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Dry Eyes

by Robert Goldberg, M.D.

The eye depends on constant moisture and lubrication to maintain vision and to maintain comfort. Human tears, nature's lubricant for the eye, are remarkable. The tears are actually composed of many different components: water for moisture, oils for lubrication, mucus for even spreading, and different types of antibodies and special proteins for resistance to infection. These components are secreted by different types of specialized glands located around the eyeball in the conjunctivae. Imbalances in the make-up of this remarkable tear system can lead to the syndrome that we know as dry eye. Tears of inadequate quality or quantity fail to properly lubricate the eye; and the result is extreme pain, gritty sensation, feeling of foreign body or sand in the eye, itching, redness, and blurring of vision.

Sometimes a dry eye can lead to tears tumbling down the cheek. At first, this may be

confusing: if there are enough tears to stream down the cheek, how could the eye be dry? The answer lies in the emergency tear system. When the eye suffers from poor lubrication, it sounds out a distress signal through the nervous system for more lubrication. In response, the eye is flooded with emergency tears. These emergency tears, unfortunately, are mostly water and do not have the lubricating qualities or the rich composition of the normal tears. In addition, they come much too late. An analogy would be coming home from vacation to a brown lawn because no one turned on the sprinklers. You can water the lawn all night long until the water runs into the gutter on the street, but the lawn still won't be green in the morning. It has to regenerate.

Another aspect of the dry eye relates to the effect of air in drying out the tear film. Air is the enemy of the eye, and in a

desert climate, or a cold climate, the eye is in constant danger of drying out. The eyelids are the eyes' only defense against air. If you question the importance of this, just try to hold your eyelids open...most people experience severe pain within one minute of exposure to the air without protection of the eyelids. Due to the protrusion of the eyeballs, or the retraction of the upper eyelids or both. Graves' patients may blink as much as five times less than the normal population. It is helpful to remember to blink, and to blink slowly in order for the eye to be sufficiently lubricated. Occasionally, simply closing the eyes for several moments will enhance comfort.

The primary treatment for dry eye is to provide additional lubrication for the eye with artificial tear drops. These drops are available over the counter, and the fact that there are often several rows in the pharmacy devoted to the

various brands of artificial tears is a tribute to how common this problem is, particularly in the dry climates. Most of these different brands of tear drops are about the same, although some are thicker, which may be better for patients with more severe dry eyes. If one particular drop is not helping, it is sometimes worth experimenting with a different brand. Several companies make artificial tear drops without preservatives, and this is useful for patients who develop a sensitivity to the preservative.

What is more important than the brand of the eye drop is the frequency with which it is put in. The drop itself lasts for only five minutes. Some patients find that they have to put the drops in more than once per hour. Others can stay comfortable just using the drops three or four times per day. Certain activities put more stress on the eye (such as riding in an air conditioned car, or concentrating without blinking at such tasks as using a computer) and during these activities, more frequent use of artificial tear drops will be necessary. Many patients find it helpful to keep a bottle of tear drops in their car and at their desk, in addition to having one in their briefcase or purse.

The artificial tears work prophylactically. In other

words, you put the drop in today so that they eye will feel better tomorrow. If the eye becomes painful, it is because the drops were not used earlier in the day or the day before: remember the analogy to a grass lawn.

If exposure during sleep is a problem, thicker lubricants such as ointments instilled at night can be helpful. It is sometimes necessary to gently tape the eyelids closed at night, using a porous tape. If this is necessary, the eye doctor can demonstrate the proper technique. Others have success with "blindfolding" their eyes at night with a snug bandage. These may be purchased, or something as simple as a diagonally folded bandanna may be used. In more severe cases, ointment can be used during the day, although the drawback is that ointment will blur the vision.

In the most extreme cases, surgery is sometimes necessary. The tear ducts that drain the tears out of the eye can be closed surgically, and this procedure can sometimes allow more moisture to remain in the eye.

Dry eye is a chronic and frustrating problem for which there is usually no outright cure. However, through the proper use of artificial tear replacements, and surgeries such as punctual occlusion or eyelid repositioning in selected cases, the vast

majority of patients with dry eye problems can regain comfort and lead more pleasant lives.

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