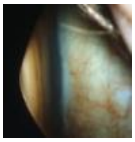

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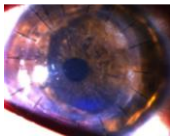

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Keratoconus

Keratoconus affects one in seven hundred people, causing the corneal shape to thin and steepen like a cone-shape bulge. Both eyes are usually affected to different degrees. The irregular corneal shape progresses over time causing poor vision that is sometimes not correctable with glasses or even contact lenses.

The cause of keratoconus is not known, but most experts agree that this disease represents a genetic weakness in the structure of the corneal stroma collagen fibers. Approximately 10% of people have a family member with keratoconus. Environmental factors like eye rubbing have been shown to stress and weaken collagen fibers and facilitate keratoconus progression. The disease usually develops in younger patients (teens-twenties), but it can also occur in patients in their 40s-50s.

Keratoconus patients experience progressive distortion and blurring of vision with frequent eyeglass or contact lens prescription changes. Your eye doctor may notice corneal changes on eye examination. Special testing helps diagnose keratoconus by mapping the cornea (topography) and performing measurements of the corneal curvature (keratometry).

How is keratoconus treated?

Initially, glasses or soft contact lenses may help correct poor vision caused by nearsightedness and astigmatism. As the corneal shape changes, rigid gas permeable (RGP) contact lenses are necessary for best quality vision. For patients with difficulty tolerating RGP lenses, other specialty lenses may be fit successfully. The hybrid lens is a rigid central lens with a soft "skirt." A piggyback technique involves a separate soft lens fit on the eye with an RGP fit on top. Another option is a scleral lens, which is a large diameter lens that rests on the white of the eye. Contact lenses do not cure keratoconus. They aid in vision improvement, but do not slow or change the disease process.

Corneal Collagen Crosslinking (CXL) is the newest procedure to treat *early to moderate* keratoconus. It utilizes riboflavin drops (B-2) and UV light to induce bonds ("crosslinks") between collagen fibers, increasing strength and stability of the cornea. The in-office procedure takes about 60-90 minutes. The healing process requires several days. CXL halts progression, but does not reverse keratoconus. CXL has the invaluable potential to prevent the need for corneal transplant surgery. CXL is now FDA-approved here in the United States, but insurance does not yet cover the cost. We are proud to offer the only FDA-approved crosslinking protocol in the U.S. (*Avedro.com*).

Surgical Treatment including penetrating keratoplasty (PK) and deep anterior lamellar keratoplasty (DALK), for *advanced* keratoconus may be necessary to improve vision once the disease has advanced significantly, and if the patient is not a candidate or fails other treatments. PK has been the main surgical treatment. DALK is now gaining popularity as it spares the patient's native Descemet's membrane, thus decreasing the rejection risk. This technique is more technically demanding but can give patients great outcomes.

Detailed risks, benefits and alternatives will be discussed thoroughly between each patient and doctor at the time of consultation.