# Scientists discover who is likely to get dry eye syndrome after LASIK surgery

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Scientists at Schepens Eye Research Institute have found that people with a certain low level of tear production are more likely to develop chronic dry eye syndrome after LASIK (laser-assisted in situ keratomileusis), laser refractive surgery to correct near- and far-sightedness than those with more plentiful tears. Their research, published in the January issue of *Investigative Ophthalmology and Vision Science*, may offer reliable prescreening criteria for ophthalmologists and patients.

“These findings should help ophthalmologists determine if pretreatment is necessary before surgery or if surgery is appropriate at all for an individual,” says Dr. Darlene Dartt, director of the Military Vision Research Program at Schepens Eye Research Institute and the principal investigator of the study.

Dry eye syndrome is one of the most common problems treated by eye physicians. Affecting more than 10 million Americans, it is caused by problems with the tear film responsible for lubricating the eye. While it does not cause vision loss, dry eye syndrome can be painful and severely decrease quality of life for its victims who constantly search for relief with artificial tears and other medications.

LASIK surgery uses small laser cuts to reshape the surface of the cornea, eliminating far-sightedness or near-sightedness, and the need for glasses or contacts. Many people choose LASIK for cosmetic reasons. In recent years, thousands of military personnel have opted for LASIK surgery

because it can help them see better and identify objects and people in the field more quickly. It also relieves them of the worry about lost or damaged glasses.

Usually, LASIK causes some dry eye syndrome directly after surgery, but the condition resolves within a few months. In a small number of cases, however, the dry eye condition following LASIK can become chronic and impact functioning of both civilian and military individuals for as long as nine months following surgery.

Dartt and her team were determined to find a way to prescreen for the chronic condition so that surgeons could prepare patients in advance with preventative artificial tears or opt against surgery for some patients.

Dartt and her team evaluated the eyes of 24 patients about to undergo LASIK at the Massachusetts Eye and Ear Infirmary. The patients were given a series of evaluations, including the Schirmer test with and without anesthesia, before and after surgery. Using a piece of paper on the corneal surface, the Schirmer test measures the amount of tears an eye is producing. Study subjects also filled out a dry eye questionnaire indicating their experience with dry eyes pre- and post-operatively.

The team discovered that if a patient had a presurgical tear production value greater than 20 mm of wetting of the Schrimer strip in 5 minutes, they were not likely to develop chronic dry eye syndrome. Patients who produced less tears were more likely to develop long-term dry eye syndrome.

According to Dartt, the next steps for her team include expanding this study to a larger number of individuals and examining patients who have the PRK (photorefractive keratectomy) type of refractive surgery. The PRK has the same goal as LASIK, but the procedures differ. In LASIK a flap of corneal epithelium is cut and lifted to allow the underlying

stroma to be shaped by the laser. Then the flap is placed down on the eye. In PRK the corneal epithelium is mechanically removed to allow laser shaping of the stroma. The epithelium then grows back over several days. LASIK and PRK have different side effects.

Source: Schepens Eye Research Institute