

# The Visian ICL – The Alternative to Laser Refractive Surgery

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One of the most exciting advancements in eye care since LASIK became available in the 1980's is the phakic intraocular lens (IOLs). These lenses provide a true alternative to laser refractive surgery with similar to better results. Patients who were poor or non-candidates for LASIK because they were too nearsighted, had thin corneas, or had another condition now have a safe and effective procedure to rid them of their unwanted glasses and contact lenses.

While the Verisyse lens was the first to gain FDA approval in 2004, it did not attain widespread acceptance mostly due to the large incision necessary to implant the lens as well as skepticism surrounding the iris-clip design. Enter the Visian Implantable Collamer Lens (ICL). After expeditiously gaining FDA approval in December 2006, the ICL has quickly become the phakic IOL of choice, rapidly gaining popularity within the eye care community.

The ICL is an ultra-thin, implantable contact lens made of a soft foldable material called collamer, which is a proprietary collagen polymer. Since many structures in the eye, including the cornea are comprised of collagen, the material is highly biocompatible with excellent optical capabilities. Unlike the Verisyse lens, the ICL can be folded and implanted through a minute, self-sealing corneal incision similar in size to that used in modern day micro-incision cataract surgery, making it astigmatically neutral. Furthermore, the lens is placed in the posterior chamber, behind the iris making it invisible to the naked eye. Approved for the correction and reduction of myopia ranging from -3D to -20D with less than or equal to 2.5D of astigmatism, the ICL has a wider treatment range than traditional laser refractive surgery which is beneficial to a larger patient population.

It is important to realize that while the ICL is relatively new in the US, over 65,000 lenses have been implanted worldwide boasting of its safety and efficacy. The US FDA clinical trials were so convincing, the lens received expedited review status.

Some of the highlights of the 3-year study that included 526 eyes were that:

- 99% of patients were satisfied/very satisfied with their results
- 94.7% of patients had uncorrected visual acuity of >20/40 at 3 years post-op
- the incidence of glare, haloes, double vision, night vision problems, and night driving difficulties decreased or remained the same as pre-op.

## Common Questions about the Visian ICL

### 1. Who is a good candidate?

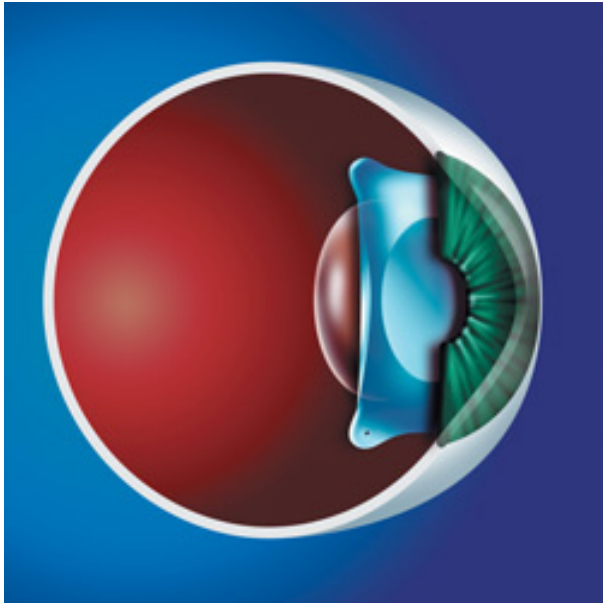
The best candidate is someone between the ages of 21-45 with moderate to high myopia, anterior chamber depth >3.00mm, and a stable refractive history over the past year. Poor LASIK candidates due to dry eyes, thin corneas, suspicious topographies, flat k's, and/or history of glare and haloes can also make excellent candidates for the ICL.

### 2. Who are poor candidates?

A poor candidate is someone with narrow angles, a shallow anterior chamber, and/or a fluctuating prescription. Also, patients with a history of iritis, pigment dispersion, pseudoexfo-



**Figure 1.** The Visian ICL – The collamer lens is foldable and only requires a small 3mm incision for implantation



**Figure 2.** The ICL is located in the sulcus posterior to the iris and vaults over the crystalline lens

liation, glaucoma, or cataracts are poor candidates for the ICL.

### 3. What are the advantages of the ICL?

The ICL provides optimal vision correction without removing corneal tissue and inducing spherical aberrations. Since we are adding the lens to the optical system, it can always be removed in the future should a rare problem arise or a new procedure becomes available.

### 4. What are the risks?

The most commonly seen but very rare and treatable complication of the ICL is increased intra-ocular pressure after surgery secondary to a non-patent peripheral iridotomy or retained viscoelastic material. For this reason, we monitor every patient a few hours after surgery. The risks of infection or retinal detachment are no different than cataract surgery and well below 1%.

### 5. What about cataracts?

Perhaps the biggest question mark on most people's minds is does the ICL cause premature cataracts? The current evidence does not suggest that it does. In the US clinical trials for the ICL, 0.9% of the cohort developed clinically significant cataracts compared to 0.6% of patients in the Verisyse study. It is important to note that these cataracts correlate well to surgeon trauma during the implantation of the lens. The data is convincing that once the surgeons became familiar with the procedure, the rate of cataracts decreased. In other words, in the hands of an experienced surgeon, the risk of developing cataracts from the ICL is extremely small.

Pre-operative measurements include: MRx/CRx, anterior chamber depth (ACD), pupil diameter, corneal topography, a-scan, keratometry, white to white, biomicroscopy, and dilated fundus exam. Two Laser Peripheral Iridotomies in both eyes are performed approximately 1 week before the procedure. ICL implantation procedure is done 1 eye at a time approximately 1 week

apart. Post-op 2-4 hours after surgery to check IOP, lens placement, Seidel sign.

Follow-up appointments are made similar to post cataract surgery to monitor cell and flare, UCVA and BCVA, and IOP. The ICL hydrates over time allowing for improved vision during the first 2 weeks and stabilizing 2 months later. The ICL can attract pigment cells initially and resolves in the first few weeks. If necessary, a LASIK or PRK enhancement can be performed after 3 months to address blurry vision due to residual astigmatism. ■

### About Dr. Steve Chang

*Dr. Chang received his B.A. with Honors in molecular and cell biology at UC Berkeley. He continued his work at New York Medical College, where he received his medical doctorate. He then pursued further work at Cornell University, followed by Ophthalmology Residency at New York Medical College where he worked with pioneers in corneal and cataract surgery. Dr. Chang was elected to spend an additional year as the Chief Resident. Most recently, Dr. Chang spent a year as the associate surgeon at the internationally renowned Assil Eye Institute in Beverly Hills, CA.*

*Dr. Chang authored many papers, presentations, and book chapters, both nationally and internationally. Currently, he is publishing "Complete Patient's Guide to Cataract and Lens Surgery" to help patients understand lens-based procedures.*

### Certifications:

*Restor, Rezoom, Crystalens, Visian ICL, Verisyse, Intralase, Visx, Alcon, WaveLight, Amadeus Microkeratome, NearVision CK*

### Sight Gags by Scott Lee, O.D.



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