



Dry eyes

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Introduction

Dry eye occurs commonly and may be a chronic problem, particularly in older adults. When one blinks, tears spread across the front surface of the eye. Tears reduce the risk of eye infection by providing lubrication and washing away foreign matter in the eye. Tears also keep the surface of the eyes smooth and clear and maintain the health of the front surface of the eye. Dry eyes can occur if the eye does not produce enough quality tears to lubricate and nourish the eye.

Symptoms

Symptoms usually affect both eyes and may include:

- Stinging, burning, or a scratchy sensation in the eyes
- Stringy mucous in or around the eyes
- Sensitivity to light
- Red eyes
- Feeling as though there is something in one's eyes
- Watery eyes
- Blurred vision

Causes

Dry eyes may be caused if there is inadequate tear production, or if the tears are of poor quality.

Inadequate tear production

Tears are produced by glands in and around the eyelids. Symptoms of dry eye can occur if the normal amount of tear production decreases or if tears evaporate too quickly from the eyes.

Poor quality of tears

Tears are made up of oil, water, and mucous (mucin). This combination keeps the surface of the eye lubricated, clear and smooth.

Deficiencies with any one of these three layers can cause dry eye symptoms to develop.

Risk factors for dry eye include:

- Advancing age
- Various medical conditions such as rheumatoid arthritis and diabetes
- The side-effects of certain medications, including antihistamines, blood pressure medication and antidepressants
- Environmental factors such as wind and dry climate
- Gender – women are more likely to develop dry eyes due to hormonal changes caused by pregnancy, menopause, or oral contraceptives
- Long-term use of contact lenses

Treatment

Over-the-counter (OTC) tear replacement agents are first-line treatment in the management of dry eye. These agents are available as drop, gel, and ointment formulations. There is a wide choice of products available, and patients may have to try several brands before finding one that is suitable.

Artificial tears are suitable for treating mild to moderate symptoms of dry eye. They lubricate dry eyes and help to maintain moisture on the outer surface of the eye. Artificial tears are available as **drop** formulations and may have to be applied several times a day.

Formulations are also available as **gels**, which may cause temporary blurred vision after application.

Should artificial tear drop formulations not prove helpful, lubricating **eye ointments** could be considered. These coat the eyes effectively and provide longer-lasting relief from dry eyes. They may, however, cloud vision and are best applied at night.

Preservatives may be added to eye drops in multidose bottles to discourage the growth of bacteria after opening. These preservative-containing eye drops may irritate the eyes and should not be used more than four times a day or for prolonged periods.

Preservative-free formulations are available in multidose dropper bottles or in single-use vials which should be discarded after use.

Table 1: Examples of OTC products to relieve dry eye symptoms

Tear replacement agent	Example	Preservative	Formulation
Carboxymethylcellulose sodium	Cellufresh®	No	Unit dose vials
	Celluvisc®	No	Unit dose vials
	Refresh Tears®	Yes	Dropper bottle
	Refresh Liquigel®	Yes	Drops
Hydroxypropyl methylcellulose	Spersatear®	Yes	Drops
In combination with:			
Dextran-70	Tears Naturale® II	Yes	Drops
Dextran-70	Tears Naturale® Preservative free	No	Single-dose vials
Polyvinyl alcohol: in combination with povidone	Refresh®	No	Single-dose vials
Liquid lanolin, anhydrous	Duratears® Preservative free	No	Ointment
Hyaluronic acid (as sodium hyaluronate)	Artelac® Splash	No	Drops
In combination with polyethylene glycol 8 000	Artelac® Intense	Yes	Drops
Polyethylene glycol 400 in combination with:			
Propylene glycol, hydroxypropyl guar	Systane® Ultra	Yes	Drops
Propylene glycol, hydroxypropyl guar	Systane® Ultra UD	No	Unit dose vials
Propylene glycol, hydroxypropyl guar	Systane® Ultra Preservative Free (Pureflow® technology)*	No	Drops
Propylene Glycol in combination with:			
Hydroxypropyl guar, mineral oil	Systane® Balance	Yes	Drops
Hydroxypropyl guar, mineral oil	Systane® Complete	Yes	Drops
Remember			
It is always necessary to follow the instructions of the manufacturer or eye-care practitioner when applying medication for the relief of dry eye. People with dry eyes who do not respond to artificial tear replacements would best consult an eye practitioner to consider other options.			
Contact lens wearers should select products which are preservative-free and compatible with their lenses.			
*Pureflow® technology is a method of filtering the intake of air into a multidose dropper bottle through a fine membrane after the drop has been dispensed. This process isolates the eye drop solution from the environment and prevents bacteria from entering the bottle. The sterility of the eye drops is maintained, and the need for preservatives eliminated.			

These formulations are suitable for frequent use and are suitable for moderate to severe dry eyes.

Products for the treatment of dry eye symptoms may consist of one or a combination of tear replacement agents including: Carboxymethylcellulose, hydroxypropylmethylcellulose, polyvinyl alcohol, hyaluronic acid, polyethylene glycol, polypropylene, dextran-70, liquid paraffin, mineral oil, liquid lanolin, povidone, hydroxypropyl guar.

Self-help remedies

- Holding a warm, wet cloth over the eyes for five minutes.
- Massaging the eyelids with a mild soap, or baby shampoo. The soap should be applied to closed eyes with the fingertips, and gently massaged into the eyelids.
- Taking nutritional supplements such as omega-3 fatty acids.

Prevention

Blink regularly when reading or looking at a computer screen for a long time.

Direct fans, car heaters and hairdryers away from the eyes.

Reduce the drying effects of wind and sun by wearing sunglasses with wraparound frames when outdoors.

Maintain hydration by drinking plenty of water.

Remember that environments such as aeroplanes, deserts, and places at high altitudes may aggravate dry eye symptoms.

If conservative treatments have not relieved dry eyes and the eyes have been dry, red or painful for some length of time, the patient should be referred to a doctor.

Conclusion

Dry eye is a common condition which may occur if the eyes do not produce enough tears, or if the tears are of poor quality. There is a variety of OTC preparations available which are effective tear replacement agents and suitable for treating the symptoms of dry eye. Should these not prove helpful, an eye practitioner should be consulted.

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