

When to consider a Refractive Enhancement

Vance



Financial Disclosures

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AI Optics: Equity Owner

Allotex: Consultant/Advisor/Equity Owner
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LayerBio: Consultant/Equity Owner

LensAr: Consultant/Equity Owner

Lightfield Medical: Consultant/Equity Owner

Medevise: Consultant/Equity Owner

Melt Pharmaceuticals: Consultant/Equity Owner/Research

Nanodrops: Consultant/Equity Owner

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Ocular Therapeutix: Research

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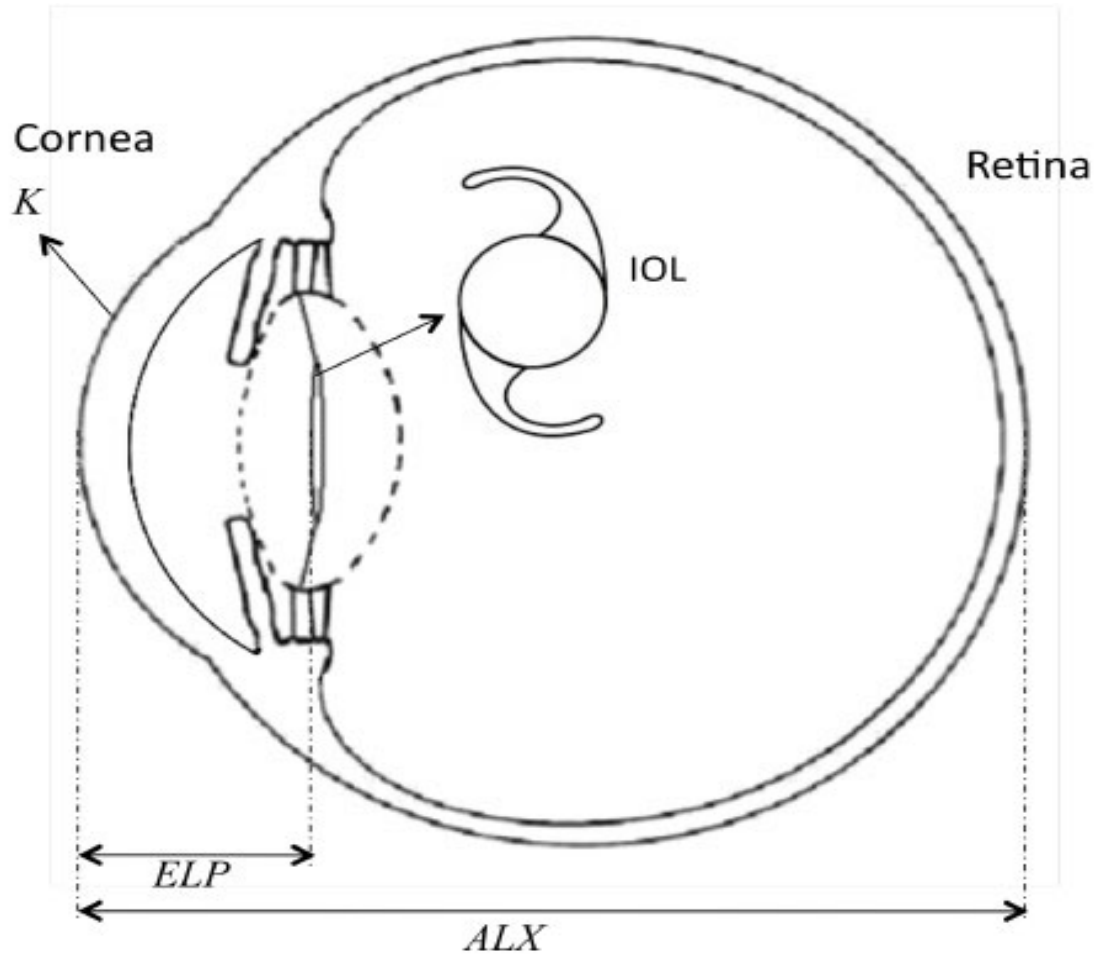
Trukera: Consultant

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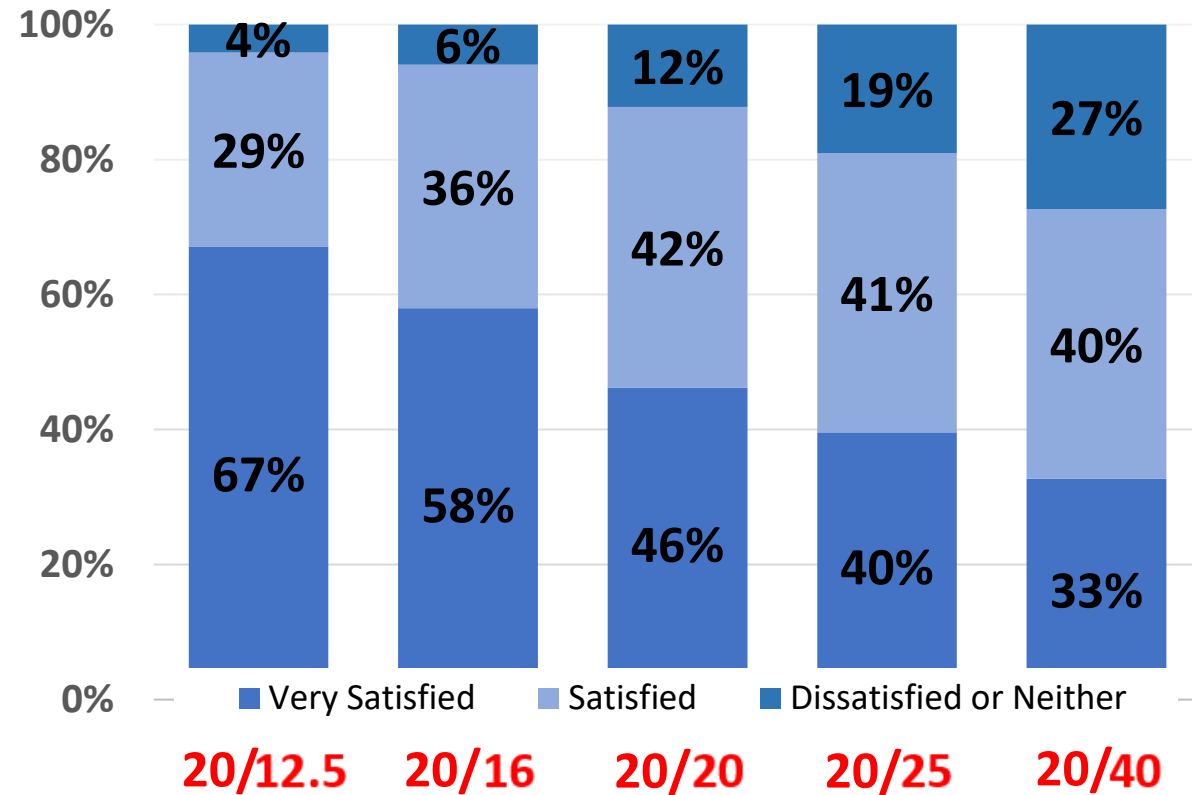
2EyesVision: Consultant/Equity Owner



Error Source	Contribution*
Post-op IOL Position	35%
Post-Op Corneal Power	15%
Axial Length	17%

* Norrby, S. Sources of error in intraocular lens power calculation. JCRS 2008: 368-76

Lessons from LASIK: UCVA Drives Satisfaction



• Schallhorn,

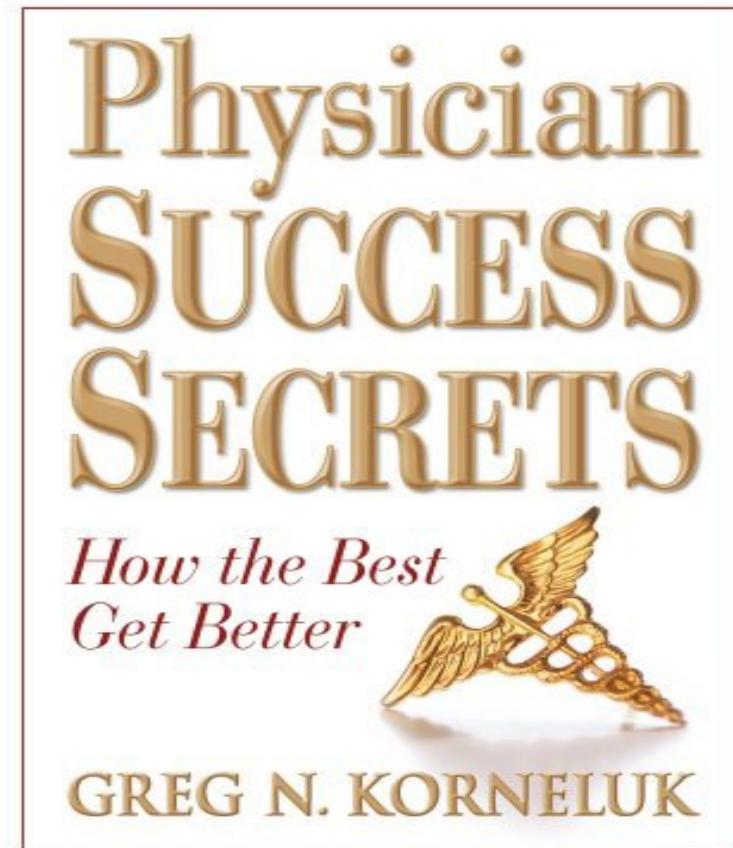


Don't Let It Get To This

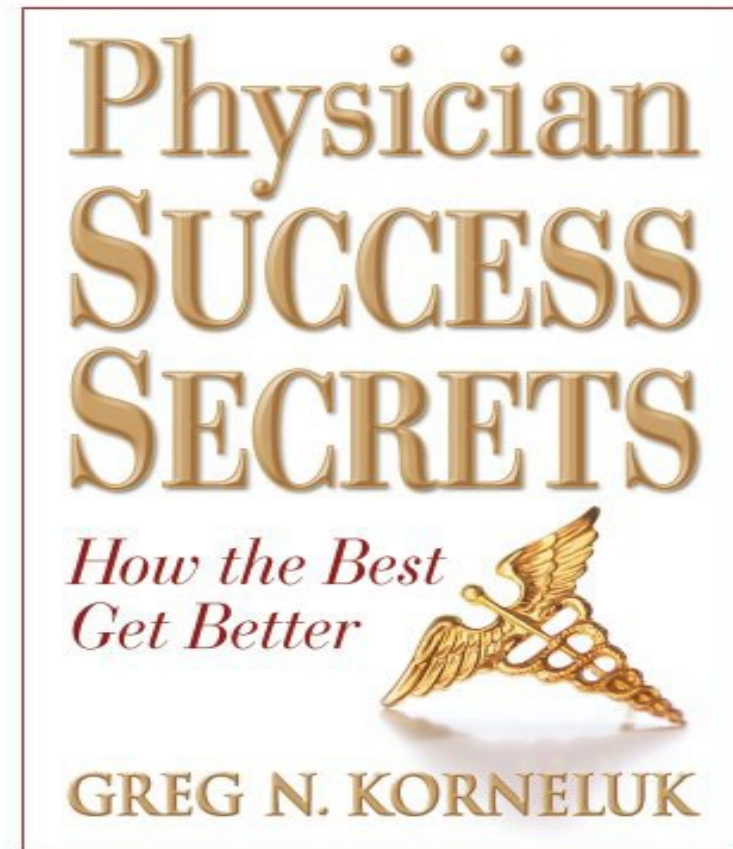
-
- Managing the Dissatisfied Refractive Surgery Patient



“50 – 80% of the information provided by the clinician is instantly forgotten. Of the balance of information that is remembered, only 50% is remembered correctly.”



“50 – 80% of the information provided by the clinician is *instantly* forgotten. Of the balance of information that is remembered, *only* 50% is remembered correctly.”



Prepare Preoperatively

- Their Eyes
- Their Mind



Mrx Tear Film+ Epithelium + Ant Stroma +Lens+ + Vitreous = Vision

pristine

regular

smooth

Lens density VS floaters?

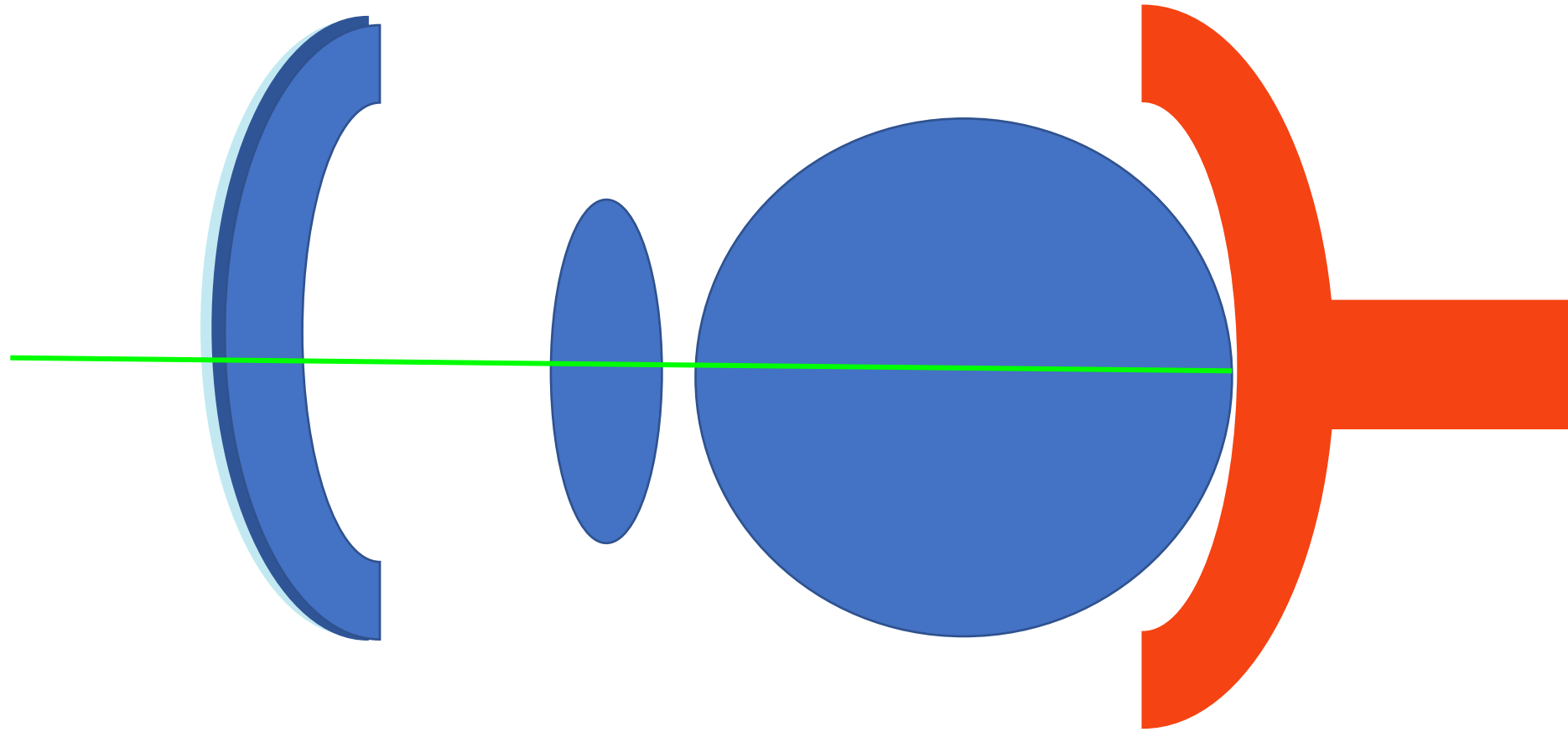
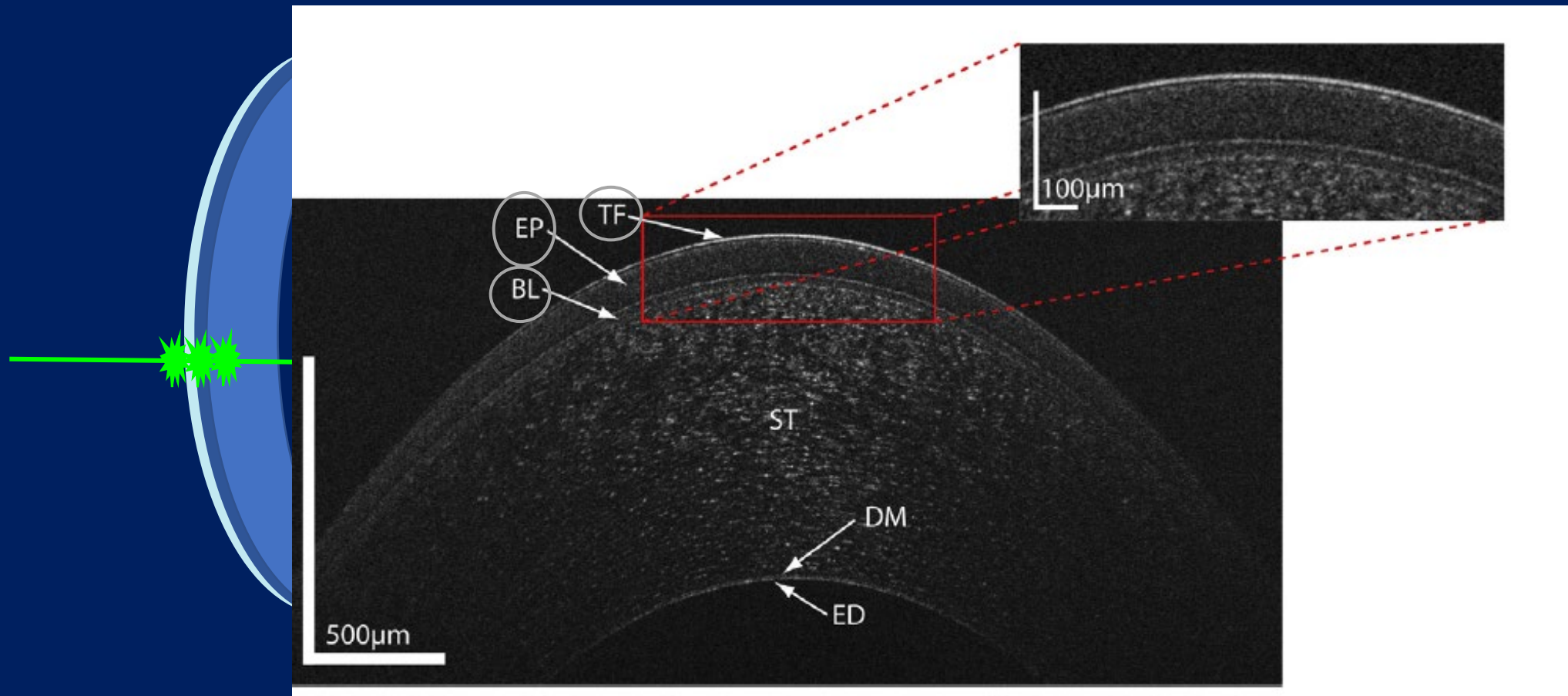
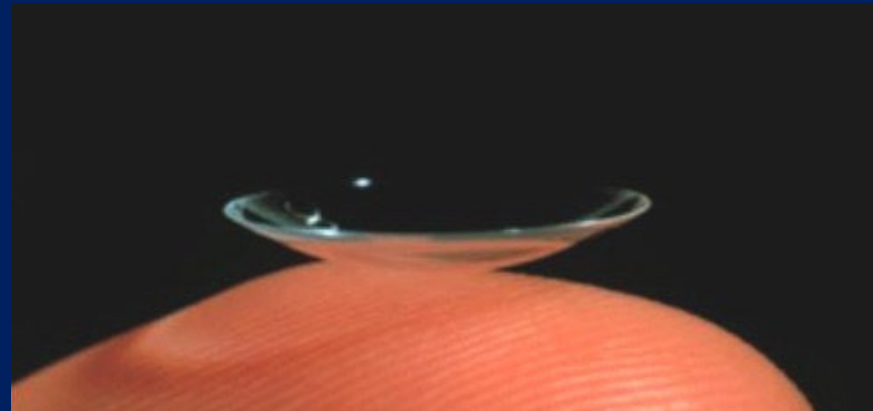
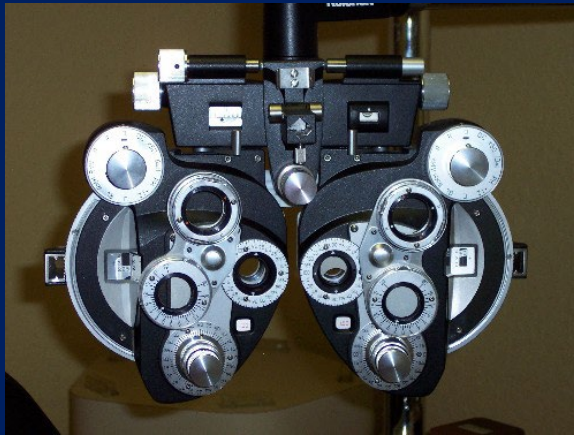


Image Quality Optimizing Checklist



Best Corrected Image Quality

- Phoropter
- Gas Permeable Contact Lens



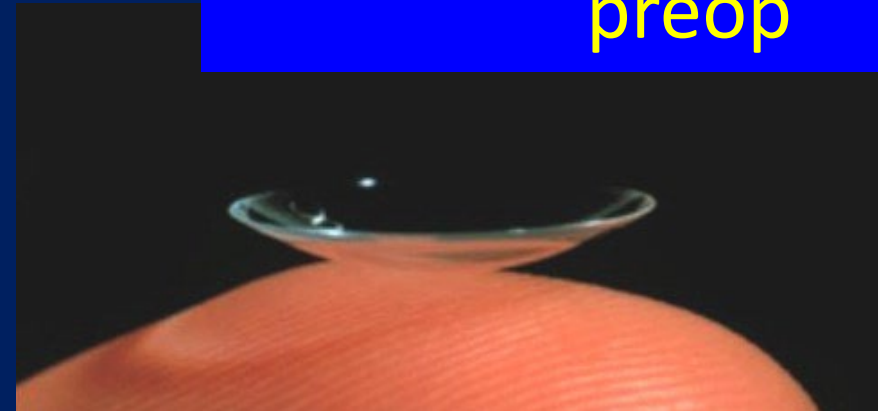
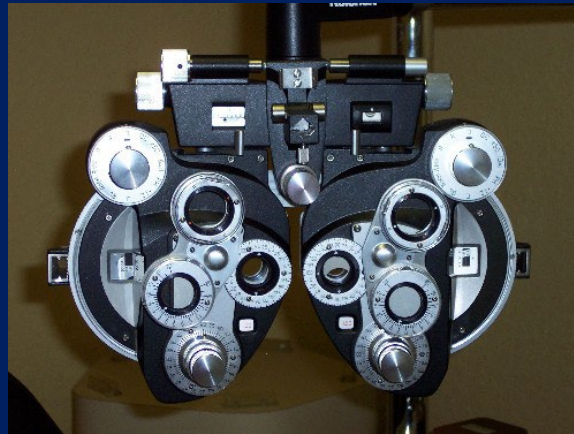
Best Corrected Image Quality

- Phoropter
- Gas Permeable Contact Lens

Irregularity

- Easy vs Difficult

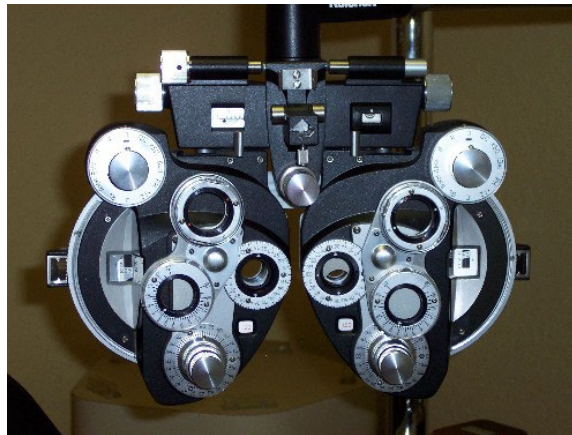
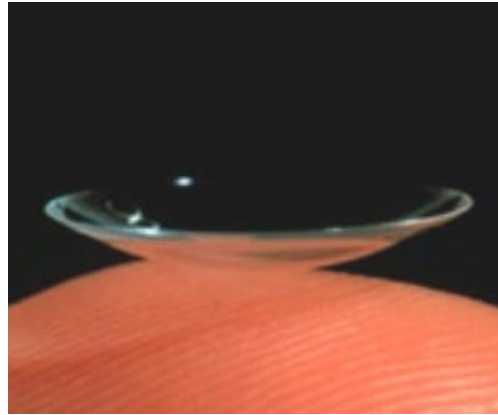
Want to find this out
preop





E
 F P
 T O Z
 L P E D
 P E C F D
 E D F C Z P
 FELOPZD
 DEFPOTEC
 LEFODPCT
 FDPLTCEO
 PEZOLCFTD

1 20/200
 2 20/100
 3 20/70
 4 20/50
 5 20/40
 6 20/30
 7 20/25
 8 20/20
 9
 10
 11



Surface:

- Tear film
- Epithelium
- Stroma (anterior)

E
 F P
 T O Z
 L P E D
 P E C F D
 E D F C Z P
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 11

Refractive Status Tear Film+ Epithelium + Ant Stroma + IOL + Posterior Capsule + Vitreous = Vision

plano pristine regular smooth centered normal tilt clear No VS floaters

Intraoperative

Visual Axis ID

- Refractive Capsulotomy
- IOL Centration

Posterior Capsule Pristine-ing

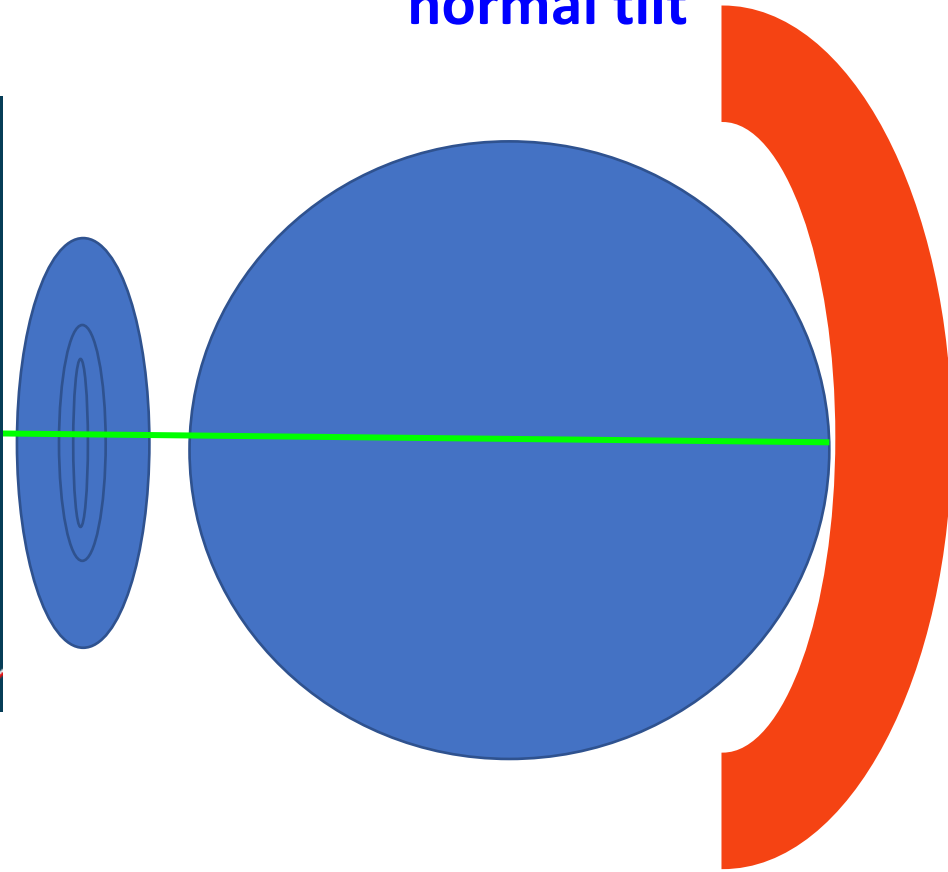
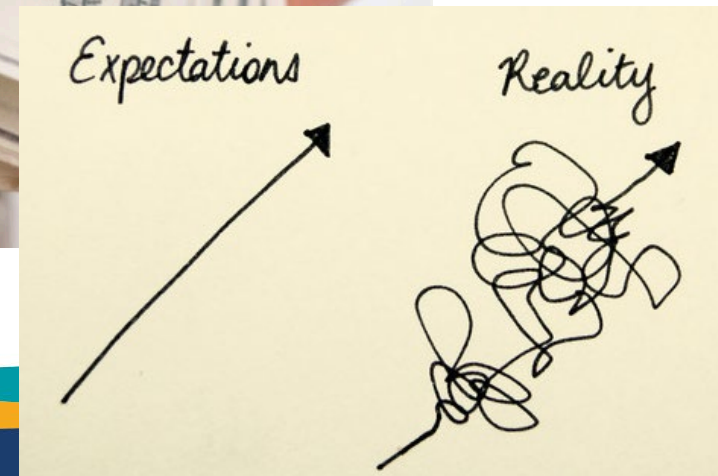


Image Quality Optimizing Checklist

Prepare Preoperatively

- Their Eyes
- Their Mind



**“One
Year
Journey”**

January		February		March	
<u>S</u>	<u>Preoperative</u>	<u>Intraoperative</u>	<u>Postoperative</u>	<u>F</u>	<u>S</u>
	Tear Film	Visual Axis ID	Tear Film		
	Epithelium	• Refractive Capsulotomy	Refractive Error		
	Anterior Stroma	• IOL Centration	PCO-Refractive YAG		
		Posterior Capsule Pristine-ing	Vitreous		

April		May		June																	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	

July		August		September																	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	

Neural Adaptation

October		November		December																	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	

“The first 6 months are spent optimizing your image quality”

“The second 6 months is your brain getting used to your new optical system”

Prepare Preoperatively

- Their Eyes
 - Their Mind
 - You and Your Team
- 

Be Confident in the Technology

- Modern day implants have an amazing patient satisfaction rate.

Understand Dysphotopsias

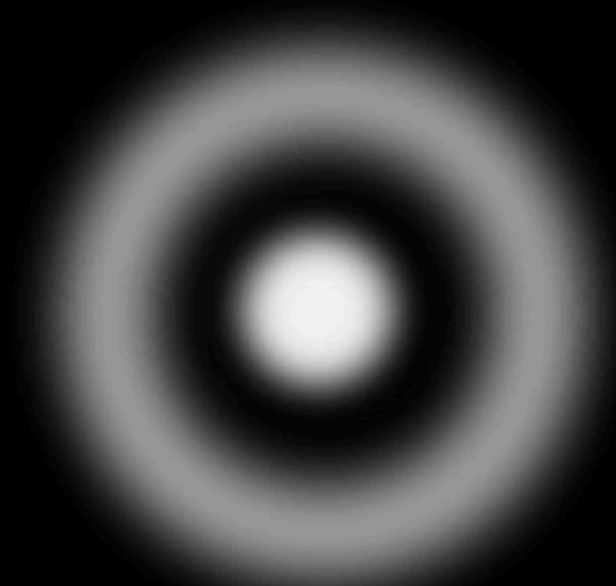




Light Source



Glare



Halo



Starburst

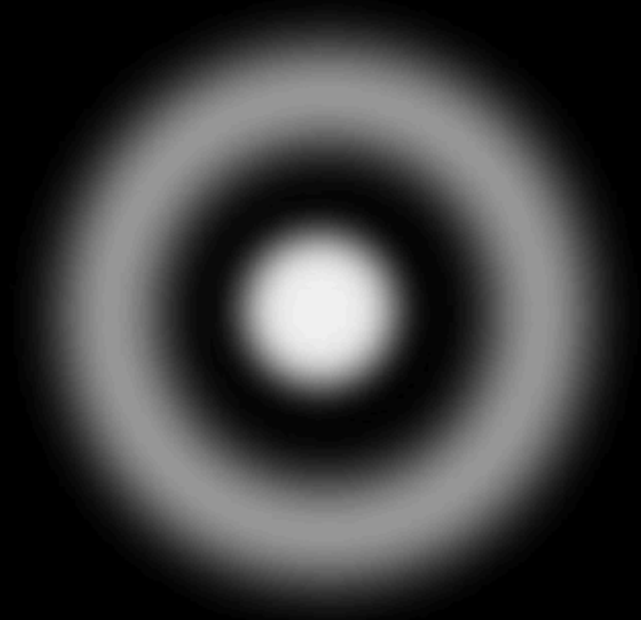


Light Source



Glare

“a blurring or smearing”



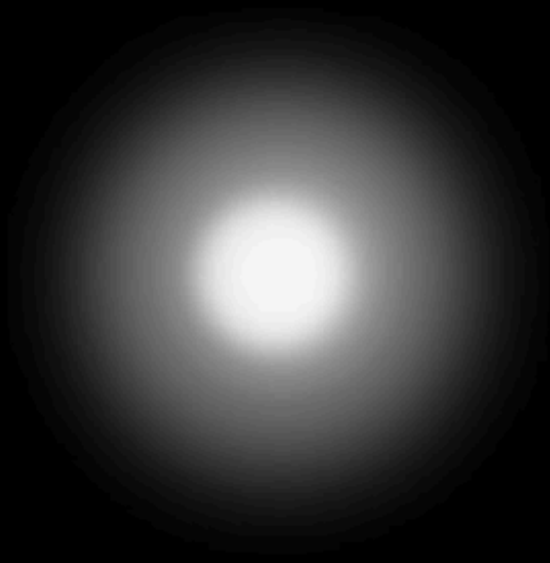
Halo



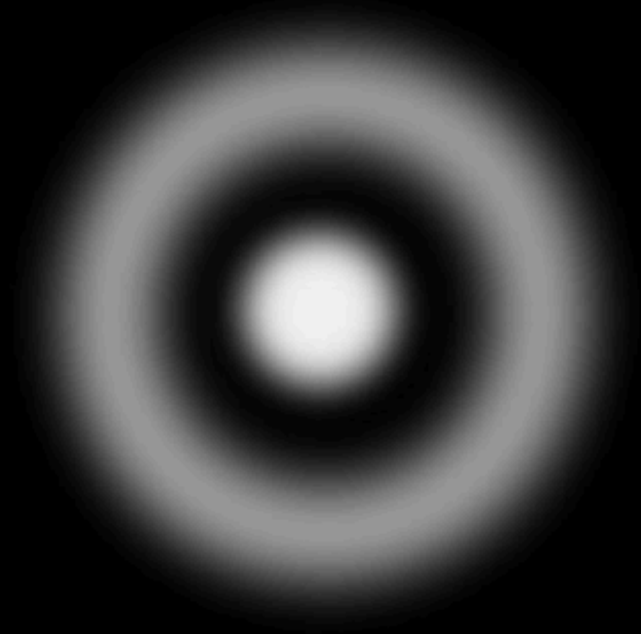
Starburst



Light Source



Glare



Halo

"distinct rings"



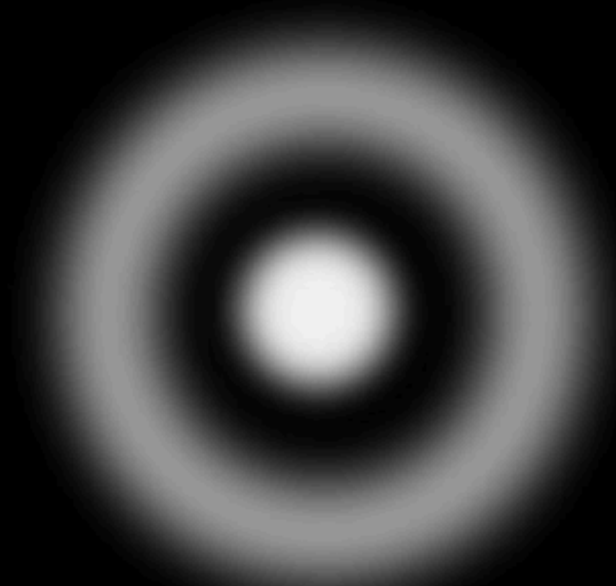
Starburst



Light Source



Glare



Halo



Starburst



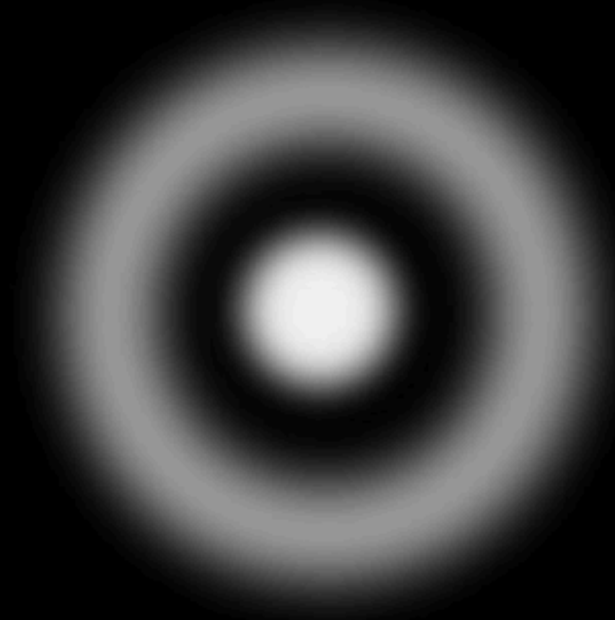
“rays or streaks”



Light Source



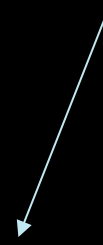
Glare



Halo



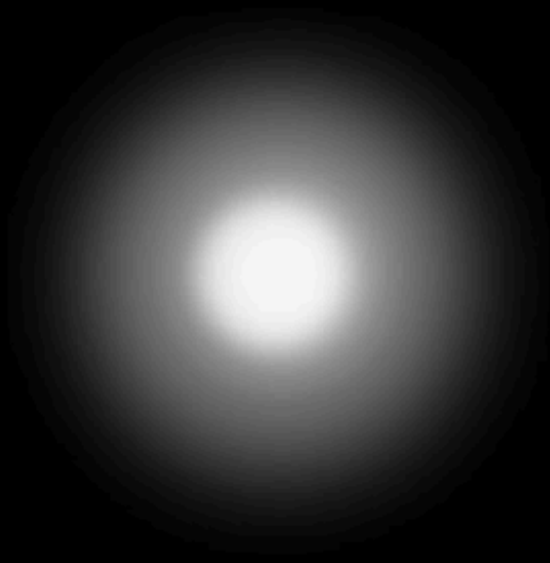
Starburst



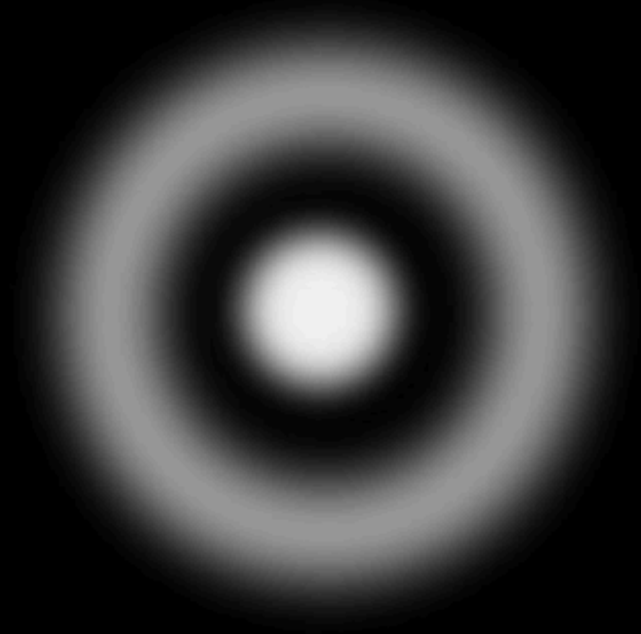
PCO, refractive error, OSD



Light Source

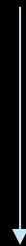


Glare

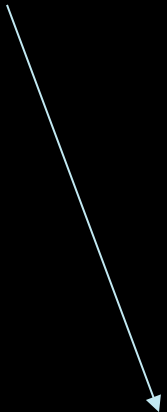
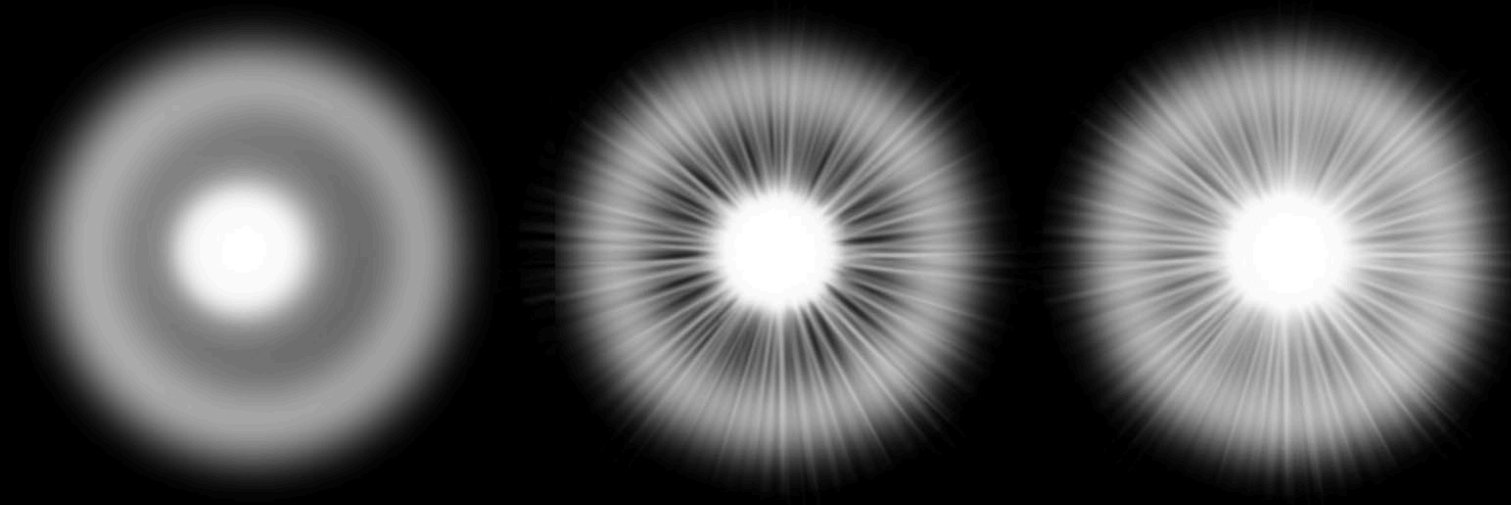


Halo

Multifocal IOLs



Starburst



Multifocal IOLs
PCO, refractive error, OSD

Refractive Status Tear Film+ Epithelium + Ant Stroma + IOL + Posterior Capsule + Vitreous = Vision

!!

pristine

regular

smooth

centered
normal tilt

clear

No VS
floaters

Intraoperative

Visual Axis ID

- Refractive Capsulotomy
- IOL Centration

Posterior Capsule Pristine-ing

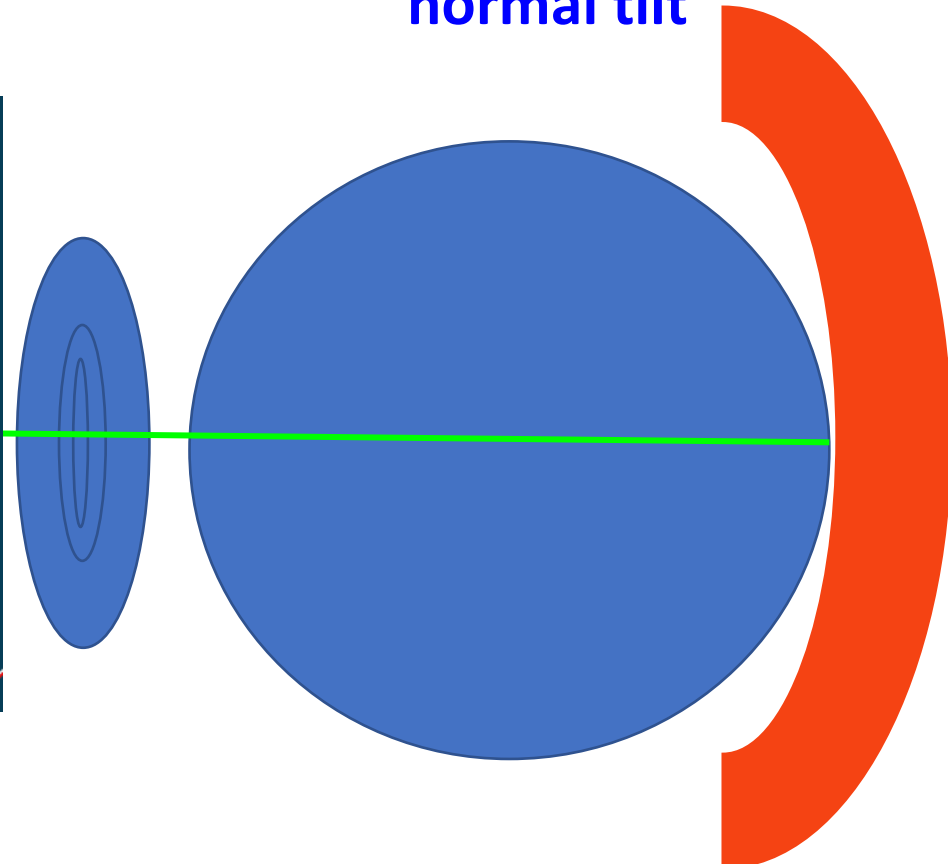
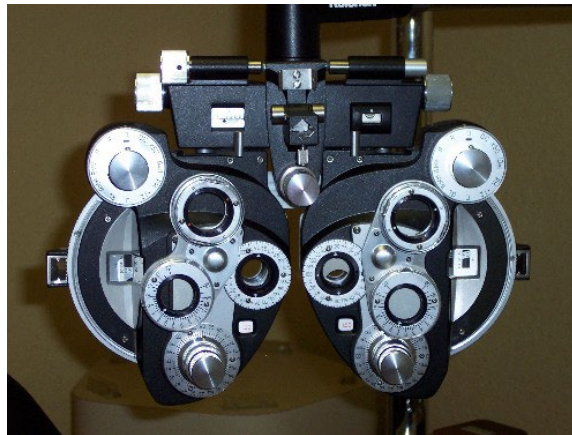
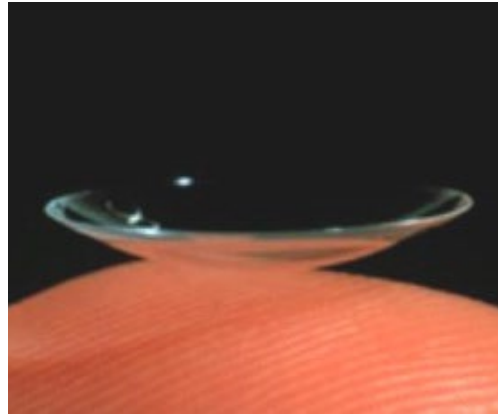


Image Quality Optimizing Checklist



E
 F P
 T O Z
 L P E D
 P E C F D
 E D F C Z P
 FELOPZD
 DEFPOTEC
 LEFODPCT
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1 20/200
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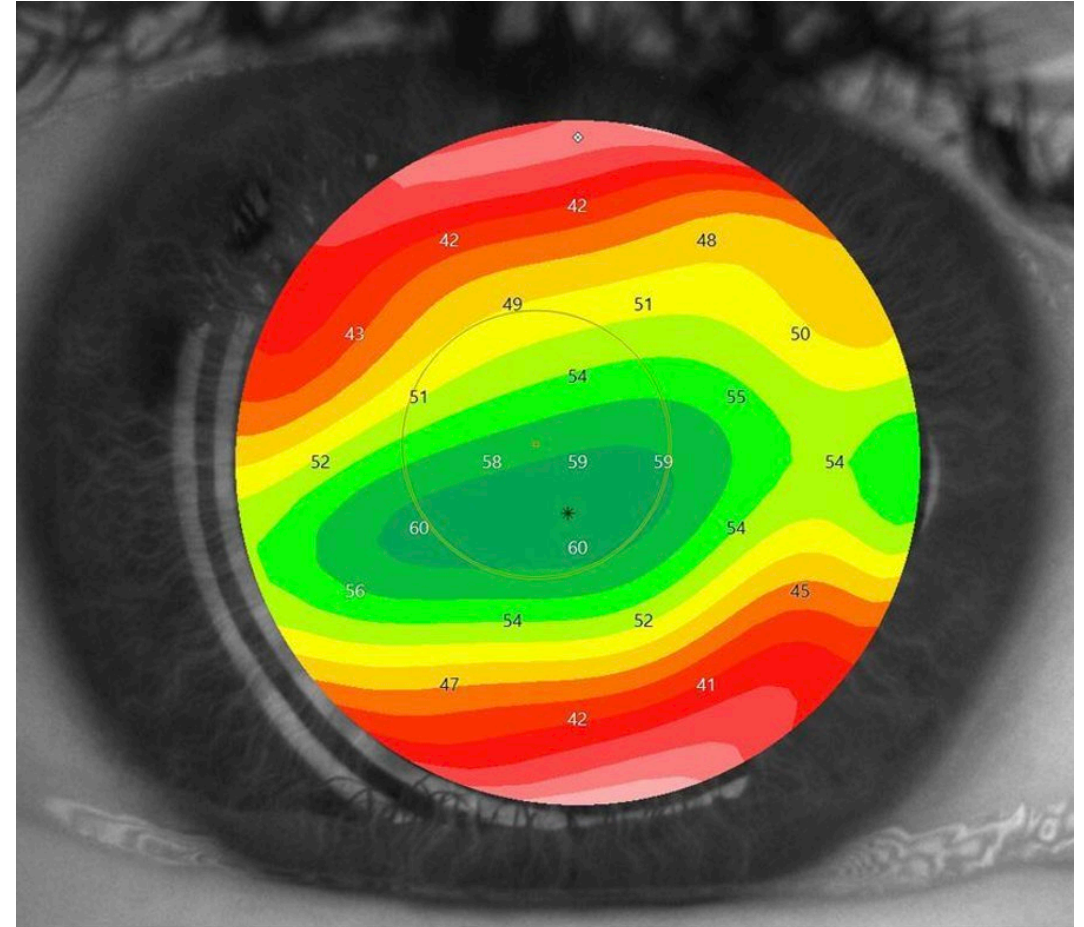
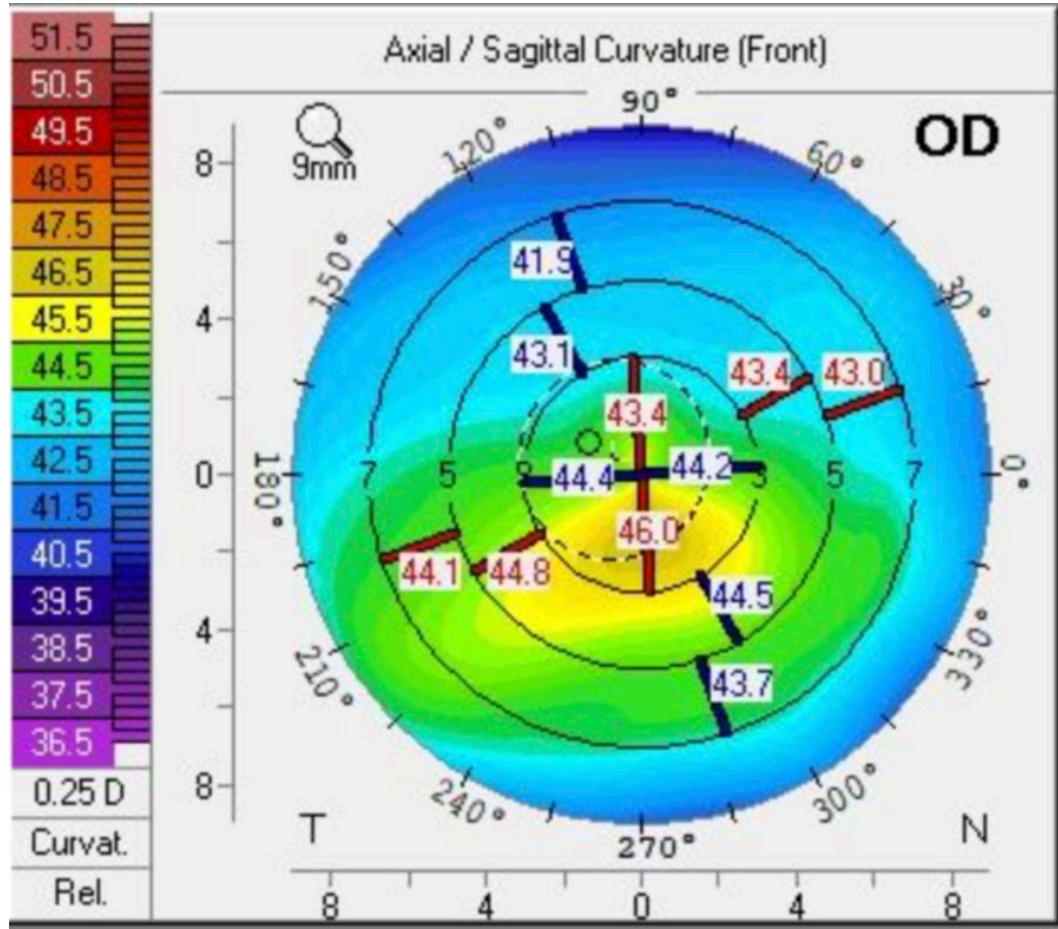
Surface:

- Tear film
- Epithelium
- Stroma (anterior)

E
 F P
 T O Z
 L P E D
 P E C F D
 E D F C Z P
 FELOPZD
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Epithelium

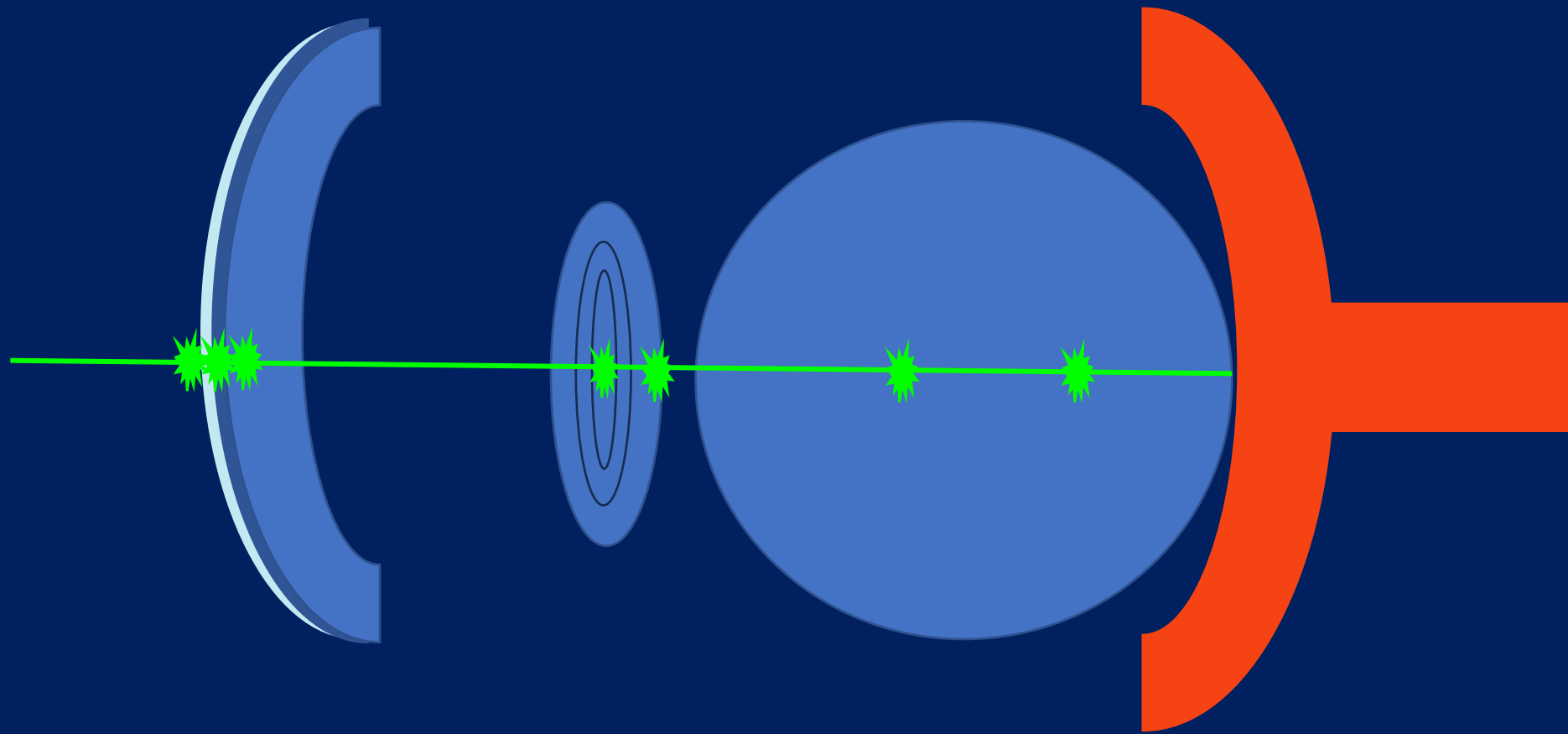


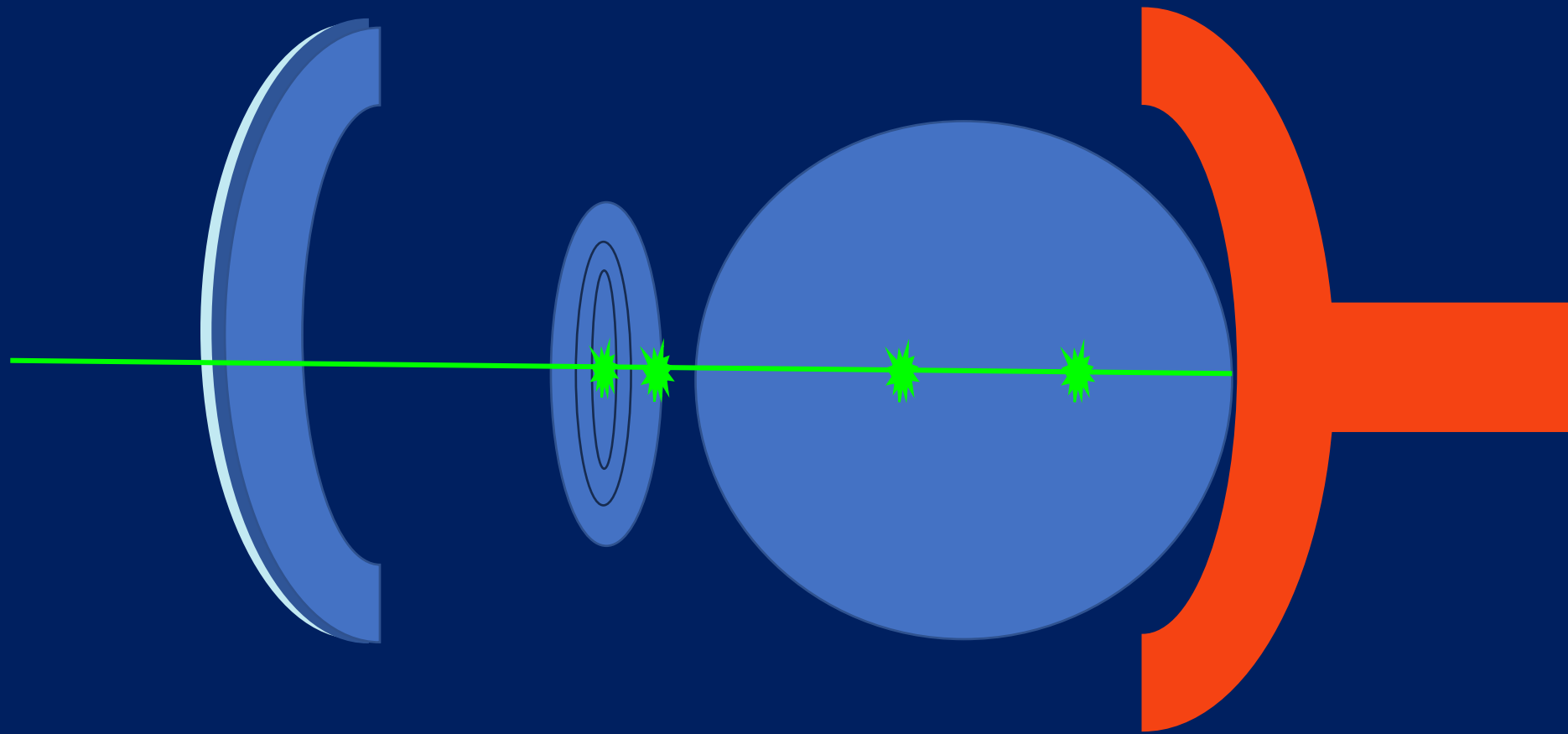


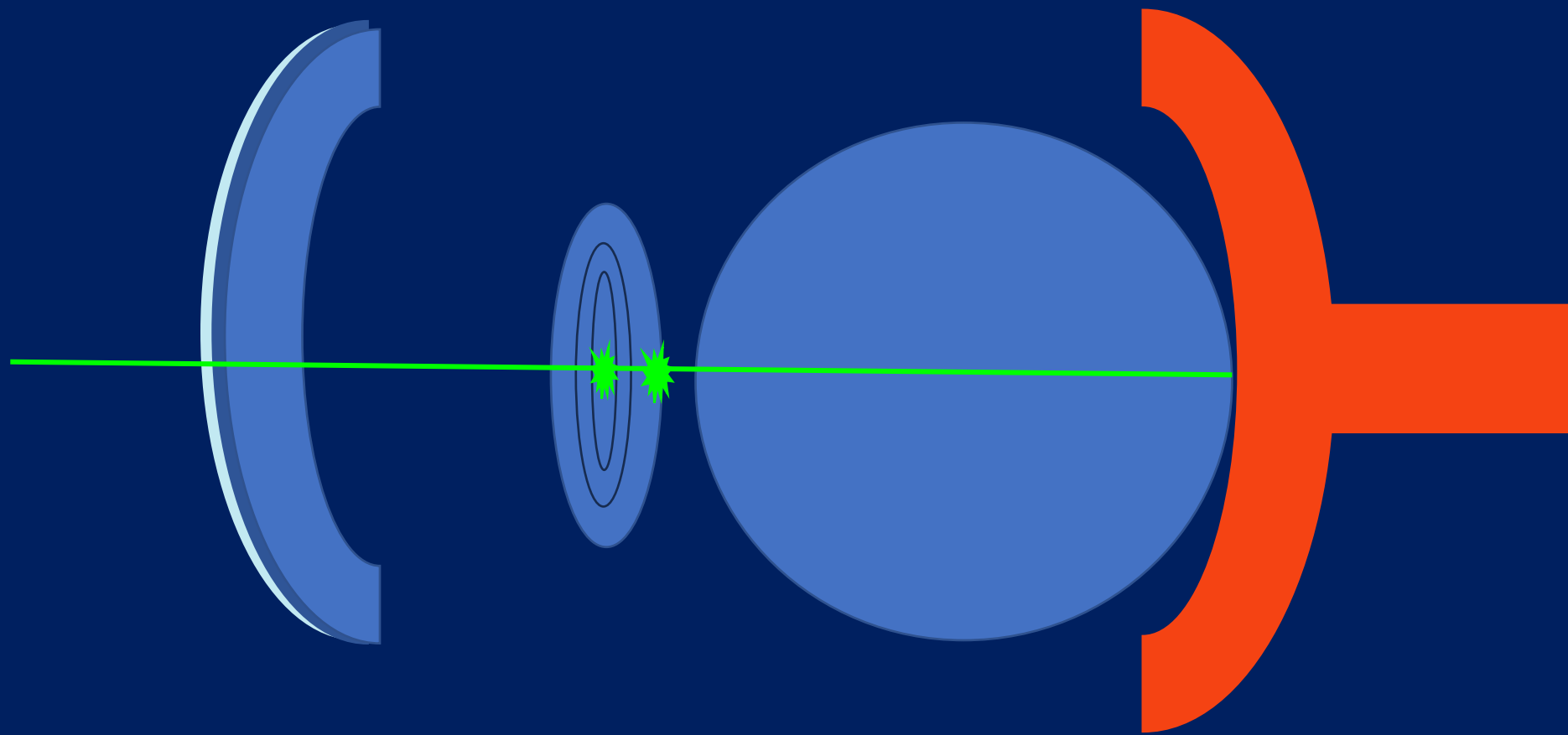
YAG Laser Capsulotomy

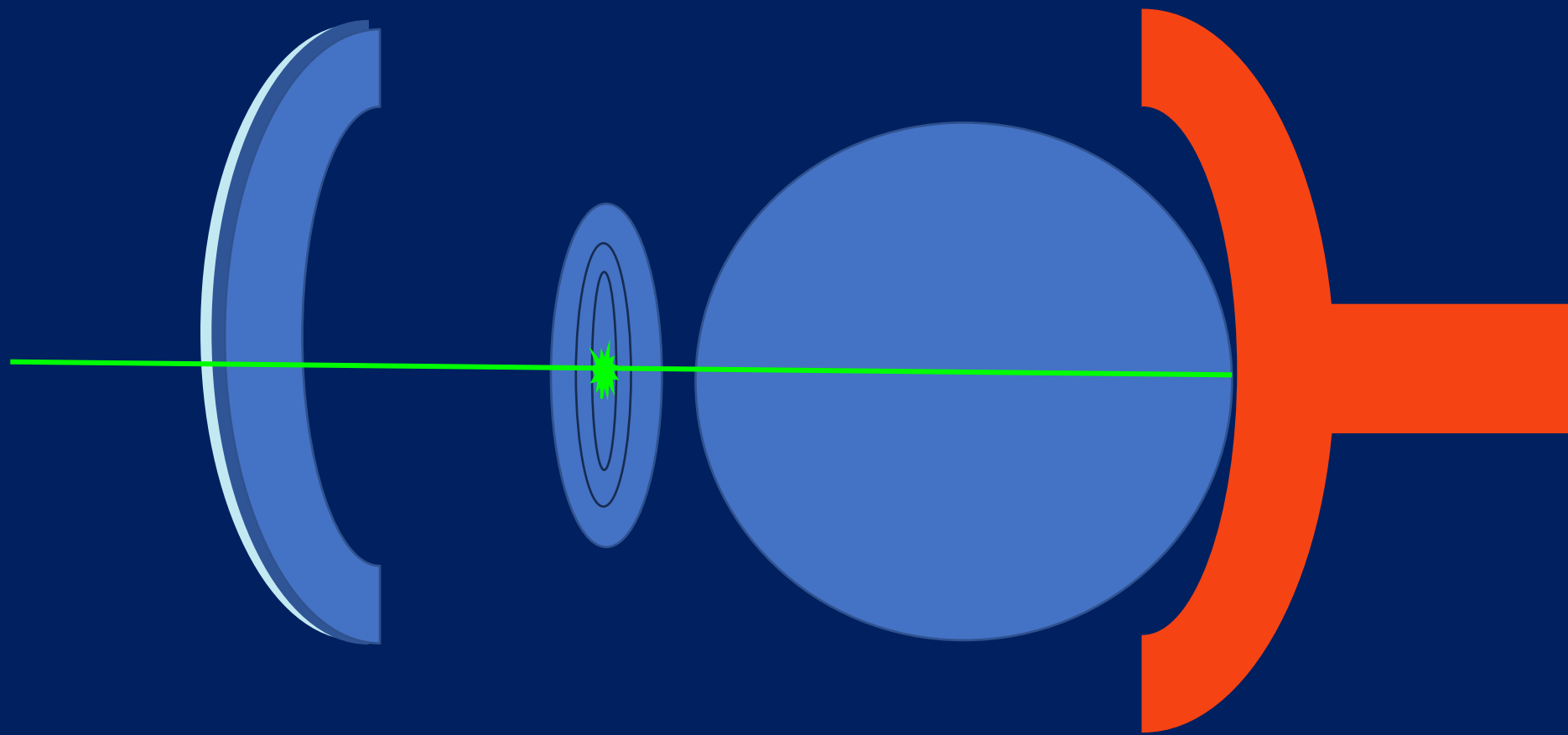
- **Very common with advanced implants**



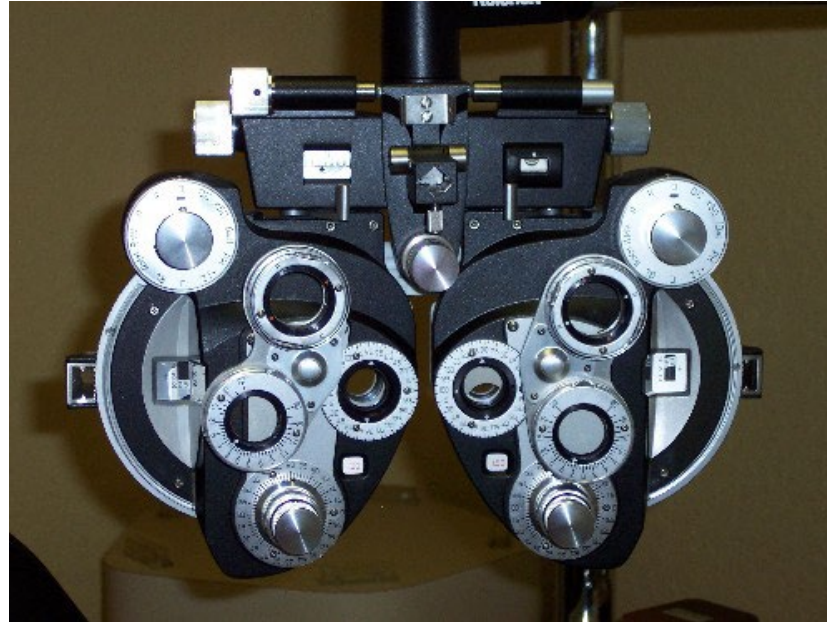








Respect Low Residual Refractive Error





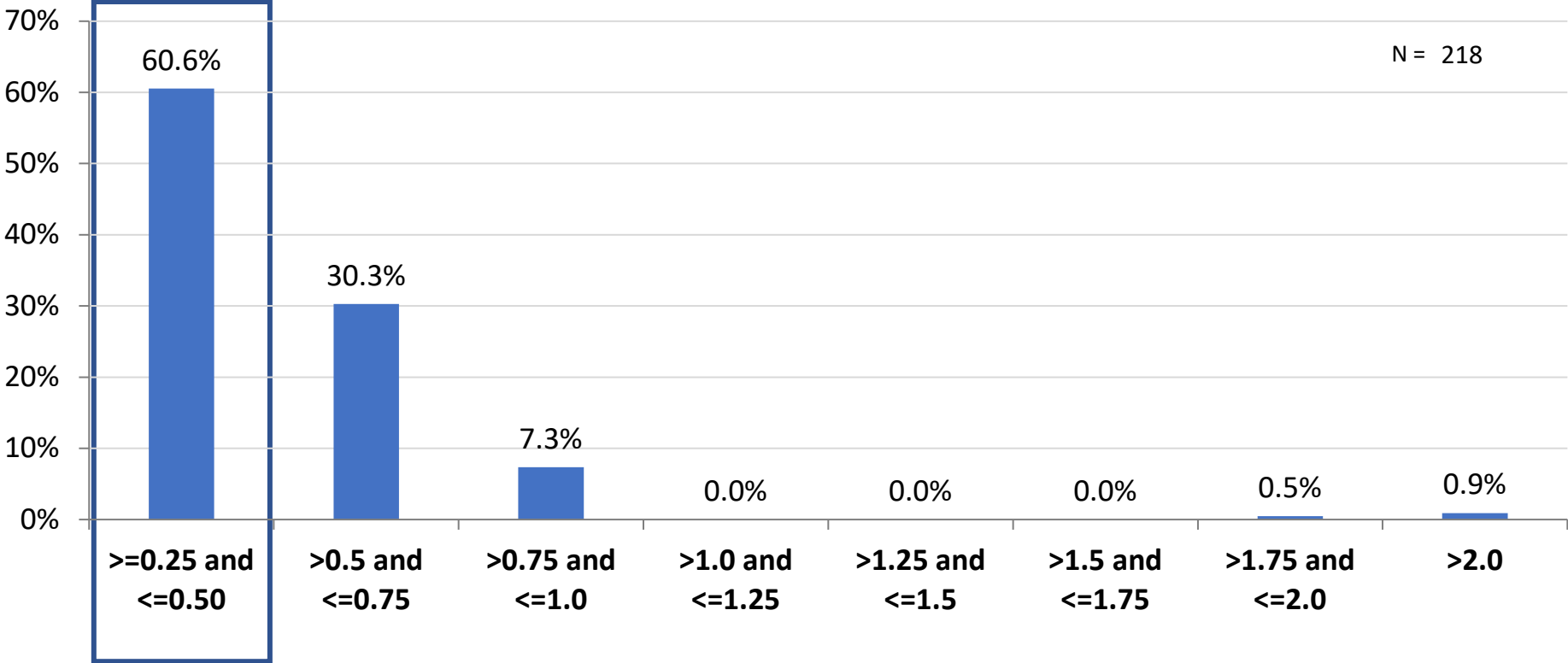
Sometimes 20/20 is Not Enough

- Small corrections matter...show them...they can decide



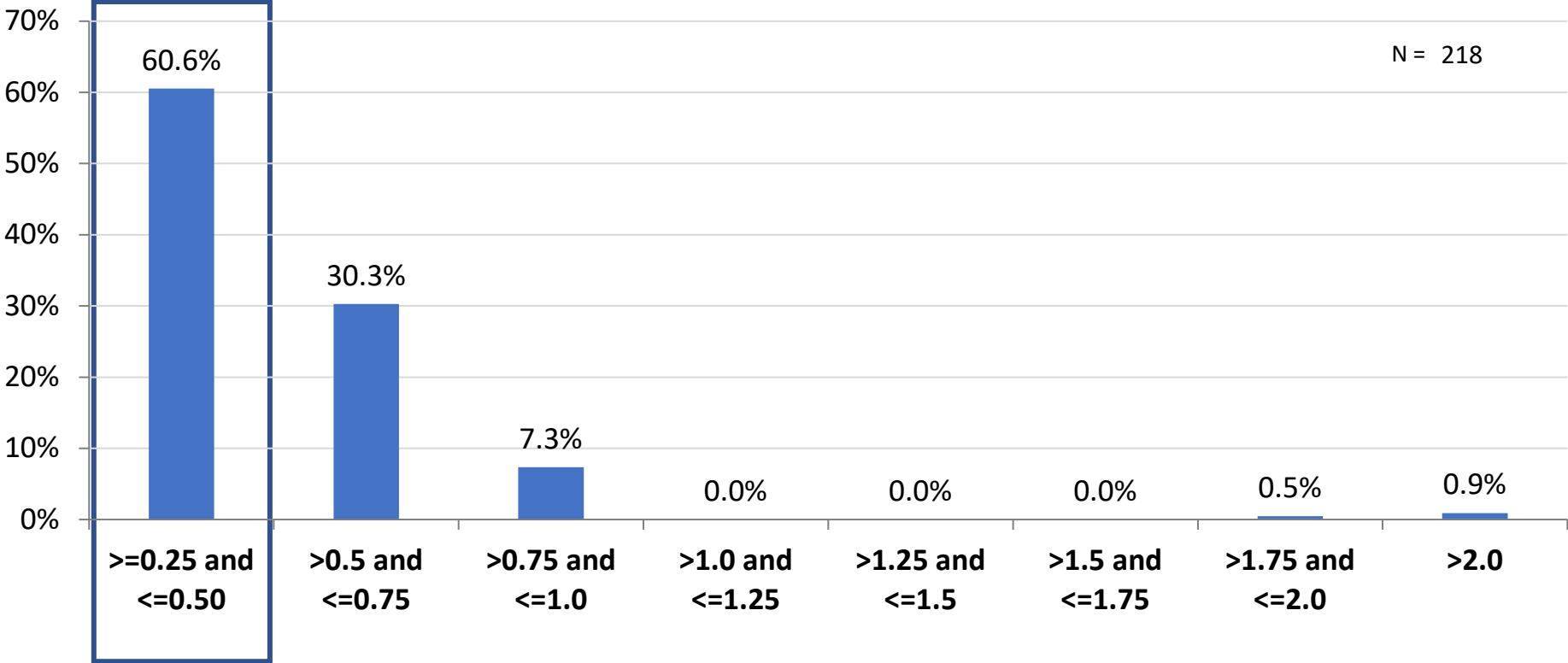
2019 ASCRS Clinical Survey – presbyopia correction

WHAT IS THE HIGHEST AMOUNT OF RESIDUAL CYLINDER YOU WOULD FEEL COMFORTABLE PLANNING TO LEAVE IN PATIENTS UNDERGOING IMPLANTATION OF A PRESBYOPIA-CORRECTING IOL? ENTER YOUR RESPONSE IN DIOPTERS.



2019 ASCRS Clinical Survey – presbyopia correction

WHAT IS THE HIGHEST AMOUNT OF RESIDUAL CYLINDER YOU WOULD FEEL COMFORTABLE PLANNING TO LEAVE IN PATIENTS UNDERGOING IMPLANTATION OF A PRESBYOPIA-CORRECTING IOL? ENTER YOUR RESPONSE IN DIOPTERS.



Have a Plan



Timing of Enhancements

- **Optic Adjustable**

- **No previous corneal surgery** 4 weeks
- **Previous laser corneal surgery** 6 weeks
- **Previous RK** 8 weeks

- **Cornea Adjustable**

- **3 months**



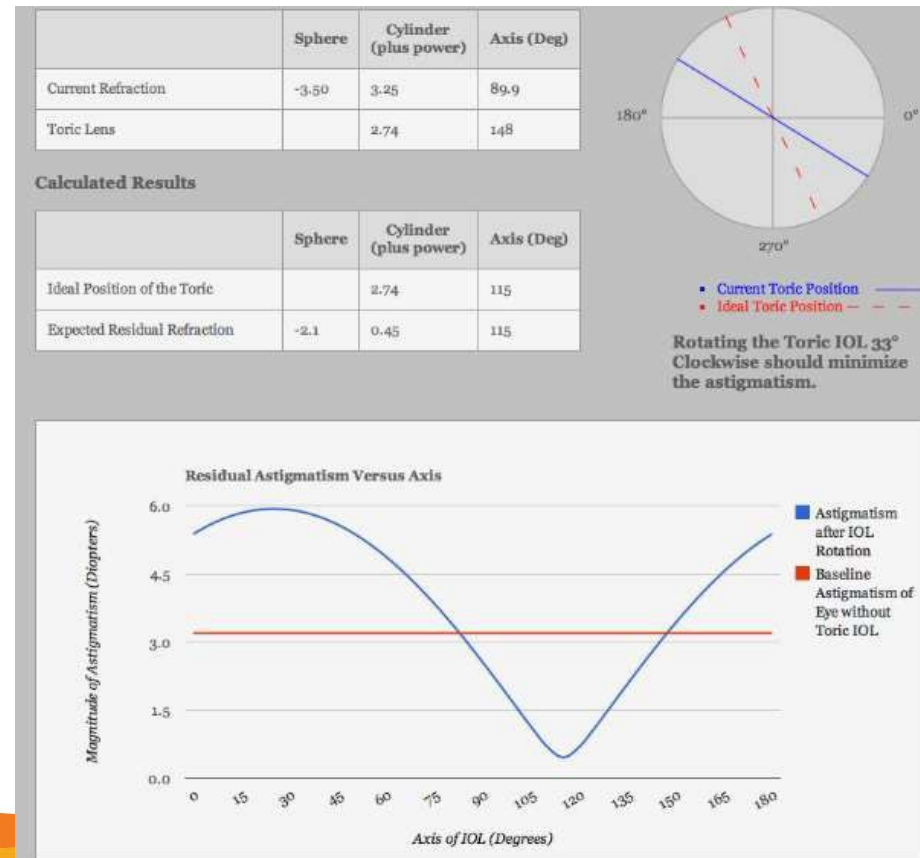
Enhancement Techniques

- Limbal Relaxing Incisions (LRI)/Astigmatic Keratotomy (AK)
 - LASIK/PRK
 - Rotate/Reposition Toric IOL
- 

Enhancement Techniques

- Limbal Relaxing Incisions (LRI)/Astigmatic Keratotomy (AK)
- LASIK/PRK
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www.astigmatismfix.com



AK or LRI

$$SE = S + (1/2) \text{ Cyl}$$

$$+0.5 -1.00 \times 150$$

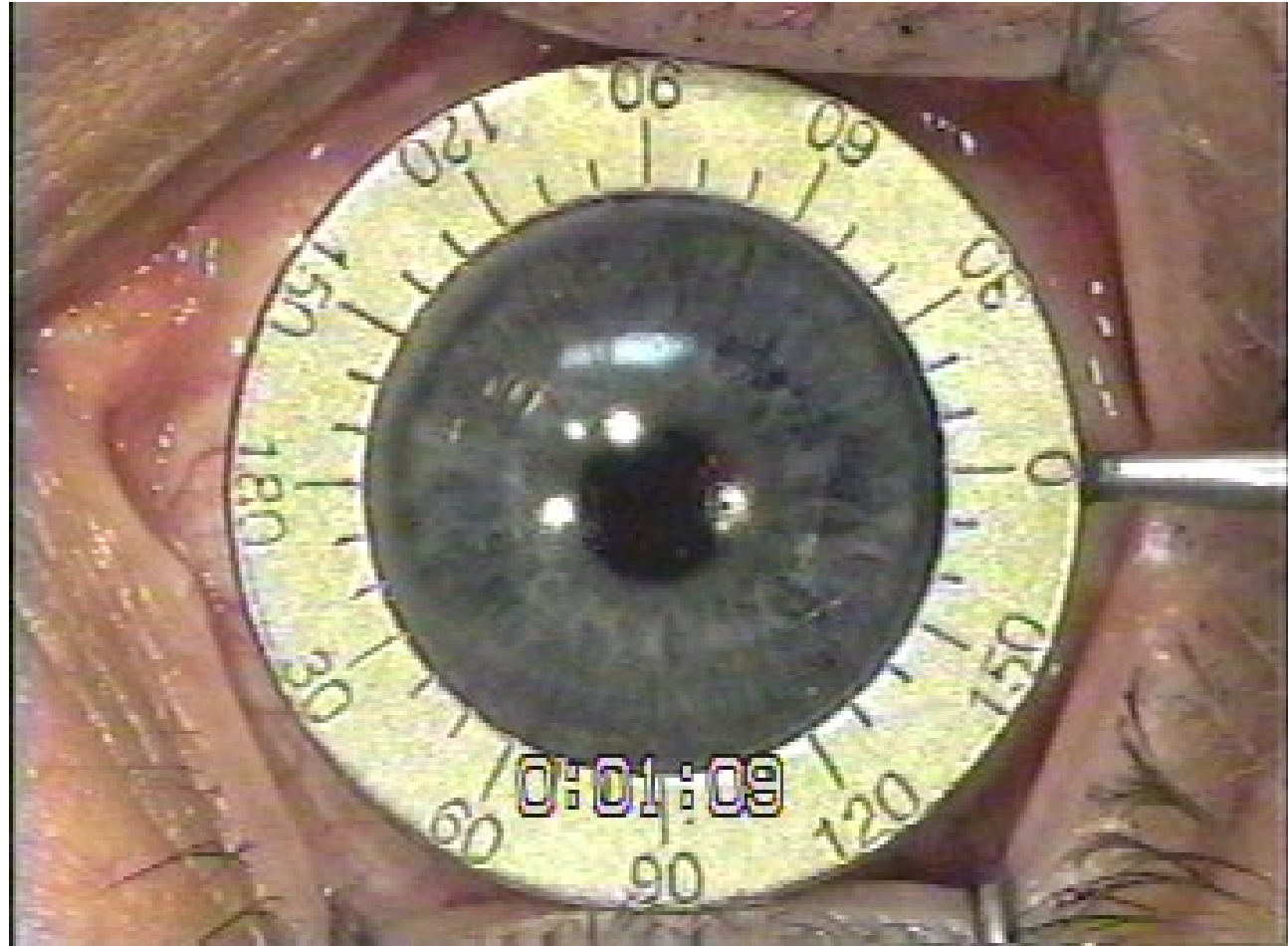
$$SE = \text{Plano}$$

AK at 60 degrees





AK





AK



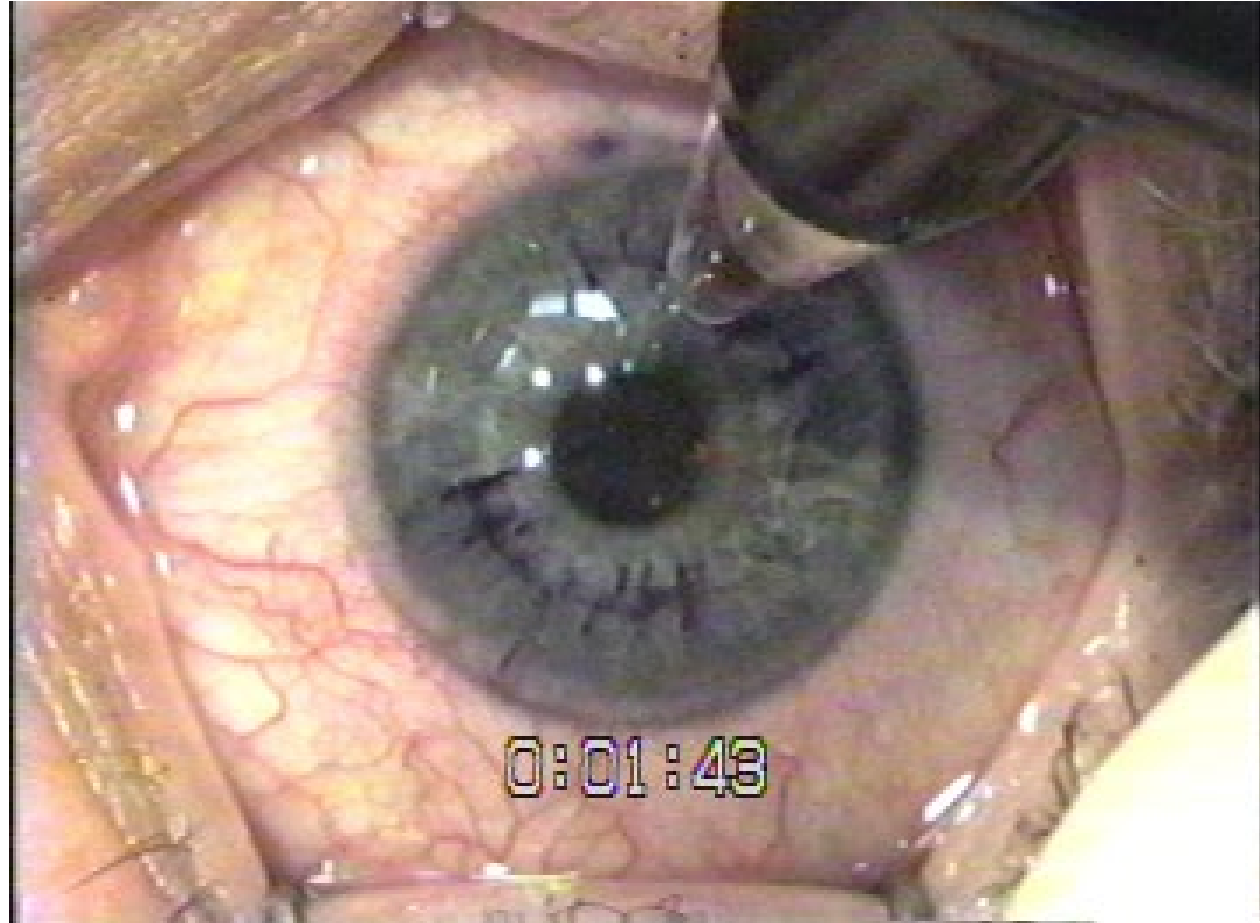


AK



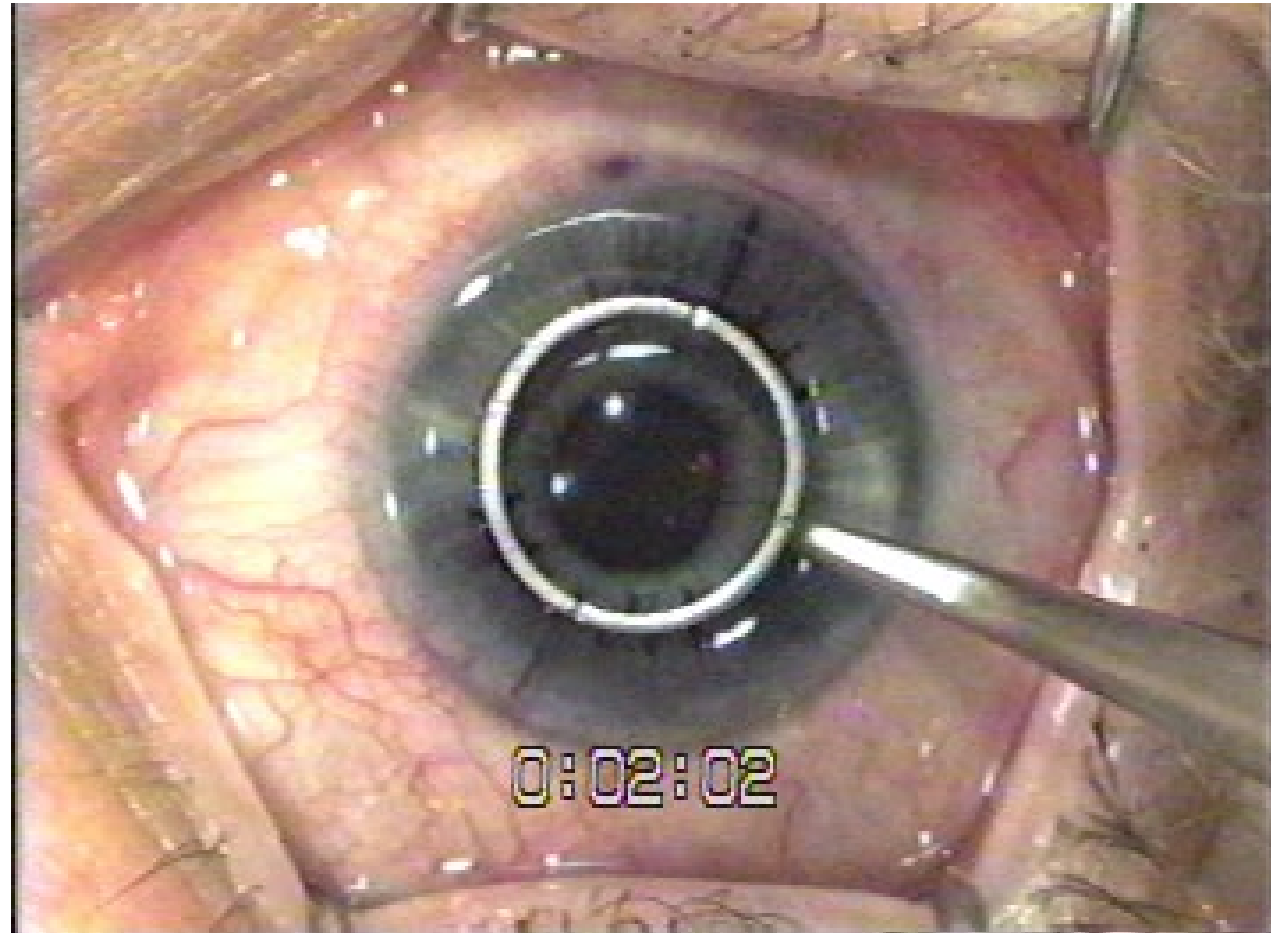


AK





AK



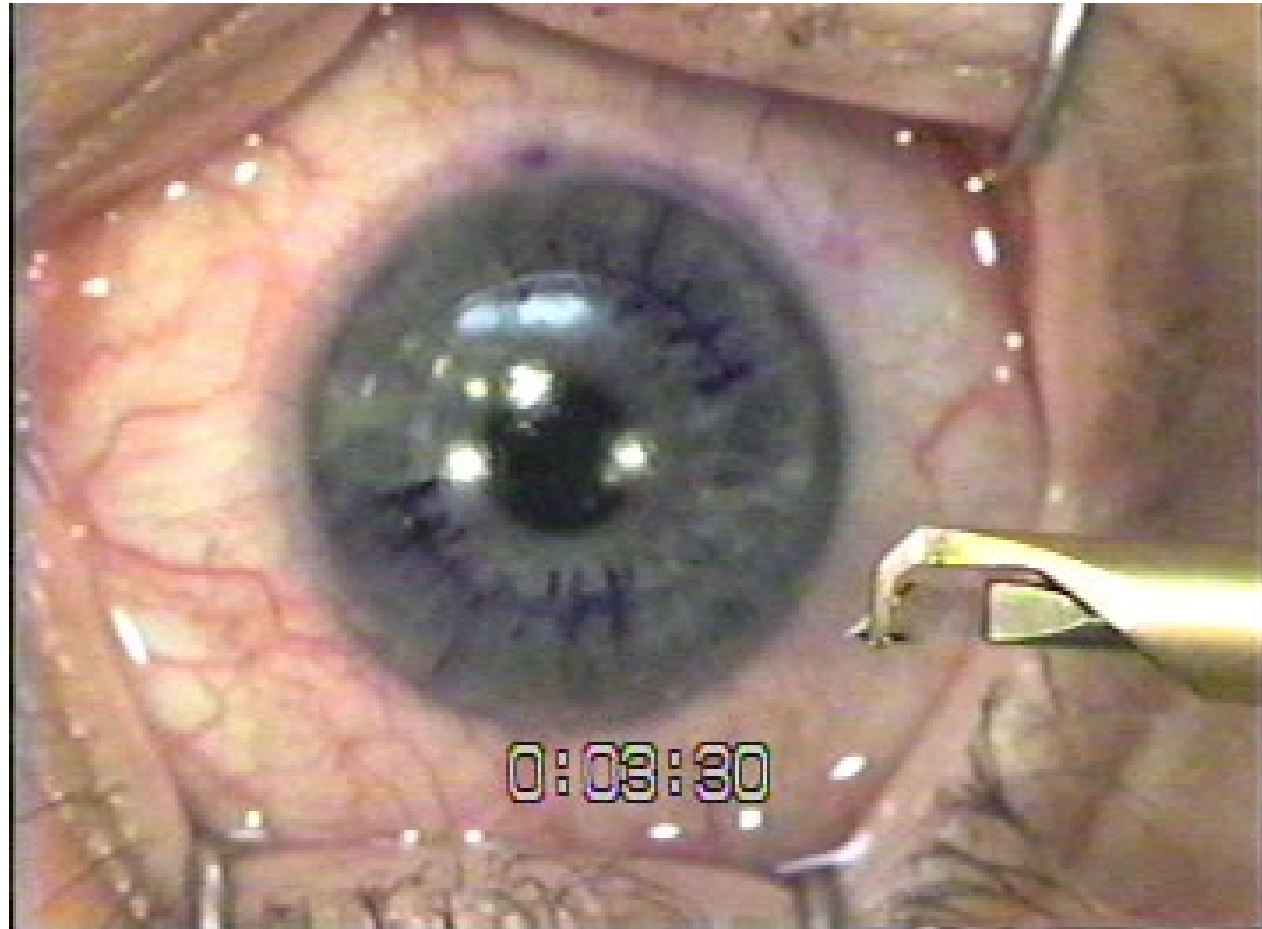


AK



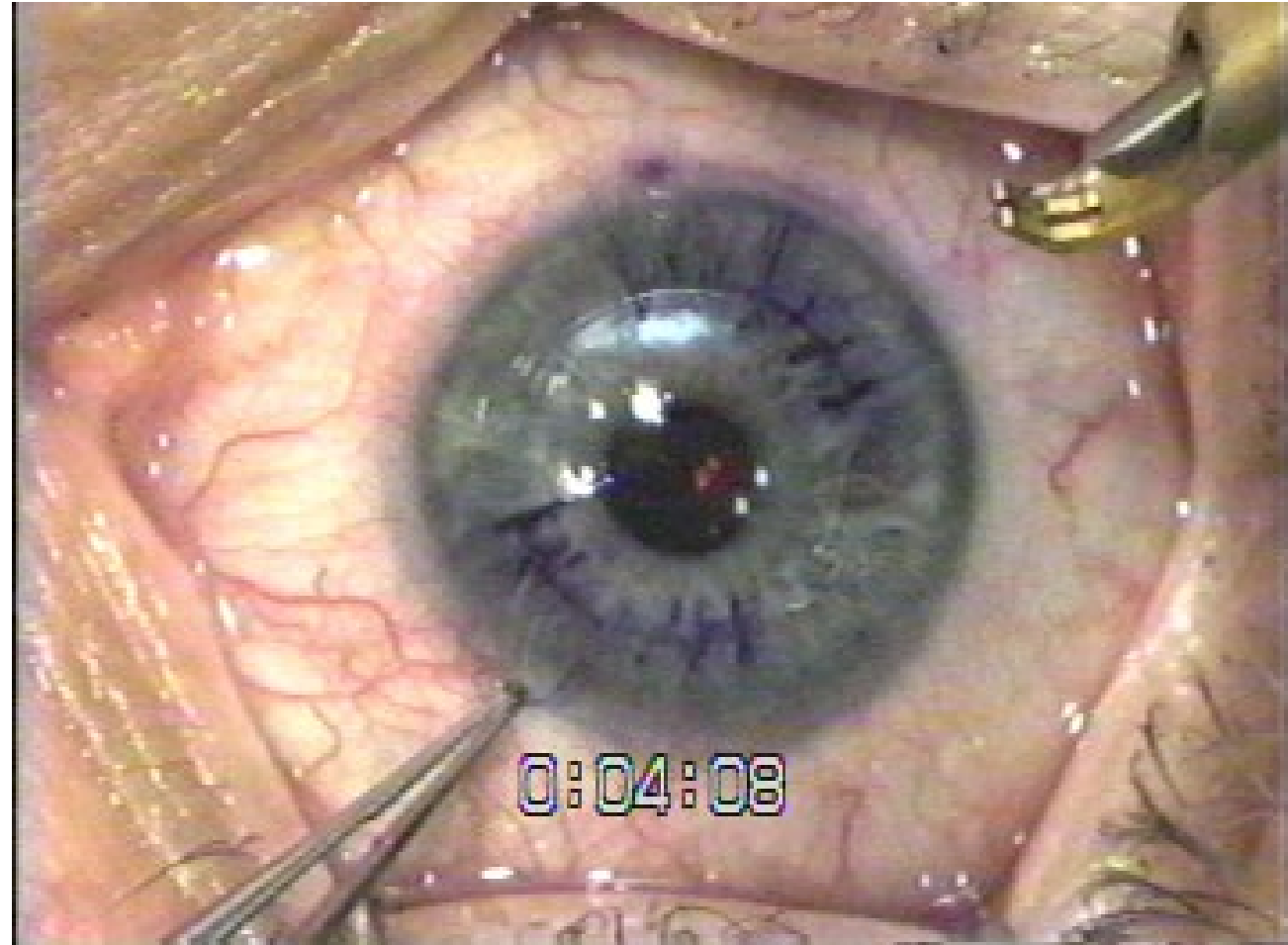


AK





AK





AK



ID: 700028965
 Date of Birth: 10/16/1959 Eye: Right
 Exam Date: 10/11/2022 Time: 08:17:37
 Exam Info:

Cornea Front

Ri: 7.27 mm K1: 46.4 D
 Rs: 7.22 mm K2: 46.7 D
 Rm: 7.25 mm Km: 46.6 D

QS: OK Axis: 110.4° Astig: 0.3 D
 Q-val: (8mm) -0.19 Rper: 7.40 mm Rminc: 7.11 mm

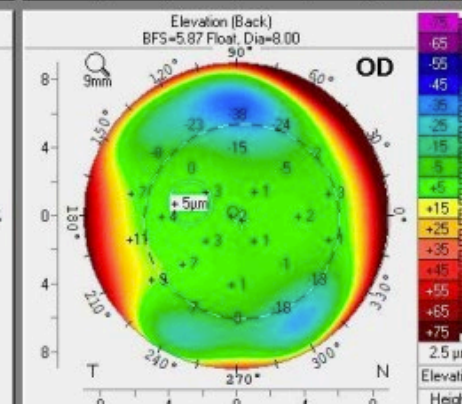
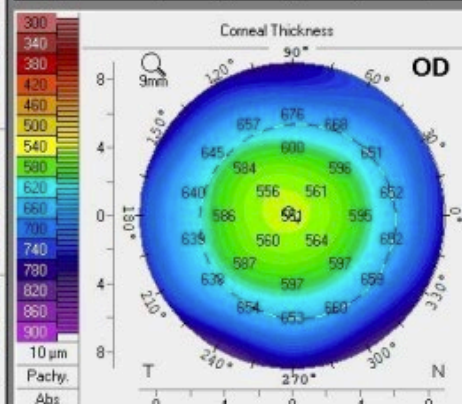
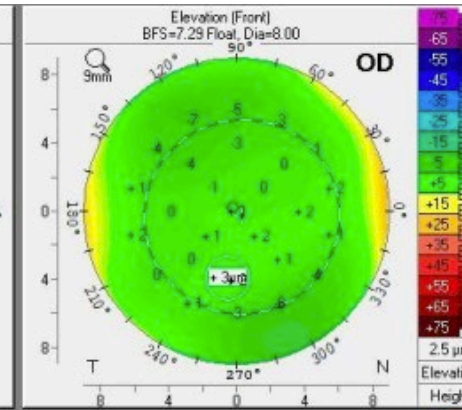
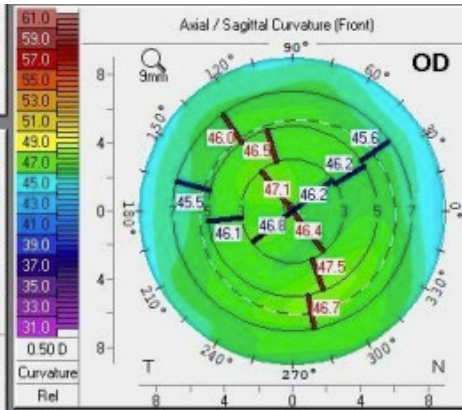
Cornea Back

Ri: 5.89 mm K1: -6.8 D
 Rs: 5.72 mm K2: -7.0 D
 Rm: 5.81 mm Km: -6.9 D

QS: OK Axis: 89.0° Astig: 0.2 D
 Q-val: (8mm) -0.43 Rper: 6.27 mm Rminc: 5.52 mm

Pupil Center: + 553 μm x[mm] -0.16 y[mm] -0.17
 Pachy Apex: 551 μm 0.00 0.00
 Thinnest Locat.: 551 μm -0.13 +0.13
 K Max (Front): 47.5 D +1.05 -2.42

Cornea Volume: 64.6 mm³ HWTW: 11.2 mm
 Chamber Volume: 220 mm³ Angle: 27.3°
 A. C. Depth (Ext.): 4.00 mm Pupil Dia: 5.72 mm
 Enter IOP IOP(Sum) ±0.0 mmHg Lens Th.:



ID: 700028965
 Date of Birth: 10/16/1959 Eye: Left
 Exam Date: 10/11/2022 Time: 08:17:59
 Exam Info:

Cornea Front

Ri: 7.26 mm K1: 46.5 D
 Rs: 7.05 mm K2: 47.9 D
 Rm: 7.16 mm Km: 47.2 D

QS: OK Axis: 77.6° Astig: 1.4 D
 Q-val: (8mm) -0.21 Rper: 7.36 mm Rminc: 6.96 mm

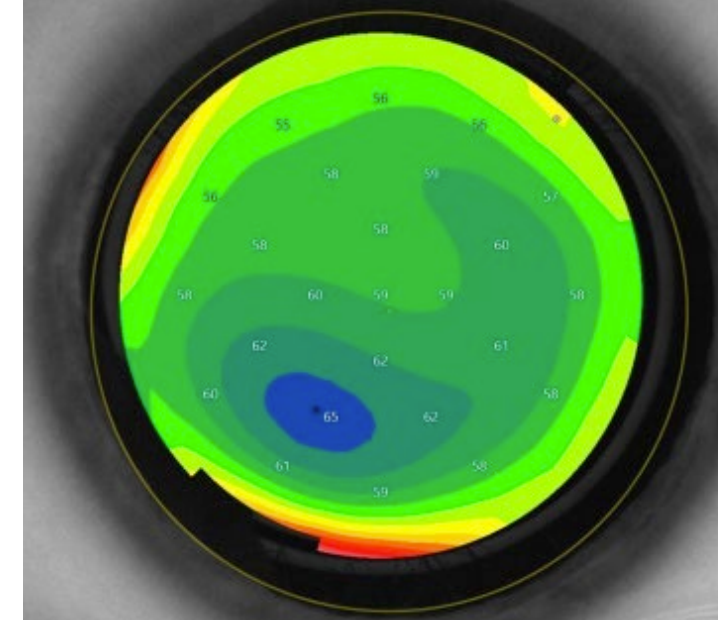
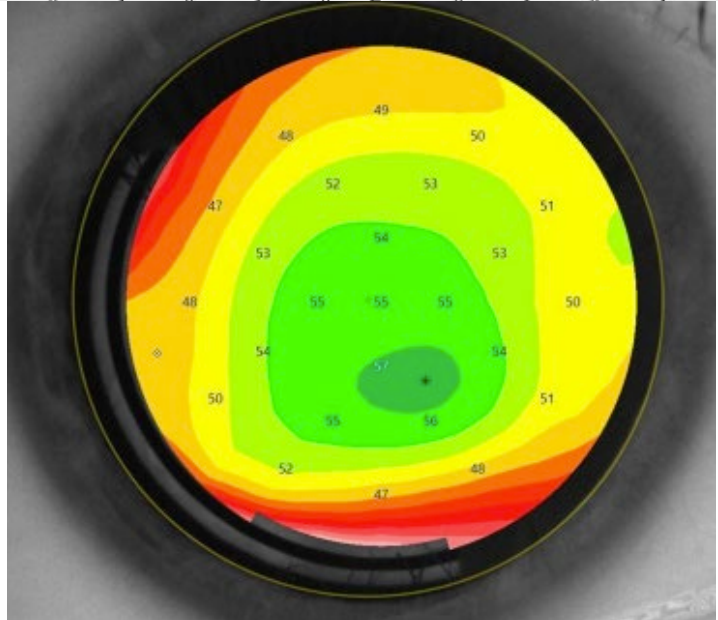
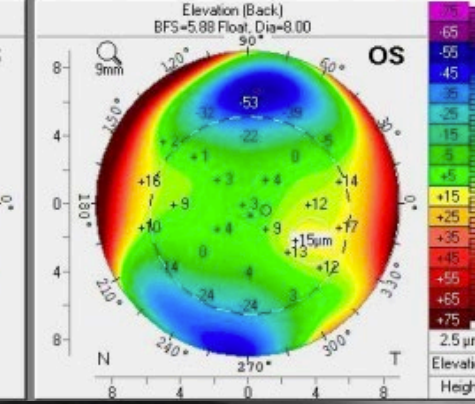
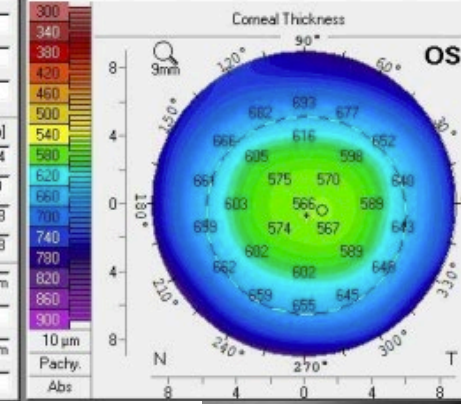
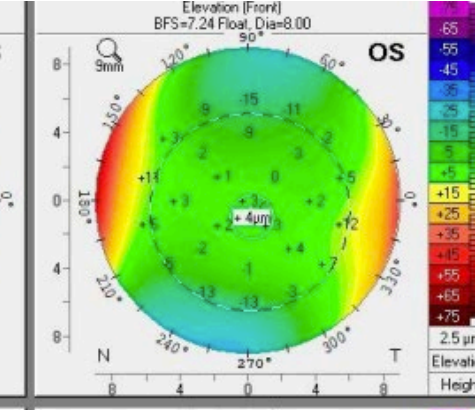
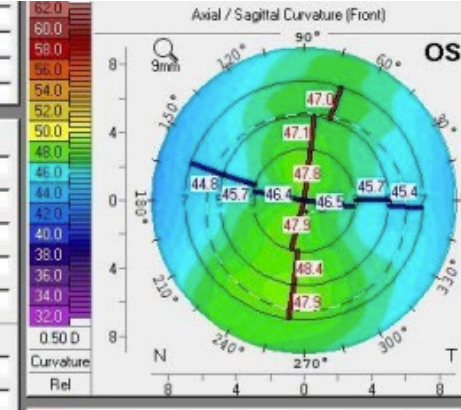
Cornea Back

Ri: 6.02 mm K1: -6.6 D
 Rs: 5.63 mm K2: -7.1 D
 Rm: 5.82 mm Km: -6.9 D

QS: OK Axis: 81.4° Astig: 0.5 D
 Q-val: (8mm) -0.29 Rper: 6.17 mm Rminc: 5.44 mm

Pupil Center: + 566 μm x[mm] -0.06 y[mm] -0.34
 Pachy Apex: 566 μm 0.00 0.00
 Thinnest Locat.: 564 μm +0.55 -0.18
 K Max (Front): 48.5 D -0.37 -2.68

Cornea Volume: 65.7 mm³ HWTW: 11.2 mm
 Chamber Volume: 225 mm³ Angle: 35.5°
 A. C. Depth (Ext.): 4.15 mm Pupil Dia: 5.86 mm
 Enter IOP IOP(Sum) -0.6 mmHg Lens Th.:



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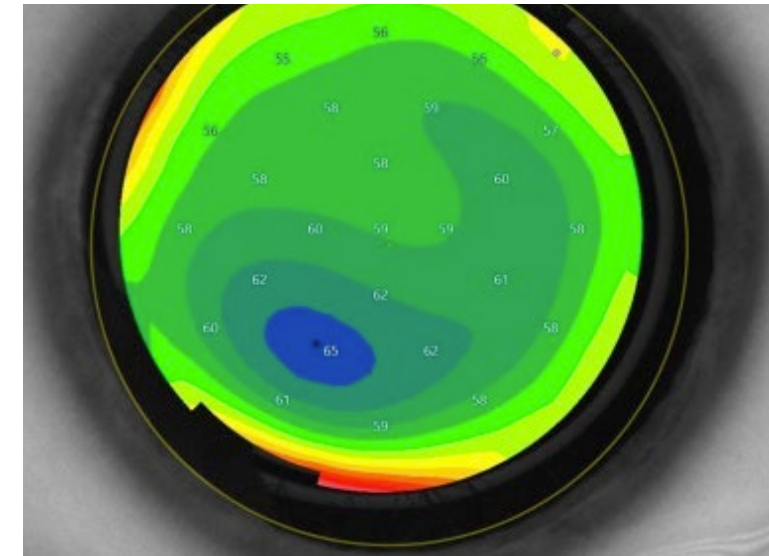
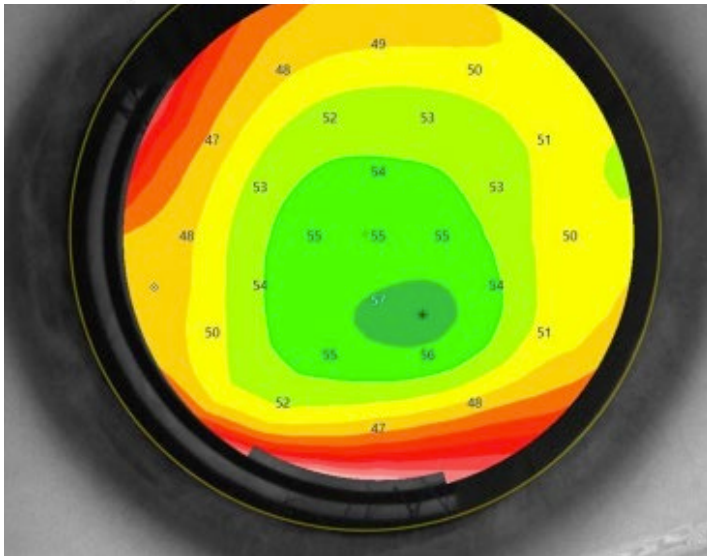
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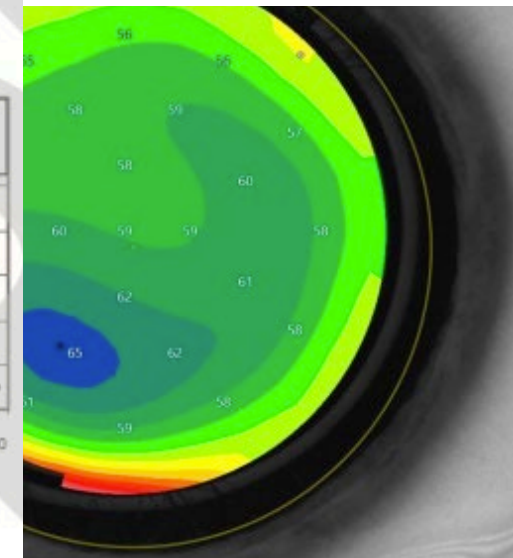
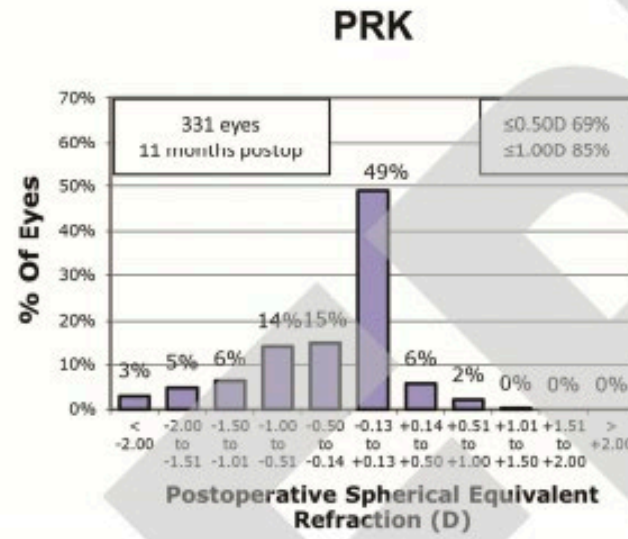
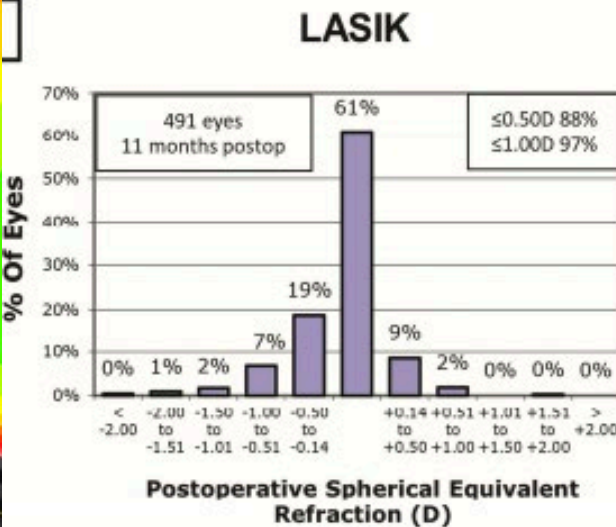
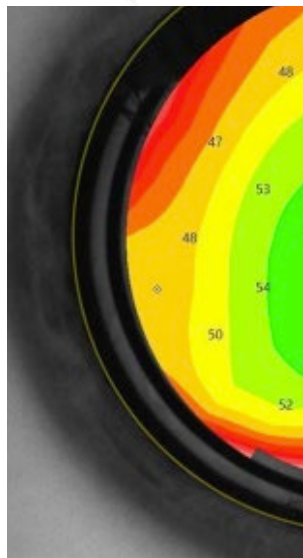
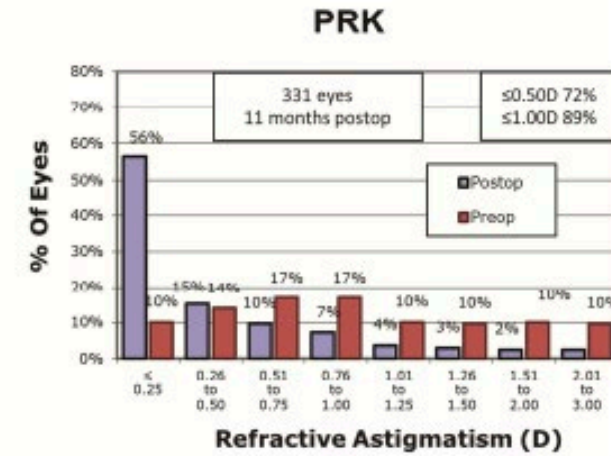
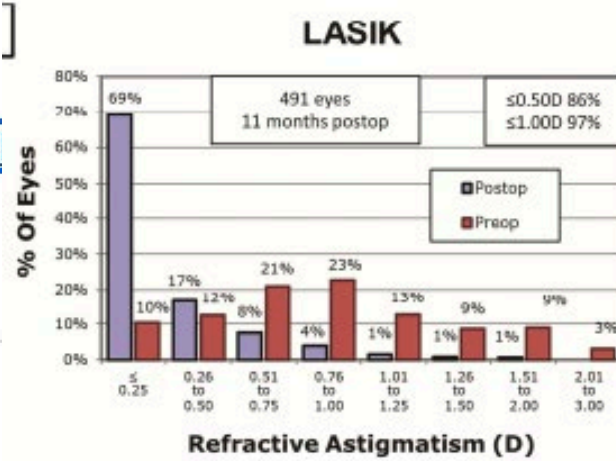
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