Understanding and managing screen-dry eye*

*Due to disruption of the lipid layer of the tear film.
Introduction

Screen use is now an established part of everyday life.\(^1\) Looking at screens reduces our blink rate\(^2\) which can cause a disruption to the eye’s tear film;\(^\text{a}\) this can be regarded as screen-dry eye. As a result of tear film disruption, your customers may be experiencing feelings of dryness, irritation and other uncomfortable symptoms\(^3\) but do not necessarily realise they may be due to prolonged screen use.\(^4\)

This training guide will help you identify patient types who could be more at risk from screen-dry eye and how you can engage with them. It provides information on some of the treatment options available in pharmacy plus lifestyle advice to help repair and ease the discomfort.

What you will learn

After reading this training guide on screen-dry eye, you will be able to:

1. Understand the impact of prolonged screen use and the prevalence of screen-dry eye
2. Understand the importance of the tear film and the blink rate
3. Identify the cause and symptoms of screen-dry eye
4. Offer appropriate treatment options
5. Provide lifestyle tips and advice to help patients manage screen-dry eye.

Meet our expert contributors

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The prevalence of screen use and dry eye

The amount of time people spend using screens, such as smartphones, laptops, tablets, games consoles and television is increasing. It is estimated that the average person now spends approximately 8 hours a day looking at screens.\(^1\)

Younger people are also starting to use devices at an earlier age, with those aged 5 to 16 years using screens for an average of 6.5 hours a day.\(^7\)

A recent international study by the Education Policy Institute described a third of British teenagers as extreme internet users.\(^8\)

Dry eye can affect up to 1 in 10 people\(^9\) and is often associated with older patients,\(^4,6\) but screen use may be changing the age profile of sufferers you see in your pharmacy.

As a result of increased screen use, we are now seeing larger numbers of younger patients with dry eye.

Shelly Bansal

*Based on 2014 study of 3,824 women aged 20-87 in UK: around 1 in 10 women has dry eye disease.\(^9\)*
The tear film and the blink rate

To understand the impact of screen use, it’s important to first understand the structure and role of the tear film on the eye’s surface.

The tear film is essential for keeping the eyes moist and lubricated, and also washes away dust and debris and helps prevent infection.11

The tear film is composed of three layers:

1. The lipid (oily) outer layer, reduces evaporation of the tear film and locks in moisture
2. The aqueous (watery) middle layer, nourishes and protects the eye
3. The mucin (sticky) inner layer, sticks the tear film to the surface of the eye and helps distribute it.

The tear film is usually replenished and spread over the surface of the eye every time we blink, which we normally do up to 900 times an hour.2

When we use screens, the blink rate is reduced by as much as 60%.2 This means blinking can drop to around just 300 times an hour.2

How reduced blinking can disrupt the tear film

The reduced blinking associated with screen use means the tear film is replenished less often, which can result in a disrupted lipid layer.3

This disruption is thought to lead to increased moisture evaporation from the aqueous layer, which can trigger dry eye symptoms4 – this can be referred to as screen-dry eye.

In addition to screen use, other dry eye triggers that can aggravate the problem include environmental factors such as air conditioning/heating, and wearing contact lenses.4

Disruption of the lipid layer of the tear film is responsible for around 80% of dry eye cases.12

Think of the lipid layer as the lid on your coffee cup – it prevents the moisture from evaporating. Taking the lid off is similar to having a disrupted lipid layer which allows moisture to escape.

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Moisture evaporation from aqueous layer

Disrupted lipid layer

Lipid layer
Aqueous layer
Mucin layer

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Screen-dry eye symptoms

In order to help alleviate the discomfort of screen-dry eye and prevent possible long-term complications, it’s important to be able to identify the symptoms. The SMART acronym to the right may help you remember some common symptoms:4,5

- **S**ore and/or a gritty feeling
- **M**ild irritation and/or pain
- **A**rid or dry feeling
- **R**ed and/or stinging
- **T**emporary blurred vision

Dry, gritty, irritated and sore symptoms typically get worse as the day goes on.5

An additional symptom can be watery eyes4,5 where the eye is flooded with tears. These tears however are mostly water and do not have the right properties needed to lubricate the eye and prevent the tears from evaporating rapidly.13

When to refer* and who you can refer to*

If more moderate to severe pain is being experienced, or your patient’s eyes are sensitive to light (photophobia) then it’s a good idea to refer the patient to your pharmacist.

Your pharmacist may then decide to refer the patient on to one of these people if additional red flags including: ulcers, corneal damage, marked redness in one eye, or an associated disease is suspected.4

1. **Optometrist** – Refer to for eye problems
2. **General practitioner** – Refer to the GP if a medical condition is suspected
3. **Ophthalmologist** – Secondary referral from an optometrist or a GP.

*This list is non-exhaustive.

Identifying screen-dry eye in your patients

The Optrex Blink Test is designed to help identify patients who may have signs of dry eye.

The test measures how long it takes for eyes to become uncomfortable when staring without blinking and can easily be performed in the pharmacy in 15 seconds or less. www.rbforhealth.co.uk/screens

It’s surprising how many screen-dry eye patients you may encounter in the pharmacy but might never know it. The Optrex Blink Test is a valuable tool to proactively screen patients for signs.

Noel Wicks

Gathering the information you need

It’s important to ask the right questions and take a proactive approach to identify those patients who may need your help. The following questions can help you gather information that’s useful to establish during a consultation:

- **Symptoms**
  - Are they experiencing any of the common symptoms like dryness, irritation, grittiness, or watery eyes?
  - Are they experiencing any other symptoms or have had other eye problems in the past?

- **Screen use**
  - How often, and for how long are they using screens?
  - Are they in front of a screen for extended periods which could be triggering their symptoms?

- **Time of day**
  - How frequently are their symptoms being experienced?
  - Are their symptoms more common, or worse, at the end of the day compared to the morning?
Pharmacy treatment options

There are a number of treatment options for treating screen-dry eye*, which vary in the ingredients, modes and duration of action. When recommending a product, you may wish to consider the patient’s lifestyle and how the treatment targets the condition.

Liposomal sprays

Liposomal sprays, such as Optrex ActiMist™ 2in1 Eye Spray for Dry + Irritated Eyes, target the cause of screen-dry eye and:

- Repair disruption to the lipid layer** and produce significant increases in thickness and tear film stability***
- Can be easily applied whilst using screens
- Are convenient for on-the-go lifestyles as they don’t require a mirror to apply
- Don’t smudge make-up
- Are suitable for use with contact lenses
- Can last up to 6 months or 100 applications.

Drops

Aqueous, artificial tears replace the watery layer of the tear film. They temporarily bathe the eye, hydrating and lubricating to bring relief – they require frequent administration and are useful for mild or infrequent symptoms.

Gels & ointments

Gel drops, such as Optrex Night Restore Gel Drops contains 0.4% w/v sodium hyaluronate which lubricates and moisturises the eye. Its higher viscosity means it stays in contact with the eye for longer.††

Time spent asleep is an opportunity to restore moisture to the eye’s surface. Adding an overnight treatment is advisable for patients with moderate to severe symptoms.‡‡

Eye ointments/lubricants physically lubricate the eye. Ingredients in ointments include viscoelastics Carbomer 940, or Carbomer 980, which can require less frequent application.‡ They are very thick but liquefy on contact with the eye. As they can cause temporary blurred vision, it’s recommended that these are used at night.‡

Gels and ointments are applied in the same way as drops.

How liposomal sprays work

The spray is applied onto closed eyes from a distance of 10cm.

The liposome molecules migrate down the eyelid, collecting at the eyelid edges.

Within a few blinks the liposomes are spread across the surface of the eye, repairing the lipid layer and helping prevent evaporation.‡‡

This can provide instant relief which lasts up to 4 hours.‡‡

When surveyed, 83% of customers preferred using an eye spray over drops†

Shelly Bansal

Liposomal sprays are an effective treatment for screen-dry eye as they replenish the lipid layer to relieve symptoms.

*Due to disruption of the lipid layer of the tear film.
** for > or = 1h after a single application of phospholipid liposomal spray.
†Optrex Home Tester survey of 540 targeted consumers. 2015.
‡‡Eye ointments/lubricants physically lubricate the eye. Ingredients in ointments include viscoelastics Carbomer 940, or Carbomer 980, which can require less frequent application.缜
‡ They are very thick but liquefy on contact with the eye. As they can cause temporary blurred vision, it’s recommended that these are used at night.‡
It’s important to explain to patients that screen-dry eye cannot be cured, but long-term management and a number of lifestyle changes can help reduce the symptoms.

For patients who use screens regularly

**Practice the 20-20-20 rule —** every 20 minutes spent on a screen, look at an object 20 feet in front of you for 20 seconds to give your eyes a break from screens.

**Remember to blink —** remind patients to blink regularly during and after periods of screen use.

For additional pharmacy resources visit www.rbforhealth.co.uk/screens

**Apply a warm compress (60-45°C) for around 10 minutes to the eyelids to aid the secretion of oil produced by the glands around your eyes needed for the lipid layer.**

**Establish an eyelid hygiene routine —** clean the lids regularly to control the blepharitis (inflammation of the eyelid) associated with dry eye.

**Limit contact lens use if possible —** these can irritate the eyes and exacerbate the problem.

**Install an air humidifier —** this will help moisten dry air.

**Stop smoking —** smoke can further irritate the eyes.

**Review medications —** dry eye can be an adverse reaction to some medications (for example antihistamines).

**Suggest a follow-up will help you monitor the patient’s symptoms, compliance and response to treatment.**

**Screen-dry eye** poses a great opportunity for you to proactively engage and identify more patients who may not necessarily realise they are suffering from screen-dry eye.

1. **The average adult now spends approximately 8 hours a day on screens**
2. **When we use screens, the blink rate drops by as much as 60%**
3. **Reduced blinking from screen use can lead to a disruption of the tear film’s outer lipid layer**
4. **This disruption is thought to lead to increased moisture evaporation from the middle aqueous layer which can lead to uncomfortable symptoms including dryness, irritation, and a gritty feeling on the eye**
5. **Liposomal sprays, such as Optrex ActiMist™ 2in1 Eye Spray for Dry + Irritated Eyes, target the cause of screen-dry eye by repairing the outer lipid layer of the tear film and can provide instant relief which lasts up to 4 hours.**

1. **True or false - Screen-dry eye can be defined as a disruption to the lipid layer of the eye’s tear film due to a reduced blink rate from screen use.**
   - True
   - False

2. **Which of the following is NOT typically a symptom of screen-dry eye?**
   - Dryness
   - Watery eyes
   - Grittiness
   - Watering
   - Itching with no other symptoms

3. **Which of the following lifestyle tips may help customers suffering from screen-dry eye?**
   - Incorporating an eyelid hygiene routine
   - Remembering to blink during and after screen use
   - Practicing the 20-20-20 rule
   - All of the above

4. **What product is designed to specifically target a disrupted lipid layer caused by screen use?**
   - Drops
   - Liposomal sprays
   - Ointments
   - Gels

**REFERENCES:**
Smart repair for screen-dry eye*

Prolonged screen use reduces the eye's blink rate by up to 60%. This can cause a disruption to the lipid layer of the tear film, leading to dryness and irritation.

Optrex ActiMist™ 2in1 Eye Spray for Dry + Irritated Eyes targets the cause of screen-dry eye*

- Repairs the disruption to the lipid layer of the tear film
- Provides instant relief that lasts up to 4 hours†
- Convenient and easy to use
- Suitable for use with contact lenses.

*Due to disruption of the lipid layer of the tear film.
†Dry and irritated eyes due to disruption of the lipid layer of the tear film, approx. 80% of dry eye cases.

For more information on screen-dry eye* visit www.rbforhealth.co.uk/screens and look out for your pharmacy support pack arriving early September.

REFERENCES: