

## Is CXL right for you?

CXL is not suitable for everyone with keratoconus. Depending on the severity and rate of progression, you may or may not be a candidate for treatment. To find out if CXL is right for you, or if you would like more information, please contact your Ophthalmologist.

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***Patient Information***

## **Corneal Collagen Cross-Linking**

**Treatment  
for Keratoconus**

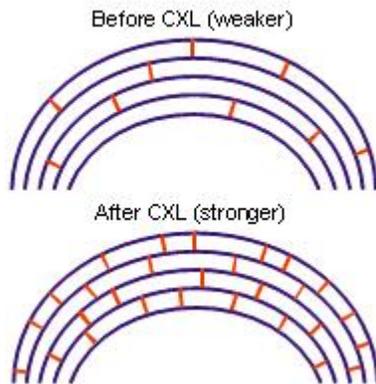
# Corneal Collagen Cross-Linking

## What is corneal collagen cross-linking?

Corneal collagen cross-linking (CXL) is a non-invasive treatment for **keratoconus**. CXL involves applying a photosensitizing solution consisting of Riboflavin (vitamin B2) to the cornea and exposing it to a low dose of ultraviolet light. The photosensitizer reacts with the ultraviolet light to create new collagen bonds (cross-links) throughout the cornea.

In corneas affected by keratoconus there are too few collagen bonds to maintain structural integrity. The reduced number of collagen bonds and weakened configuration result in corneal bulging, steepening, and irregularity—all of which significantly affect vision.

By creating new collagen bonds, CXL strengthens and adds resilience to corneas weakened by keratoconus. If performed early enough, CXL can counteract its effects and allow good vision to be preserved. In advanced cases, CXL can postpone the need for invasive corneal transplants and prevent vision from getting worse.



Corneal layers (blue) and the collagen cross-linking (orange) before and after CXL

## How is the treatment done?

CXL is a straightforward and painless procedure performed in a treatment room under topical anaesthesia. During treatment, the upper-most layer of the cornea (called the epithelium) is gently removed to allow for absorption of the photosensitizing agent. Next, riboflavin drops and ultraviolet light are applied for a period of 30 minutes. Once the procedure is complete, the eye is covered with a bandage contact lens to help the epithelium grow back (usually within 2-3 days) and facilitate a quick visual recovery.



Riboflavin drops administered during CXL treatment

## Can ultraviolet light harm my eyes?

Ultraviolet light used for the CXL treatment was specifically selected to be safe on the cornea, lens and retina while still being sufficient to induce collagen cross-linking. Laboratory and clinical studies have demonstrated that the amount of light that reaches the deeper structures in the eye is not strong enough to cause damage. Furthermore, the ultraviolet light is measured and calibrated prior to each treatment to ensure that safe exposure levels are not exceeded.

## When will I notice changes?

Within one week vision returns to preoperative levels. The most dramatic improvements tend to occur during the first 3 months and then, gradually over a period of up to 1 year, the cornea continues to stiffen and stabilize resulting in further improvements. In most cases, the keratoconus stops getting worse and in

some cases vision improves.

How long is follow-up?

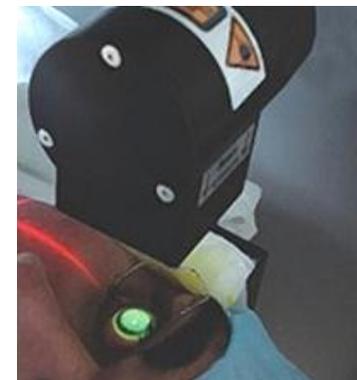
You will be seen shortly after the procedure to remove the bandage contact lens and assess your recovery. Regular follow-up visits will be at 1, 3 and 6 months, and at 1 year. After that you will be seen annually to monitor your results.

## When can I wear contact lenses again?

In most cases, you may return to wearing contact lenses after one month. However, your contacts may need to be changed occasionally until your cornea fully stabilizes.

## What makes corneal collagen cross-linking unique?

CXL is a unique treatment because it is non-invasive and targets the root of the problem which is the weakened cornea in keratoconus. CXL significantly increases the number of collagen bonds between the corneal layers, in effect returning the cornea to a "normal" stable state. In contrast to other procedures like intrastromal ring segments or laser surgery, only CXL offers the potential to target the underlying cause and thus offer long-term benefits for those who suffer from keratoconus.



Five minute cross-linking procedure