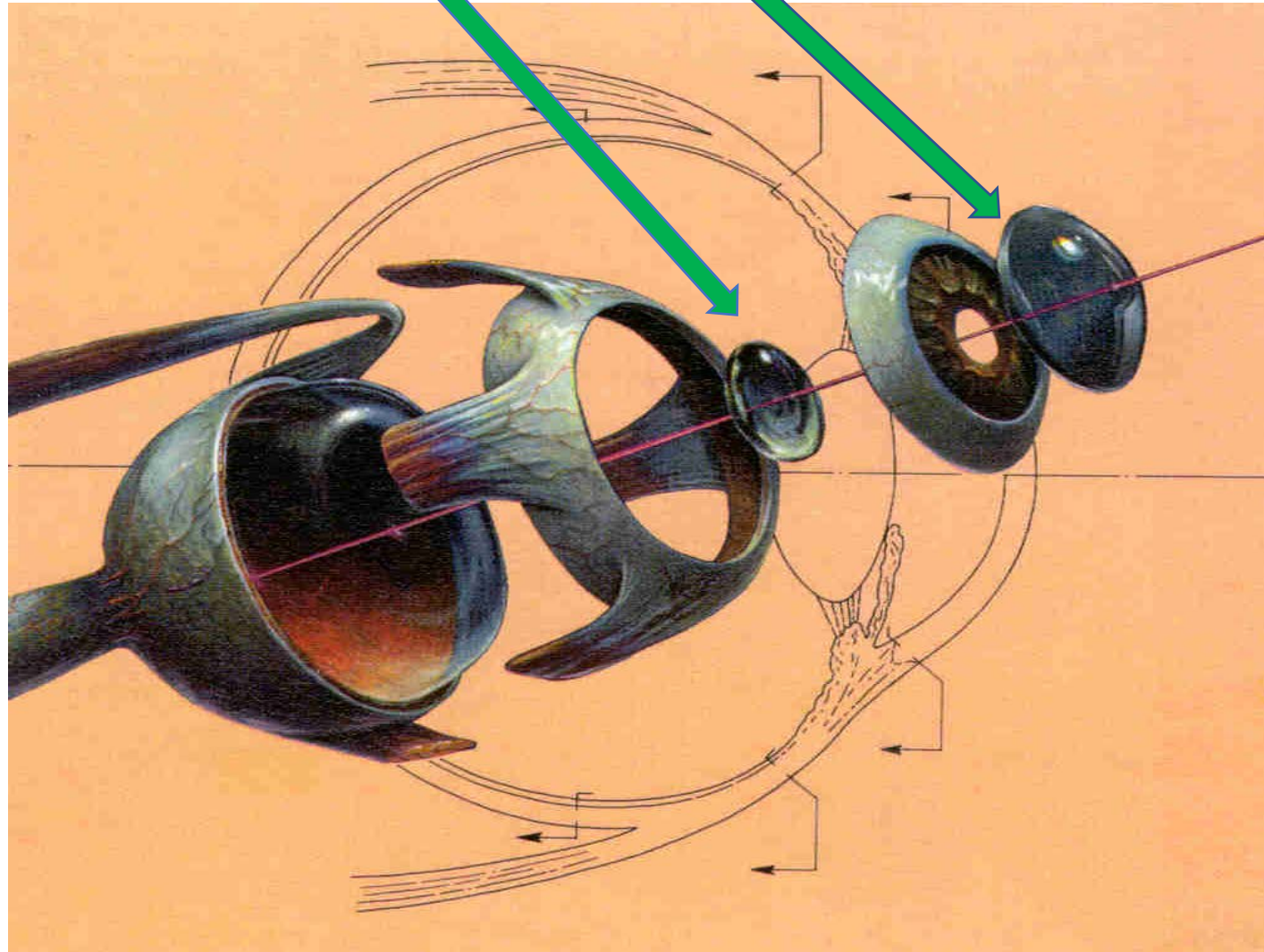


A photograph of two men sitting at a table, intensely focused on a chess game. The man on the left is wearing a white shirt and has his hand to his face, looking down at the board. The man on the right is wearing a dark suit and is also looking down at the board with a thoughtful expression. The chessboard is in the foreground, showing various pieces in motion. The background is dark with some blurred lights and a logo.

Best Refractive Surgical Procedure?

Richard A. Erdey, MD

Lens (ICL/RLE) Cornea (LVC) ?

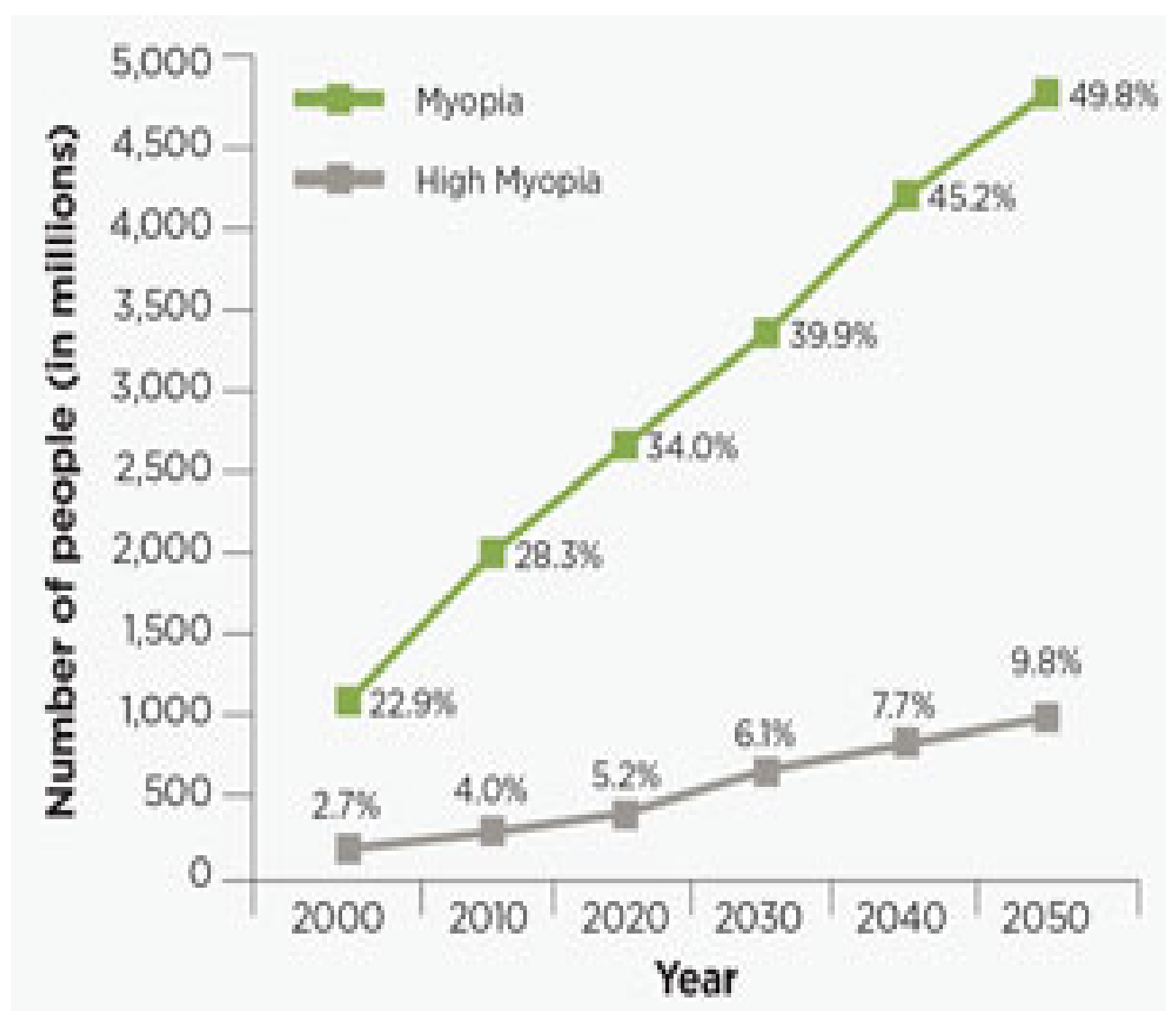


Myopia - World

- Myopia 7x in crease - almost half of the world's population by 2050
- 5 billion with myopia
- 1 billion with high myopia (>-6D)

United States and Canada

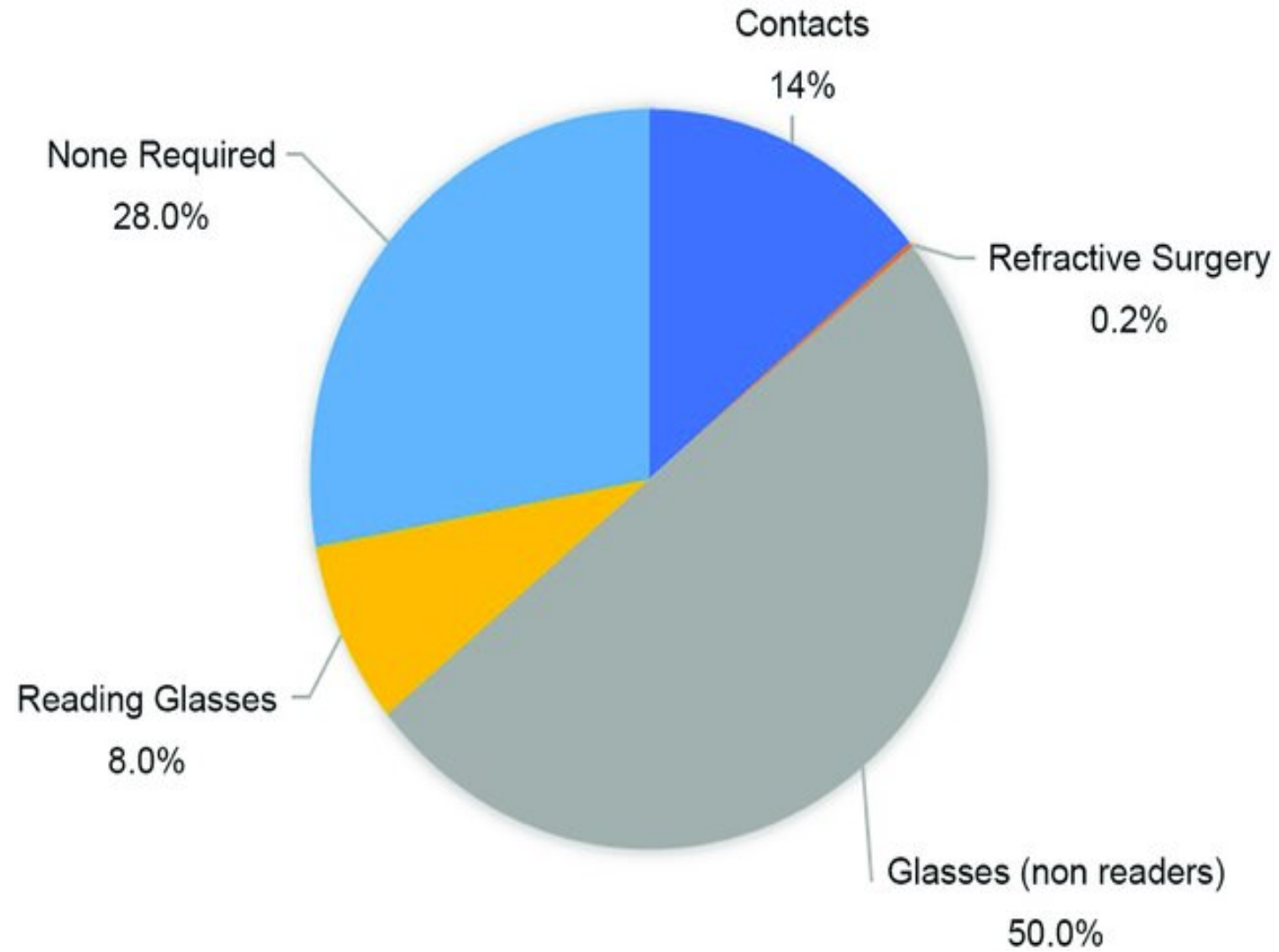
- increase to **260 million**, or close to half of the population, up from 89 million in 2000
- High myopia **66 million** 5x increase



Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050

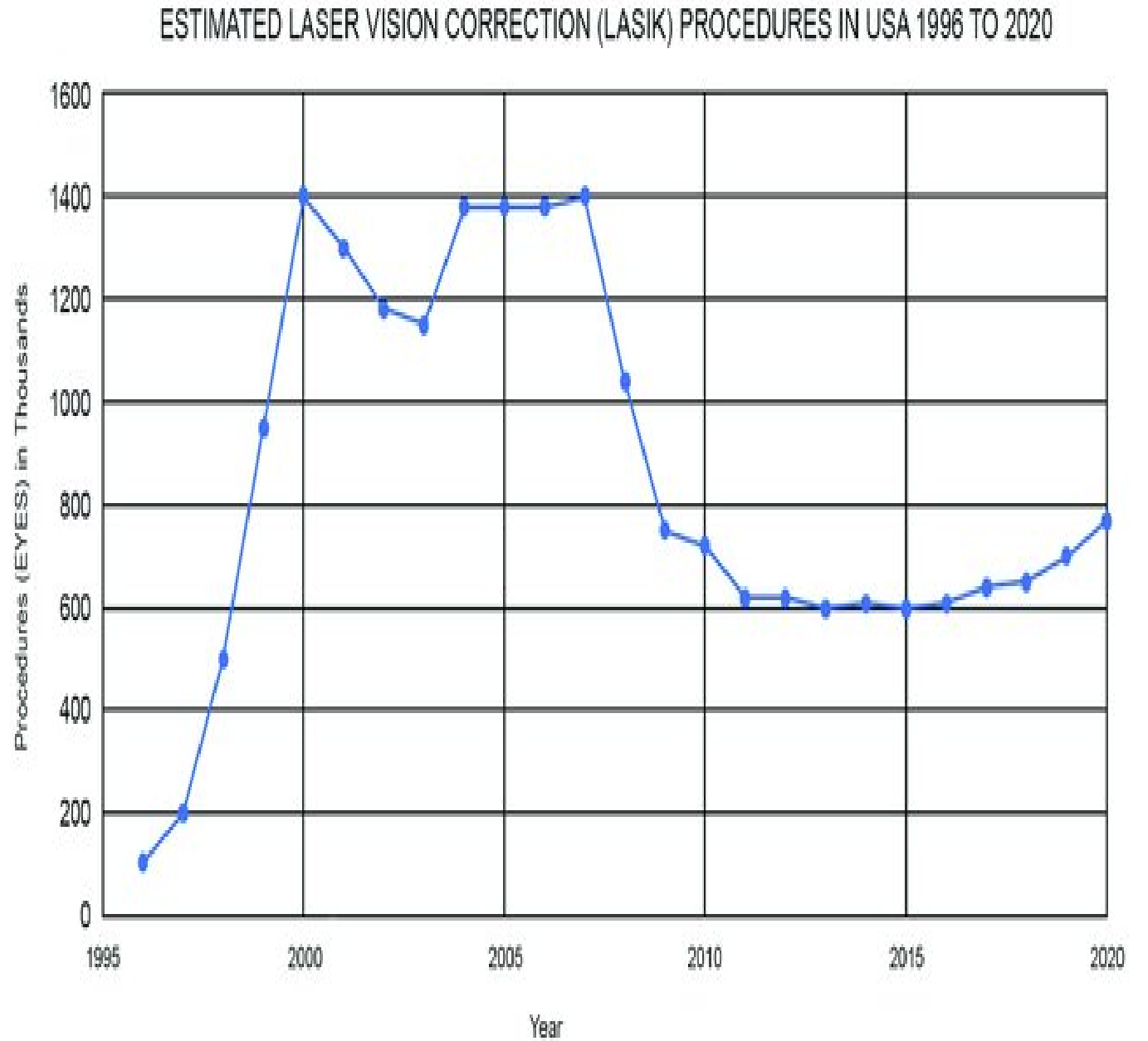
Brien A. Holden, PhD, DSc • Timothy R. Fricke, MSc • David A. Wilson, PhD • ... Tien Y. Wong, MD • Thomas J. Naduvilath, PhD • Serge Resnikoff, MD • Show all authors

METHOD OF VISION CORRECTION IN USA



USA – past 25 yrs

- 20-25million LVC procedures
- Now flat 800,000/yr
- (vs 500,000 ICL's)
- (international 1.5 million ICL's)

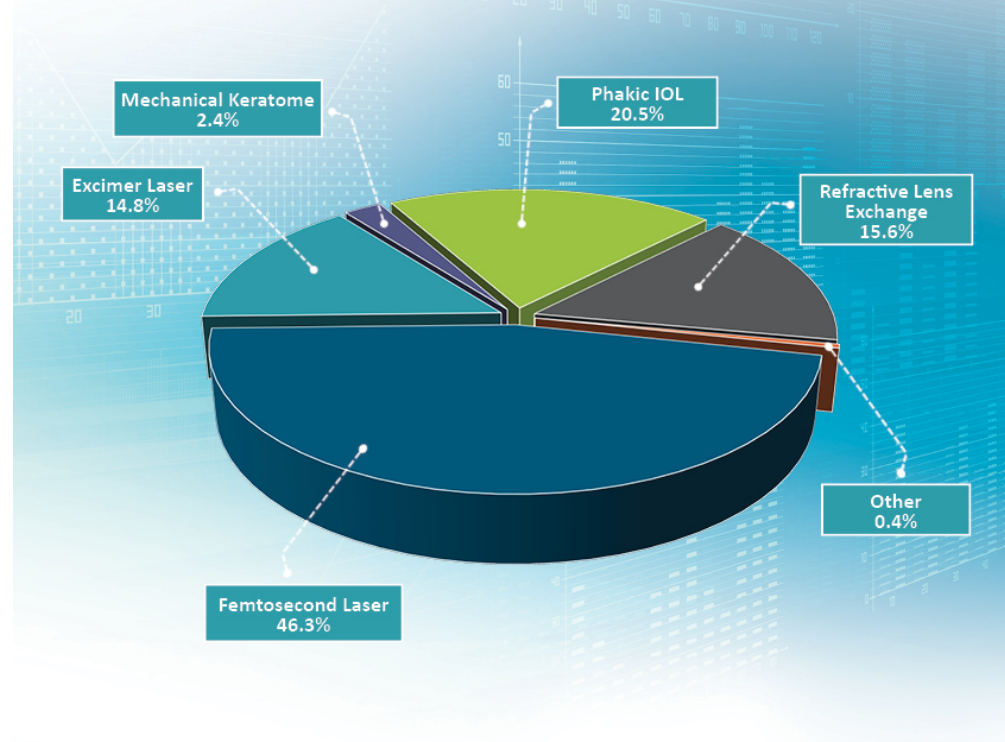


PUBLISHED
December 2022

Market Scope

2022 Refractive Surgery Market Report

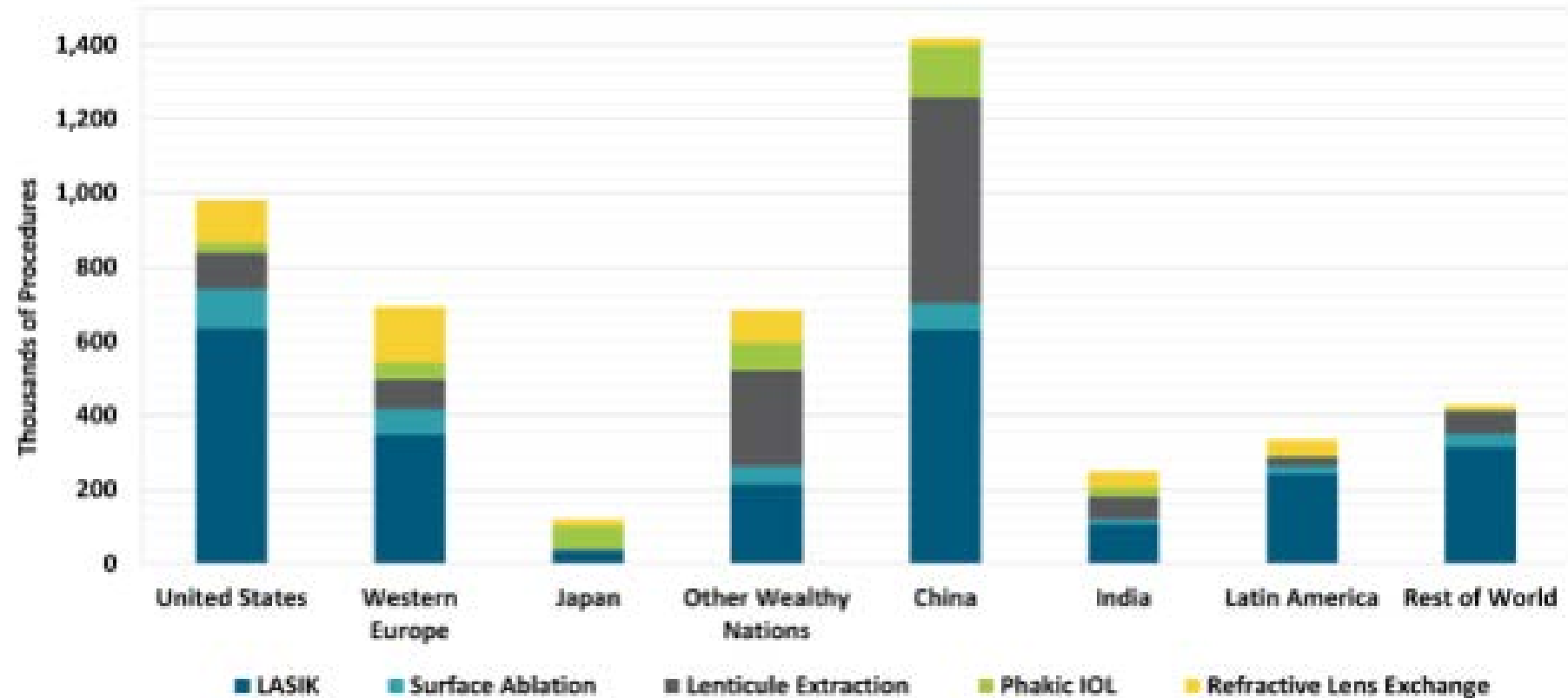
Global Analysis for 2021 to 2027



13421 Manchester Road, Suite 101 | St. Louis, MO 63131 | 314.835.0600 | market-scope.com

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Global Refractive Procedures by Region and Type



Excimer Laser US FDA approvals : VISX / Wavelight

- **Myopia: up to - 12.00 diopters sphere**
- **Astigmatism: up to 6.00 diopters**
- **Hyperopia: up to +6.0 diopters**



Eagles versus Frogs

- What is “PROLATE”???



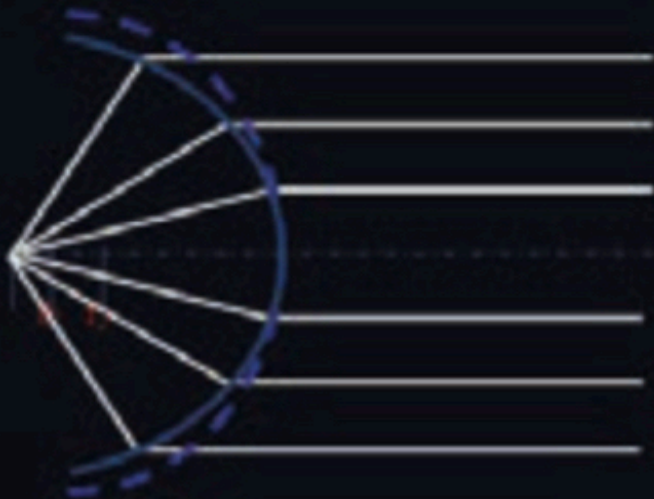
Prolate



Oblate

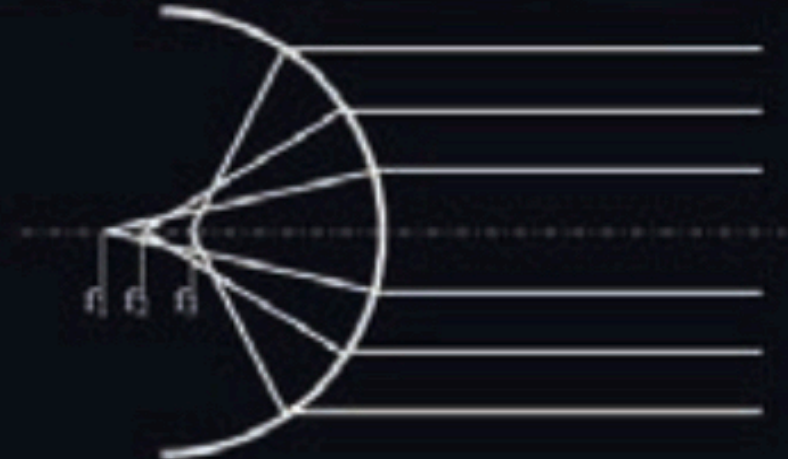
Prolate Corneas

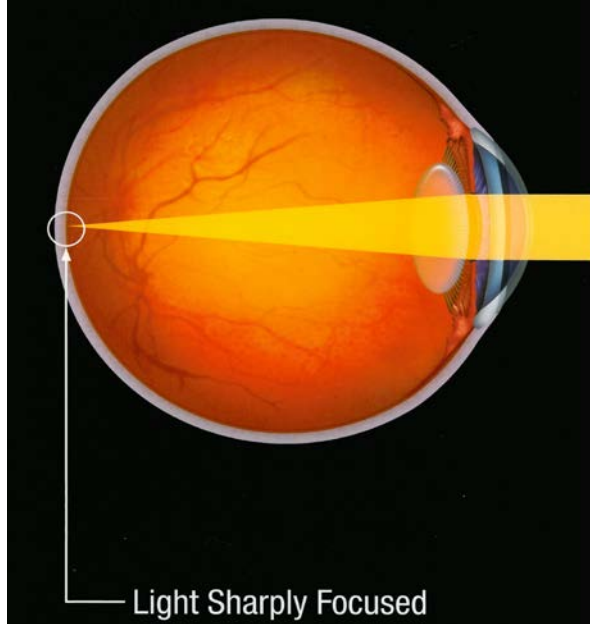
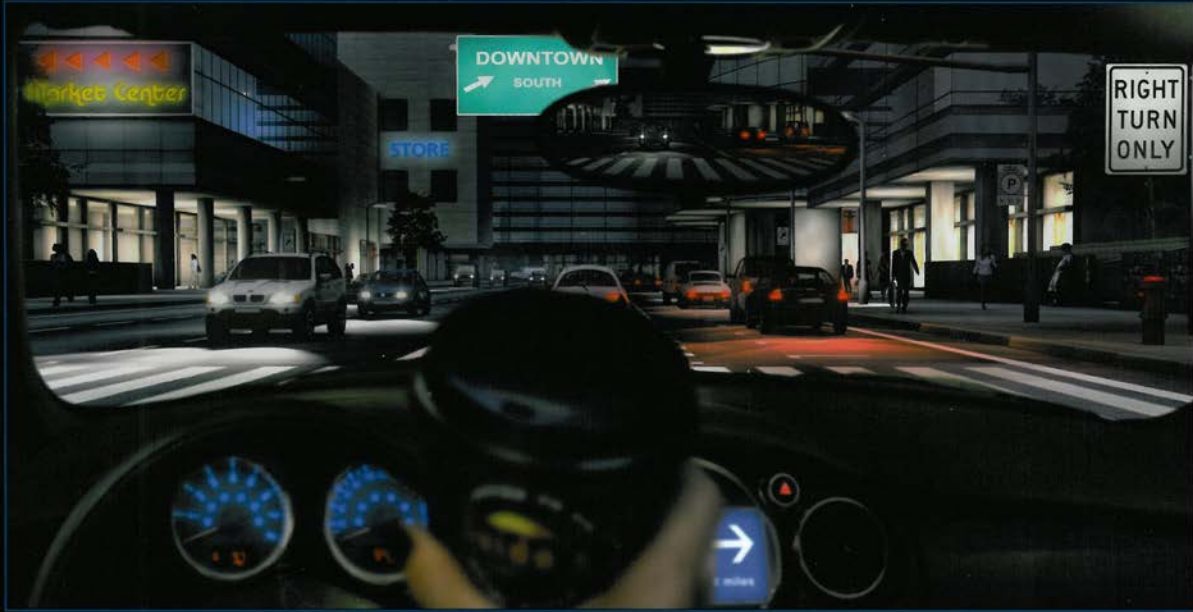
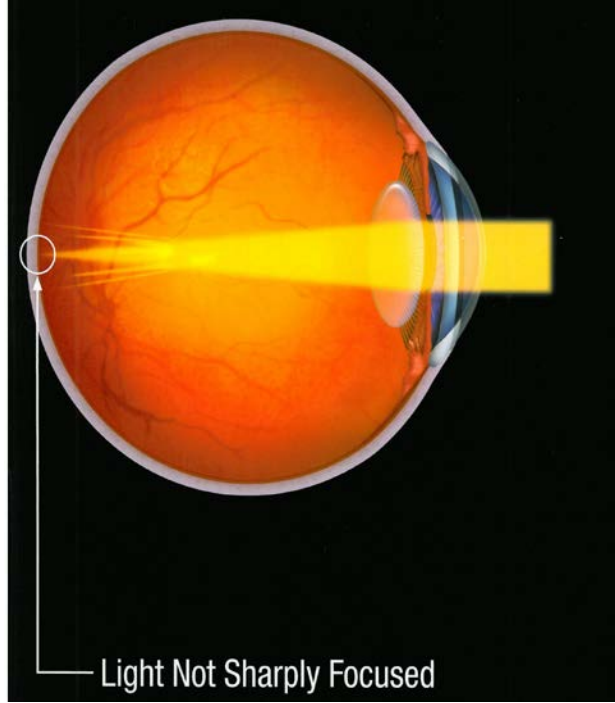
- All predators including humans have Prolate corneas



Oblate corneas

- Frogs have Oblate corneas with a lot of spherical aberration
- Peripheral vision is better than central vision



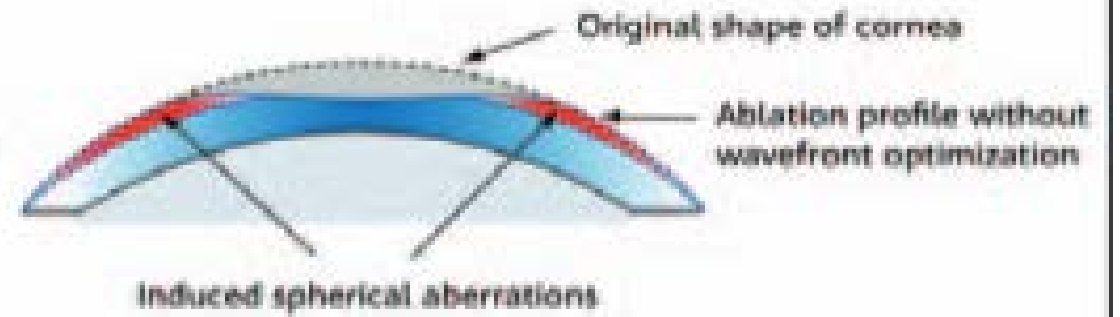


WaveLight:

Wavefront Optimized™ ablation profile

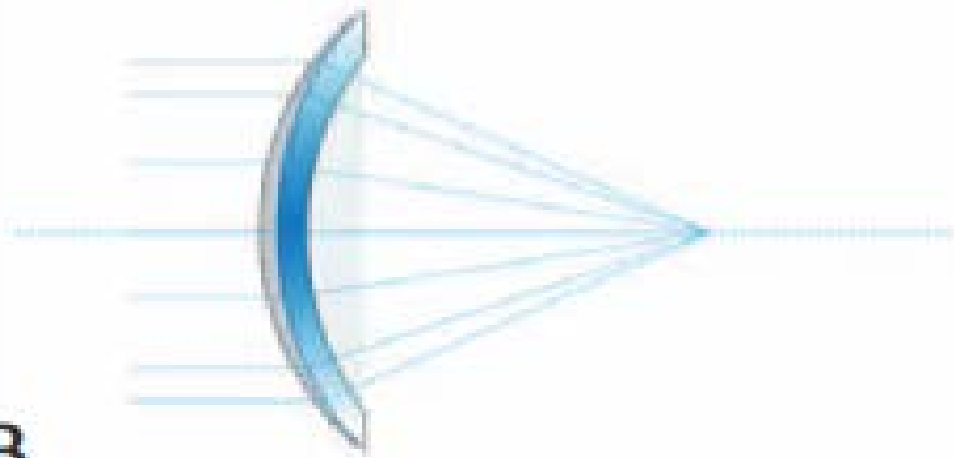


Ablation profile without wavefront optimization

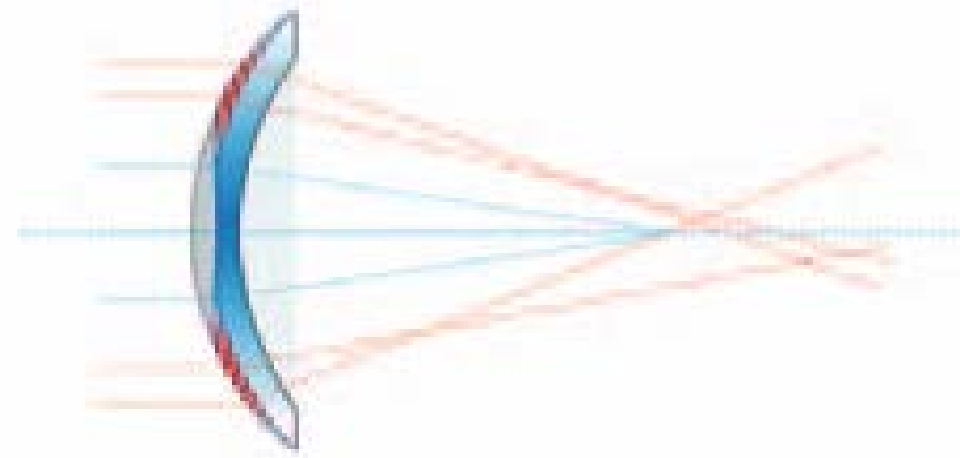


WaveLight:

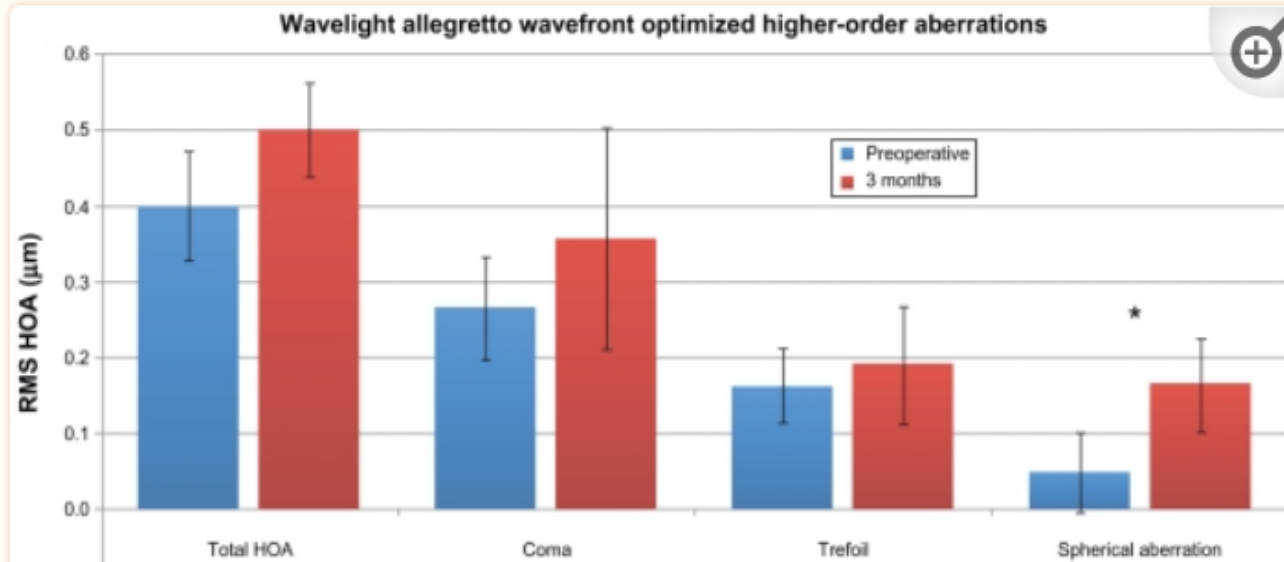
Aspheric shape, minimized spherical aberrations



Induced spherical aberrations



B



[Clin Ophthalmol.](#) 2011; 5: 1185–1193.

PMCID: PMC3180481

Published online 2011 Aug 22. doi: [10.2147/OPHTH.S24319](https://doi.org/10.2147/OPHTH.S24319)

PMID: [21966184](https://pubmed.ncbi.nlm.nih.gov/21966184/)

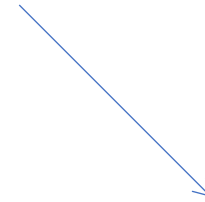
Prospective, randomized, fellow eye comparison of WaveLight® Allegretto Wave® Eye-Q versus VISX CustomVue™ STAR S4 IRTM in photorefractive keratectomy: analysis of visual outcomes and higher-order aberrations

[Majid Moshirfar](#),¹ [Daniel S Churgin](#),² [Brent S Betts](#),³ [Maylon Hsu](#),¹ [Shameema Sikder](#),⁴ [Marcus Neuffer](#),¹ [Dane Church](#),⁵
and [Mark D Mifflin](#)¹

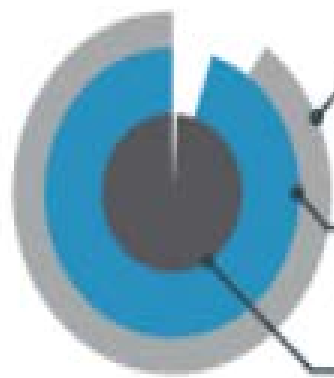
What is should be the upper limit for LVC?



LVC ?



LASIK satisfaction: 96%

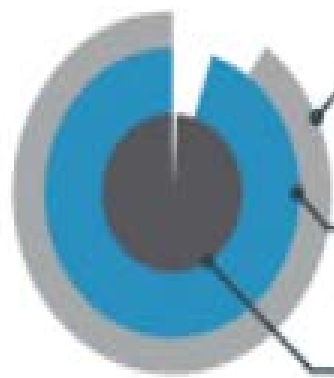


90% of patients have **20/20** or better vision

96% patient **satisfaction** following surgery

99% of patients have **20/40** or better vision

LASIK 4% “not” satisfied : 1 million

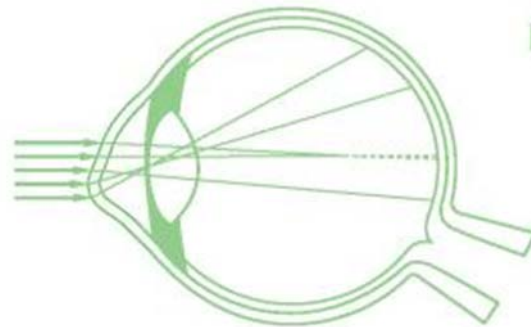
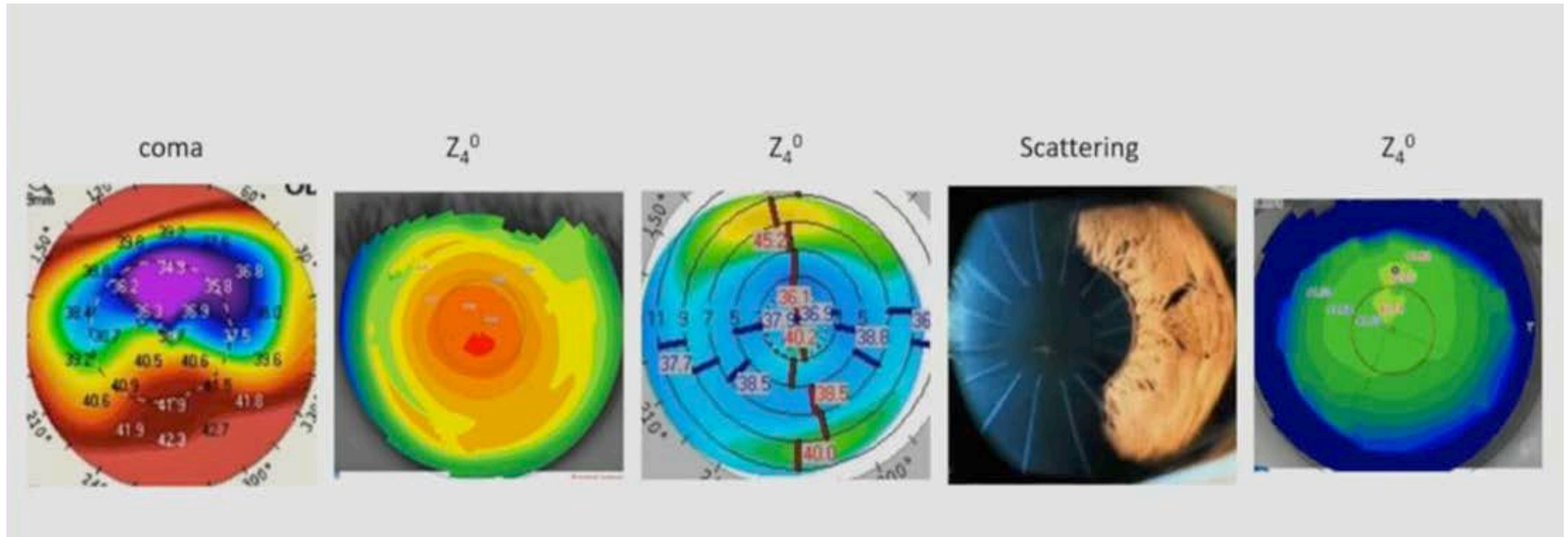


90% of patients have **20/20** or better vision

96% patient **satisfaction** following surgery

99% of patients have **20/40** or better vision

Irregular Astigmatism



LASIK / PRK induced ectasia / scarring

- RGP/Scleral Lenses?
- Pts: “didn’t sign up for this”
- Alternatives?

Husband of Meteorologist Jessica Starr Says Eye Surgery Complications ‘Triggered’ Her Suicide

Jessica Starr, a popular Detroit meteorologist, killed herself eight weeks after undergoing corrective laser eye surgery

By [Maria Pasquini](#) | Published on April 1, 2019 03:23 PM



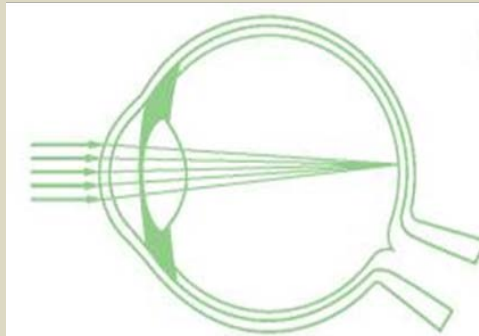
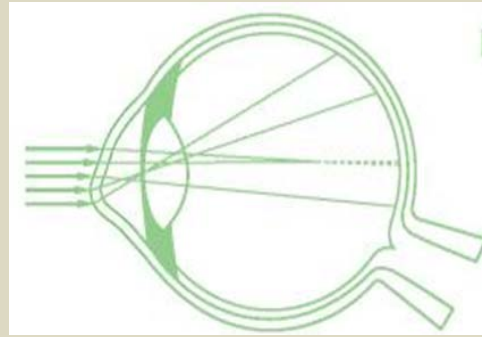
NEWS ENTERTAINMENT ROYALS LIFESTYLE STYLEWATCH SHOPPING



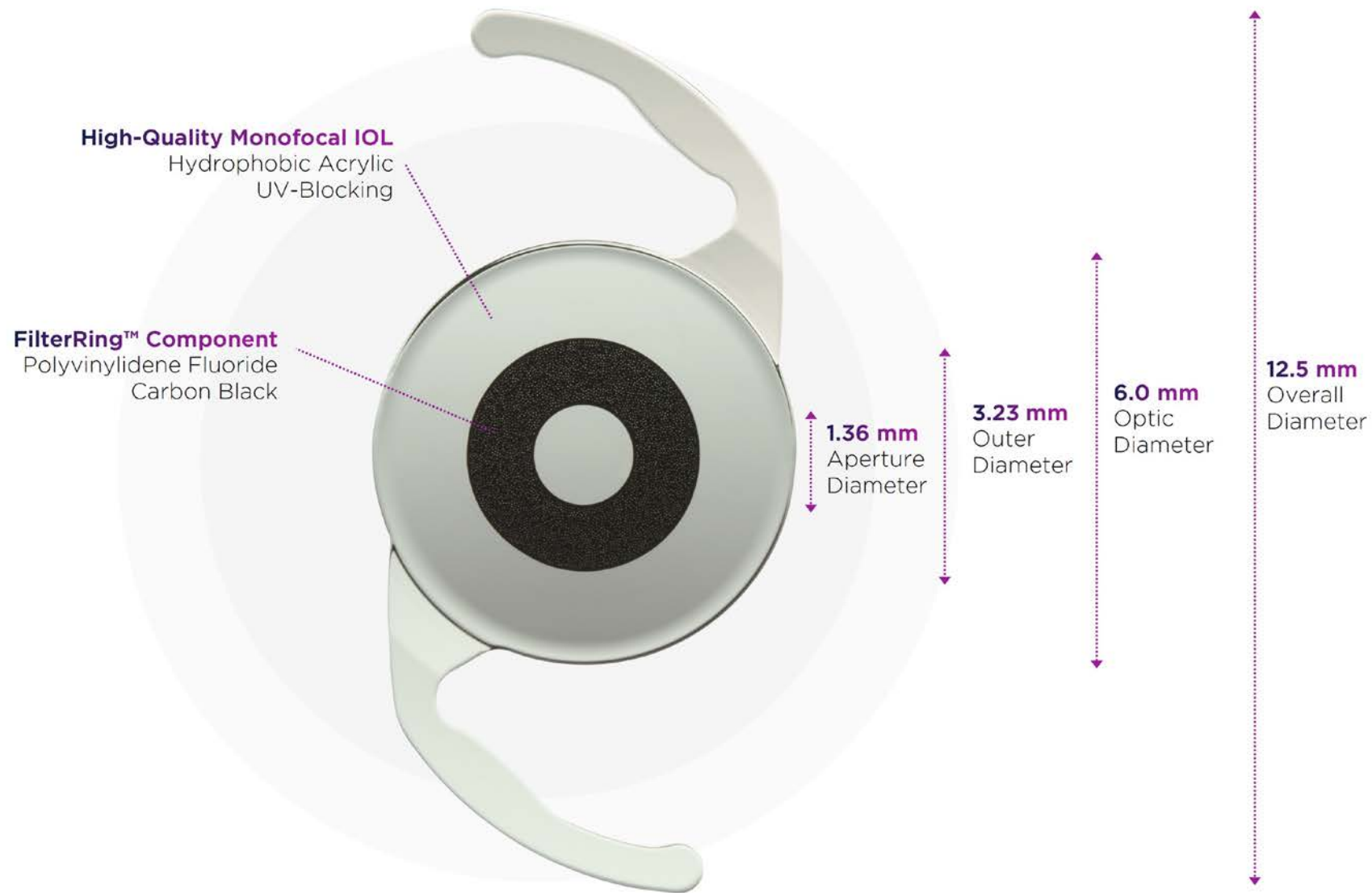
Surgical

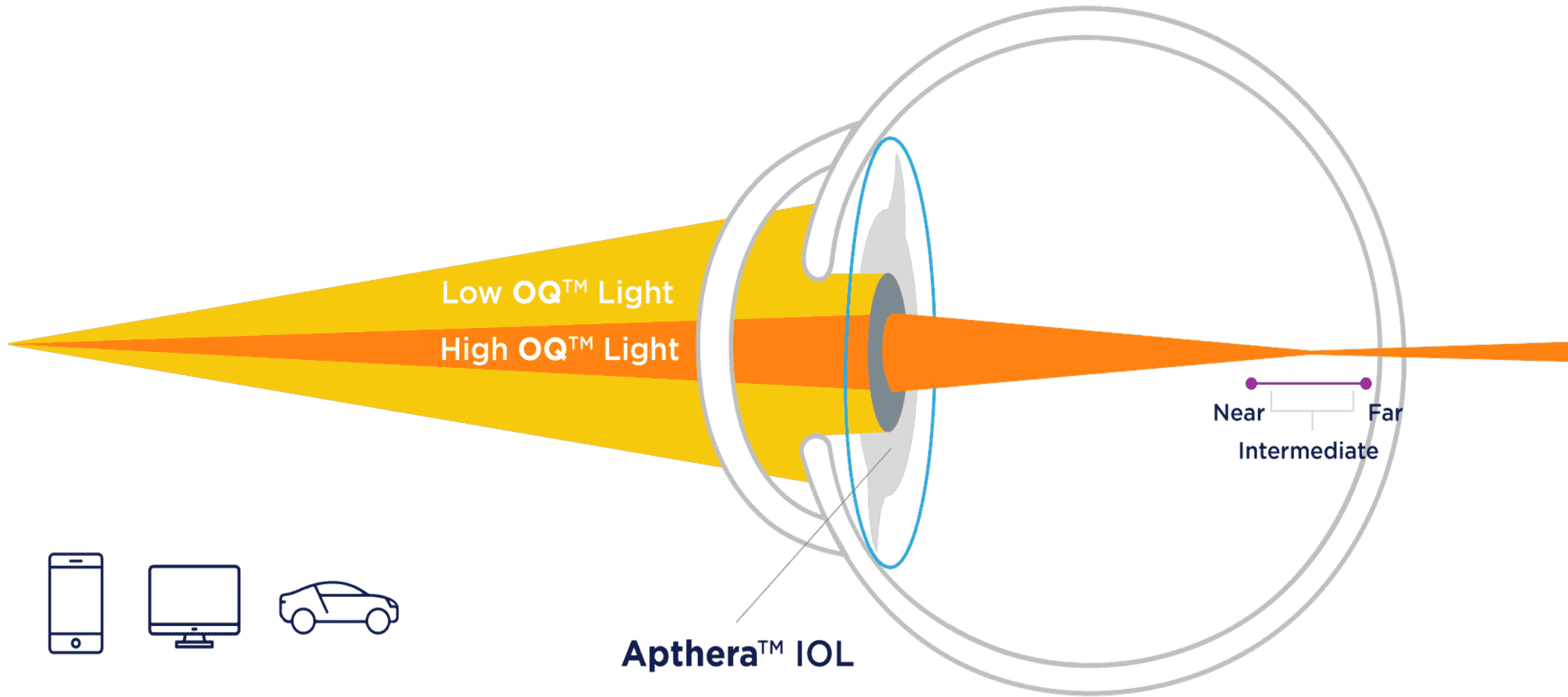
- Corneal X-Linking
- IC-8 IOL
- Corneal Transplantation: DALK

Corneal Cross-linking? LASIK/RK ectasia



IC-8[®] Aphera[™] IOL Features





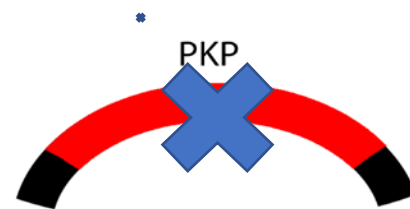
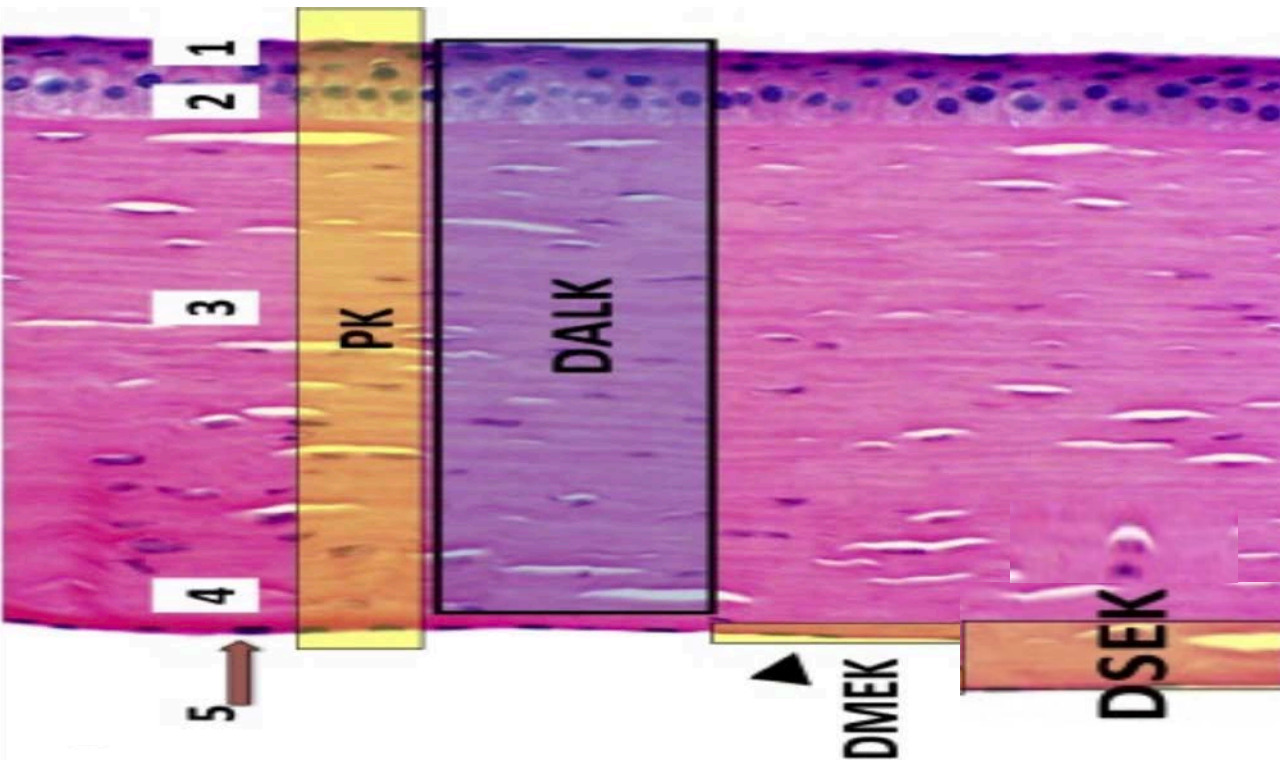
E E E E

Near Intermediate Far

Four 'E' characters of increasing size, representing different viewing distances: Near, Intermediate, and Far.

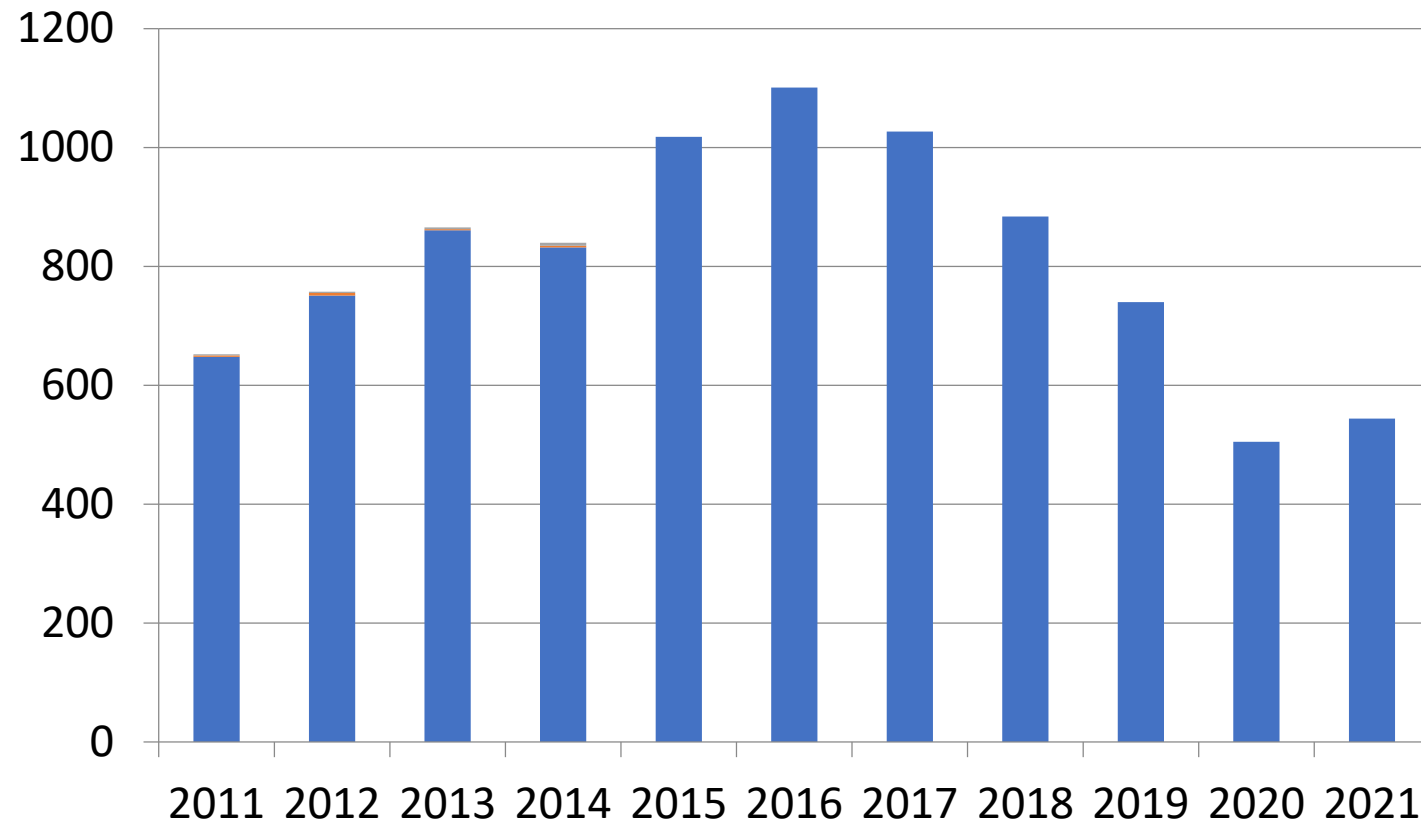
*Simulated Image

Cornea Transplants - DALK: You Won't Believe Your Eye's!

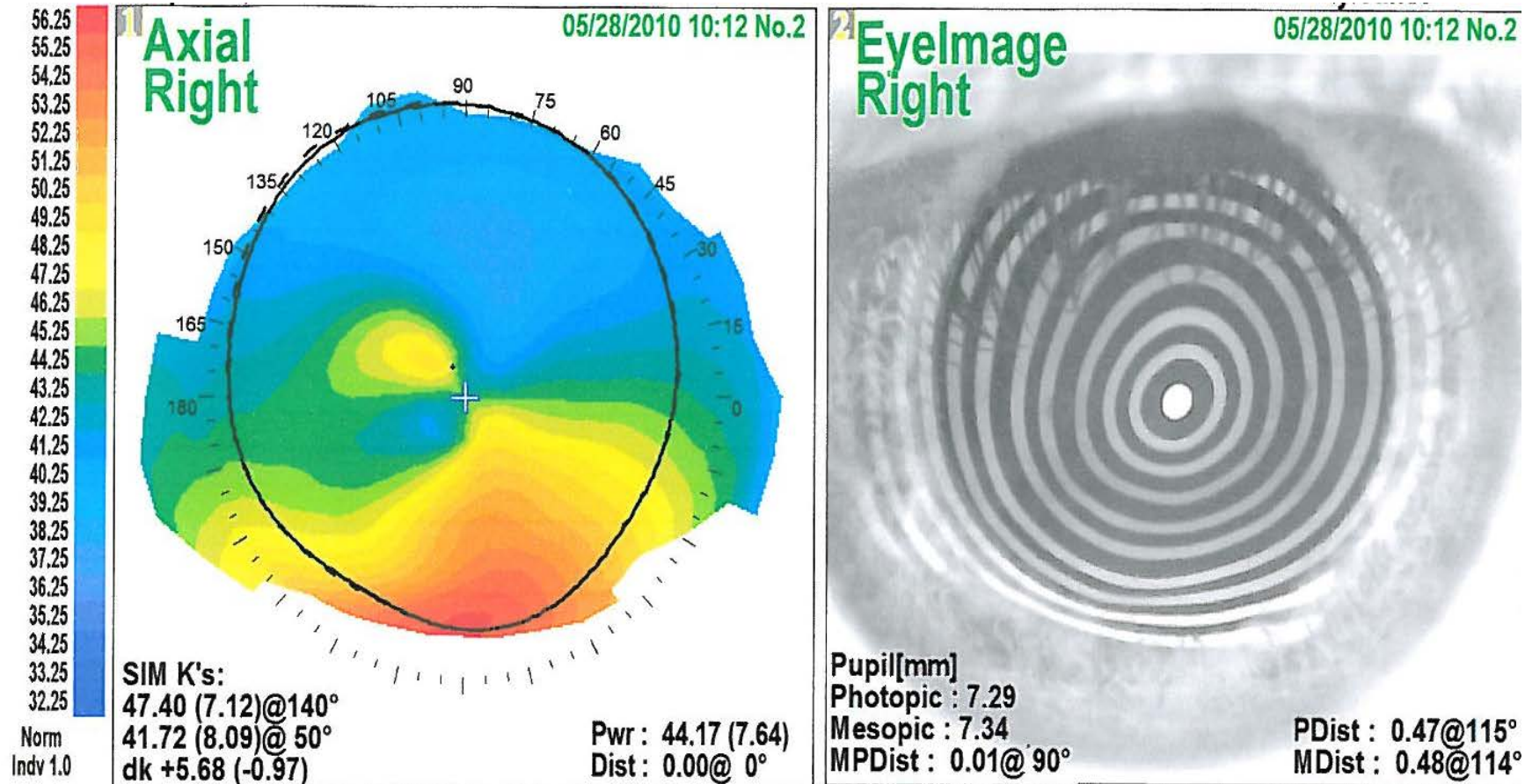


- YES
- NO

USA - DALK procedures 2011-2021 (500/yr)



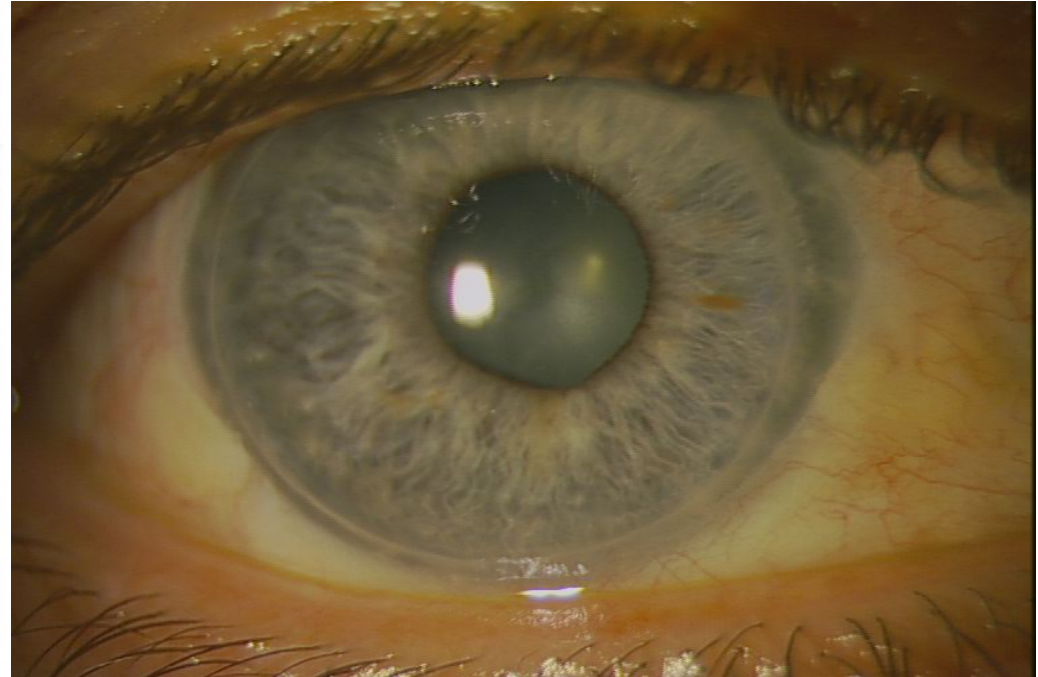
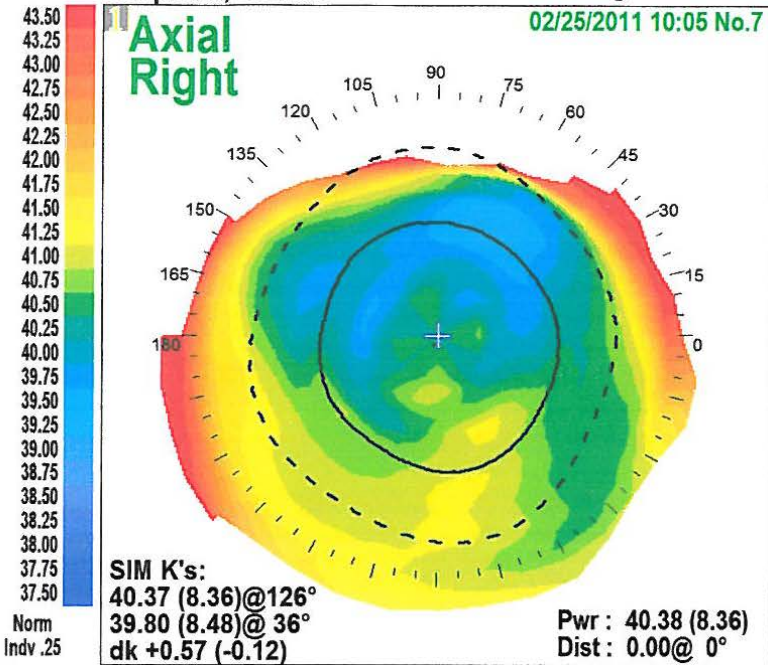
Case #1:
 LASIK Ectasia: 48yo male, CL intol
 -7.0 + 7.0 x 20/50



Case #1:

OD: DALK 9.5mm dia: 8 mos post-op
(2 mos after suture removed)

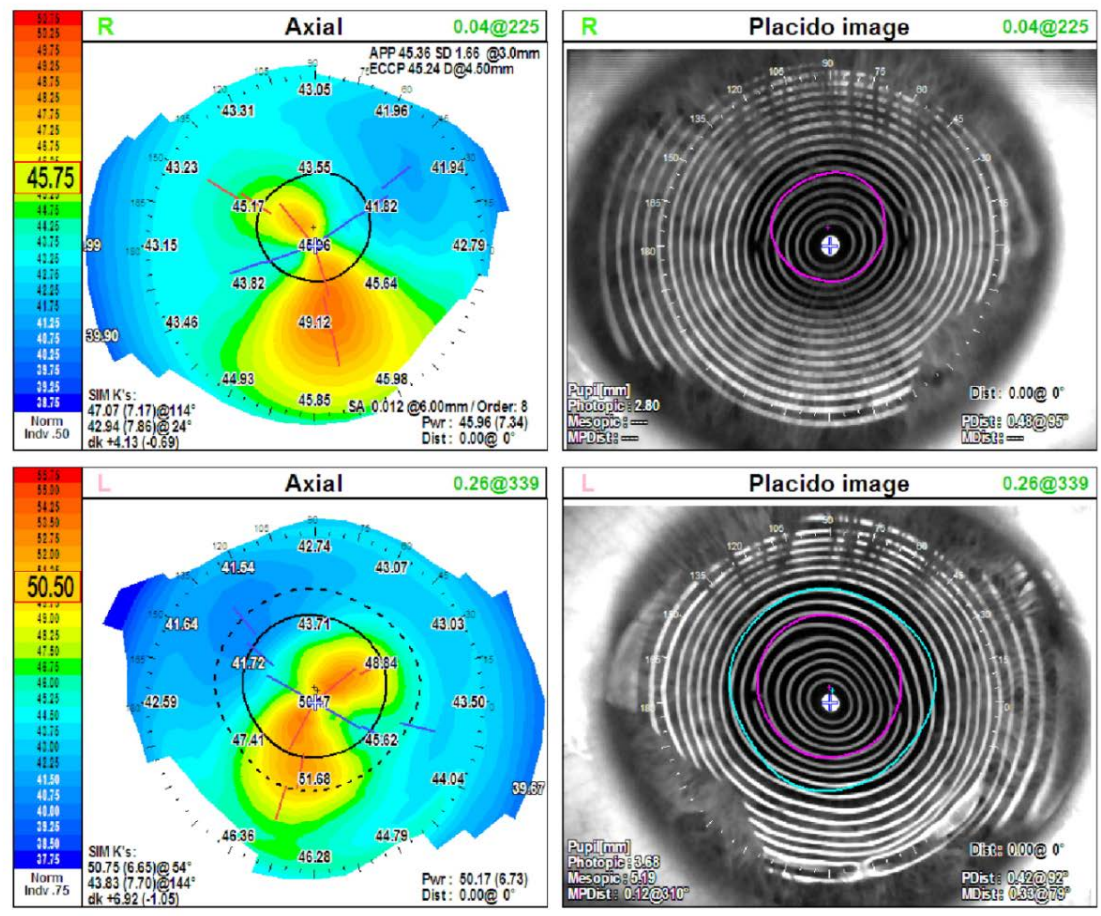
+1.25 + 1.5 x 175 x 20/20-



CASE #2:

2/2016: 33 yo male referred 3 mos after cross linking OS (right eye not x-linked)
 "I still cannot see out of my left eye and vision very poor right eye – especially at night"
 12/2015 OS: Corneal Cross-linking (performed by original LASIK surgeon)
 2008 LASIK OU for low myopia (-3.0D OU) "vision OK for for initial 4 yrs" then developed ectasia OU

L	02/17/2016 16:08	Comment	L	Diagnosis	L
R	02/17/2016 16:08		R		R



- OD: -2.50+2.0x165 20/40

- OS: 20/150

Case #2:

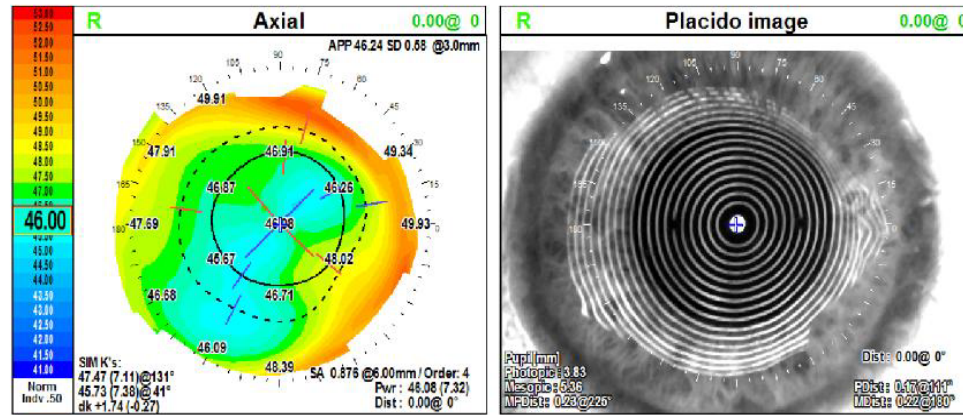
11/2022 Topo below EXTREMELY HAPPY!

2/2022 Staar Toric ICL OD: 13.2 -8.0/2.5 OS: 13.2 -7.5/4.0

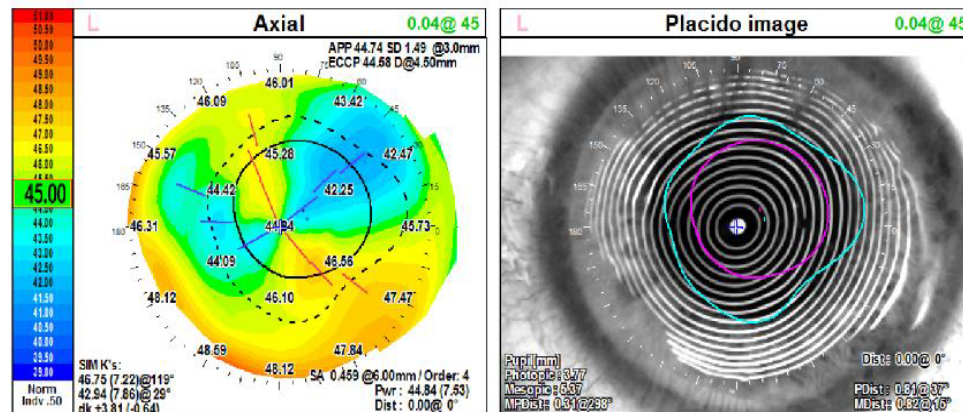
6/2019 OS: DALK 9.5mm

6/2016 OD DALK 9.5mm

Date	L	11/09/2022 14:09	Comment	L		Diagnosis	L	
	R	11/09/2022 14:09		R			R	



- OD: Uncorrected VA 20/20
- -0.25+0.5x136



- OS: Uncorrected VA 20/25
- -1.0+1.0x100 20/20-

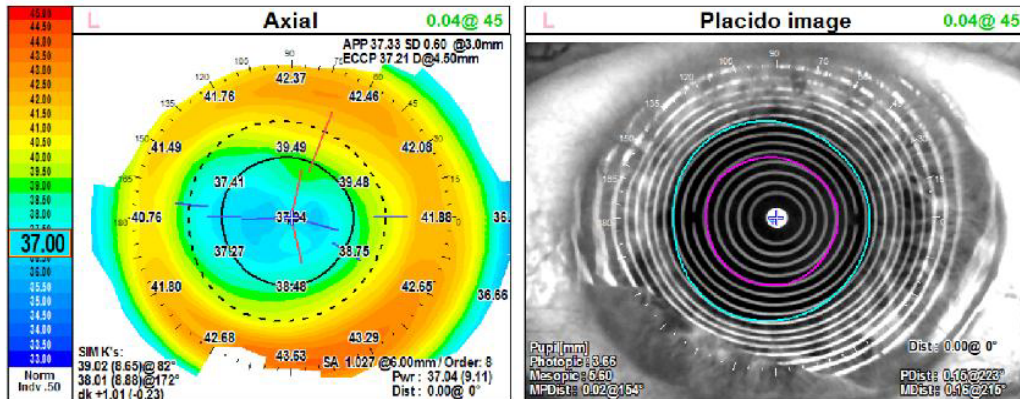
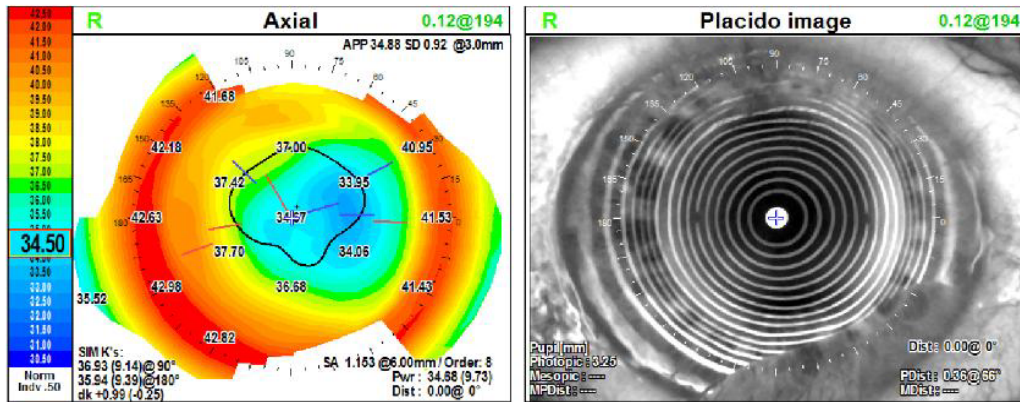
Case #3

8/2021: 64 yr old female referred c/o poor vision / severe night glare both eyes last 22yrs “ever since PRK” both eyes. Told she developed “central corneal haze” both eyes and “nothing they could do”

1999 OD undercorrection added paired corneal intacs

1999 PRK high myopia (-13.0 both eyes)

L	R	Comment	L	R	Diagnosis	L	R
09/10/2021 09:07	09/10/2021 09:07						



Right: (Dominant)

- uncorrected VA 20/30
- -0.25+1.0x96 20/30
- Glare 20/100
- Very flat central K's (35D)
- central corneal haze
- Paired intacs

LEFT

- Uncorrected VA 20/150
- -3.0+1.75x86 20/40
- Glare 20/400
- Very flat central K's (37D)
- Central corneal haze

Case #3

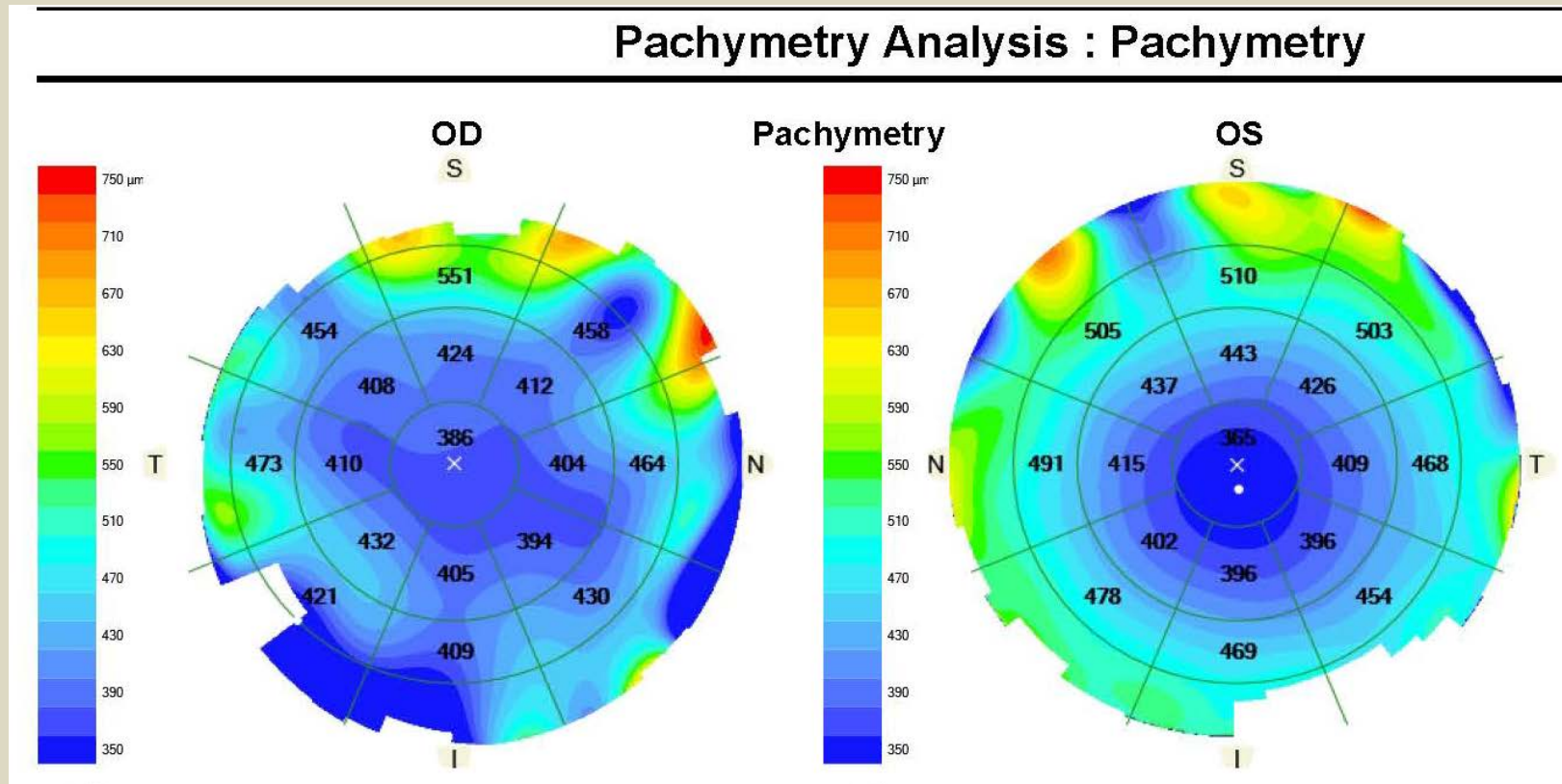
Right eye: Central corneal haze and intacs



Case #3

OD: 375u (central cornea thickness after PRK subtracted 150u)

OS 359u (PRK subtracted 150u)



Case #3

3/1/2023 topo below

2/1/2023 OS removed running corneal suture

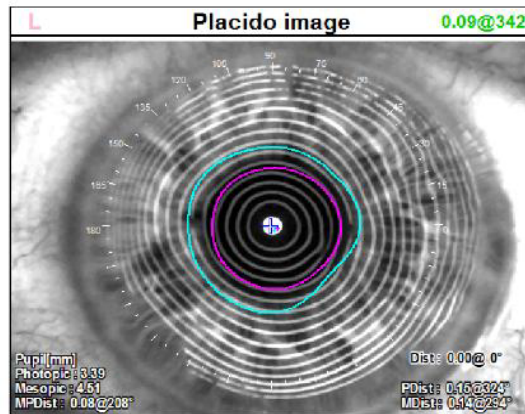
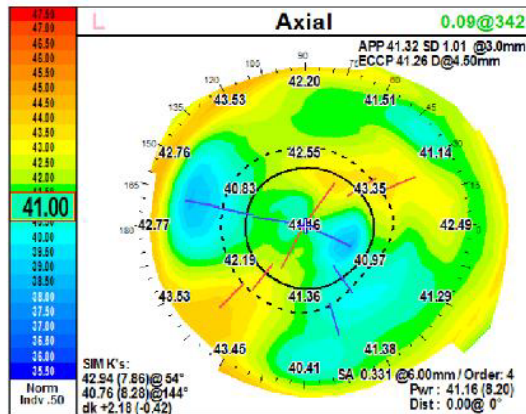
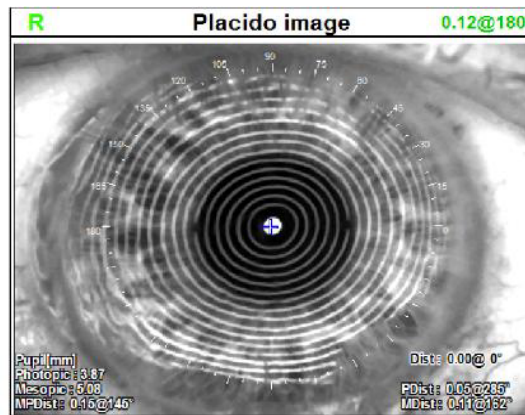
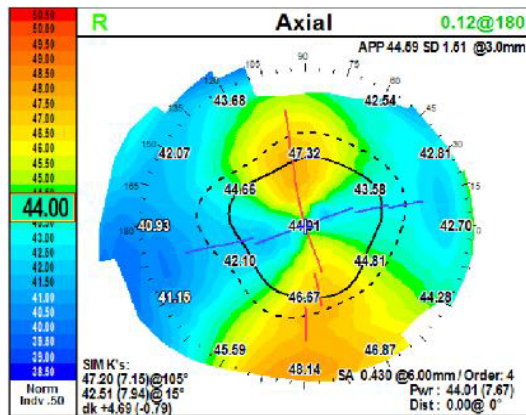
6/21/2022 OS DALK 9.5mm bed/9.75mm donor laterality matched nasal marked

10/2022 OD -14.75+5.5x115 Cat Ext w toric B&L MX60T5.0 6.5D x 106

8/2022 OD removed running corneal suture

11/2/2021 OD Removed intacs/DALK 9.5mm bed/9.75mm donor laterality matched

L	03/01/2023 08:44	Comment	L		Diagnosis	L	
R	03/01/2023 08:44		R			R	



Right eye

- Uncorrected VA 20/30
- -1.50+1.50 x 135 20/25
- Pt is THRILLED with improvement in visual quality and elimination of glare after 20+ yrs!!!

Left eye

- -12.0+3.5x 55 20/60
- (note: high myopia temporarily restored – will be neutralized after planned cataract extraction with toric IOL)

Large dia. DALK – Case Reports

- <https://www.icanseeclearly.com/cornea-transplant-surgery-2/>



Meet our Doctors

Cataract Surgery >

Lasik/Refractive Surgery >

Implantable Contact Lens >

Cornea Transplant Surgery

Keratoconus

Cornea Cross Linking (CXL)

Other Services >

Understanding the Eye >

Doctors Only

CORNEA TRANSPLANT SURGERY

There are approximately 50,000 Cornea Transplant surgeries performed each year in the United States. This is actually a small number when compared with approximately 5 million cataract procedures each year in this country. Of all transplant surgery done today, including heart, lung and kidney, corneal transplants are by far the most common and successful. [Richard A Erdey, MD](#) and [Daryl D Kaswinkel, MD](#) are Corneal Specialists; they have been performing Cornea Transplant Surgery since 1988 and 1996 respectively.

View: [10TV News Report](#)

View: [Our cornea transplant patient throws out first pitch!](#)

View: [testimonials](#)

The Normal and Diseased Cornea



Corneal Transplant



Corneal Transplantation – Variations



Penetrating Keratoplasty (PK) – full thickness transplantation



Deep Anterior Lamellar Keratoplasty (DALK) – selective anterior transplantation



DALK - View: Dr Erdey's Case Reports for various indications



Descemet's Stripping Endothelial Keratoplasty (DMEK), (DSEK), – selective posterior transplantation



Cornea Transplant Complications



The Diseased Cornea – Research



DALK - View: Dr Erdey's Case Reports for various indications

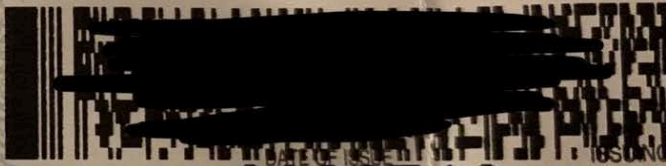
View: Dr. Erdey's case studies utilizing large (9.5-10mm) DALK to achieve rapid restoration of natural corneal curvature and transparency:

1. Keratoconus: [Case Studies](#)
2. Keratoconus: with early and late onset Cornea Hydrops: [Case Studies](#)
3. Keratoglobus: [Case Study](#)
4. Pellucid Marginal Degeneration: [Case Studies](#)
5. LASIK complications - corneal ectasia: [Case Studies](#)
6. Radial Keratotomy (RK) complications - corneal ectasia: [Case Studies](#)
7. Cornea Scars: [Case Studies](#)
8. Cornea Dystrophies: [Case Studies](#)
9. Corneal Infections recalcitrant to treatment: [Case Study](#)



18
PASSENGER TICKET AND BAGGAGE CHECK
SUBJECT TO CONDITIONS OF CONTRACT
AMERICAN AIRLINES

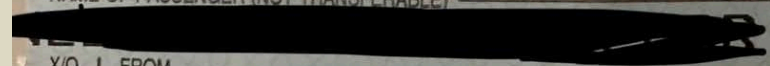
ISSUED BY



DATE OF ISSUE
08OCT18

TSA PRECHK

NAME OF PASSENGER (NOT TRANSFERABLE)



ISS. AGENT ID.
HEO /DFW

PLACE OF ISSUE
DALLAS

FARE BASIS

X/O FROM

DALLAS FT WORTH

CARR.

AA

FLIGHT

1492 V

CLASS DATE

08OCT1050A

TIME

X/O TO

COLUMBUS OH

REVALIDATION

ENDORSEMENTS/RESTRICTIONS

*

*

ORIGINAL ISSUE

A photograph of two men in a chess match. The man on the left is wearing a white shirt and has his hand to his face, looking intently at the board. The man on the right is wearing a dark suit and is also looking at the board with a thoughtful expression. The chessboard is in the foreground, showing various pieces. The background is dark with some blurred lights and logos.

Best Refractive Surgical "Move"?

ICL?

EVO/EVO+ VISIAN® Implantable Collamer® Lens (“EVO”) Clinical Update

Richard Erdey, MD
Erdey Searcy Eye Group



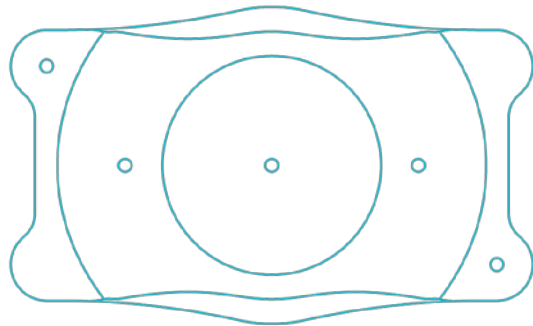
EVO Visian ICL™ (Implantable Collamer Lens) for Myopia and Myopic Astigmatism

- Posterior chamber phakic IOL made of STAAR's unique Collamer® material
 - Poly-HEMA based Collagen co-polymer
- **1998** Richard Erdey MD investigator US FDA ICL Myopia Multicenter Clinical Trial (550 eyes)
- **2005** US FDA Approval of V4C MICL (Spherical Myopia)
- **2018** US FDA Approval of Toric ICL (Myopic Astigmatism)
- **2022** US FDA Approval of **EVO Visian ICL** family of lenses (includes EVO, EVO+ ,EVO +Toric, EVO Toric) |

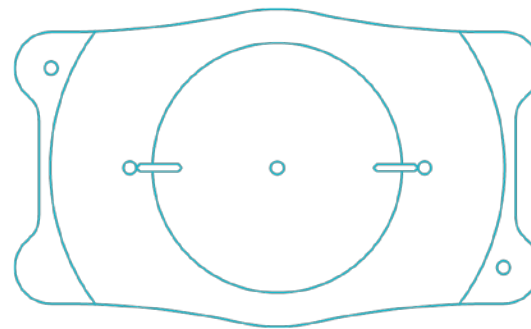


The EVO ICL

- The addition of the central port to EVO facilitates the flow of aqueous humor through the lens, **eliminating the need for peripheral iridotomies (PIs) prior to implantation.**

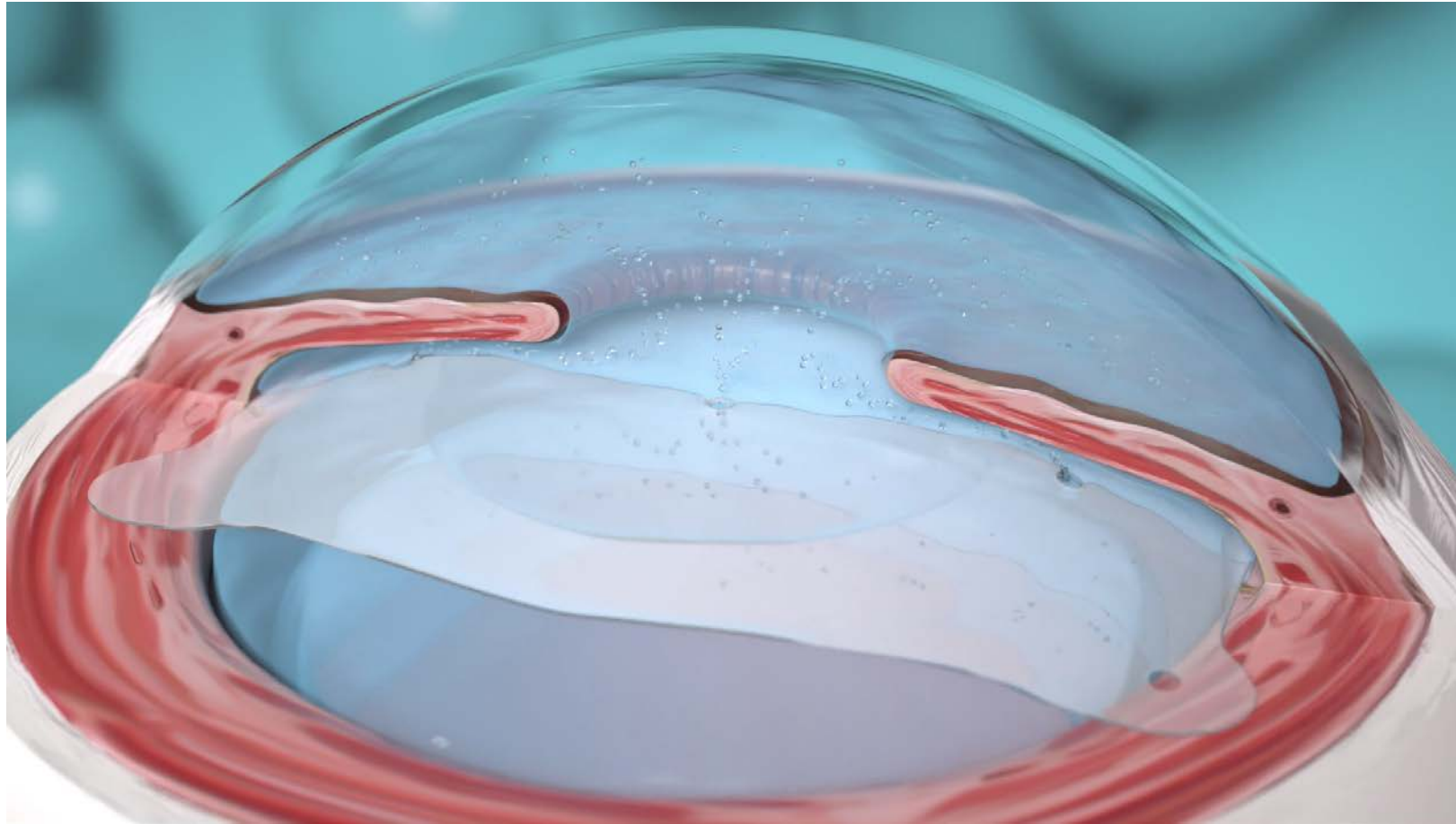


EVO/EVO+ Sphere



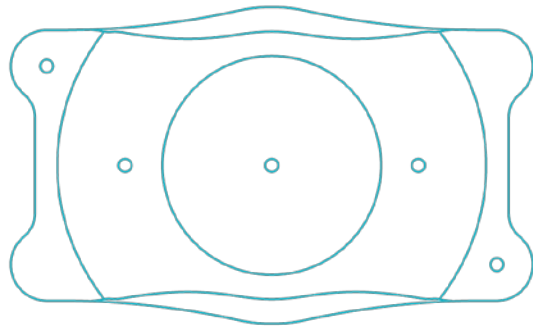
EVO/EVO+ Toric

The EVO ICL Family of Lenses

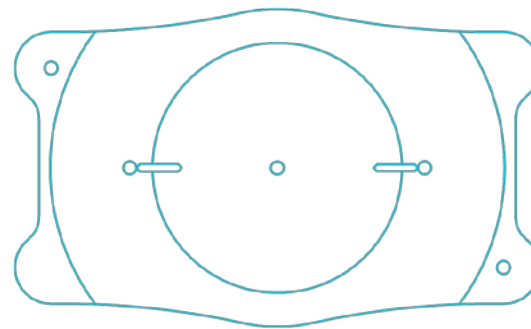


The EVO ICL

- central port to EVO facilitates the flow of aqueous humor through the lens, **eliminating the need for peripheral iridotomies (PIs) prior to implantation.**
- **optic diameter EVO: 4.9 mm to 5.8 mm,**
- **optic diameter of EVO+: 5.0 mm to 6.1 mm**
- STAAR's Collamer® material - proven history of over 20 years with **more than 2 million EVO lens implants worldwide.**



EVO/EVO+ Sphere



EVO/EVO+ Toric

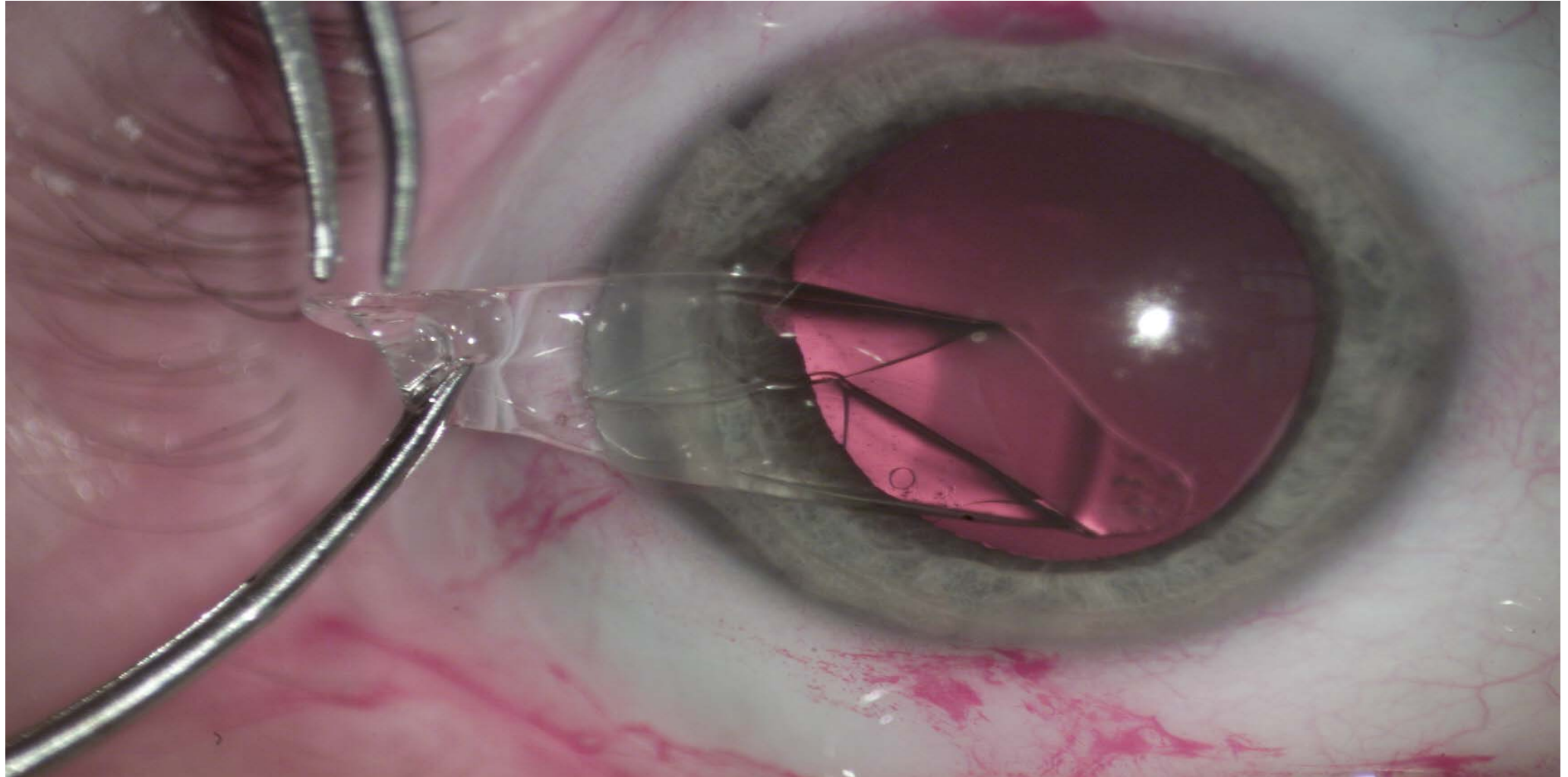
The advantages of EVO Visian ICL include:

- Sharp, clear vision¹
- Excellent night vision²
- Quick procedure and recovery
- Protection from UV rays
- REVERSIBLE by the surgeon (future cataract surgery)



1. Igarashi A, Kamiya K, Shimizu K, Komatsu M. Visual Performance after implantable Collamer lens implantation and wavefront-guided laser in situ keratomileusis for high myopia. Am J Ophthalmol. 2009.
2. Martinez-Plaza E, Lopez-Miguel A, Lopez-De La Rosa A, et al. Effect of the EVO+ Visian Phakic Implantable Collamer Lens on Visual Performance and Quality of Vision and Life, Am J Ophthalmol 2021;226: 117–125.
3. Ganesh S, Brar S, Pawar A. Matched population comparison of visual outcomes and patient satisfaction between 3 modalities for the correction of low to moderate myopic astigmatism. Clin Ophthalmol. 2017 Jul 3;11:1253-1263.

ICL is REVERSIBLE



The advantages of EVO Visian ICL include:

Unlike LASIK, the ICL:

- “Spare” the cornea
- No irreversible removal of corneal tissue
- Does NOT change cornea shape (Prolate to Oblate)
- Does NOT increase SA or HOA
- Does not cause dry eye syndrome³



1. Igarashi A, Kamiya K, Shimizu K, Komatsu M. Visual Performance after implantable Collamer lens implantation and wavefront-guided laser in situ keratomileusis for high myopia. Am J Ophthalmol. 2009.
2. Martinez-Plaza E, Lopez-Miguel A, Lopez-De La Rosa A, et al. Effect of the EVO+ Visian Phakic Implantable Collamer Lens on Visual Performance and Quality of Vision and Life, Am J Ophthalmol 2021;226: 117–125.
3. Ganesh S, Brar S, Pawar A. Matched population comparison of visual outcomes and patient satisfaction between 3 modalities for the correction of low to moderate myopic astigmatism. Clin Ophthalmol. 2017 Jul 3;11:1253-1263.

ICVIICL ICL – Does **NOT** induce HOA's (or SA)!

Journal of
CURRENT OPHTHALMOLOGY
Official Publication of Iranian Society of Ophthalmology

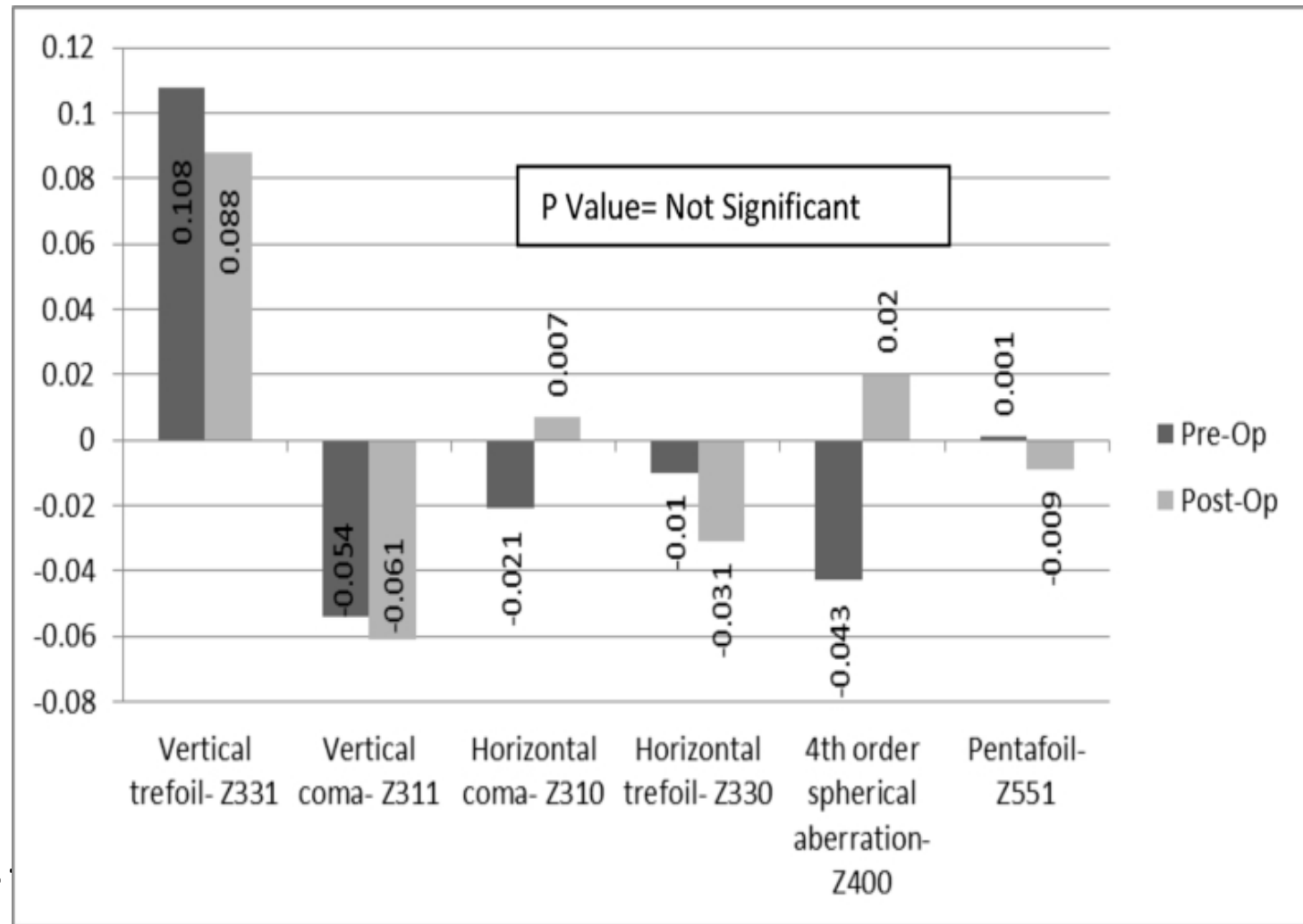
[J Curr Ophthalmol](#). 2018 Jun; 30(2): 136–141.

Published online 2017 Nov 10. doi: [10.1016/j.joco.2017.10.002](https://doi.org/10.1016/j.joco.2017.10.002)

Ocular higher-order aberrations changes after implantable collamer lens implantation for high myopic astigmatism

[Seyed Javad Hashemian](#),^{a,*} [Hosein Farrokhi](#),^a [Alireza Foroutan](#),^a [Mohammad Ebrahim Jafari](#),^a

[Seyed Mahyar Hashemian](#),^b [Sayyed Amirpooya Alemzadeh](#),^a and [Mahsa Sadat Hashemian](#)^c



PMCI

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EVO ICL Indications

Models	Indication
EVO/EVO+ Visian ICL	Full correction (SE): -3.0 D to \leq -15.0 D Reduction (SE): $>$ -15.0 D to -20.0 D
EVO/EVO+ Visian Toric ICL	Full correction (SE): -3.0 D to \leq -15.0 D Reduction spherical equivalent: $>$ -15.0 D to -20.0 D of myopic astigmatism with cylinder of 1.0 D - 4.0 D at the spectacle plane

21 to 45 years of age (off label $<$ 21 and $>$ 45)

ACD (from endo) \geq 3.00 mm (off label 2.7 or $>$)

Stable refractive history (within 0.5 D change for spherical equivalent and cylinder in last 12 months)

Preoperative Peripheral Iridotomies No Longer Required

EVO models available:

Models	Spherical Power (D)	Cylindrical Power (D) (For EVO/EVO+ Toric)	Overall Diameters (mm)
EVO+	-3.0 to -14.0 -3.5 to -14.0*** (EVO+ Toric)	1.0 to 4.0	12.1
EVO	-14.5 to -16.0 -14.5 to -18.0*** (EVO Toric)		12.6
			13.2
			13.7

***Product is unavailable if Spherical Equivalent (SEQ) is outside the -3.0 D to -16.0 D range

Spherical and Cylindrical Powers available in 0.5 D steps

The EVO+ model offers an increase in optic diameter of 0.1 mm to 0.5 mm larger than the available EVO model

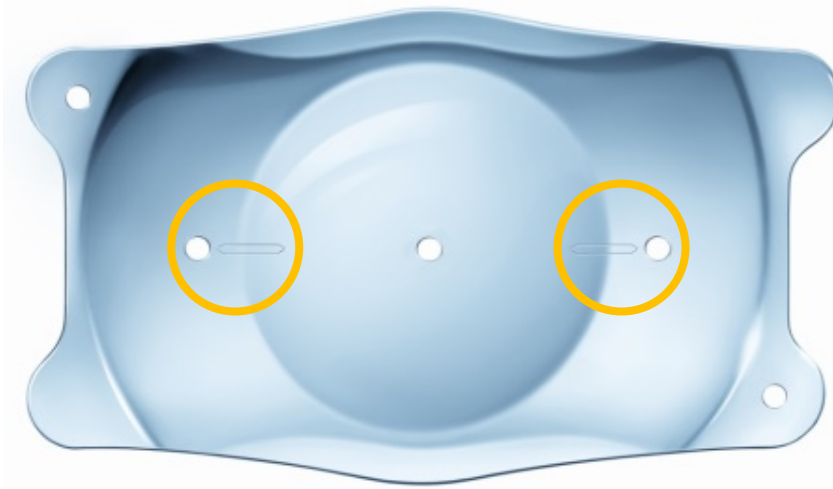
EVO Family Contraindications

- The EVO Visian ICL is contraindicated in patients:
 1. With an anterior chamber depth (true ACD) of <2.70 mm*;
 2. With anterior chamber angle less than Grade III as determined by gonioscopic examination;
 3. Who are pregnant or nursing;
 4. Who have moderate to severe glaucoma
 5. Who do not meet the minimum endothelial cell density (ECD);

*The true ACD is defined as the distance from the apex of the **posterior** corneal surface to the apex of the anterior crystalline lens surface. Many measuring devices provide an ACD measurement defined as the distance from the apex of the **anterior** corneal surface to the apex of the anterior crystalline lens surface. If the surgeon is using an instrument that measures from the anterior corneal surface, the thickness of the cornea must be subtracted to get the true ACD.

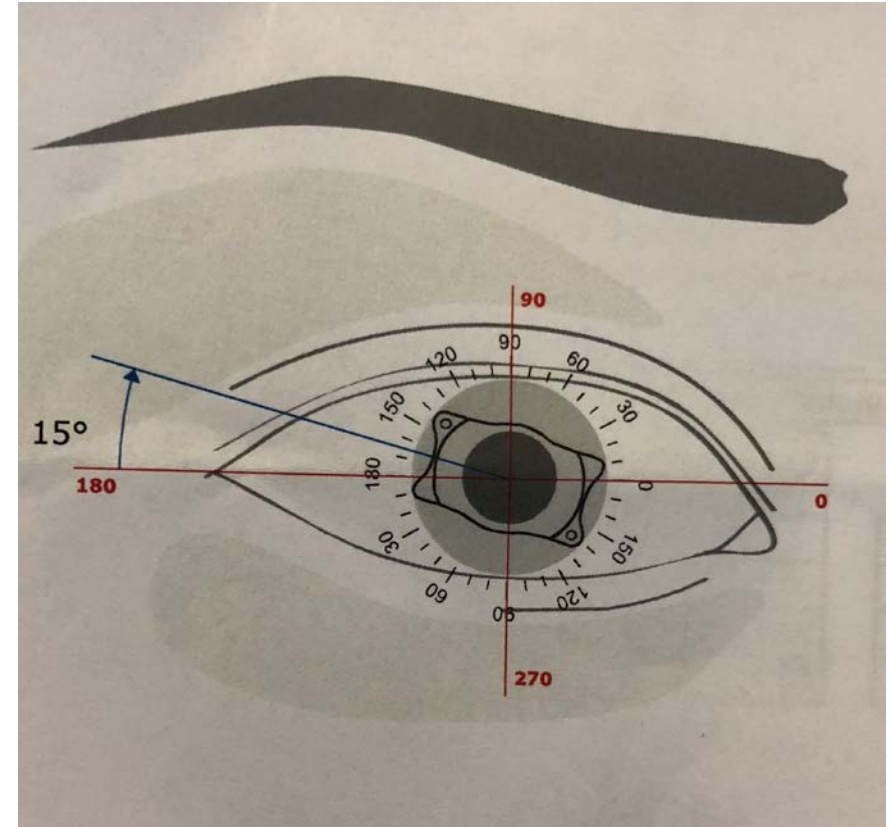
EVO/EVO+ Toric

- EVO Toric and EVO+Toric - same Collamer lens platform and vault design as EVO/EVO+ but includes a toric optic (cyl correction).
- Cylinder power is in the anterior surface optic.
- Has additional linear orientation landmarks to facilitate alignment of the lens in the eye.



EVO and EVO+ Toric ICL

- In all cases it is recommended the EVO/EVO+ Visian TICL be implanted horizontally in the eye through a temporal clear corneal tunnel incision of 3.5 or less constructed parallel to the iris plane, with a tunnel length of 1.5 to 1.75 mm.
- As part of the implantation procedure, the EVO/EVO+ Visian TICL may need to be rotated up to 22.5 degrees clockwise or counterclockwise from the 0°–180° meridian in order to align the lens axis at the preoperative plus cylinder axis.



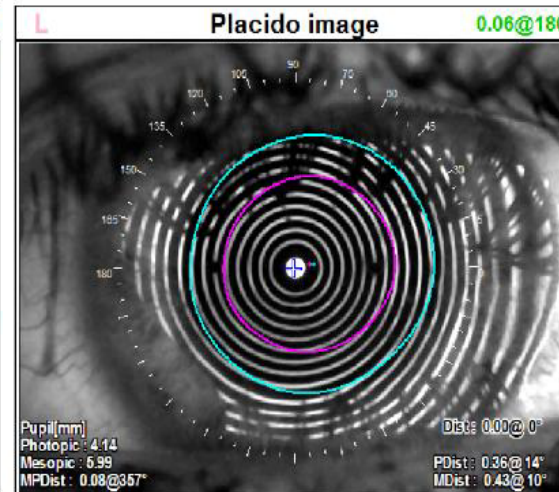
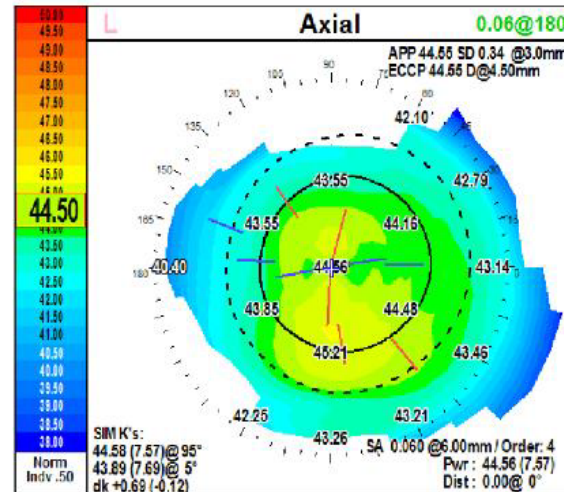
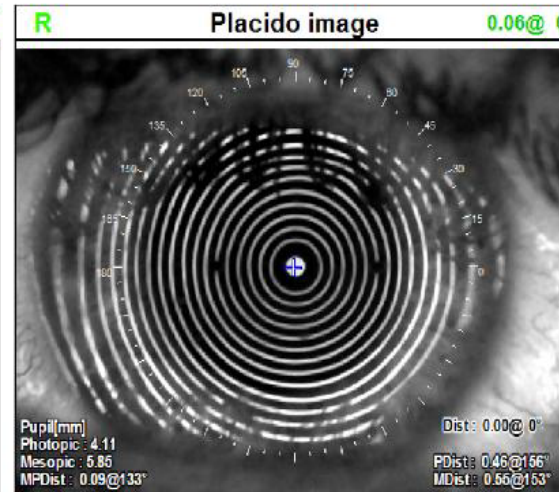
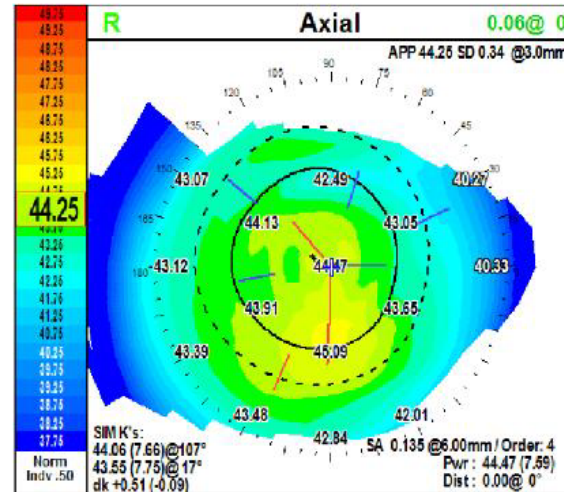
Schematic of 15 degree clockwise implantation...aligning with 165 degree axis

ICL work-up

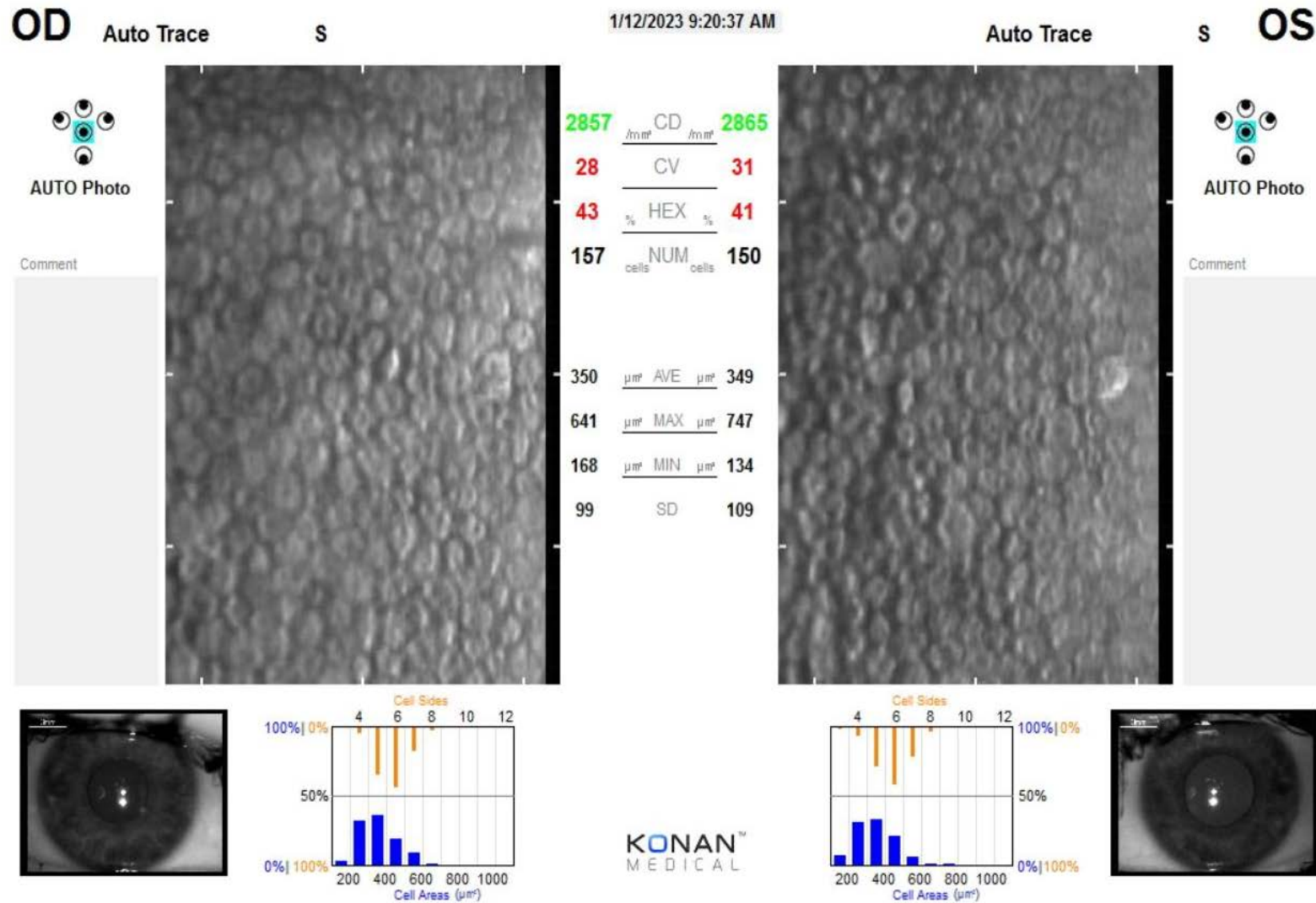
- Dry Rx vertex distance
- Wet Rx
- SLE
- IOP
- Fundus (high myopia – **Retina Consult**)

Topography

L	01/12/2023 09:19	Comment	L	Diagnosis	L
R	01/12/2023 09:19		R		R



Endothelial Cell Cts



KONANTM
MEDICAL

Lenstar optical biometry

Biometry

Time: 9:20 AM

Duration: 2 Min

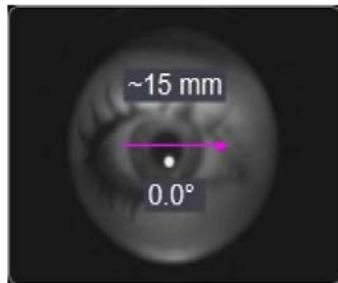
		OD Right eye		OS Left eye	
Measuring mode	Mode	Phakic		Phakic	
Axial length	AL	24.07 mm	±0.009 mm	23.99 mm	±0.022 mm
Cornea thickness	CCT	583 µm	±1.1 µm	587 µm	±1.2 µm
Aqueous depth	AD	2.96 mm	±0.008 mm	2.86 mm	±0.007 mm
Anterior chamber depth inc..	ACD	3.54 mm	±0.008 mm	3.45 mm	±0.006 mm
Lens thickness	LT	3.66 mm	±0.012 mm	3.69 mm	±0.007 mm
Retina thickness	RT	200** µm	±0.0 µm	200** µm	±0.0 µm
Flat meridian	K1	44.00 D @ 8°	±0.069 D	44.08 D @ 1°	±0.094 D
Steep meridian	K2	44.50 D @ 98°	±0.104 D	44.85 D @ 91°	±0.245 D
Astigmatism	AST	0.50 D @ 98°	±9.1°	0.77 D @ 91°	±13.9°
Keratometric index	n	1.3375		1.3375	
White to White	WTW	12.01 mm	±0.035 mm	11.95 mm	±0.029 mm
Iris barycenter	ICX	-0.45 mm	±0.095 mm	0.39 mm	±0.118 mm
	ICY	0.45 mm	±0.048 mm	0.16 mm	±0.085 mm
Pupil diameter	PD	5.08 mm	±0.171 mm	5.56 mm	±0.188 mm
Pupil barycenter	PCX	-0.40 mm	±0.059 mm	0.35 mm	±0.027 mm
	PCY	0.15 mm	±0.059 mm	0.04 mm	±0.030 mm

* Value user-defined
 ** System constant
 ☹ Significant difference between OD and OS
 see detail printout
 ☺ Analysis

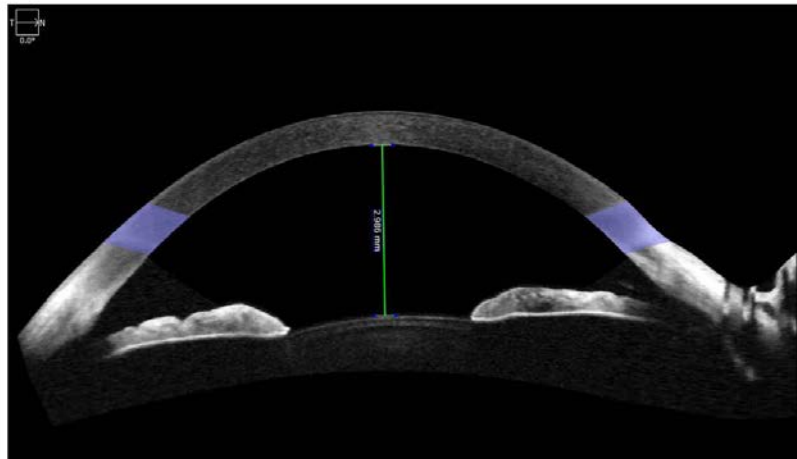
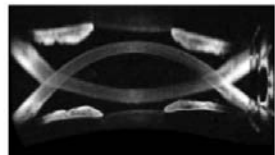
OCT-AC

Gender: Female Serial Number: 5000-21028
Technician: Operator, Cirrus Signal Strength: N/A

Anterior Chamber Analysis : Anterior Chamber OD ● ○ OS

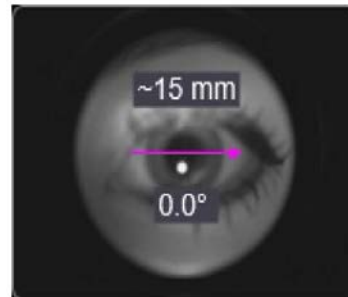


Chamber Measurement	Value
Area	22.64 mm ²

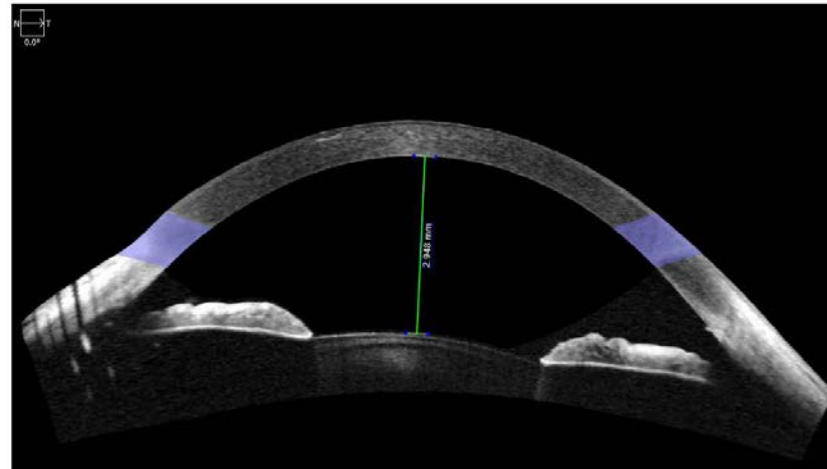
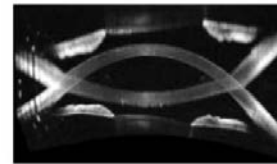


Gender: Female Serial Number: 5000-21028
Technician: Operator, Cirrus Signal Strength: N/A

Anterior Chamber Analysis : Anterior Chamber OD ○ ● OS



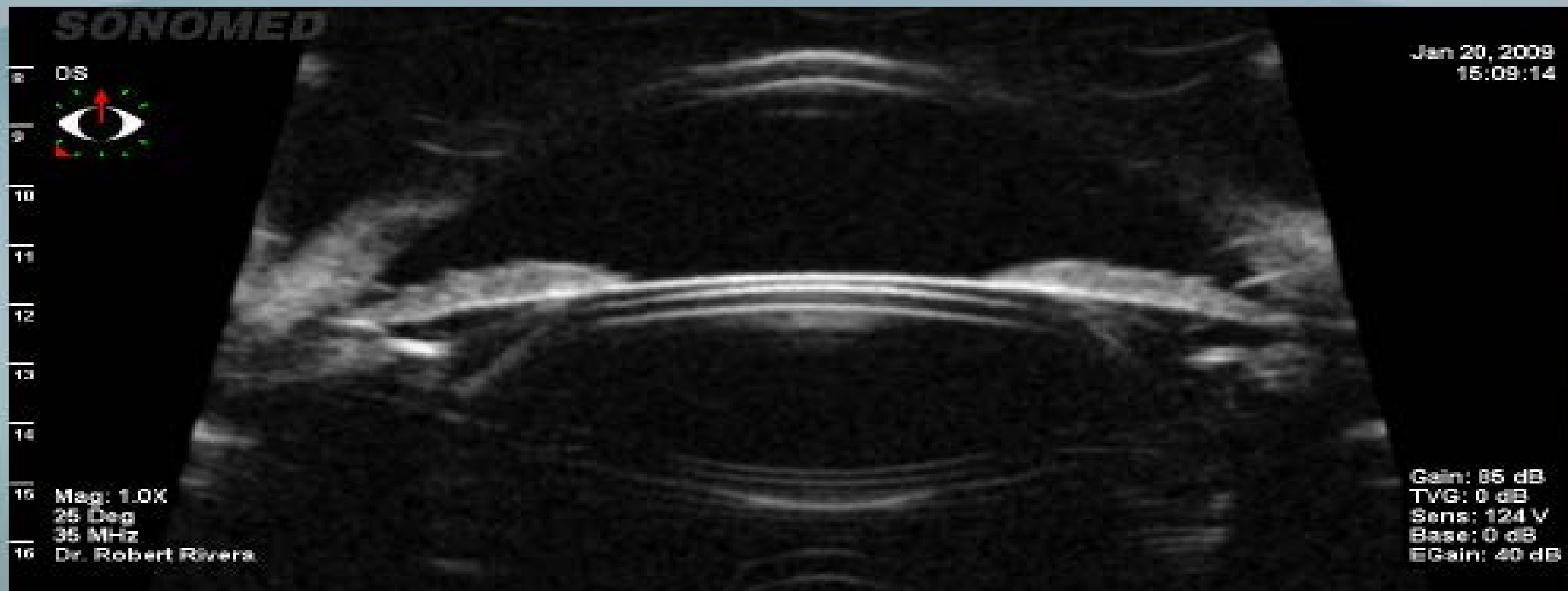
Chamber Measurement	Value
Area	22.62 mm ²



Measuring the Vault

- W-W
- UBM

Ideal Vault – 300-600 microns

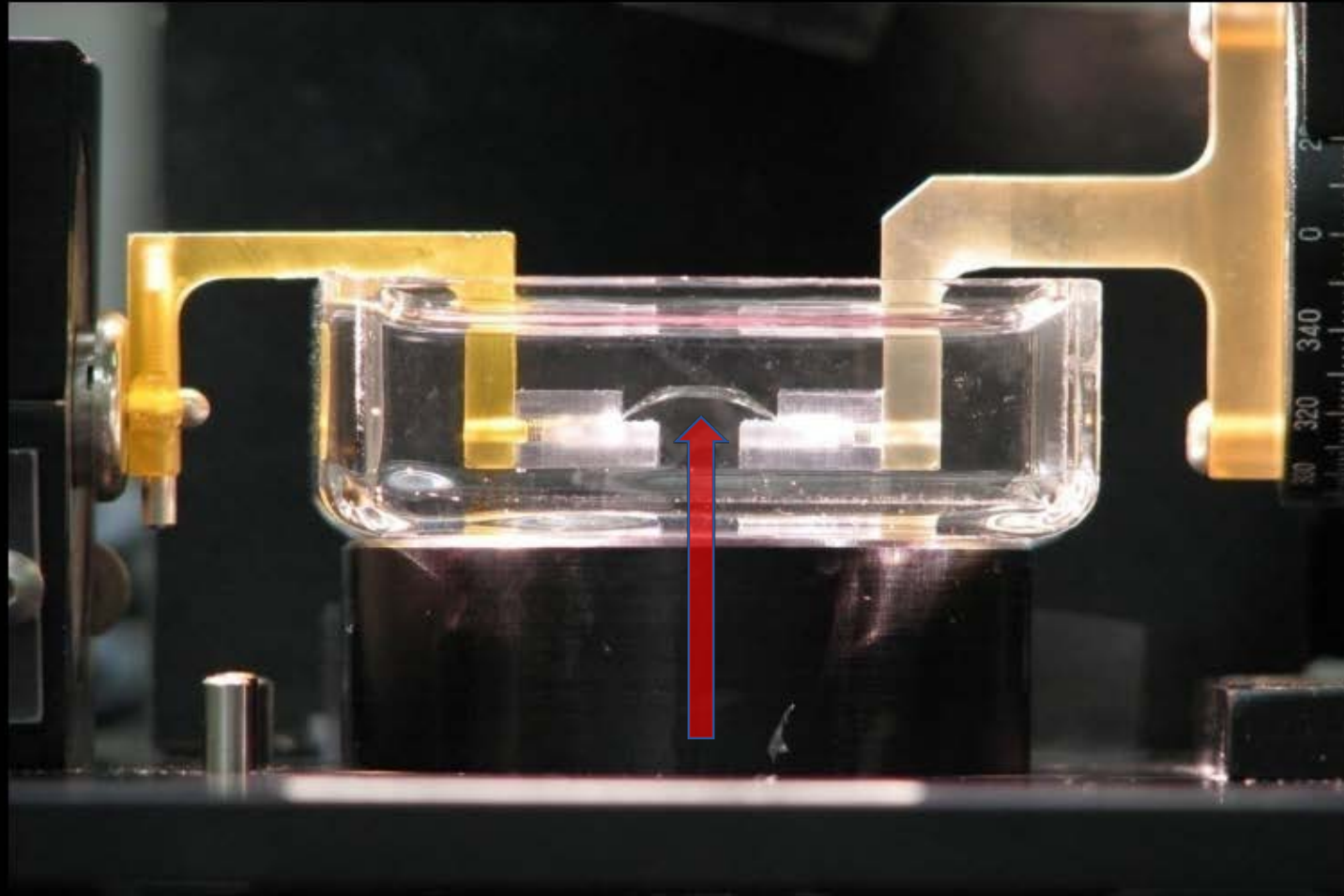




Visian ICL sizes

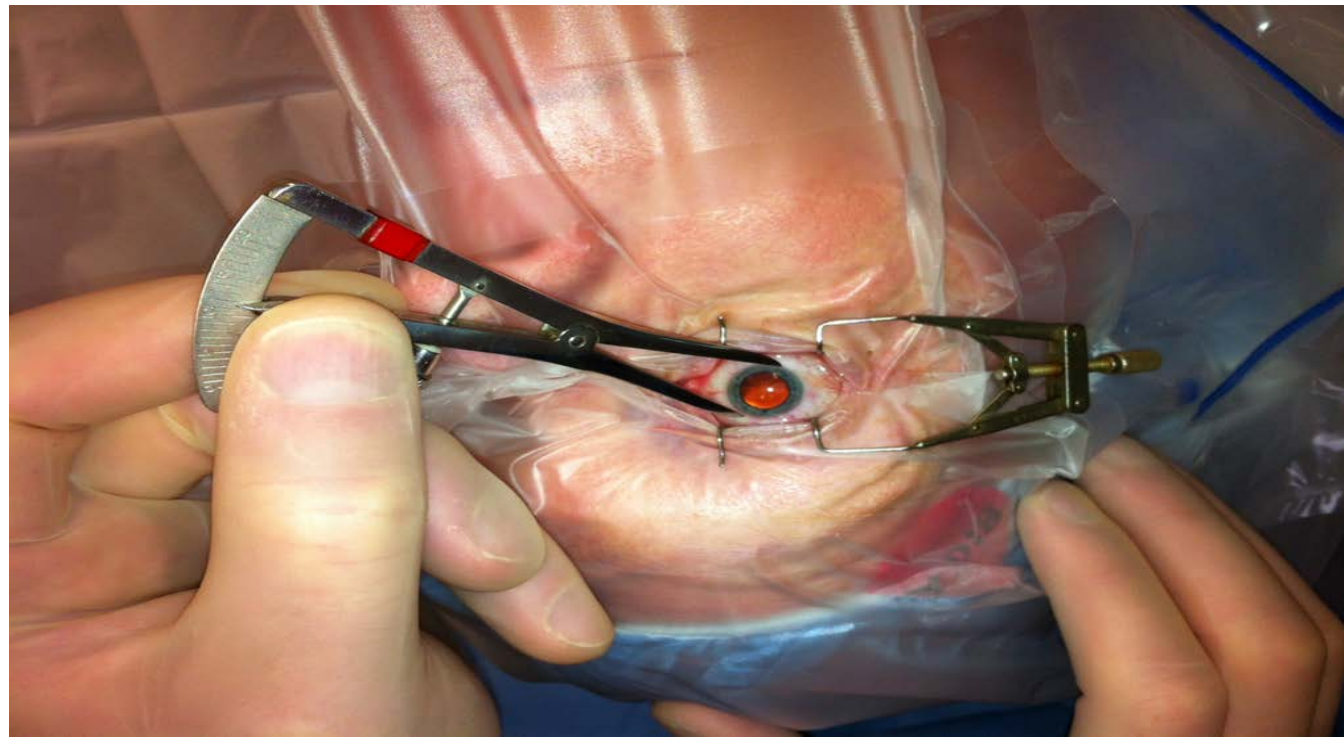
- 12.1 mm
- 12.6 mm
- 13.2 mm
- 13.7 mm

MICL12.6 -10.5 D
1.0 mm compression



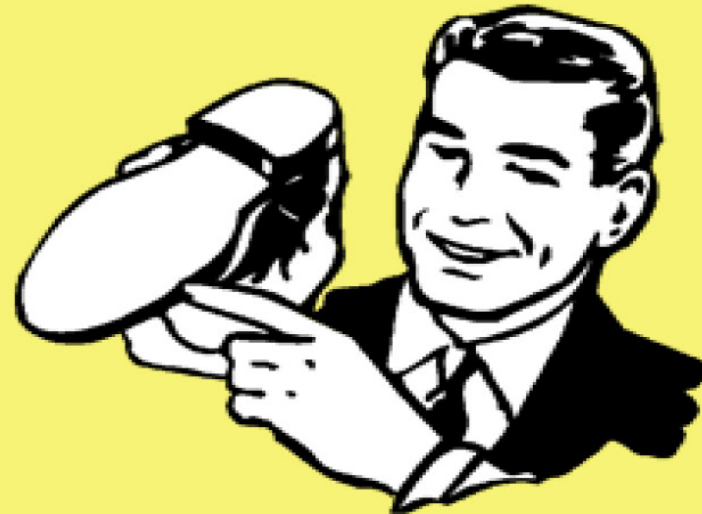
FDA: ICL Size Determination

- White to White measurement critical
 - use caliper
 - recline patient under microscope
 - IOL master w-w

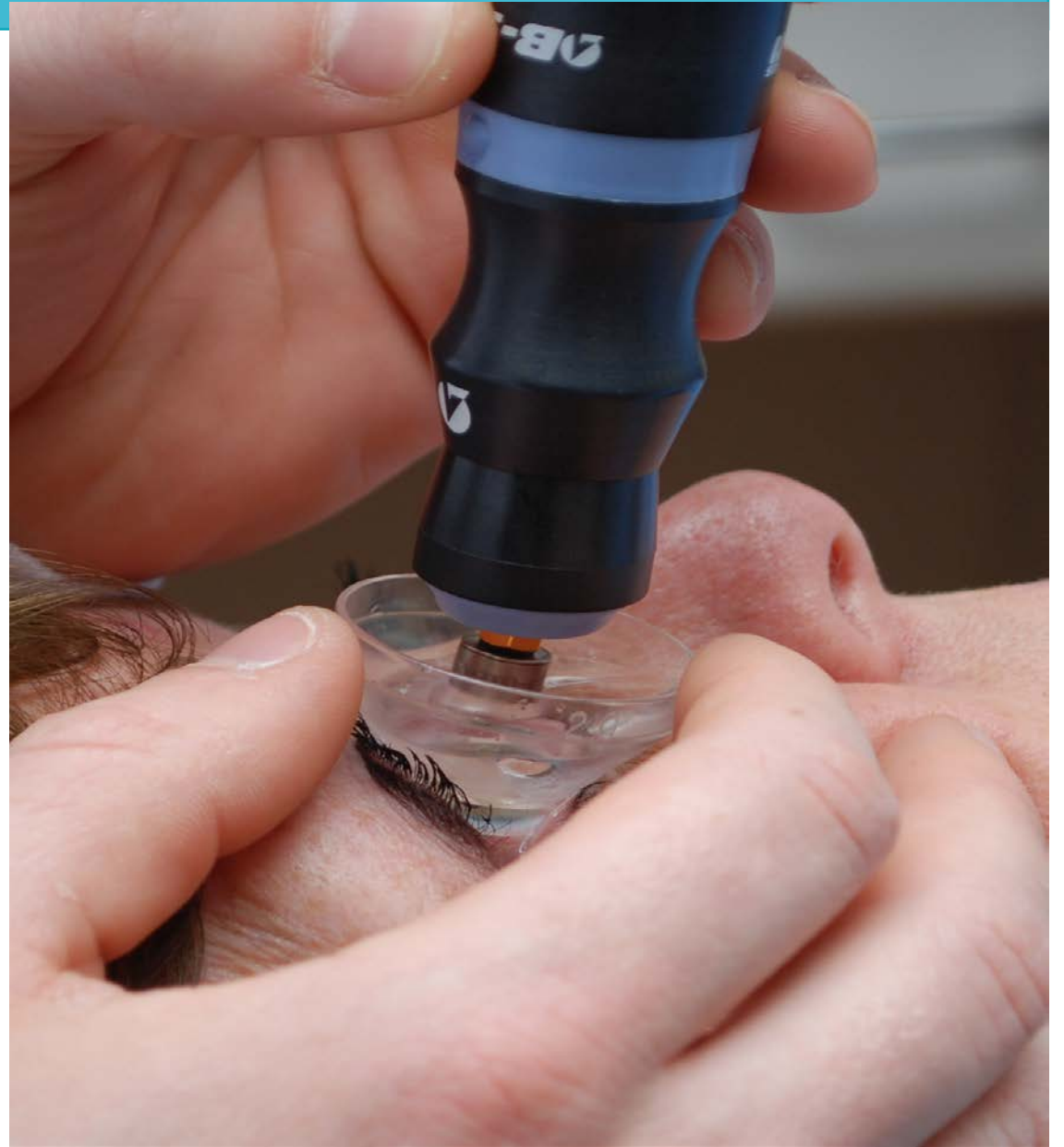


It has been said that using white-to-white to estimate sulcus diameter would be approximately as accurate as using a man's shoe size

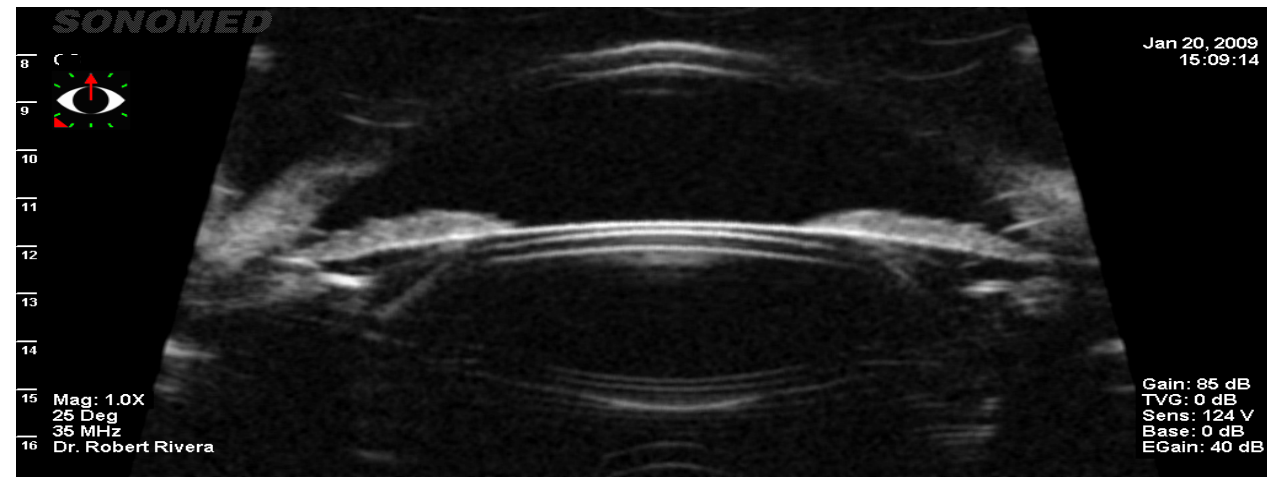
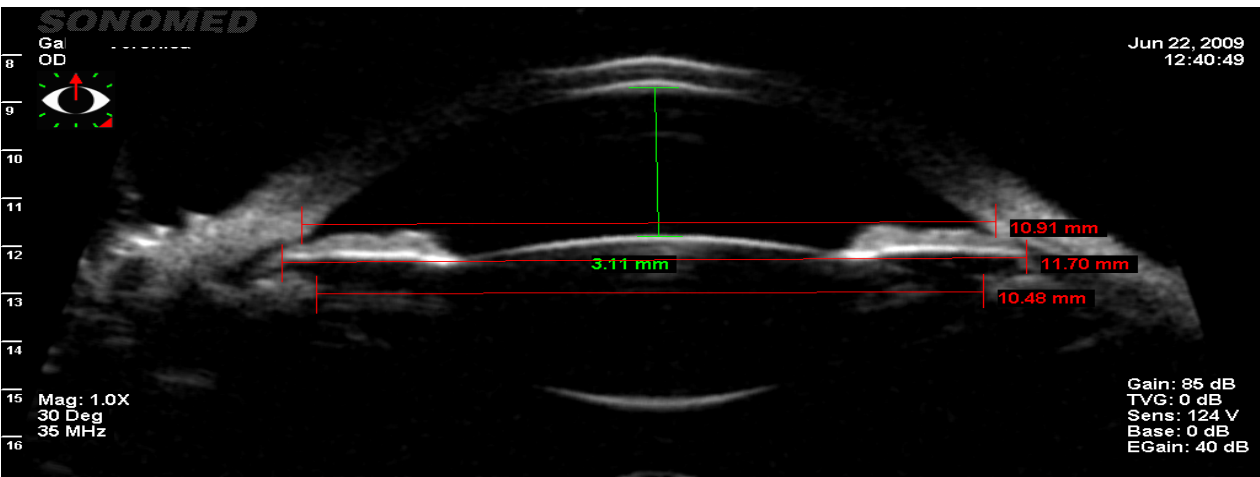
You know what they say about a man with big feet!



UBM – ICL sizing



Refractive – ICL Sizing - UBM



Lens Rise

**740 Micron
Difference!**

Rise: 480 μ

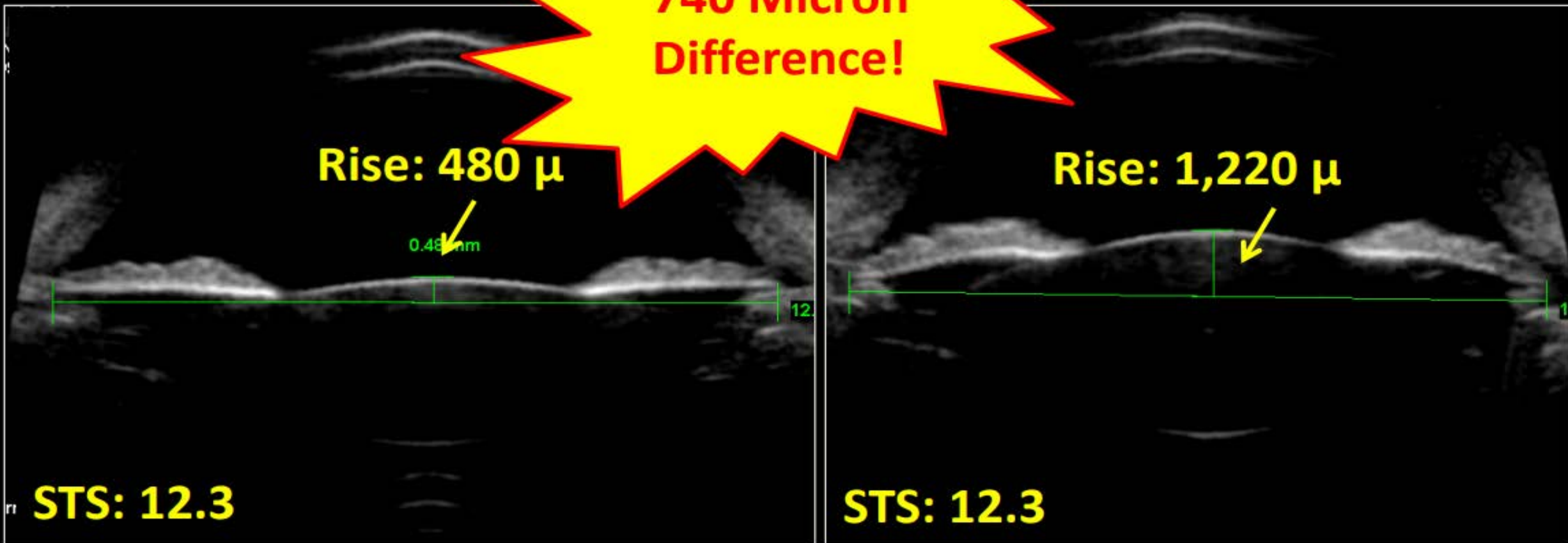
0.48 μ m

12.3

STS: 12.3

Rise: 1,220 μ

STS: 12.3



Measuring the Vault

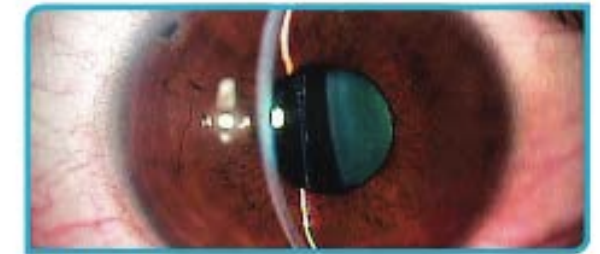
- Ideal = equal to the central corneal thickness,
- Range: between 50% and 150% of central corneal thickness, 250 to 900 microns. However, in the absence of symptoms, lens vault outside this range may not necessarily require exchange or removal.¹



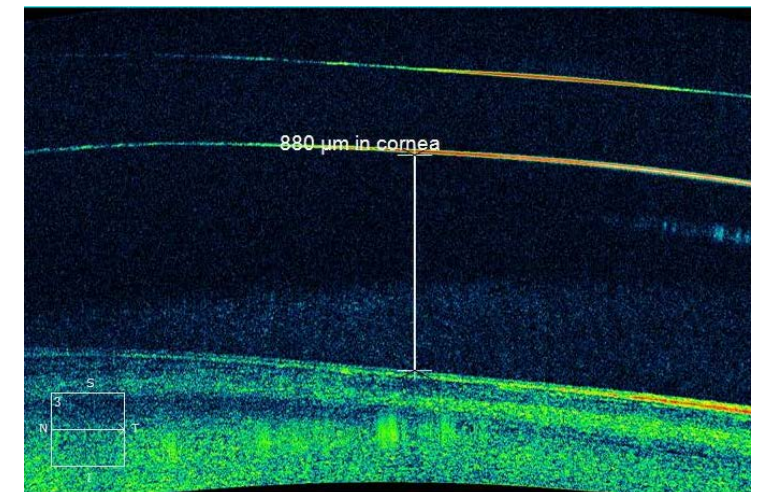
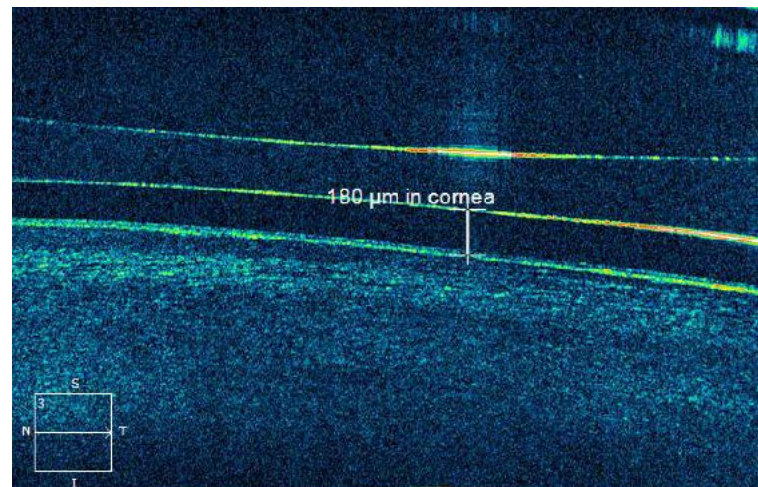
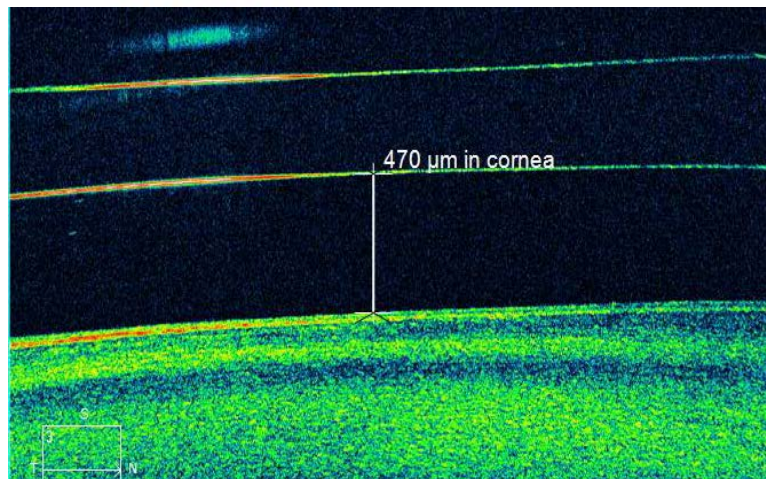
NORMAL VAULT



SHALLOW VAULT

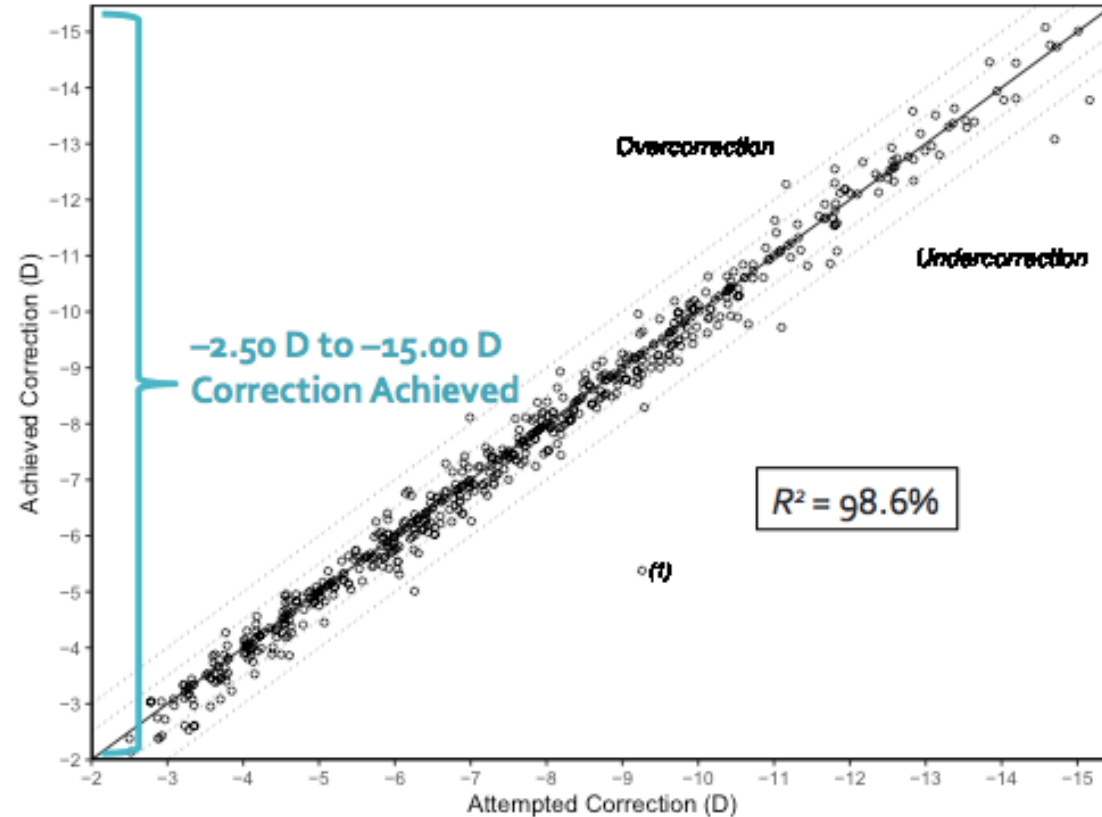


HIGH VAULT



EVO/EVO+ ICL FDA Study: Predictability and Accuracy

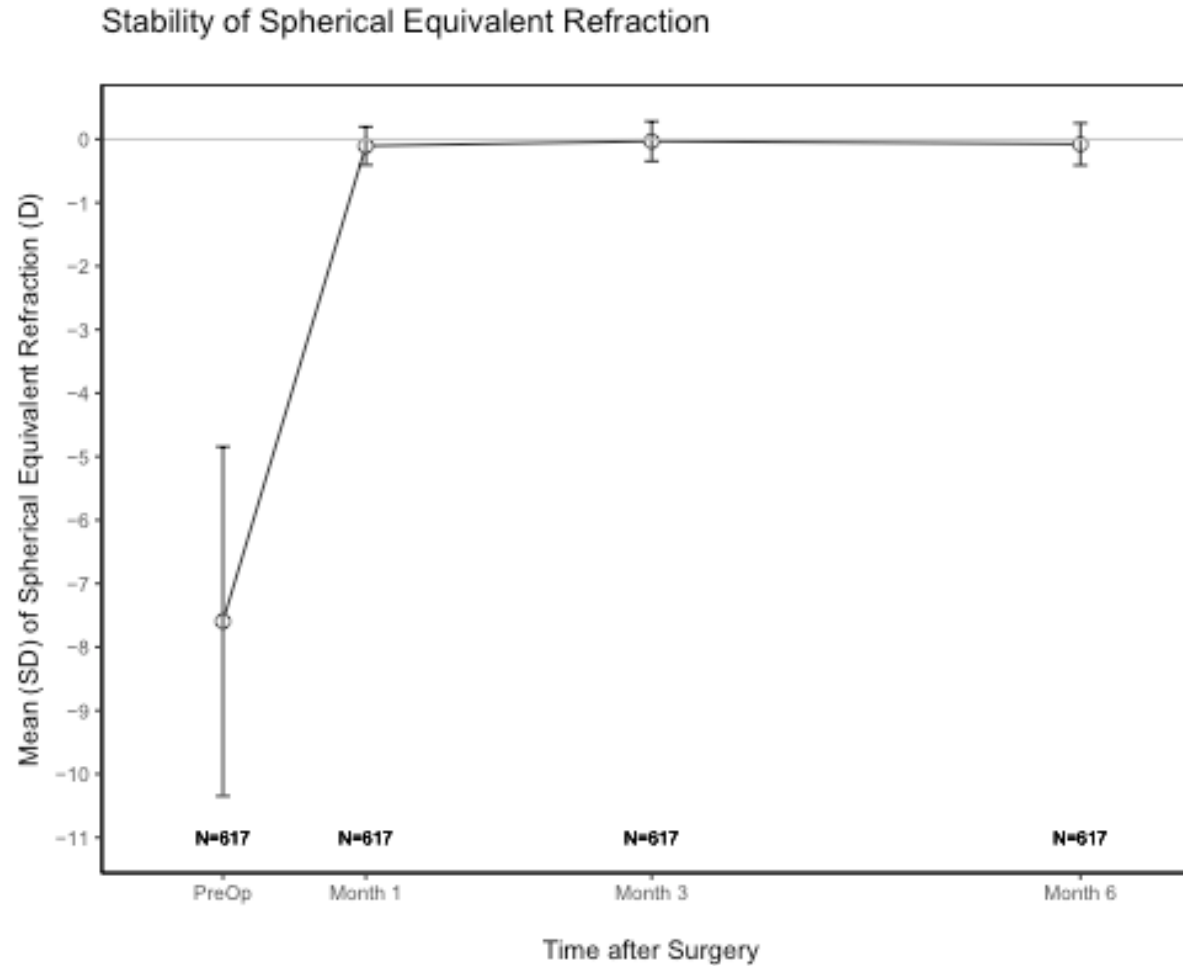
Spherical Equivalent Attempted vs Achieved Correction at Month 6 for 619 Eyes



(1) One eye experienced myopic shift due to nuclear sclerosis.

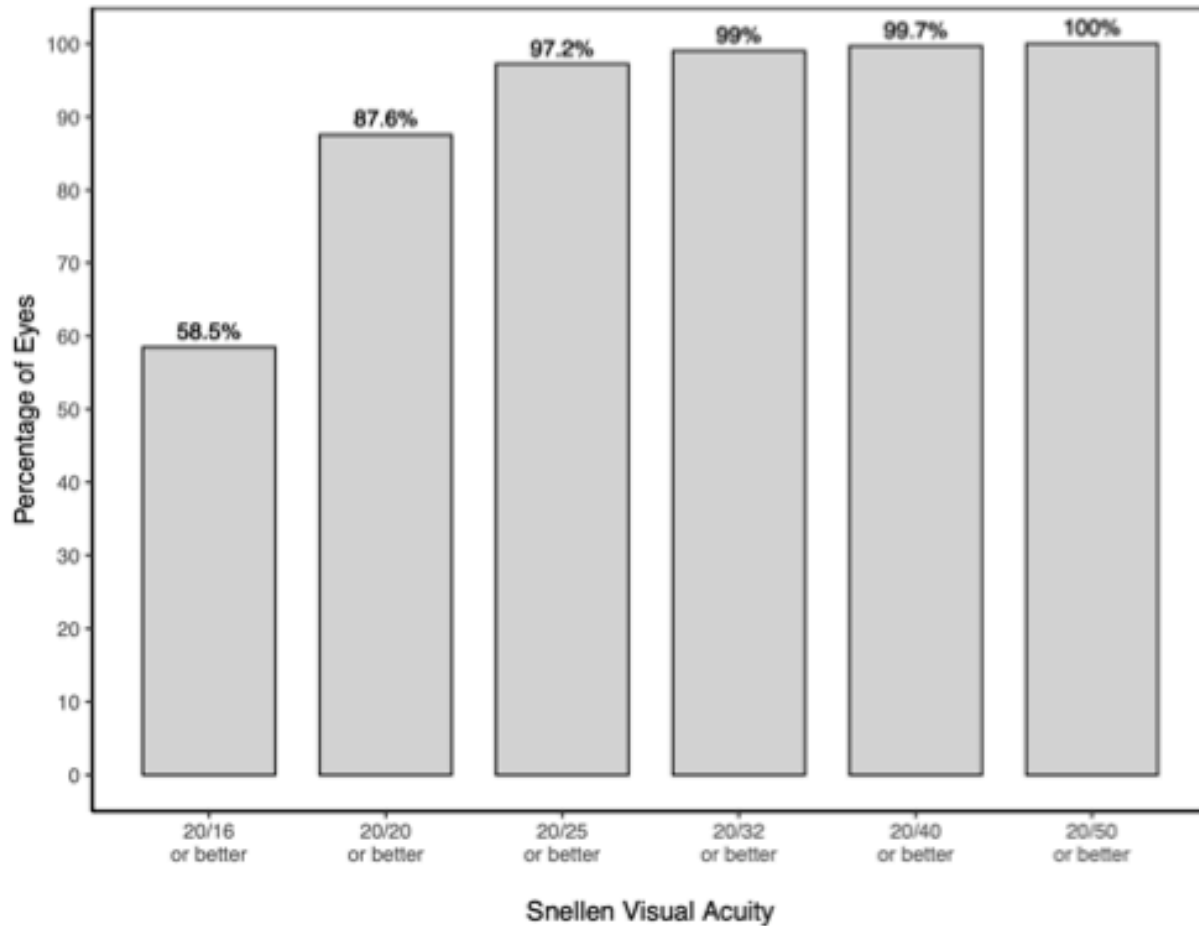
90.5% within ± 0.50 D / 98.9% within ± 1.00 D

EVO/EVO+ ICL FDA Study: Stability – 6 mos



EVO/EVO+ ICL FDA Study: Efficacy

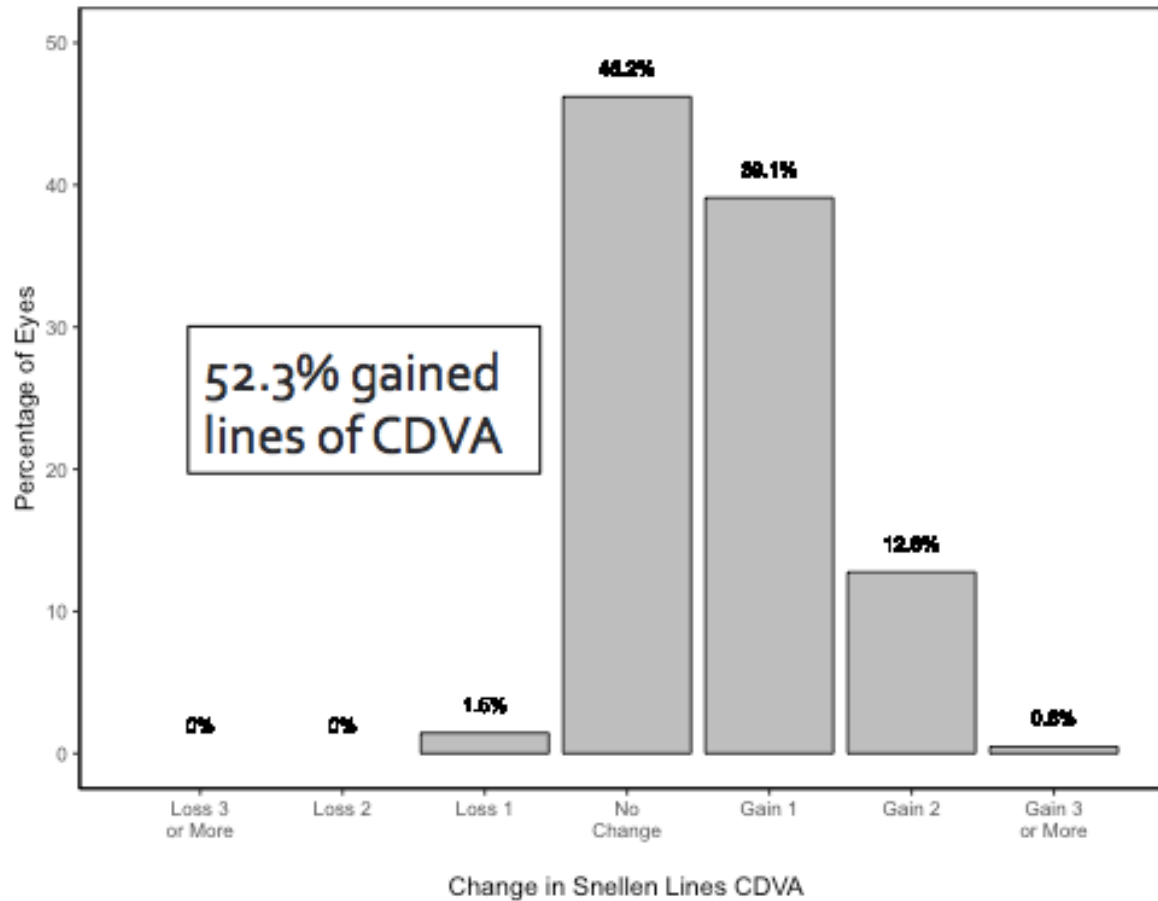
Uncorrected Visual Acuity at Month 6 for 619 Eyes



- Mean postoperative UDVA better than 20/20 at all time points
- Efficacy index at 6 months = 1.06

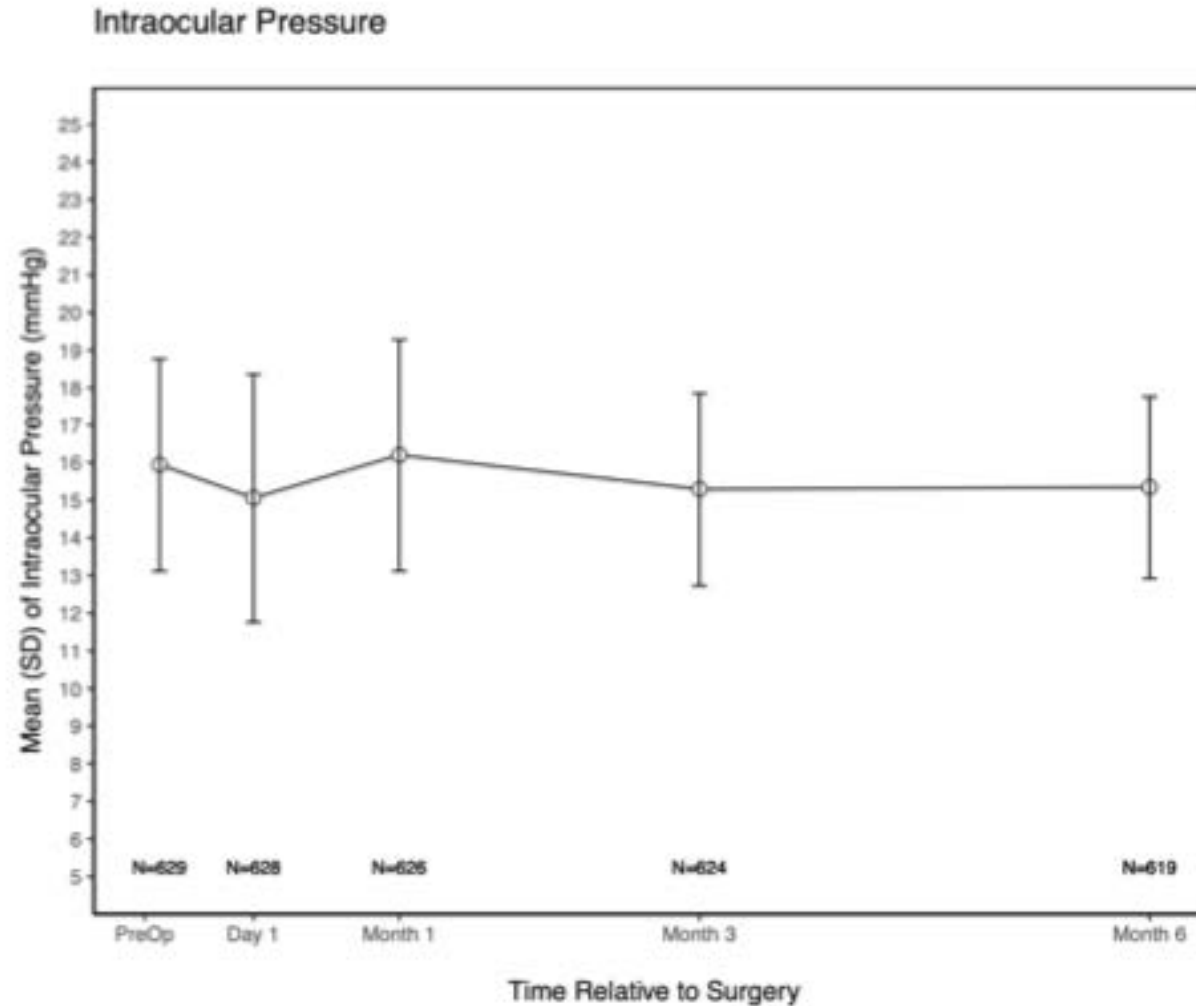
EVO/EVO+ ICL FDA Study: Safety

Change in Corrected Distance Visual Acuity at Month 6 for 619 Eyes



- 98.5% of eyes CDVA at 6 months equal to or better than preoperative CDVA
- No eye lost 2 or more lines of CDVA
- All eyes had CDVA 20/32 or better at 1, 3 and 6 months
- Safety index at 6 months = 1.24

EVO/EVO+ ICL FDA Study: Intraocular Pressure



EVO/EVO+ ICL FDA Study: Endothelial Cell Density

	Eyes	Follow Up	Endothelial Cell Loss
Published Literature¹	n = 1,476	14.7 months	2.6%
FDA Clinical Trial	n = 629	6 months	2.3%

1. Packer M. The Implantable Collamer Lens with a central port: review of the literature. Clinical Ophthalmology 2018;12 2427–2438.

Packer M. United States Multicenter Clinical Trial of a Posterior Chamber Phakic Implantable Lens with a Central Port for Myopia or Myopic Astigmatism. American Society of Cataract and Refractive Surgery Annual Meeting. Washington DC, 24 April 2022.

EVO/EVO+ ICL FDA Study: Safety

	Eyes (n)	Follow Up	Safety Index	ASC Cataract	Pupillary Block	Pigment Dispersion
Published Literature ¹	n = 4,196	Up to 5 years	1.15	0.00% (n = 0)	0.04% (n = 1) ²	0.00% (n = 0)
FDA Clinical Trial	n = 629	6 months	1.24	0.00% (n = 0)	0.00% (n = 0)	0.00% (n = 0)

1. Packer M. The Implantable Collamer Lens with a central port: review of the literature. Clinical Ophthalmology 2018;12:2427–2438.

2. Due to retained viscoelastic.

Packer M. United States Multicenter Clinical Trial of a Posterior Chamber Phakic Implantable Lens with a Central Port for Myopia or Myopic Astigmatism. American Society of Cataract and Refractive Surgery Annual Meeting. Washington DC, 24 April 2022.

EVO/EVO+ ICL FDA Study: Adverse Events

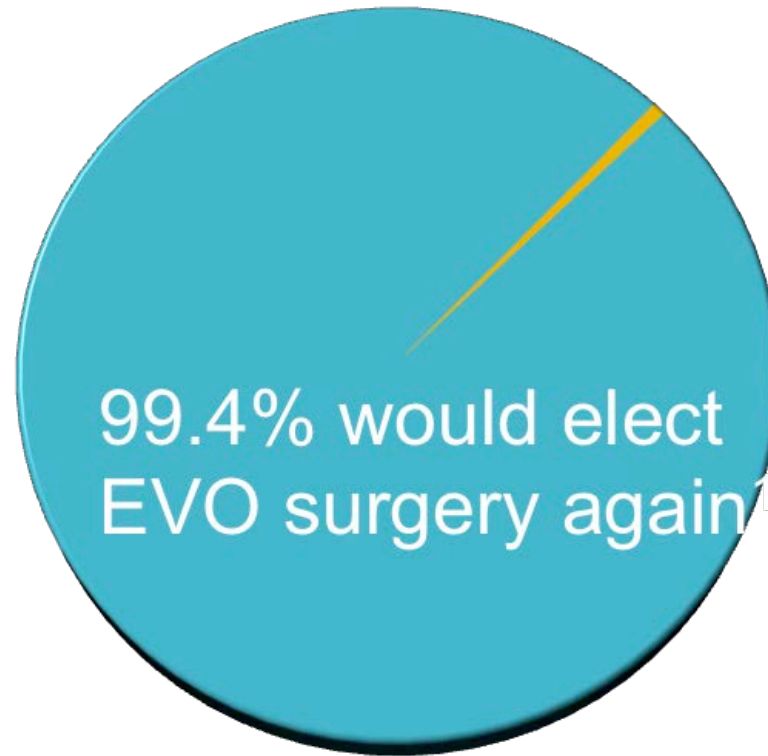
- Adverse events related to vault occur at very low rates
- No instances of anterior subcapsular cataract, pupillary block, angle closure glaucoma or pigment dispersion

	Eyes (n = 629)	Outcome
Angle Narrowing	2 (0.3%)	<ul style="list-style-type: none">• No increased IOP• Both lenses exchanged• Both UDVA 20/16
Residual Astigmatism	1 (0.2%)	<ul style="list-style-type: none">• Lens repositioned• UDVA 20/16
Halo/Glare	1 (0.2%)	<ul style="list-style-type: none">• Lens explanted• CDVA 20/16

EVO ICL: Postoperative Assessment (COMANAGEMENT)

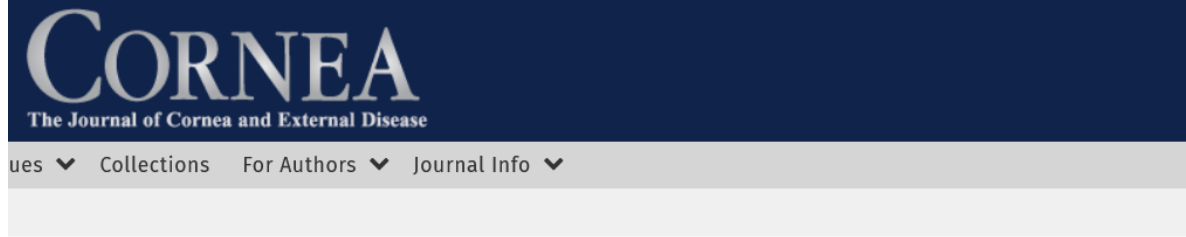
- Postoperative 1 day, 7 day and beyond
- Visual acuity
- Intraocular pressure
- ICL vault (over crystalline lens)
- EVO centration – Inflammation

EVO Patient Satisfaction



1,542 patients surveyed.
Patient Survey. STAAR Surgical ICL Data Registry, 2018.

ICL vs LASIK



CLINICAL SCIENCE

Comparison of Implantable Collamer Lens (ICL) and Laser-assisted In Situ Keratomileusis (LASIK) for Low Myopia

Sanders, Donald MD, PhD[†]; Vukich, John A MD[†]

[Author Information](#) 

Cornea 25(10):p 1139-1146, December 2006. | DOI: 10.1097/ICO.0b013e31802cbf3c

[Comparative Study](#) > [J Refract Surg.](#) 2007 Jun;23(6):537-53.

doi: 10.3928/1081-597X-20070601-02.

Matched population comparison of the Visian Implantable Collamer Lens and standard LASIK for myopia of -3.00 to -7.88 diopters

[Donald R Sanders](#) ¹

EVO VIVA: Presbyopia Beyond 2023

- Next generation
- EDOF ICL / Presbyopia
- 2020 Spain/Belgium Clinical trial
- 35 pts -0.5D to -18D
- 41-59 (ave 49)
- 91.2% binocular UCVA 20/32 or better all testing distances
- 97% 20/25 or better UCNVA

Clinical Trial > Clin Ophthalmol. 2020 Sep 18;14:2717-2730. doi: 10.2147/OPHTH.S271858.
eCollection 2020.

Performance and Safety of the Extended Depth of Focus Implantable Collamer[®] Lens (EDOF ICL) in Phakic Subjects with Presbyopia

Mark Packer¹, Jose F Alfonso², Jaime Aramberri³, Daniel Elies⁴, Joaquin Fernandez⁵, Erik Mertens⁶

Best candidates for EVO?

- -2.50 to -20.0
- up to 4 D cylinder

ICL EVO: Barriers?

- Few surgeons perform - delicate
- more expensive \$\$\$ than LASIK



ICL – RX's available internationally (NOT USA)

- -3.00+6 x 90 (mixed astigmatism)
- +3.0 to +10.0

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[Cornea Transplant Surgery](#)

[Keratoconus](#)

[Cornea Cross Linking \(CXL\)](#)

[Other Services](#) ▸

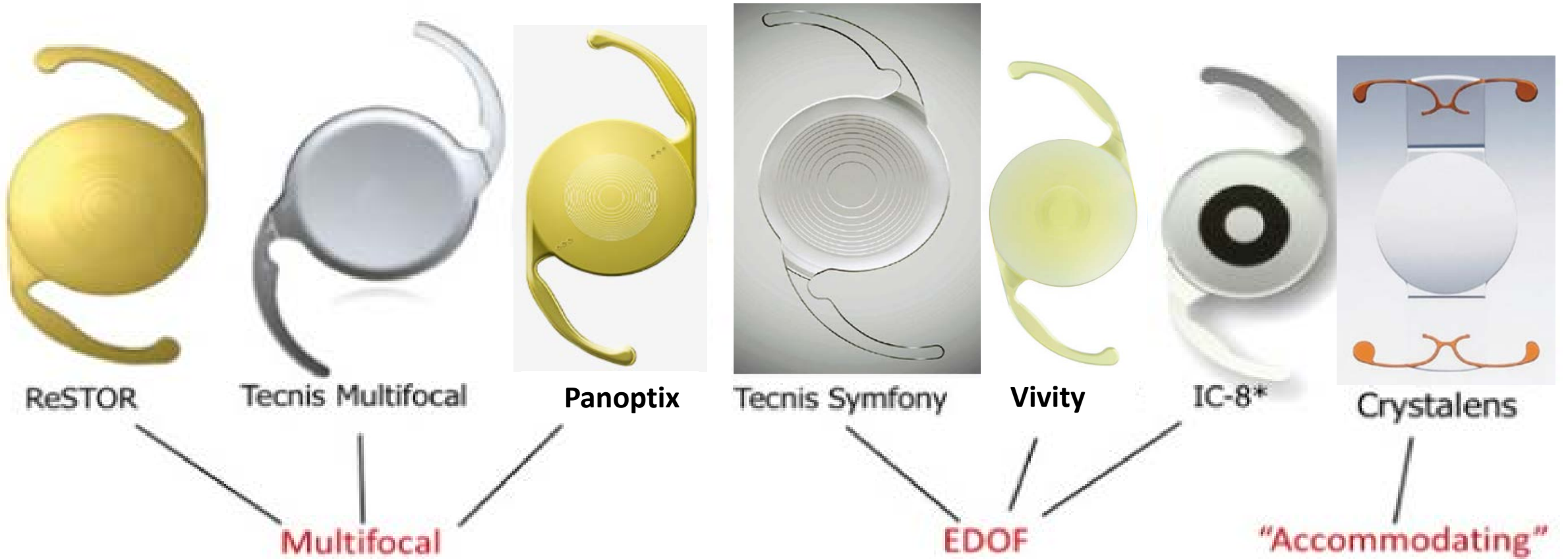
[Understanding the Eye](#) ▸

[Doctors Only](#)

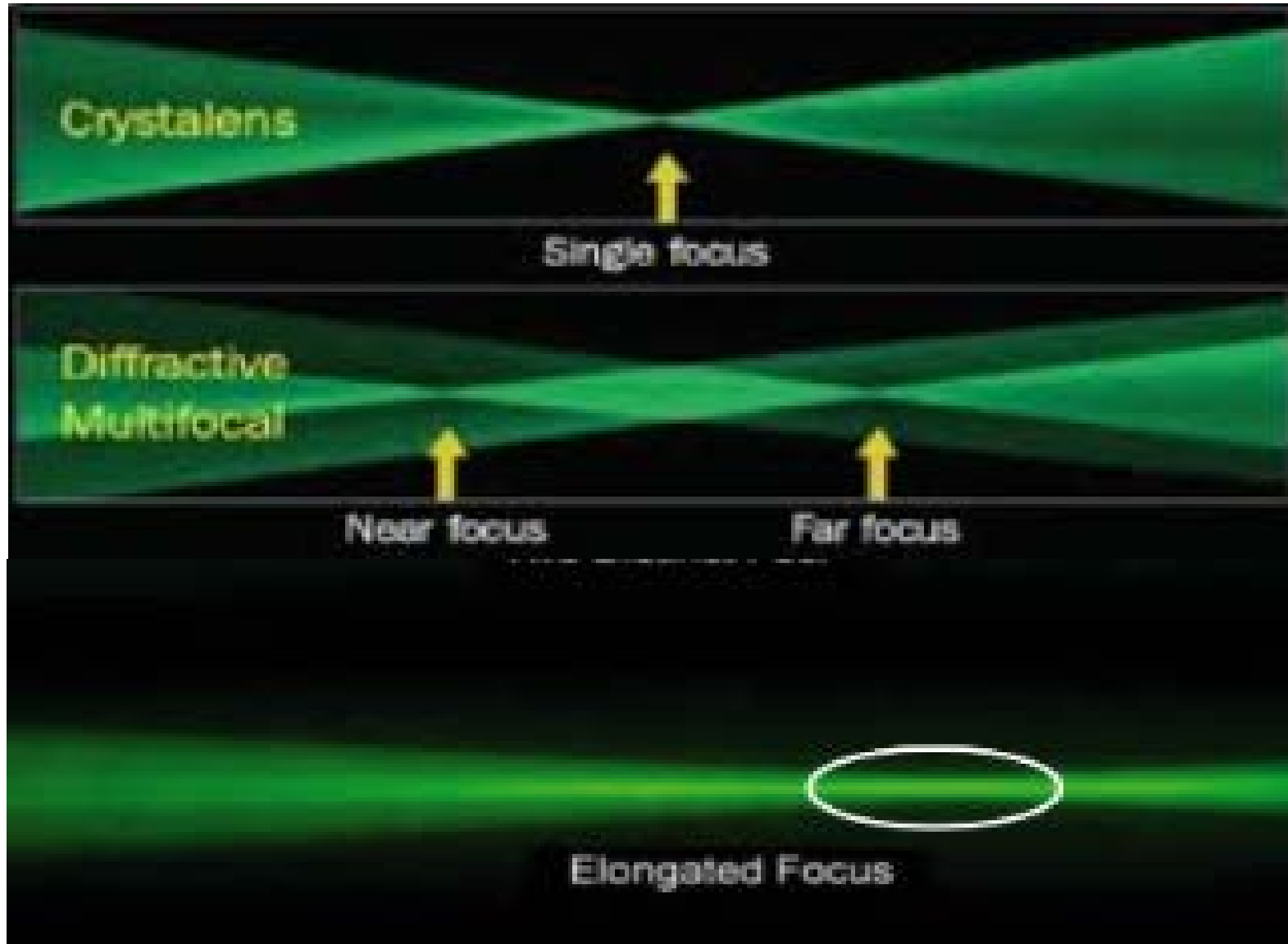


**We strive to offer the best
eye care services in Columbus, Ohio!**

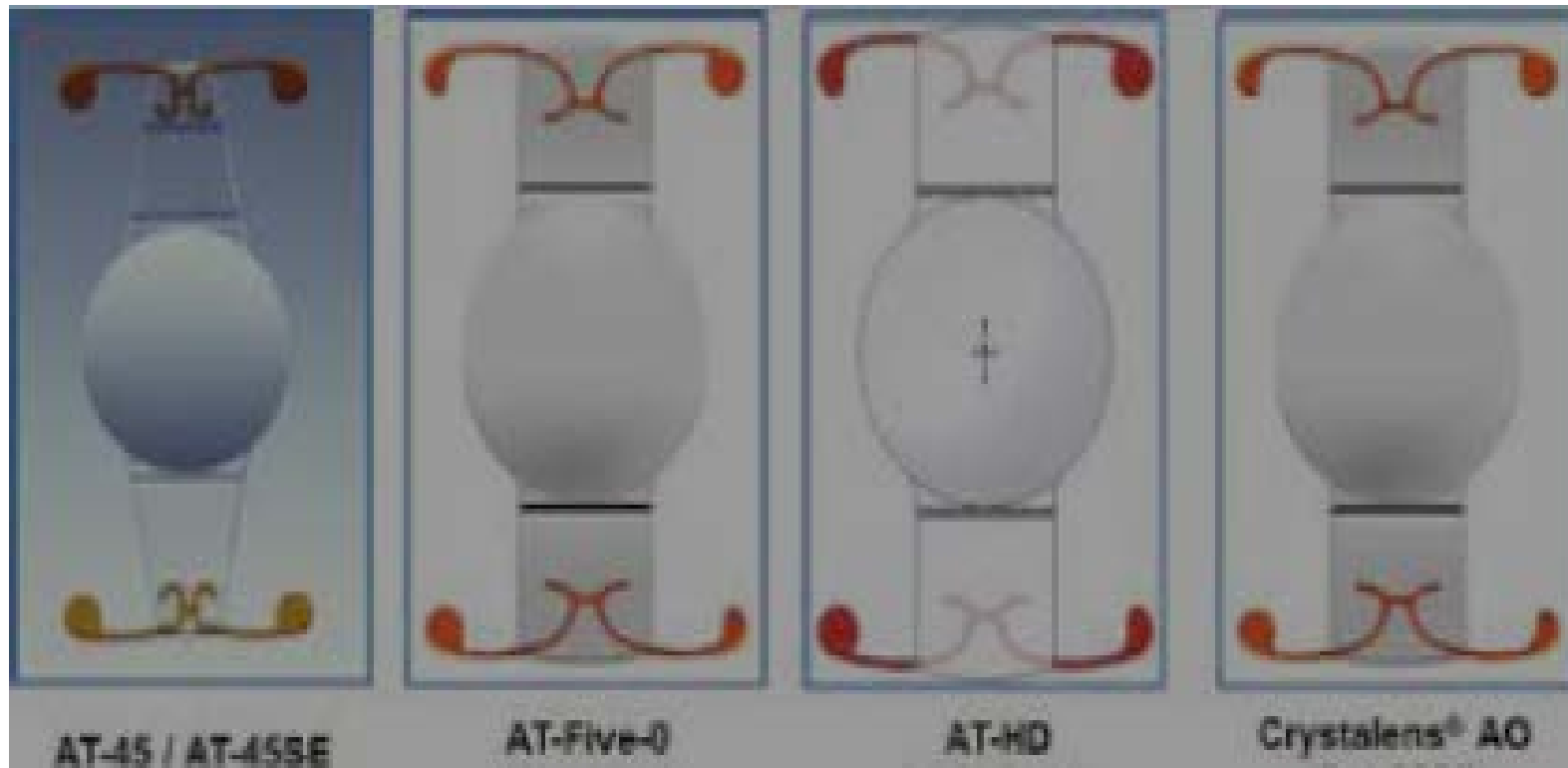
"Lifestyle" IOL's



Crystalens – monofocal + hinge



Crystalens: Versions: spherical / toric



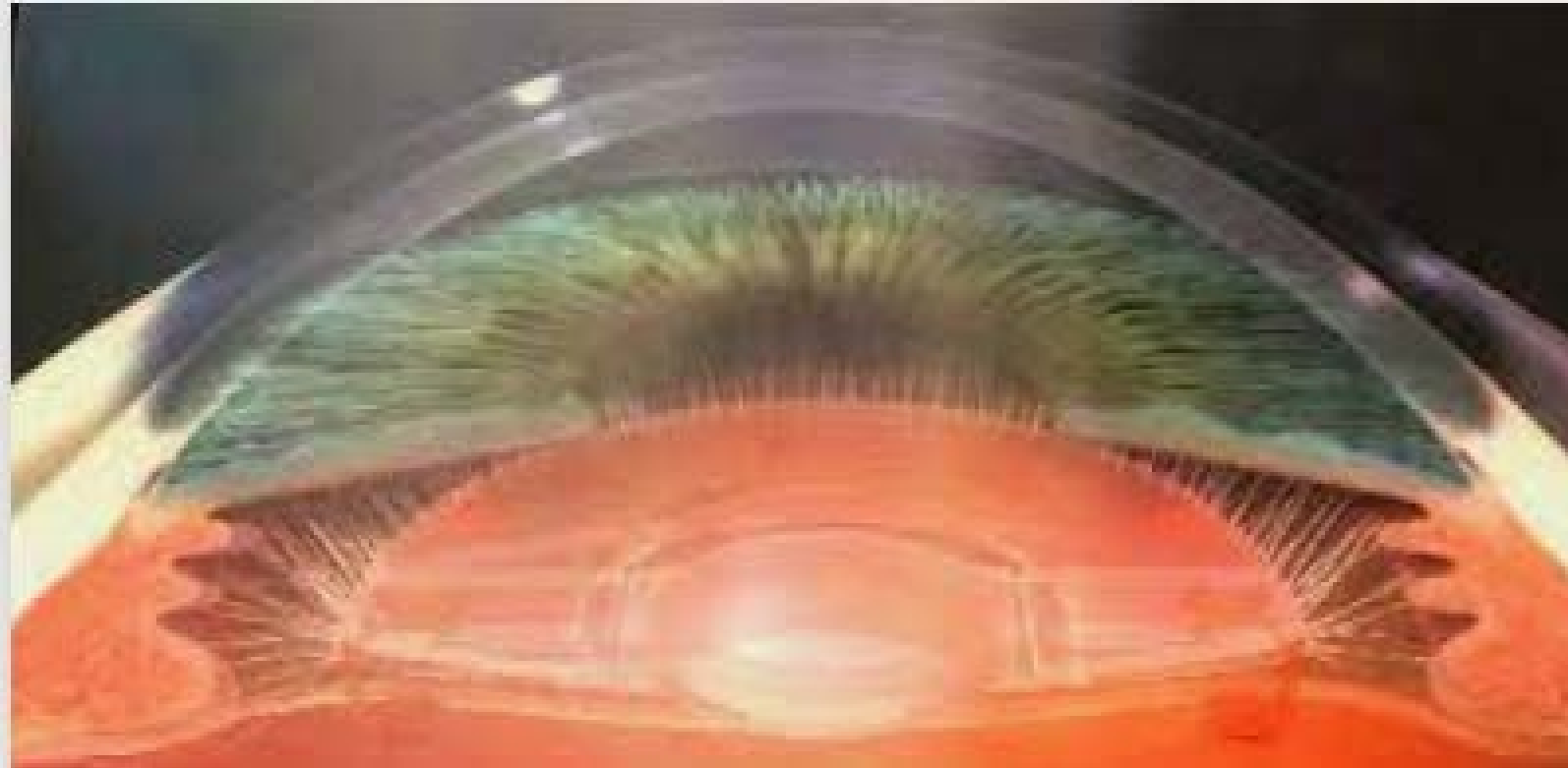
2003

2006

2008

2009

Crystalens: 2 of 3 working distances w/o glare!

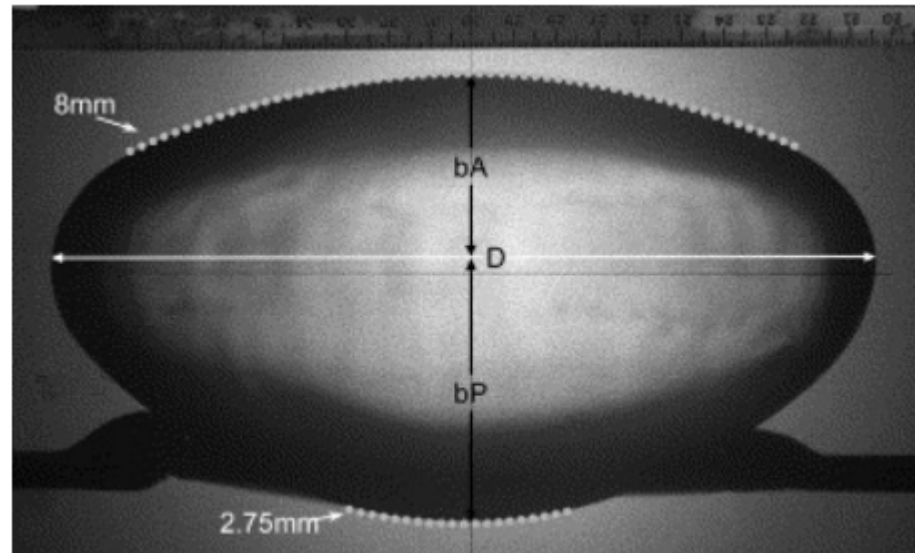


Crystalens – “Z” or “U” syndrome



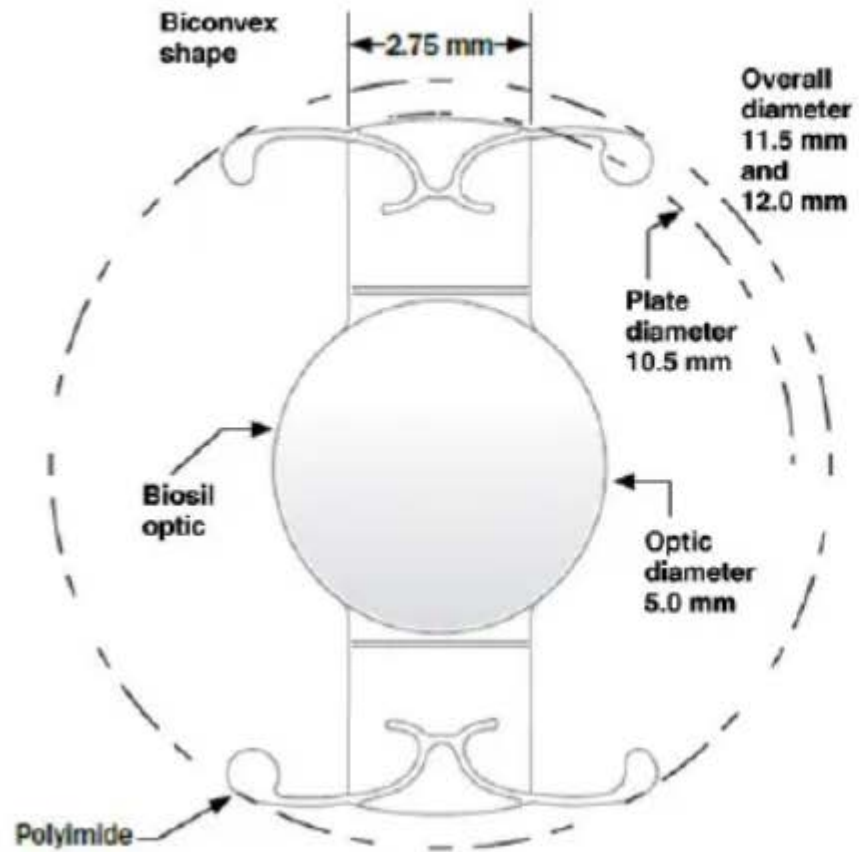
Crystallens – sizing

- lens equatorial diameter increases from around 8.8 mm (age 20) to 10.2 mm (age 99)

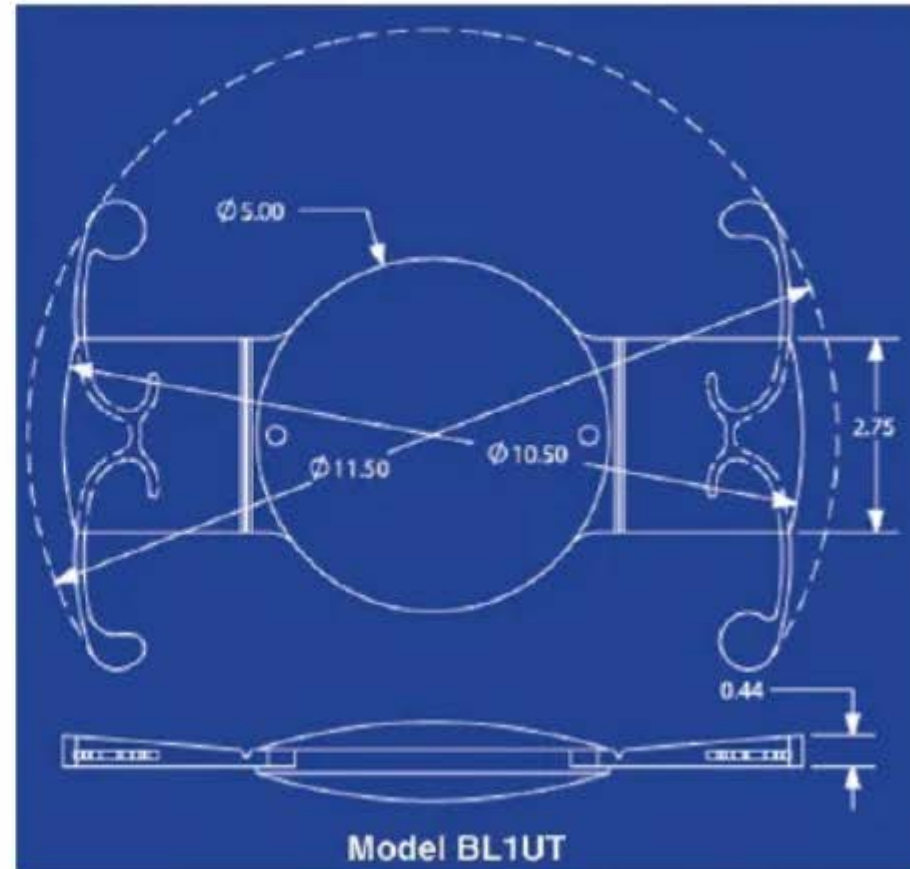


Crystalens – sizing 11.5 / 12.0

Crystalens AT50AO & AT52AO

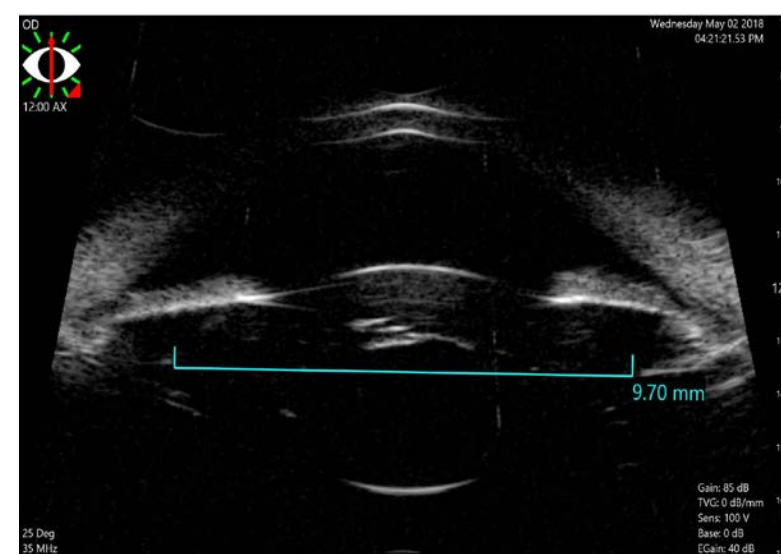
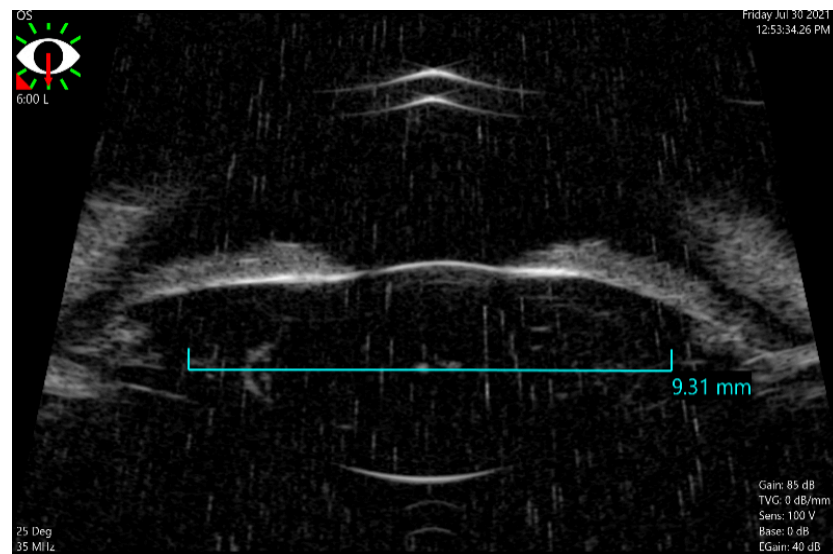
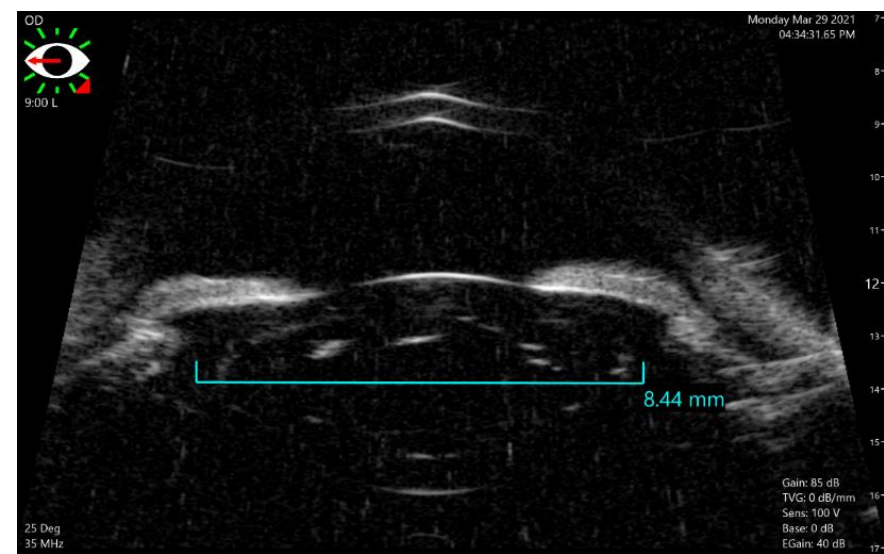


Trulign BL1UT



Crystalens – sizing NO “U” or “Z” syndromes in 10yrs!

- 9.2 mm or >



Future: Accommodative IOL's / full amplitude!

- Not light “splitting”!
- “Seeing (clearly) is believing!”

What's Best? LASIK? ICL? Crystalens / Symfony/ LAL?

