitis/meibomian gland dysfunction – this will help improve the quality of your tears. Warm compresses and lid massage can help. Thorough removal of makeup is important.

Take Omega-3 oil such as fish oil. There are two important benefits. The essential fatty acids in Omega-3 capsules are important in producing potent anti-inflammatory prostaglandins. This anti-inflammatory effect reduces the inflammation that occurs in blepharitis and other dry eye conditions. A high dose of Omega-3 fatty acids also improves the health of the oil secreted by the meibomian glands. This leads to a healthier and more effective tear film and more comfortable eyes.

Control your environment! The environment around you plays a very important role in dry eye treatment. Wind, fans, cold air-conditioning and warm heating all have a drying effect, which means that you will have excessive evaporation of your tears. Increasing the relative humidity and protecting your eyes from the direct flow of air will reduce the evaporation of your tears. Just follow these simple steps:

Wear glasses or wraparound sunglasses when outside, this will stop the wind blowing directly into your eyes.

Avoid sitting or sleeping near fans or air-conditioning vents – it can be very drying.

Increase the humidity in your room – place pot plants or a bowl of water. A flower arrangement with a floral foam called oasis where half of the foam is exposed to the air, causing evaporation into the room, will also help make the air kinder on your eyes.

Remember to blink regularly when doing extended periods of computer or other near tasks. Poor blinking is increasingly being found to be a leading cause of meibomian gland dysfunction with the age of onset being much younger than previous due to increased use of screen-based activities.