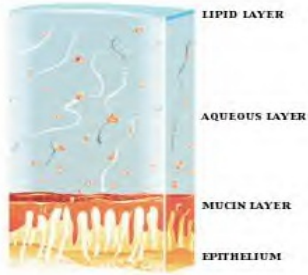


## Tears, 'Dry Eye' and General Irritations



We use the term 'Dry Eye' to describe any eye feeling irritable or gritty. The term implies there is a reduced tear volume, often not the case. Why?

Tears have three layers:

- 1) Mucous (closest to the eye) helps hold the tears onto the eye surface.
- 2) A thick water layer lubricates and carries nutrients.
- 3) Very thin lipid (oil) layer stops the tears evaporating and holds them upright.

Irritable eyes may be due to true 'dry eye' (reduced tear volume) but may be a result of reduced tear quality, if the mucous or lipid layers are poor. Even if the tears themselves are good quality, irritation may result from environmental irritants which can cause the ocular surface to become red, sore or itchy.

## Palliatives - To Relieve Symptoms

Response to acute irritation from pool chemicals, fumes or plant extracts can cause the eye lids to become red and puffy. Importantly the eyes will also water. This is a natural response to dilute and wash out the irritant. These episodes are self limiting but comfort can be enhanced by cooling and wetting the eyes.



1. Eyewashes - to dilute and flush out the offending irritant - *Blink Eye drops, Systane Balance (which can be used while wearing contact lenses).*
2. Astringent- to cleanse the ocular surfaces - *Vizulize Herbal Eye Wash.*
3. Cold compresses - to cool the inflammation.

These solutions are not usually for prolonged use. If symptoms do not improve rapidly then a more chronic problem is suggested which may require different management.

## Supportive Measures - Artificial Tears

Irritation and redness can be caused by mechanical irritation, exposure or toxins. This in turn can be the result of :-



1. Poor lid tone (loose lids with age)
2. Incomplete blinking & incomplete lid closure during sleep
3. Reduced tear volume
4. Poor tear quality
5. Medications

Often the drops can be instilled 'as required', but it must be remembered preserved drops (bottles) can not be used more than 4 times per day as a reaction to the preservative can occur making the eye even more uncomfortable. Gels and drops such as *Vita-pos, Blink Intense and Systane Balance* have longer effective periods on the eye than normal drops. If the eyes remain open during sleep then a viscous gel, such as *Artelac Nighttime Gel*, will be most suitable, giving a thick corneal coverage, but does make vision very greasy.

## Lipids and the Lids (Blepharitis)

The lipid comes from glands in the lids. If these glands become blocked or infected the lipid layer will be poor and the tears will evaporate too quickly. The eyes will feel dry, but may actually water as well because the tears are not held on the eye properly.



Eyewashes are still useful to relieve symptoms but the real cure is to treat the lid problem. A full description is in our 'Blepharitis' leaflet; briefly lid hygiene techniques aim to remove oils and debris from lid margins, reduce bacterial load on lids and promote lipid flow. Liposomal sprays such as *Eye Logic* use a different strategy by adding lipids to the tear layer, thus stabilising the natural lipid layer and improving eye lubrication. *Systane Balance* with its Lipitech system also replenishes the lipid layer.

## Aqueous (Water) and Mucous (True 'Dry' Eye)

If tear volume reduces, perhaps because too little is produced, the tears become concentrated. This damages the delicate surface tissue of the eye (epithelium) and within it the goblet cells which produce the mucous. Reduced tear volume, coupled with the inevitable reduction in mucous quality, can cause chronic eye irritation and long term damage. Solutions which simply lubricate the surface, while relieving the irritation temporarily, do not treat the underlying problem.



Hyaluronic Acid, a natural ingredient of the blood, helps improve tear quality - allowing the tissues and goblet cells to heal, with consequent improvement in tear volume and structure. *Blink Intensive Tears and Artelac Re-Balance* are such solutions designed specifically for dry eye treatment - the main therapeutic ingredient is hyaluronic acid.



Another therapeutic drop is '*Thera Tears*' which improves the tear environment aiding epithelial heal.

**NON-PRESERVED DROPS** : Preservatives themselves can damage the epithelium and worsen the problem you are trying to solve. You must only use non-preserved eye drops.

**MARINADE APPROACH** : Non-preserved drops are even more important as you need to put these in the eyes a lot, regardless of whether the eyes feel irritable or not. The goal is to improve tear environment and often drops are put in 4 or 5 times a day at first, then gradually lowering the dose to a maintenance level as the eyes improve.

## Mucolytics and Steroids (Prescription Only)



As 'Medical Optometrists' we can prescribe 'prescription only' drugs. If tear quality is very poor the mucous becomes thicker and actually scratches the eye surface. *Acetylcysteine (ILUBE)* breaks down mucous and also lubricants to soothe the eyes as well. Soft steroids can also be prescribed to reduce the inflammation cycle induced by dry eye.