

Dry Eye Disease



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This free booklet is brought to you by Glaucoma UK
(formerly the International Glaucoma Association).
Contact the Glaucoma UK for further information or advice:

Glaucoma UK

Woodcote House
15 Highpoint Business Village
Henwood
Ashford
Kent TN24 8DH

Glaucoma helpline: 01233 64 81 70

Monday-Friday 9.30am-5.00pm

Email: helpline@glaucoma.uk

glaucoma.uk

**Author: Valerie Saw MB BS (Hons 1) FRANZCO
FRCOphth PhD**

Medical Editor: John Brookes BSc MB BS FRCOphth

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Glaucoma UK is a registered charity that is here for everyone living with glaucoma throughout the UK.

- We raise awareness of glaucoma so that it is detected and treated early.
- We campaign for effective services for everyone affected by glaucoma.
- We provide advice and support to help people live well with glaucoma.
- We fund vital glaucoma research.



**Campaigning
& Awareness**

Fewer
people
go blind



**Advice &
Support**

People with
glaucoma live well
and stay well



Research

Better
diagnosis,
care and
treatment

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01 What is dry eye disease?



Dry eye disease, also known as dry eye syndrome, is a common eye disorder where the eyes don't make enough tears or the tears evaporate too quickly. It can make your eyes feel dry, scratchy and irritated or watery, and feel heavy and tired at the end of the day. Usually, it does not cause long-term problems with your sight, but can cause fluctuating blurriness.

Dry eye is more common as we get older, and is made worse by time spent in front of computer screens and in airconditioned environments. One in every three people over the age of 65 experience problems with dry eyes. Dry eye disease is a chronic, long-term condition and you may need to try several different treatments before you find the right one for you. Treating and managing your dry eye disease early can prevent permanent damage to the surface of the eye and therefore stop future vision loss. If you experience any of the symptoms of dry eye disease you should speak with your GP or optometrist, who may refer you to an eye specialist, known as an ophthalmologist. Keeping the eye surface and tear film healthy is also important for successful management of glaucoma.

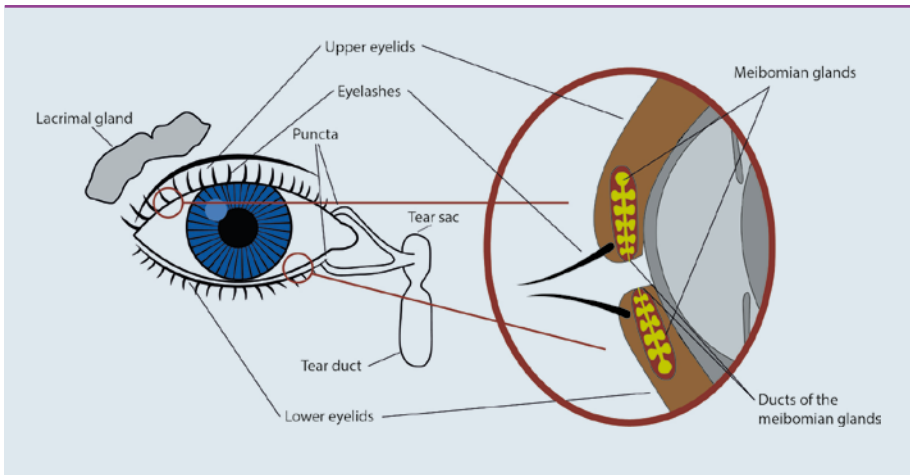
02 Dry eye disease and glaucoma

Dry eye disease and glaucoma commonly appear together. Studies suggest that 50–60 per cent of people who are being treated for glaucoma also have dry eye disease. Managing both conditions effectively is important but can be challenging. Glaucoma is usually treated as a priority as it can cause vision loss, but dry eye symptoms are often reported as more troublesome for the individual.

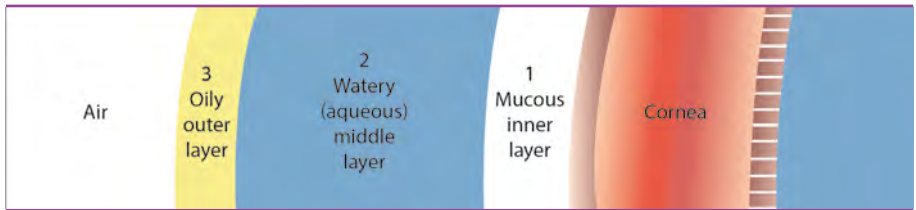
Eye drops used to treat glaucoma can cause dry eye symptoms. Switching to preservative-free glaucoma drops helps in patients who have dry eye and glaucoma. If your glaucoma eye drops seem to be causing redness and stinging of your eyes, talk to your glaucoma specialist. There may be alternative eye drops, or alternative ways to reduce the eye pressure, including laser treatment or other options. Alternative eye drops include preservative-free eye drops and eye drop solutions rather than suspensions. Maintaining good oily tear production by gentle daily hot eyelid compresses, addressing lifestyle factors and using artificial tear supplements are the best ways to manage dry eye associated with glaucoma. Both conditions are long-term but manageable.

03 Structure of the eye and eye surface

The eye is shaped like a ball, and has a tough white outer layer called the sclera. The surface of the sclera is covered by a thin translucent layer called the conjunctiva. The sclera has a clear section at the front of the eye called the cornea, which is protected by the tear film. Several glands containing cells that produce different substances, in the eyelids and within and under the conjunctiva, help produce the tear film, including the lacrimal glands and meibomian glands.



04 What makes tears?



Each time we blink, our eyelids create a new layer of tears over the front of the eye.

Tears have three main components:

1. Mucous inner layer

Produced by mucous cells in the conjunctiva. This is healthy in most people.

2. Watery (aqueous) middle layer

This is produced by lacrimal glands, also known as tear glands, through openings in the upper eyelid. As we get older, particularly in women after menopause, the lacrimal gland produces less watery tears.

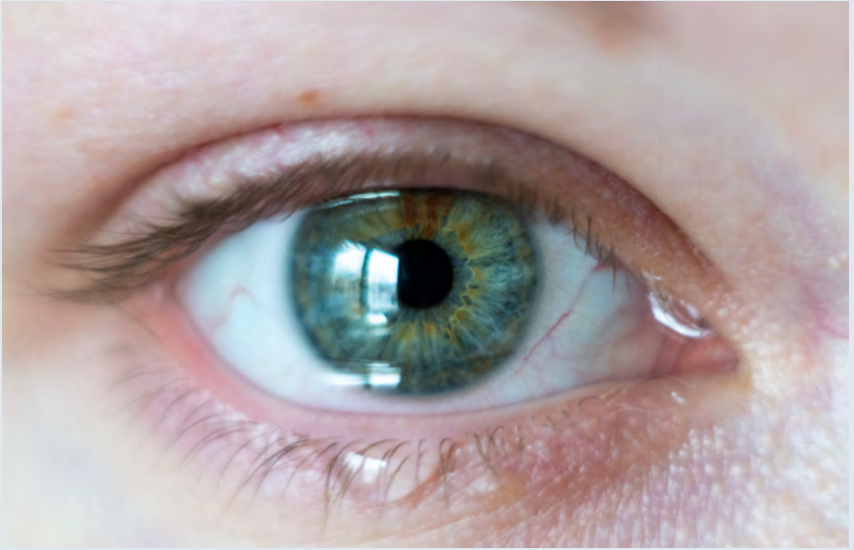
3. Oily outer layer

Produced by the meibomian oil glands in the eyelids,

which have openings just behind the eyelashes on both the upper and lower eyelids. Problems with these glands are the most common cause of dry eye disease. This smooth layer of tears acts like a waterproof barrier. It stops the watery tears from evaporating.



05 Why are tears important?



A smooth layer of tears is essential for sharp vision. If the tear film has patchy areas where it has dried out, the light that hits the eye is scattered and does not focus clearly. A patchy, poor quality tear film also leads to discomfort and irritation.

06 What are the symptoms of dry eye disease?

In most cases dry eyes cause mild discomfort, but in some cases it can become painful and the dryness can cause permanent damage to the eye surface.

- The most common symptoms are:
- Heavy, tired feeling of the eyes
- Difficulty reading or working on the computer
- Blurriness of vision
- Excessive watering of the eyes (when they are very dry a reflex reaction in the brain causes more tear production)
- Discomfort when wearing contact lenses
- Stinging or burning of the eyes
- A sandy or gritty feeling, as if something is in the eye
- Pain and redness of the eyes

If you experience any of these symptoms you should discuss these with your GP or optometrist, who may then refer you to an ophthalmologist.

07 Who is at risk of dry eye disease?

Dry eye disease can affect anyone, but is more common in women and people aged 65 and over. As we get older we generally produce less tears, and the eyelids also become less effective at spreading the tears each time we blink. People who frequently use computer or video screens are also more at risk of developing dry eyes. Using screens for a long period of time can lead to reduced blinking, meaning the tears are not spread across the eye surface as well. Lack of sleep and excessive stress can lead to dry eye due to oily tear gland dysfunction. The use of some medicines, including anti-depressants, anti-histamines and oral contraceptives, can also affect the amount of tears produced.

Dry eye disease is also more common in people with autoimmune diseases like Sjögren's syndrome, rheumatoid arthritis and lupus.

Other risk factors for dry eye include long-term contact lens wear, laser or cosmetic surgery, long-term use of glaucoma eye drops and large blebs from glaucoma surgery.

08

How is dry eye disease managed?

There are two main types of dry eye disease:

A. Lack of watery tears

B. Rapid tear evaporation due to lack of oily tears

The first step is to evaluate which type of dry eye is present; both types can be present at the same time.

The second step is to identify and treat or remove any underlying causes. You may be asked to stop certain medications, use a different type of glaucoma eye drop, use a different type of contact lens or reduce the number of hours you wear contact lenses.

The next step is to treat each type of dry eye in turn.

09

What can I do about dry eye disease?

There are several things you can do yourself to help improve tear production, reduce evaporation and reduce the symptoms of dry eye.

- Drink lots of water, as this helps improve tear production
- Get enough sleep each night
- Avoid alcohol or spicy foods, as these can cause meibomian oil gland blockage
- Avoid smoking or smoky areas as this makes the eyes drier
- Wear glasses or sunglasses on windy days to protect your eyes from the wind
- Avoid air-conditioned environments and draughts near your face, and consider using a humidifier to put more water into the air
- Remember to blink more frequently when using a computer screen or reading, and close your eyes or look away from the screen for a break every 30 minutes

10 What are the treatments for dry eye disease?

There are several different options your optometrist or ophthalmologist may suggest for treatment of your dry eye disease, depending on the type and severity of your condition.

Tear replacement

Artificial tears are eye drops used as a replacement for watery tears. Gels and ointments are also available, and are thicker than eye drops. They usually last longer in the eye and need to be put in less frequently, but can blur the vision. There are many different types of artificial tears available without prescription. Preservative-free eye drops are recommended for use with contact lenses, or if they are needed more than four times a day.

Expressing natural oily tears to the ocular surface by daily hot eyelid massage can reduce the frequency of artificial tear drops required (see diagram on page 14).

Switching to preservative-free glaucoma eye drops is recommended for patients with glaucoma who also have dry eye disease.

Reduction of inflammation

Steroid eye drops or topical ciclosporin eye drops may be prescribed by an ophthalmologist if the dry eye condition has led to inflammation of the surface of the eye.

Prevention of tear drainage

When there is lack of watery (aqueous) tears, punctal plugs can be inserted into the tear duct (puncta) to stop tears from draining away and keep them on the surface of the eye for longer. They should be inserted by an optometrist or ophthalmologist. If the plugs help your dry eye but fall out, then punctal cautery can be considered. This is a simple procedure where the opening of the tear drainage tube is permanently sealed.



11

What is meibomian gland dysfunction and how is it treated?



Eyelid swollen
and reddened

Waxy material

Blockage of meibomian oil glands in the eyelids, known as meibomian gland dysfunction, is the most common cause of dry eye disease. This causes rapid tear evaporation due to lack of oily tears.

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Inflammation of the eyelids associated with waxy debris on the eyelashes is known as blepharitis. In blepharitis, rather than producing clear oily tears, the meibomian oil glands are blocked with waxy solidified oil. The blockage of the oil glands leads to them becoming inflamed, causing a burning feeling in the eyelids, which is worse in the morning. The waxy material collects on the eyelashes, causing grittiness, stickiness and itching of the eyelids. There is also rapid tear evaporation due to lack of oily tears.

What causes oil gland dysfunction is not well understood and likely to be multifactorial. It is thought that microbiological changes lead to an increased melting temperature of the oily tears, leading to blockage of the meibomian glands.

Lifestyle factors associated with meibomian gland dysfunction include lack of sleep, excessive stress, and in some people, drinking alcohol and eating spicy foods. Omega three fatty acids, available as tablet supplements, and eating oily fish such as salmon and sardines are thought to help improve meibomian gland dysfunction. Long-term use of certain types of glaucoma eye drops seem to be more likely associated with oil gland blockage than others.

A simple way to help restore meibomian oil gland function

is to carry out hot eyelid compresses and gentle massage daily. This will help to unblock the meibomian oil glands and express natural oily tears onto the surface of the eye. As an alternative to a hot towel, commercially available eye masks can also be used, but may not work for everyone. The waxy debris on the eyelashes can be removed using eyelash-cleaning wipes. Avoid using baby shampoo as this removes natural oils from the surface of the eyes. Once the oil glands are expressing clear oil every day, rather than being blocked with thick wax, there should no longer be any need to continue with eyelash-cleaning wipes. Clean eye make-up away carefully and have at least one or two make-up free days per week.

If meibomian gland dysfunction is severe and has caused damage to the eyelids it may be necessary to take a course of oral antibiotics. Artificial tear supplements, topical antibiotics and topical steroids may also be prescribed.

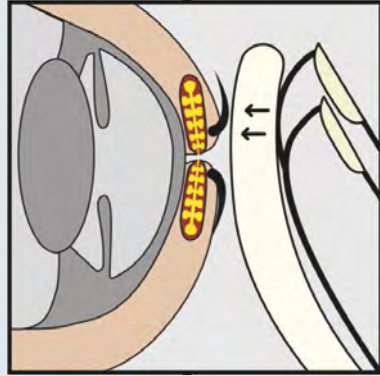
Step 1

Heat a small, thin, folded towel with hot running water (as hot as you can tolerate) and place over the closed eyelids. This will melt the thick wax which is blocking the oil glands.



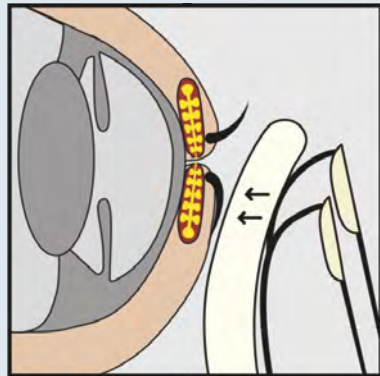
Step 2

Push gently backwards on the upper eyelids for 10 seconds, near where the eyelashes come out. Try to squeeze the oil glands open gently, to express natural oily tears onto the eyeball.



Step 3

Reheat the towel in hot water and repeat the same movement on the lower eyelid for 10 seconds, towards where the eyelashes come out, to express oily tears on the surface of the eye.



Step 4

Repeat again, making sure to reheat the towel every 10 seconds.

12 Further help and information from Glaucoma UK

Glaucoma UK is here for anyone affected by glaucoma.
For help and advice:

Call our telephone helpline:
01233 64 81 70 (9.30am - 5.00pm Monday to Friday)

Email us with any worries or queries:
helpline@glaucoma.uk

Visit our website **www.glaucoma.uk** for information and advice. You can also order a range of free booklets online and visit the user forum to ask questions and share experiences with other people living with glaucoma.

Call us or look online to find out if there is a glaucoma support group in your area.

If you are concerned about the treatment you have been offered, we provide a buddy service. You can speak to someone else who has experienced the same treatment as you, and ask them any questions or talk through your concerns. To speak to a buddy, please contact our helpline.

13 Other free advice booklets that may be helpful

We have other free information booklets available to order or download. For example:

- Blepharitis
- Driving and glaucoma
- Eye drops and dispensing aids
- Glaucoma: a guide

All our information booklets are free and can be downloaded or ordered at www.glaucoma.uk

About Glaucoma UK

- We fund sight-saving research into the early detection and treatment of glaucoma
- We campaign to raise awareness of glaucoma so that no one loses their sight needlessly
- We provide support that helps people to live well with glaucoma

Each year in the UK over 11,000 people are diagnosed with glaucoma. We are passionate about supporting them and are committed to providing our services free of charge to anyone who needs them. It is only through the generosity of our supporters that we can do this.

Help us save sight and fund research

- make a donation by calling 01233 64 81 64
- donate online at www.glaucoma.uk
- become a member for £17.50 a year. **Join online or call 01233 64 81 71**

Your support will make a difference to people with glaucoma today and will protect future generations from unnecessary glaucoma sight loss.



The information in this leaflet was correct at the time of printing (printed 06/2020).

Glaucoma UK

Woodcote House
15 Highpoint Business Village
Henwood
Ashford
Kent TN24 8DH

Phone: 01233 64 81 64

Email: info@glaucoma.uk

glaucoma.uk

Whilst every step has been taken to compile accurate information and to keep it up to date, we cannot guarantee its correctness and completeness.

Glaucoma UK and the author cannot take responsibility if you rely solely on the information in this booklet. The information provided is designed as an addition to, and not a substitute for, professional advice from a qualified doctor or other healthcare professional, which will be tailored to a patient's individual circumstances.

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