

PROGRESSIVE EYECARE CENTRE

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DRY EYE SYNDROME

Dryness of the eyes is a very common problem, causing discomfort and/or vision disturbances, and potentially resulting in permanent eye damage. It becomes more common with age, affecting over 70 percent of people by 70 years old, but it can develop much earlier. Several diseases and many different types of medications are associated with tear deficiencies. Poor air quality, contact lenses and refractive surgery can also lead to symptoms of dryness.

There are two general types of tear deficiency:

- (1) Poor tear quantity— If the eyes do not produce enough tears, persistent dryness can result. This condition is associated with advanced age, partly due to hormonal changes, especially menopause. It is common to people with diseases such as diabetes, arthritis, thyroid disorders, and others. In addition, this is a typical side effect of refractive surgery and contact lenses, and many medications such as antihistamines, decongestants, blood pressure medicines, antidepressants, hormones and oral contraceptives, as well as some eye drops. It can also result from smoking, caffeine, alcohol, and dehydration.
- (2) Poor tear quality—This is the more common problem. There are three layers to normal tears, all of which are essential for good vision and eye health. A thin layer of mucin (similar to mucus) is necessary for the tears to form an even, stable film on the eye surface. Lack of a natural oil layer can allow the tears to evaporate too quickly, leaving dry spots. The middle, watery layer contains nutrients, immune system components and other substances, which are all vital to the surface cells. Specialized glands in the eyelids and eye surfaces decrease function with age, and can become damaged by injuries, distortions, inflammation, and even by chronic dryness. Poor nutrition can prevent normal tear gland function. Dryness also increases allergic reactions, and allergies often cause excess mucus production, resulting in uneven and unstable tears. Debris on the eyelids and in the air will often enter the tears, and most types of air pollution can alter the chemistry of tears.

Since dryness of the eyes is such a common problem, the importance of normal tear quality and quantity should not be ignored by anyone. A smooth, uniform, lasting layer of tears coating the surfaces of the eyes is necessary for vision to remain clear, undistorted and stable. Normal tears provide vital nutrients and oxygen, as well as immune system cells and chemicals, to keep the cells on the surfaces of the eyes healthy and clear, and to protect the sensitive insides of the eyelids. A constant flow of tears, combined with proper blinking, is essential for rinsing foreign material, air pollution, dryness increases the risk of eye infections, and can lead to scarring with the potential for permanent loss of vision.

Symptoms of dry eye may include:

- Fluctuating vision (in-and-out of focus)
- Distorted vision (a “wavy” look)
- Dry, sticky, gritty, and/or scratchy feelings in the eyes
- Burning and/or itching eyes
- Tired and/or aching eyes
- Frequent blinking
- Excess tearing (“watery” eyes)

This last symptom may seem a contradiction, but is common when tear quality is the only problem. If the tears don’t last long enough or are contaminated, more tears will be produced if possible. However, this type of tearing produces mostly water, often without enough of the proper ingredients, and excess tears distort the vision.

Chronic dry eye syndromes can’t always be cured, but there are several things that can be done to manage these conditions.

Lifestyle factors:

- **Improve air quality.** Eliminate or avoid any kind of air pollution, including smoke, dust and fumes. Remember: if you can smell it, it can affect your eyes. Also eliminate or avoid breezes from fans and open windows when indoors, and protect the eyes from wind when outdoors by wearing sunglasses or goggles. If dry air cannot be avoided, such as from air conditioners, heaters and air filtration (common in large buildings), then use a humidifier.
- **Avoid drugs that cause dehydration.** This includes nicotine, alcohol and caffeine. Be sure to let your medical doctor(s) know if you have dry eyes, because this may influence choices about medications.
- **Drink lots of plain water.** Recent research indicates that most people don’t drink nearly enough water. It is recommended that everyone drink at least **2 to 2 ½ quarts** of plain water every day, in addition to any other drinks. Only plain water will absorb properly into the body’s tissues to prevent dehydration.
- **Maintain a healthy diet.** This is important for normal tear gland function and healthy tear chemistry, as well as all other aspects of eye health. Too much sugar or salt intake is associated with dehydration. Lack of enough vitamins C, E, and particularly A, as well as certain minerals, is associated eye surface irritation. Increasing the intake of **essential fatty acids (EFA’s)** has been shown to be useful in treating dry eyes. EFA’s are found in good supply in flax seed oil, dark green, leafy vegetables, and certain types of fin fish such as salmon and tuna, among other sources. Always consult your medical doctor before making significant diet changes.

- **Remember to blink.** Normal blinking is essential for stimulating proper tear production and for creating a smooth, clear layer of tears. Infrequent blinking allows the tears to evaporate between blinks. It is typical to blink less often when concentrating on a visual task, especially with computer use, inspection work and studying. During these kinds of tasks it may be necessary to “remind” oneself to blink at least every five seconds. Proper blinking is relaxed; forceful blinks often create uneven tears. The eyelids should close gently as if falling asleep. This may take some practice before it becomes automatic.
- **Keep near objects below eye level, and not too close.** Keeping the eyes turned down ward can help relieve dryness, by keeping the sensitive centers of the eyes into the pool of tears that well up against the lower eyelids. Also, it is easier to focus the eyes, at near when looking slightly down. In addition, the closer an object is to the eyes, the more effort it takes to keep it clear. Extra effort to focus can require more concentration, leading to less blinking as discussed above. For these reasons, near objects like paperwork, books, computer screens, sewing, artwork and the like should be held or placed below eye level, and as far from the eyes as is appropriate for seeing the necessary details.
- **Contact lens considerations:** Contact lenses, even when properly fit, cause mild stress to the surfaces of the eyes, which will always increase symptoms of dryness. This complication gets worse with any deposits of natural tear proteins on the lenses, which build up as they are worn, even with proper cleaning. So the less often contacts are worn and the more often they are replaced, the less irritation they will promote. A few brands of disposable contacts are made of materials that are specifically designed to reduce dry symptoms. Also, chemical in contact lens solutions add to the stress on the eyes – changing to a preservative-free system will usually reduce, and sometimes solve, comfort problems. However, keep in mind that contact lenses are medical devices which always get very involved in the health of the eyes. Therefore, **ALWAYS consult your eye doctor before making ANY changes in the care or wear of contact lenses.**

Treatment options:

- **Eyelid hygiene:** Keeping the eyelids clean is important, not only to prevent debris from getting in the eyes, but also for proper functioning of specialized glands , which are at the edges of the lids. Gentle scrubbing of the eyelid margins also stimulates these glands by massage. Almost anyone with dry eyes can benefit from lid scrubs. This is especially important when exposed to air pollution, or with foreign matter on the lids. The soap used must not have any lotion, deodorant or heavy fragrance which would leave residue on the skin and the soap should be gentle, in case any accidentally gets in the eyes. Baby shampoo is adequate (as long as it has no conditioner), *Neutrogena Original Formula* is very good, commercial eyelid scrubbing pads are best. If these specially formulated pads are used, follow the enclosed directions. If soap is used, follow this procedure: (1) Close the eyes and douse

the eyelids about a dozen times with the warmest water that doesn't irritate. (2) Work up some soap on the fingertips, and with the eyes closed, gently scrub the edges of the lids where they met when closed. (3) Rinse thoroughly with warm water. Lid scrubs are usually best done first thing after waking; it may be necessary to do this again about twelve hours later for the first week or two. Consult your eye doctor about this.

- **Eye drops:** Generally, the most effective of the currently available treatments for dry eyes are lubricant eye drops, also known as artificial tears. These eye drops have thickening agents to lubricate the eye surfaces and to reduce evaporation. The better brands also have electrolytes (mineral ions) to replace those found in natural tears. It is vital to use **only the proper brands**, for two reasons:
 - (1) The drops must be non-medicated. "Redness reliever" eye drops contain decongestant drugs that will reduce tear flow and *increase* dryness.
 - (2) Most eye drops use preservatives that can further irritate the eyes, despite what the labels may say.

Therefore, only these eye drops should be used for dry eye treatment:

Preservative-free: This is the **only type** which is safe for use **more than six times a day**. Even the "disappearing" preservatives discussed below can irritate if there are not enough tear enzymes present. Any brand of non-preserved lubricant eye drops are safe for anyone to use as often as needed (when advised by a doctor – see below). This type must be packaged in individual-use containers – once opened, each container must be discarded within half an hour to prevent contamination which could cause serious eye infections (some brand have re-closable containers – **always read the instructions and ask your eyecare professional if you have questions**). Unfortunately, the extra packing makes this type more expensive.

Preserved: Only those brands with "disappearing" preservatives should be used. These special preservatives are neutralized by enzymes in the natural tears, thereby converted to natural tear components. The following are such brands:

Thera Tears

Viva Drops

Gentle("Mild" or "Moderate" versions unless directed otherwise)

Refresh Tears

Hypo Tears Select

It is usually best to use eye drops often enough to *prevent* dryness before it starts – this will provide the best relief. If there are certain situations that seem to bring on the dry symptoms, it is best to put a couple drops in each eye *just before*

getting into these situations. For chronic dryness, it is necessary to get in the habit of using these drops *several times throughout every day*. Keep in mind, though, that frequent use of eye drops can mask the symptoms of a more serious problem. Therefore, it is necessary to have a complete evaluation and advice by an eye doctor.

- **Bedtime lubricants:** If significant dryness occurs right after waking, or if damage to the eyes from chronic dryness is already present, a lubricating ointment may be necessary to relieve dryness while sleeping. Artificial tears are too thin to last for several hours—this requires a much thicker formula. These ointments always cause blurred vision, therefore they are only recommended to be used just before going to sleep. The lower eyelid is gently pulled down, and a strip of ointment about 1/8 to 1/4 of an inch is squeezed from the tube into the “pouch” formed between the inside of the lid and the eye. When the eyes are closed, the ointment will melt and spread across the eye surfaces. Choice of brand is not a critical with lubricating ointments, because they have no medications or preservatives. They can be found in the same locations as eye drops. Again, your eye doctor should advise you about this treatment.
- **Punctual plugs:** One approach to maintaining more quality of natural tears is to reduce the drainage of tears from the eyes. Normal blinking causes tears to be “sucked” into tiny holes in the edges of the eyelids, called “puncta” (singular: “punctum”). These holes lead to tiny canals which drain the tears into the nose. If the puncta are blocked, more tears will remain in the eyes. Your eye doctor can install specially designed plugs into the puncta to help keep more tears on the eye surfaces. This is usually first done on a trial basis, with dissolvable plugs made of natural collagen protein, which will disappear after a few days. If the sign or symptoms of dryness become noticeably worse once the collagen plugs are gone, and if no complications develop, then essentially permanent, silicone plugs can be used. Punctual plugs can often, but not always, reduce the frequency with which eye drops are needed. Possible complications can include inflammation of the drain canals, and tears running down the cheeks. Therefore, not every dry eye sufferer is a candidate for this procedure.

New tests and treatments for dry eye syndrome are continually being developed and tested. In addition to new designs for eye drops and punctual plugs, researchers are experimenting with certain medications, some of which are already in use for other conditions. Specially formulated nutritional and herbal supplements are showing great promise. The extent of this continuing research underscores the importance of solving dry eye problems, to protect our precious vision and to improve the quality of life.