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PRIMARY eyecare

A Quick Guide to Dry Eye

Chronic dry eye and associated ocular surface irritation can cause blurred vision, contact lens intolerance, increased risk of infection and, in severe cases, progressive ocular surface disease and corneal morbidity. Appropriate diagnosis and management is important. Dry eye can be classified into two categories; evaporative and tear deficient dry eye.

Evaporative dry eye.

Meibomium gland dysfunction is the prevalent cause of evaporative dry eye causing an unstable tear film and increased evaporation. Meibomitis is another cause and is associated with acne rosacea and seborrhoeic dermatitis. Incomplete lid closure and abnormal blink patterns due to ectropion, entropion, pterygia, facial palsies, nocturnal lagophthalmos, proptosis, and lower lid laxity may also be contributing factors . Evaporative dry eye is worsened with exposure to irritants including air-conditioning, dry heat, low humidity, wind and intense concentration associated with close work and computer use.

Tear deficient dry eye

Aqueous tear deficiency is more prevalent in females possibly associated with menopausal factors. Sjogren's syndrome also causes severe aqueous tear deficiency having a prevalence of 0.4-1%, the majority being female (80-95%). It is associated with dry eye, dry mouth, autoimmune and connective tissue disorders.

Diabetes is a primary cause of tear deficient dry eye. Diabetes causes significant loss of corneal sensitivity reducing both reflex tearing and the blink rate associated with good quality and adequate tears.

Contact lens wear can cause tear deficient dry eye, as can refractive surgery.

Common medications affecting the aqueous tear film include topical and systemic antihistamines, tricyclic antidepressants, topical and systemic beta blockers, oral contraceptive pills, systemic topical non-steroidal anti-inflammatory agents among others. Preservative build-up from eyedrops may affect the aqueous tear film, particularly benzalkonium chloride.

Dry eye diagnosis

History based on known risk factors and associations is the most useful tool for dry eye diagnosis. Signs may not correlate with symptoms and different signs are present as severity increases. The history will distinguish dry eye from other ocular conditions with similar descriptive signs and symptoms.

Primary dry eye symptoms are not specific. Symptoms include soreness, scratchiness, dryness, grittiness, burning, stinging and blurry vision. Patients often report a sandy gritty irritation that becomes worse as the day progresses. This is because the corneal surface recovers with lid closure but evaporation of tears during the day causes increased tear film osmolarity and subsequent irritation. Symptoms may persist for many months. Meibomitis is also described using a gritty sandy sensation, usually worse in the mornings due to the inflamed lids releasing inflammatory mediators next to the cornea and decreased tear secretion due to eye closure.

Secondary dry eye symptoms are caused by environmental and dietary factors including cigarette smoke, smog, air-conditioning, central heating, dehydrating temperature controlled environments, weather conditions as well as alcohol and caffeine.

Tests for dry eye

Specific evaluation of dry eye includes medication history, a validated dry eye questionnaire, environmental evaluation, general health history and, when required, a test of tear secretion. Slit lamp evaluation will assess tear film meniscus, mucous and particles in the tear film, meibomium gland dysfunction, allergic ocular irritation, punctal position, lid margin defects and

"Your local optometrist is available to work with you for better eye health in the community"

positioning. Corneal staining using fluorescein, rose bengal or lissamine green aids this assessment. The staining location and pattern can indicate the cause of dry eye with reasonable sensitivity and good predictive value.

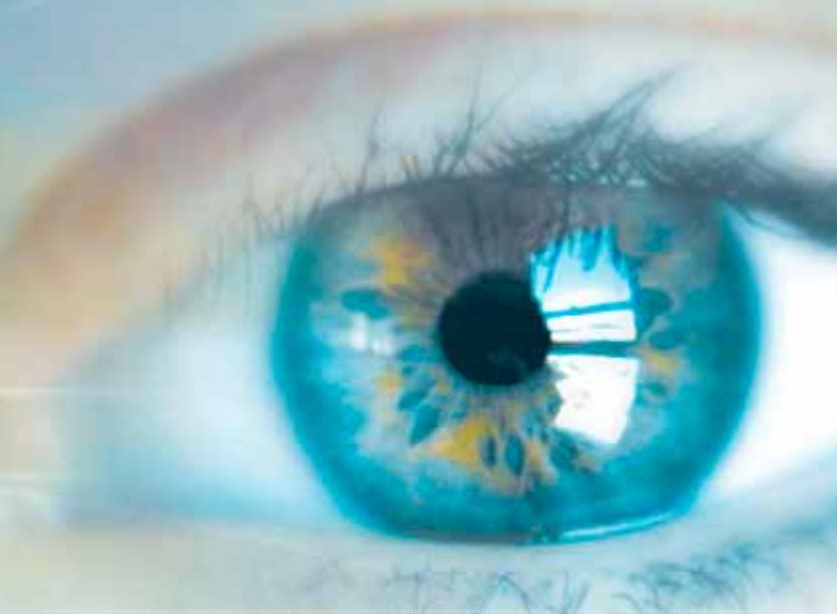
Dry eye treatment

The primary goals of dry eye treatment are reducing and improving symptoms by management of environmental factors affecting tear quantity and quality. Newer treatments are aimed at reducing tear osmolarity, improving tear film stability and reversing and improving ocular surface damage as opposed to simply providing more tears.

If drops are used frequently then non-preserved drops are more appropriate. Preserved drops may exacerbate ocular surface damage due to compromised epithelial barrier function or inhibited tear clearance increasing ocular surface-preservative exposure.

Lubricating gels and ointments are thicker than eyedrops and remain on the corneal surface longer. Due to visual disturbances, ointments are best used at night and are useful for people who sleep with their eyes slightly open.

Omega-3 and omega-6 essential fatty-acids are relevant to both dry eye and meibomitis. Omega 3 fatty-acids are provided mostly by fish oils, castor oil, flaxseed oil and walnuts Omega 6 fatty-acids produce inflammatory submetabolites. Excessive amounts may exacerbate inflammation in the body. A diet rich in omega-6 may worsen dry eye disease for people prone to meibomitis and blepharitis. Omega 3 fatty acids provide a balancing anti-inflammatory effect to omega 6 fatty acid intake. Omega 3 fatty acids also affect the meibomium gland lipid production.



Punctal occlusion will improve objective signs of tear deficient dry eye. Punctal occlusion can be a permanent or temporary measure, reversible as symptoms improve

Meibomium gland dysfunction is mainly treated using lid hygiene methods. Oral tetracyclines are effective in longstanding chronic meibomitis improving the consistency of meibomium gland oil production, promoting tear film stability and reducing tear evaporation.

Summary

Dry eye conditions affect a significant number of people. Differential diagnosis of dry eye is best achieved by a thorough history and slitlamp evaluation with corneal staining. Diagnosis, treatment and management can be performed by an optometrist. Successful treatment and management of dry eye and meibomium lid disease prevents chronic corneal changes which may affect vision.

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