

## DRY EYE

Q What is dry eye?

A Dry eye is a condition which commonly affects people of all ages. It is more appropriate to refer to the condition as a 'tear film abnormality' rather than dry eye. Ten people with 'dry' eyes will complain of their being very watery.

The tears have several important functions.

They keep the front surface of the eye (the cornea) moist and comfortable. This helps to keep the vision clear. If it starts to dry out the vision will start to blur.

They wash away debris and waste products from the eye, and help clear away dust and small foreign bodies that may get into the eye.

They provide nutrients to the eye to keep it healthy, and carry substances which help to prevent or fight infection.

The tear film is made up of three microscopic layers: a mucus layer, closest to the surface of the eye, a watery (aqueous) layer, and an oily (lipid) layer on the front surface of the tear film. The different components of the tears are produced by a variety of glands located in the conjunctiva and eyelids.

These layers are in a fine balance. The balance may be disturbed by lack of production of one or more of these three main constituents. The tear film will then either not be produced in sufficient quantity or will evaporate from the eyes too quickly.

Normally the tear film is spread over the eye with each blink. Most people tend to blink about once every 12 seconds. If the tear film evaporates too quickly or is not produced in sufficient quantities, the eye may dry out between blinks.

Q What are the symptoms of dry eye?

A People with dry eye will usually complain of one or more of the following symptoms:

- blurred vision
- sore or stinging eyes
- sandy, gritty or scratchy eyes
- foreign body sensation
- burning or irritated eyes
- sensation of dryness
- persistently watery eyes
- red eyes
- decreased tolerance to contact lenses

Q Why do some people get watery eyes when their eyes are dry?

A If the tear film is unstable it may not coat the eye effectively and may not keep the eye moist and comfortable. If the eye is irritated it will stimulate more tear production, but these tears will also be unstable and will not soothe the eye. Although tears are produced they do not do their job properly and tend to run off the eye.

Q What causes dry eye symptoms?

A There are many different causes of dry eye symptoms. The following are some of the most common.

Environment

Dry or windy weather, heaters and air conditioning may alter the evaporation of tears from the surface of the eye. Cigarette smoke may also

cause irritation if the tear film is unstable.

#### Concentration (computers)

When concentrating we tend not to blink as often, so using a computer, watching television, driving or reading may cause irritation if the tear film is unstable.

#### Contact lens wear

Wearing contact lenses may result in changes in tear

film stability and evaporation. Symptoms of dry eye are one of the major reasons for people deciding to stop wearing contact lenses.

#### Aging

As we age there is a normal reduction in tear production. At 65 years of age the tear glands produce about 40 per cent of the lubricating tears they produced at 18 years of age.

#### Hormonal changes

During pregnancy and after menopause, hormonal changes may result in changes in tear film stability and tear production.

#### Contraceptive pill

The contraceptive pill may affect hormone balance causing dry eye symptoms.

#### Medication

Certain prescription drugs including anti-histamines, diuretics and anti-anxiety pills may alter tear stability. Some anti-allergy and common cold or influenza medications can also cause symptoms of dryness.

#### Blepharitis or meibomian gland dysfunction

Blepharitis is a condition affecting the eyelids. In blepharitis the meibomian glands that produce the lipid layer may become blocked or the lipid produced may be of poor quality, resulting in tear film instability. Bacteria associated with the blepharitis may produce substances that disturb the tear film.

#### Arthritis and related conditions

Arthritis may be associated with dryness of mucous membranes and tear film instability. Sjogren's syndrome is a condition characterised by rheumatoid arthritis, dry eyes and a dry mouth.

#### Excessive tear drainage

The tears normally drain from the eye through a channel to the nose. If this drainage is too fast the tears may not remain on the eye for long enough and dry symptoms may result.

#### Q How is dry eye diagnosed?

A An optometrist or ophthalmologist is the most appropriate person to diagnose dry eye. These eye care practitioners will conduct tests which investigate tear production and tear evaporation. They may also instill dyes into the eye which allow detection of areas of dryness or irritation.

#### Q How is dry eye treated?

A The way in which dry eye is treated depends on the type and severity of the condition.

Mild dry eye is best managed by using ocular lubricants or 'tear supplements'. Tear supplements are not and do not 'cure' dry eye, but they do provide symptomatic relief by effectively replacing the tears, moisturising and lubricating the eye.

There are many different tear supplements available. Most come in the form of drops. Some drops are thicker stay on the eye longer than others that are more watery. Sometimes a gel or ointment may be preferred moderate or severe cases of dry eye. An eye care practitioner can recommend the tear supplement that is best for you.

If dry eye is associated with blepharitis, treatment of underlying condition may provide relief.

If the dry eye is associated with reduced tear production or excessive tear drainage, an eye care practitioner may block drainage to keep the tears in the eye longer. This may be achieved with temporary plugs and if it is successful, more permanent plugs are an option.

For very severe dry eye, an ophthalmologist may need to partially sew the eyelids together to reduce tear evaporation. This procedure, known as a tarsorrhaphy, is rarely required.

Q What else can be done to reduce dry eye symptoms?

A Avoiding environmental conditions that aggravate the condition may reduce dry eye symptoms. Wearing wrap-around sunglasses or side-shields on your spectacles may protect the eye from the drying wind. Ultrasonic cold water humidifiers in the home or workplace may improve comfort.

Taking frequent breaks when working on the computer or concentrating on blinking more frequently may be beneficial.

Periodic cold compresses or bathing the eyes with saline may also assist.

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Unique Optical: Shop 14, Manuka Village. Cnr Bougainville & Furneaux Sts, Manuka ACT 2603 ph 02 6295 0137