

# Expectations for Corneal Collagen Cross-Linking

BY A. JOHN KANELLOPOULOS, MD; THOMAS KOHNEN, MD;  
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Corneal collagen cross-linking has received significant attention over the past several years for the treatment of corneal ectasia and congenital keratoconus. Based on your experience with this procedure, what should the surgeon and patient reasonably expect from this treatment?

## A. JOHN KANELLOPOULOS, MD

I have used corneal collagen cross-linking with riboflavin in the laboratory and in my clinical practice in Athens, Greece, since 2002. During this time, I have applied this technique to more than 800 cases of keratoconus, over 50 cases of post-LASIK ectasia, and several cases of corneal edema and infectious keratitis. Corneal collagen cross-linking currently represents 30% of my refractive practice, either as a primary treatment for keratoconus and ectasia or as an adjunctive treatment with PRK and LASIK.

Once the FDA approves this procedure in the United States, I predict that corneal collagen cross-linking will become a mainstream tool for customizing the biomechanical behavior of the cornea, particularly in refractive surgery. I think that corneal collagen cross-linking could become the last step in all future LASIK procedures. We could use this technique to enhance the flap's adherence by cross-linking the central part of the flap to the stromal bed.

## THOMAS KOHNEN, MD

In my view, corneal collagen cross-linking is currently the best and only option to stop or minimize the progression of ectatic corneal diseases. I have observed an increase in visual acuity in a few of my patients following the procedure. In most patients, corneal collagen cross-linking stabilizes ectatic corneal diseases. Patients who experience stabilization after undergoing corneal collagen cross-linking in one eye often request that I perform the procedure in their second eye to stabilize it as well.

## R. DOYLE STULTING, MD, PhD

Corneal collagen cross-linking stiffens the cornea to prevent the progression of ectatic diseases like keratoconus and post-LASIK ectasia. Typically, this procedure flattens the cornea slightly. Patients followed for up to 5 years have maintained this flattening effect, according to international investigators.<sup>1</sup> We will see the true utility of corneal collagen cross-linking when patients who undergo the procedure early in the course of ectatic disease no longer need contact lenses or penetrating keratoplasty to manage their condition. ■

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1. Raiskup-Wolf F, Hoyer A, Spoerl E, et al. Collagen cross-linking with riboflavin and ultraviolet-A light in keratoconus: long-term results. *J Cataract Refract Surg.* 2008;34(5):796-801.