Comparison Between the Visian ICL, LASIK, and PRK

Deciding on the vision correction procedure that's right for you is an important one. The table below provides a general comparison of the major differences between Visian ICL, LASIK and PRK.

It is NOT an exhaustive list, nor is it a substitute for the advice of your doctor.

ONLY AN EXTENSIVE EXAMINATION BY YOUR EYE CARE PROFESSIONAL CAN PROVIDE THE INFORMATION NECESSARY TO DETERMINE WHICH PROCEDURE IS UNIQUELY SUITED FOR YOU.

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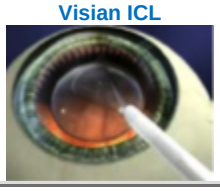
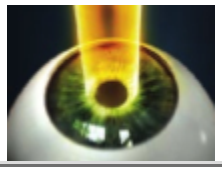
	Visian ICL	LASIK	PRK
Quality of Vision			
High definition vision	Excellent throughout FDA approved corrective range. Certain ICL-implanted eyes may see better than they ever could with glasses or contacts. This phenomenon is thought to be partially due to the ICL's placement near the optical "nodal point" inside the eye where refractive errors are best corrected. While this phenomenon may be seen more commonly in moderate to severe myopes (-6 to -20 D), we often see it in patients less nearsighted than this (-3 to -6 D). Patients will often describe their post-ICL implant vision as "High Definition". .	Very Good (low to moderate myopia) Good (moderate to high myopia) While LASIK is capable of providing such an optical benefit throughout the treatable range of myopia (-1 to -10 D) it is seen less often and is not as dramatic.	Very Good (low myopia) Good (moderate to high myopia) While PRK is capable of providing such an optical benefit throughout the treatable range of myopia (-1 to -10 D) it is seen less often and is not as dramatic.
Clarity of vision	Excellent throughout FDA approved corrective range	Very Good (low to moderate myopia) Good (moderate to high myopia)	Very Good (low to moderate myopia) Good (moderate to high myopia)
Contrast	Excellent throughout FDA approved corrective range	Very Good (low to moderate myopia) Good (moderate to high myopia)	Very Good (low to moderate myopia) Good (moderate to high myopia)
Night vision	Excellent (1)	24% reported a reduction (2)	Over 16% reported a reduction (3)
Predictable outcomes	Highly predictable (1)	Less predictable with higher vision correction (4)	Less predictable with higher vision correction (5)

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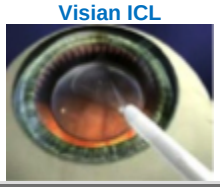
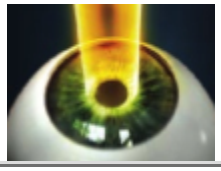
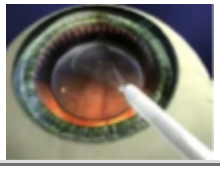
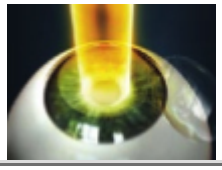
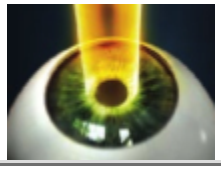
Patient Experience	**Visian ICL** 	**LASIK** 	**PRK** 
Outpatient procedure	Yes	Yes	Yes
15-20 minute surgery	Yes	Yes	Yes
Both eyes done same day	Yes	Yes	Yes
Local anesthesia	Yes	Yes	Yes
Minimally invasive	Yes very small, 3 mm incision	Yes 8.5 to 9.5mm corneal flap	Yes
The “Wow” of immediate visual acuity	Yes, often dramatically better only several hours after surgery	Yes, often very good by next day.	Blurry fluctuating vision up to 3 months
1-2 day short recovery time	Yes	Yes, with additional 1-2 weeks for “flap” healing	Delayed visual recovery up to 4 wks.
Future Vision Versatility	**Visian ICL** 	**LASIK** 	**PRK** 
Reversible	Yes, the ICL can be removed from the eye	No, removed corneal tissue cannot be replaced	No, removed corneal tissue cannot be replaced
Vision correction flexibility	Yes, removability does not limit future treatment options	Limited if additional treatments involve the cornea	Limited if additional treatments involve the cornea
Enhancement	Yes	Yes	Yes
UV protection	Yes, blocks 100% of harmful UVA and UVB light (6)	No	No

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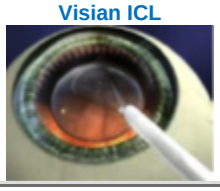
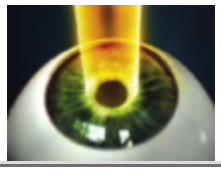
Patient Types			
Age	The ICL is available to those age 21 or above with a stable prescription. The ICL may be preferable in older patients (40's or above) who may be expected to eventually develop cataracts; the ICL can easily be removed should cataract surgery become necessary.	LASIK is available to those age 19 and above with a stable prescription.	PRK is available to those age 19 or above with a stable prescription
Mild nearsightedness (myopia) (-4 D or less)	Yes	Yes Younger individuals with healthy corneas that are not too thin	Yes Younger individuals with healthy corneas that are not too thin
Moderate to high nearsightedness (myopia) (-5 D or more)	Yes In general, an ICL is better suited in patients requiring correction of moderate to severe myopia (-5 D to -20 D) because unlike LASIK/PRK, the ICL spares the cornea.	Limited by corneal curvature, thickness and pupil size. Reshaping and flattening the cornea excessively increases cornea higher order optical aberrations which may degrade the sensitive optics of the eye at night, or may generate night vision disturbances such as glare/haloes or other unwanted optical images Must avoid excessive cornea tissue subtraction: If a -10.0 D myope were treated with LASIK, about 40% of the cornea thickness must be removed by the excimer laser to achieve the corneal flattening required to neutralize the refractive error. Depending on the pre-operative cornea thickness, thinning the cornea excessively may potentially lead to severe instability and distortion of the cornea called Keratoconus.	Limited by corneal curvature, thickness and pupil size. Reshaping and flattening the cornea excessively increases cornea higher order optical aberrations which may degrade the sensitive optics of the eye at night, or may generate night vision disturbances such as glare/haloes or other unwanted optical images Must avoid excessive cornea tissue subtraction: If a -10.0 D myope were treated with PRK, about 40% of the cornea thickness must be removed by the excimer laser to achieve the corneal flattening required to neutralize the refractive error. Depending on the pre-operative cornea thickness, thinning the cornea excessively may potentially lead to severe instability and distortion of the cornea called Keratoconus.
Astigmatism	Yes If less than 1.5 D cylinder consider ICL with combined Limbal Relaxing Incision If greater than 1.5 D consider Laser Vision Correction as future enhancement procedure or wait for FDA approval of Toric ICL which will be available up to 4 D cylinder.	Yes Can correct up to 4 D of cylinder	Yes Can correct up to 4 D of cylinder

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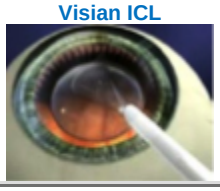
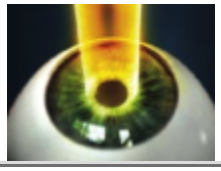
Thin cornea	Yes Not Limited by cornea thickness	Limited range of nearsighted correction Limited by cornea thickness	Limited range of nearsighted correction Limited by cornea thickness
Large pupil in low illumination	ICL (less often than PRK/LASIK) may occasionally generate night vision disturbances in eyes with pupils that dilate excessively in low illumination. Treatment is pharmacologic eye drops to constrict the pupil at dusk. If the night glare is intolerable, an ICL could be removed.	LASIK may occasionally generate night vision disturbances in eyes with pupils that dilate excessively in low illumination. This problem is less likely with wavefront-guided treatment but more likely with conventional treatment. Treatment is pharmacologic eye drops to constrict the pupil at dusk or use of Hard Contact Lenses on a daily basis. It is a surgically irreversible condition.	PRK may occasionally generate night vision disturbances in eyes with pupils that dilate excessively in low illumination. This problem is less likely with wavefront-guided treatment but more likely with conventional treatment. Treatment is pharmacologic eye drops to constrict the pupil at dusk or use of Hard Contact Lenses on a daily basis. It is a surgically irreversible condition.
Complications	**Visian ICL** 	**LASIK** 	**PRK** 
Contributes to "Dry Eye"	No, spares cornea	Yes, the deeper cornea nerve plexus is cut during flap formation with either a microkeratome or intralase. It takes about one year for cornea nerves to regenerate. Decreased cornea sensation, reduced blink rate, reduced tear film quality/quantity is possible until cornea nerve regeneration occurs. over 29% report some occurrence (3) Symptoms may be transient or persist indefinitely. Artificial tears at least 4x/day is required for first year or longer.	Yes, the superficial cornea nerve plexus may be damaged during laser application causing dry eye symptoms during the recovery period Symptoms are less common or severe as compared to LASIK. Artificial tears 4x/day is required for first 3 months or longer.
Cornea haze leading to visually significant central scarring	No, spares cornea	Rare	Yes. There is a greater possibility with increasing magnitude of correction. Mitomycin C may be necessary at time of treatment to reduce the incidence.
Deep Lamellar Keratitis (DLK)	No, spares cornea	Yes, but usually treatable	No
Delayed cornea healing	No, spares cornea	No	Yes
Epithelial Ingrowth	No, spares cornea	Yes. Most common after lifting flap during enhancement procedure	No
Flap striae (folds)	No, spares cornea	Yes, If visually significant, may need flap revision	No

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Cornea ectasia or keratoconus (progressive cornea thinning, distortion)	No, spares cornea If Keratoconus were to subsequently develop, it would be entirely unrelated to ICL surgery.	Yes, preoperative cornea topography and thickness measurements are critical to screen out unsuitable candidates. Despite respecting conservative guidelines to leave sufficient cornea thickness behind for structural support, Keratoconus CAN STILL DEVELOP though rare; would be due to combination of removing some cornea tissue/structural support combined with underlying genetic predisposition to Keratoconus. 1/2000 in USA have Keratoconus. It is impossible to predict those few patients with normal pre-operative topography who have gone on to develop Keratoconus after LASIK.	Yes, though less likely than LASIK assuming same amounts of cornea tissue subtraction
Infection	Rare: about 1:2000. Usually treatable with additional surgery including intraocular antibiotics. If occurs, other related complications such as glaucoma, cataract possible. Loss of vision or eye possible but very rare.	Rare: about 1:2000. Usually treatable, but loss of cornea flap possible. Hard Contact Lens may be required for best vision after healing due to persistent cornea surface irregularity. Rarely, cornea transplant may be necessary if scarring occurs. Loss of vision, eye possible but very rare.	Rare: about 1:1000. Usually treatable. Hard Contact Lens may be required for best vision after healing due to persistent cornea surface irregularity. Rarely, cornea transplant may be necessary if scarring occurs. Loss of vision, eye possible but very rare.
Induced cataracts requiring cataract surgery	Yes, but uncommon. Cataract surgery was required in 1.3% of eyes implanted with ICL 21-45 yrs age followed for five years. (US FDA ICL study). Study data doesn't address cataract incidence for ICL's in eyes beyond five years or eyes implanted in ages 46 or higher. About 10% cataract incidence in ICL's implanted middle age 48yrs or older or in very high myopia ie. -20D Patients considering ICL in lower age ranges (20's) should be aware that this implant will need to remain in the eye for about 50 yrs, so benefits vs unknown long-term risks must be considered. However, cataracts are a REVERSIBLE complication. Cataract surgery is 98% successful. But cataract surgery in a younger individual will result in the premature loss of accommodation and reading glasses at an earlier age will be required. (reading glasses are typically necessary by age 43) Presbyopia intraocular lenses are available to partially restore lost accommodation in these cases.	NO	NO

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References

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