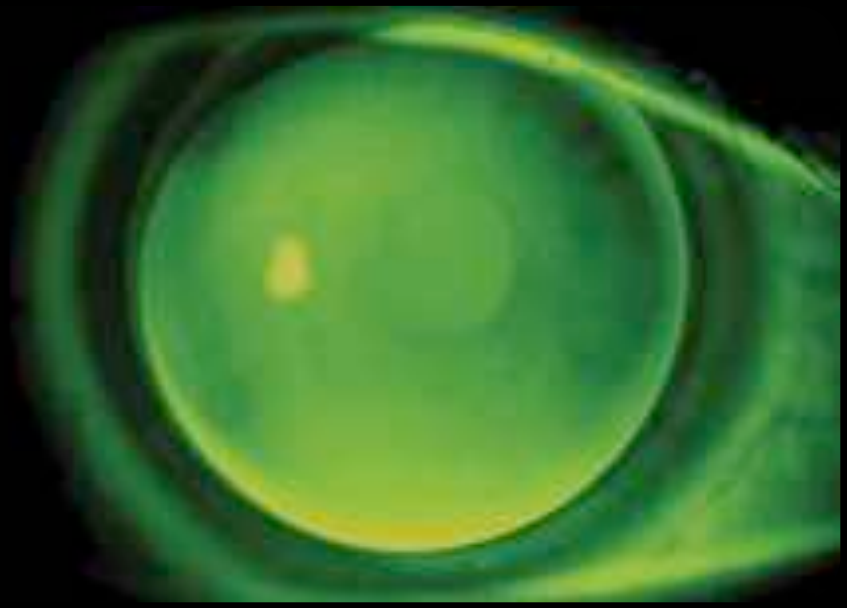


The Lost Art: GP Corneal Lens Fitting

Buddy Russell, FCLSA, COMT, FSLS
Atlanta, GA

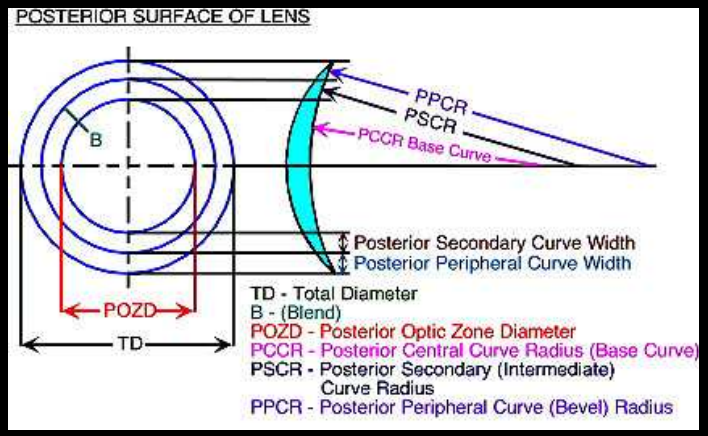
Disclosures

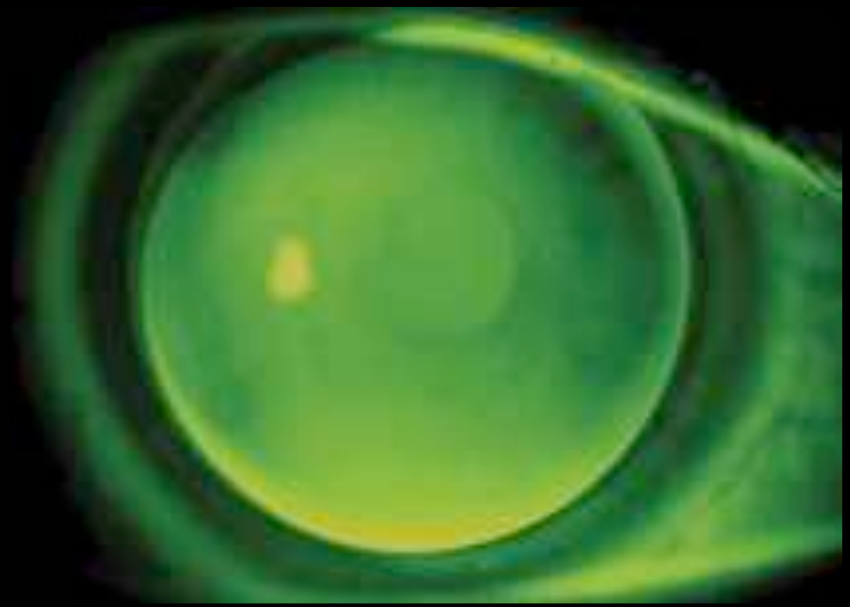
Consultant	GPLI advisory board SLS Educational Committee
Honorariums	B&L SVP, Euclid, Paragon Vision Sciences BostonSight

No financial interest in any GP products

Outline

- Why an "art"?
- The presentation to potential patients
- Corneal GP tendencies
- Interpretation
- Remedies





Are GP Corneal Lenses "Dead"?

Are GP Corneal Lenses "Dead"?

Eye Contact Lens. 2003 Jan;29(1 Suppl):S122-6; discussion S143-4, S192-4.

The case against rigid contact lenses.

Efron N.

Department of Optometry and Neuroscience, UMIST, Manchester, United Kingdom. n.efron@umist.ac.uk

Abstract

Rigid lens fitting has been an integral part of contact lens practice for decades. However, rigid lens fitting has been constantly declining since soft lenses were introduced in the 1970s to whereby, world wide, rigid lenses constitute less than 10% of new contact lens fits. It seems that many practitioners correctly or incorrectly believe that rigid lenses only need to be prescribed in specialized or extenuating circumstances. This discussion article examines the international decline in rigid lens fitting and seeks to explain the cause of this trend. I conclude that rigid lenses will be virtually obsolete by the year 2010.

PMID: 12772747 [PubMed - indexed for MEDLINE]

Are GP Corneal Lenses "Dead"?

Cont Lens Anterior Eye. 2010 Oct;33(5):245-52. doi: 10.1016/j.clae.2010.06.009. Epub 2010 Jul 31.

Obituary--rigid contact lenses.

Efron N.

Institute of Health and Biomedical Innovation and School of Optometry, Queensland University of Technology, 60 Musk Avenue, Kelvin Grove, Queensland, Australia. n.efron@qut.edu.au

Abstract

Scleral and corneal rigid lenses represented 100 per cent of the contact lens market immediately prior to the invention of soft lenses in the mid-1960s. In the United Kingdom today, rigid lenses comprise 2 per cent of all new lens fits. Low rates of rigid lens fitting are also apparent in 27 other countries which have recently been surveyed. Thus, the 1998 prediction of the author that rigid lenses--also referred to as 'rigid gas permeable' (RGP) lenses or 'gas permeable' (GP) lenses--would be obsolete by the year 2010 has essentially turned out to be correct. In this obituary, the author offers 10 reasons for the demise of rigid lens fitting: initial rigid lens discomfort; intractable rigid lens-induced corneal and lid pathology; extensive soft lens advertising; superior soft lens fitting logistics; lack of rigid lens training opportunities; redundancy of the rigid lens 'problem solver' function; improved soft toric and bifocal/varifocal lenses; limited uptake of orthokeratology; lack of investment in rigid lenses; and the emergence of aberration control soft lenses. Rigid lenses are now being fitted by a minority of practitioners with specialist skills/training. Certainly, rigid lenses can no longer be considered as a mainstream form of contact lens correction. May their dear souls (bulk properties) rest in peace.

Art vs Science

Art

- "skill acquired by experience, study, or observation"
- "the ability to use one's knowledge effectively and readily in execution or performance. A learned power of doing something competently; a developed aptitude or ability."

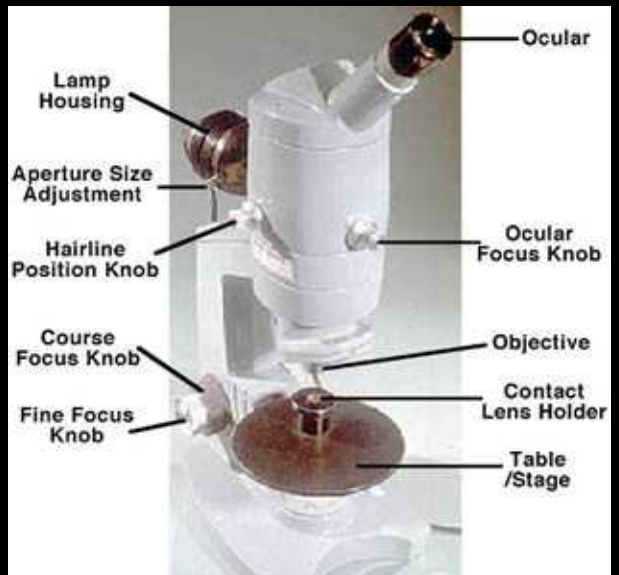
Science

- "the state of knowing: knowledge as distinguished from ignorance or misunderstanding"

Sourcing: Art Or Science?
By Glen Cathey eremedia.com

Why is the art lost?

- The trend to vault the cornea, not fit it
- Lack of training or experience for new professionals
- In-office modifications
- No radiuscope

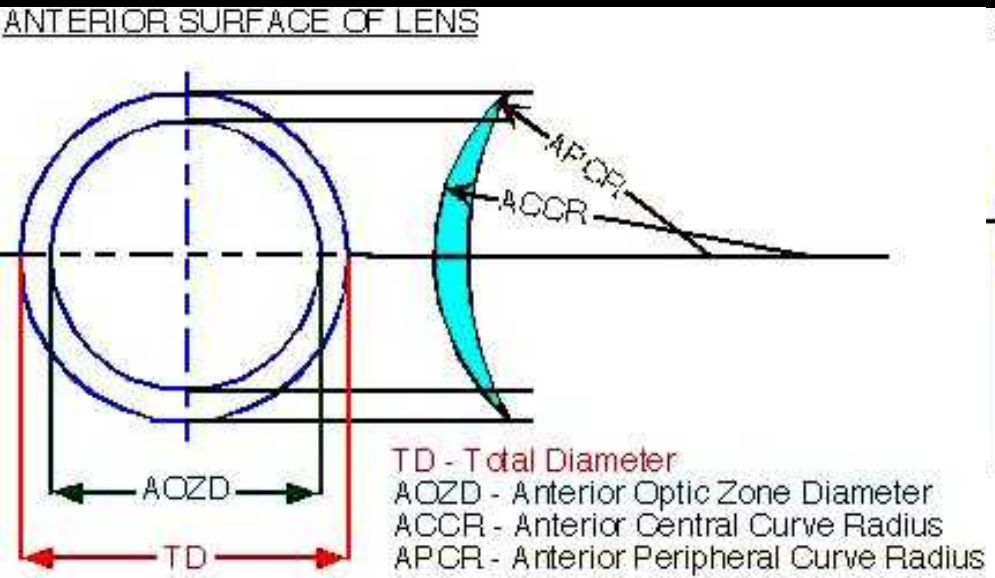


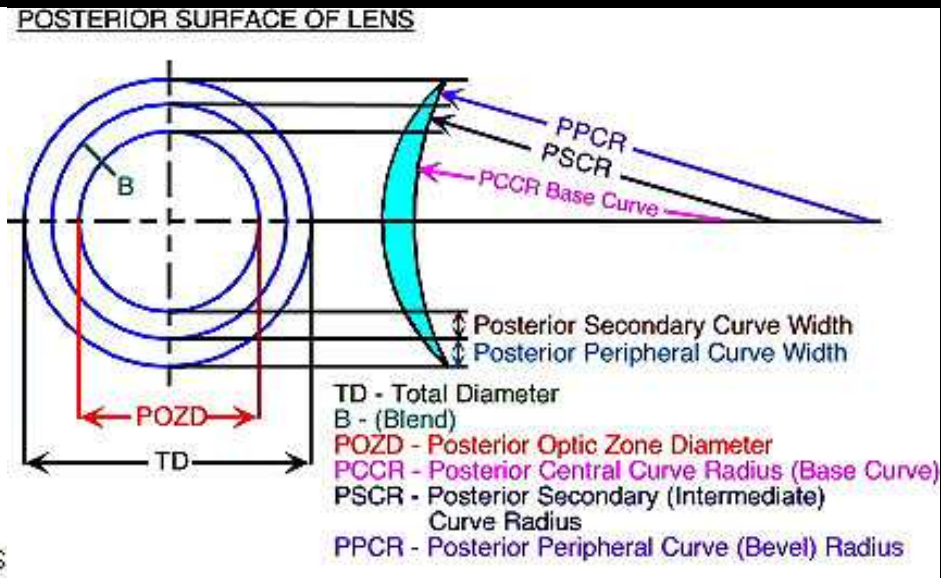
Positive Presentation

- Enthusiastic yet non-selling approach
- Honest about adaption
- Focus on positives

"I can't wear this lens"

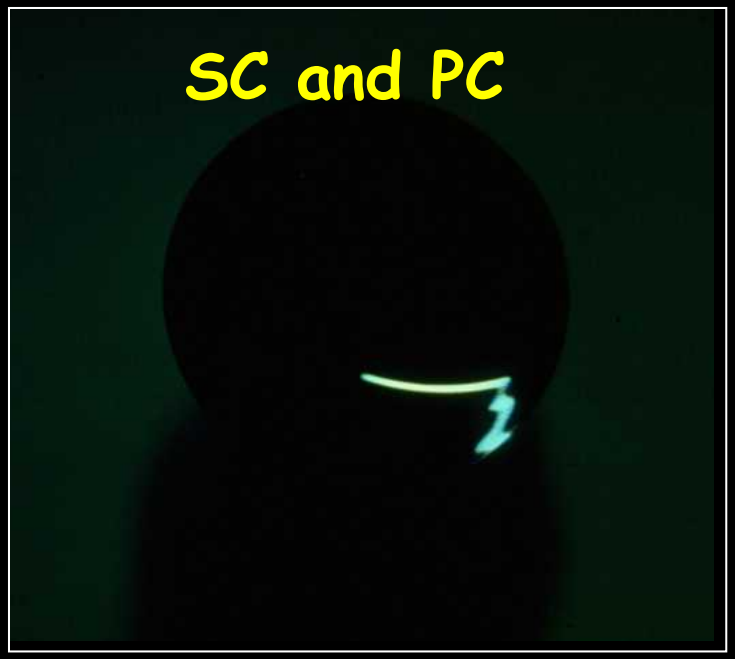
- Poor edge
- Poor blend
- Poor wetting





Fluorescent Tube Technique


No SC or PC


SC and PC


Blended SC and PC

Optimizing Practice Success With GP Lenses

Resources

- consultants
- GP Lens Institute www.gpli.info
- 50 common patient questions
  www.contactlenssafety.org

Optimizing Practice Success With GP Lenses

This website is presented for public education by the **GP Lens Institute** (GPLI), the educational arm of the Contact Lens Manufacturers Association (CLMA).

No information in this website should be construed as medical advice and the educational information herein should be used to supplement, not replace, the advice of a qualified eye care practitioner.

Founded in 1985, GPLI provides education to consumers and eye care practitioners to enable them to fully benefit from the many advantages of GP contact lenses. GPLI supports **eye doctors**, other contact lens practitioners and optometry students with workshop programs, online symposia and an array of educational materials.

GPLI Advisory Board 2019

Optimizing Practice Success With GP Lenses

Fitting sets

- MUST have them

WHAT IS THE CORRECT WAY TO FIT GP LENSES ?

EMPIRICAL OR DIAGNOSTIC ?

IS ONE METHOD CORRECT SOMETIMES AND NOT THE OTHER ?

GP In-Office Care of Dx Lenses

CDC

"Contact lenses used in trial fittings should be disinfected after each fitting by using a hydrogen peroxide contact lens disinfecting system for 10 minutes"

1. Store dry
2. Verify specifications
3. Clean before and after each use

Optimizing Practice Success With GP Lenses

Spare pair storage

- dry

Plasma used by a contact lens laboratory is created by radio frequency ionization of oxygen gas in a vacuum chamber. Oxygen plasma reacts with molecular debris deposited on the lens surface, breaking them down and turning them into volatile compounds, which are removed. Oxygen plasma is especially effective in removing organic lipids from lens surfaces.

Following plasma treatment, the lens is as clean as it will ever be. The lens is immediately placed in a storage solution to protect it from environmental contamination.

Are GP Corneal Lenses "Dead" or "Alive"?

Hydra-PEG

Package Insert: Menicon Unique-pH® MULTI-PURPOSE SOLUTION

Please read carefully and keep this package insert for future use in case you have a problem. **Menicon Unique-pH** Multi- Purpose Solution cleans, conditions, disinfects and enhances initial lens wettability to promote comfortable wear of rigid gas permeable contact lenses. **Menicon Unique-pH** Multi-Purpose Solution is a gentle, effective, chlorhexidine-free, thimerosal-free and benzalkonium chloride-free formulation for rigid gas permeable lens wearers. Always follow your eye care professional's instruction.

DESCRIPTION:

Menicon Unique-pH Multi-Purpose Solution is a sterile, buffered aqueous solution. It contains hydroxypropyl guar, polyethylene glycol, poloxamine, boric acid, propylene glycol, and is preserved with polyquaternium- 1 0.0011%, and edetate disodium 0.01%.

ACTIONS:

Cleans: Menicon Unique-pH Multi-Purpose Solution removes dirt, protein deposits and debris from your contact lenses. No separate daily cleaner is required.

Conditions: This solution adjusts to your eye's natural tear pH to enhance the wettability and comfort of rigid gas permeable contact lenses upon insertion. This formula is designed to provide a soothing effect during lens wear.

Disinfects: This solution contains antimicrobial agents which destroy harmful microorganisms (germs) commonly found on the surfaces of lenses.

INDICATIONS (Uses):

Menicon Unique-pH Multi-Purpose Solution is indicated for the cleaning, rinsing, disinfection, and conditioning of fluorosilicone acrylate and silicone acrylate rigid gas permeable contact lenses.

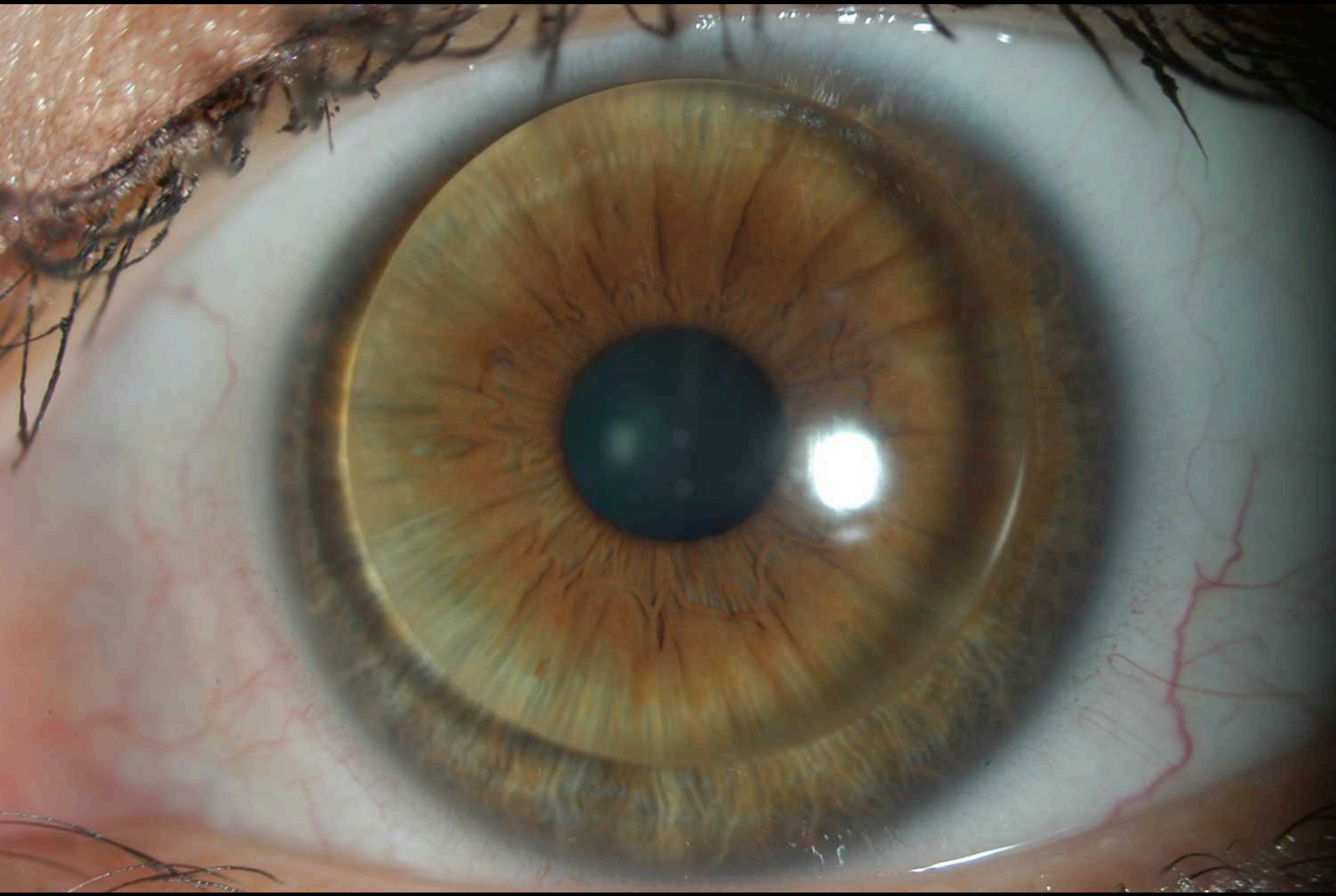
Polyethylene Glycol 400 0.25%

Contents: A sterile, isotonic solution that contains poloxamer, sodium phosphate buffer, sodium chloride, and disodium edetate; preserved with polyhexanide 0.0001%. Contains no chlorhexidine or thimerosal

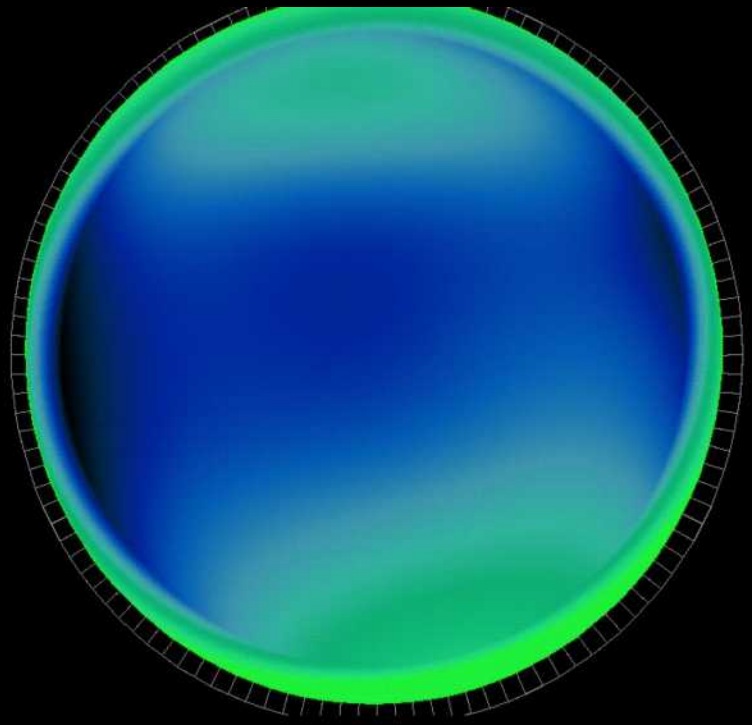

With HP

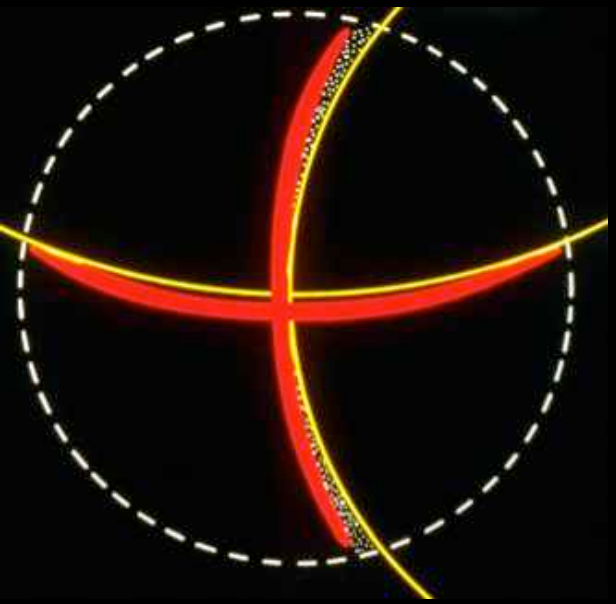
Initial Concerns

- Cannot modify
- Spare pair
- How do you check power and BC?
- Cannot do routine C&P
- Care system compliance
- No Progent
- No water

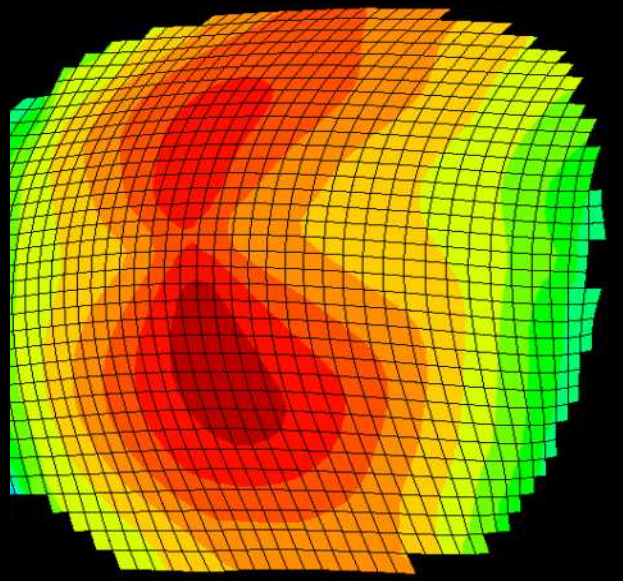


Learn to Interpret

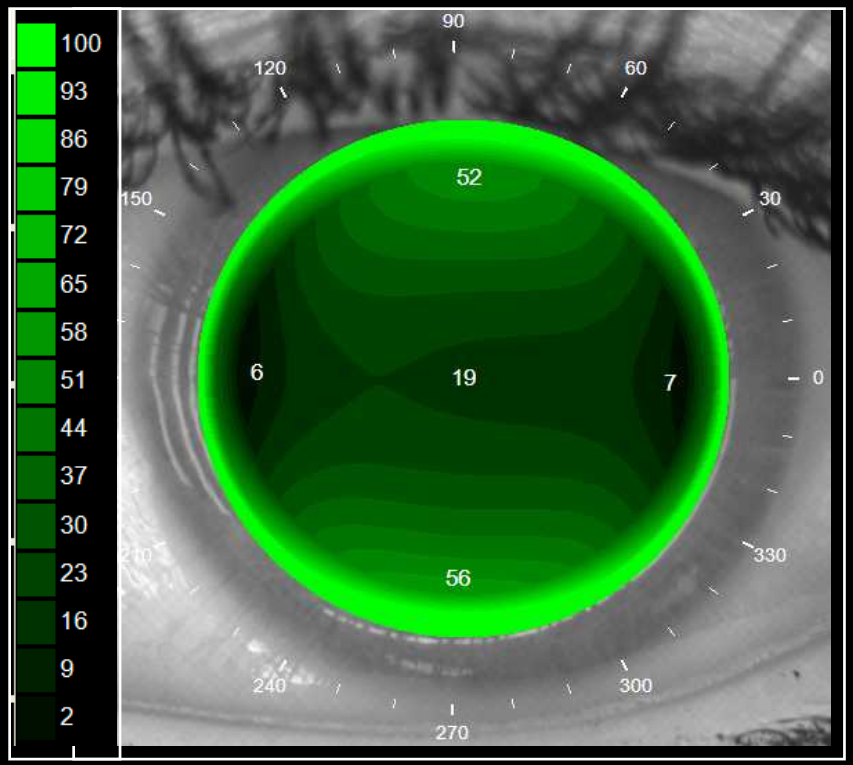




Fluorescein Pattern Interpretation



Darker Green
smaller tear film thickness



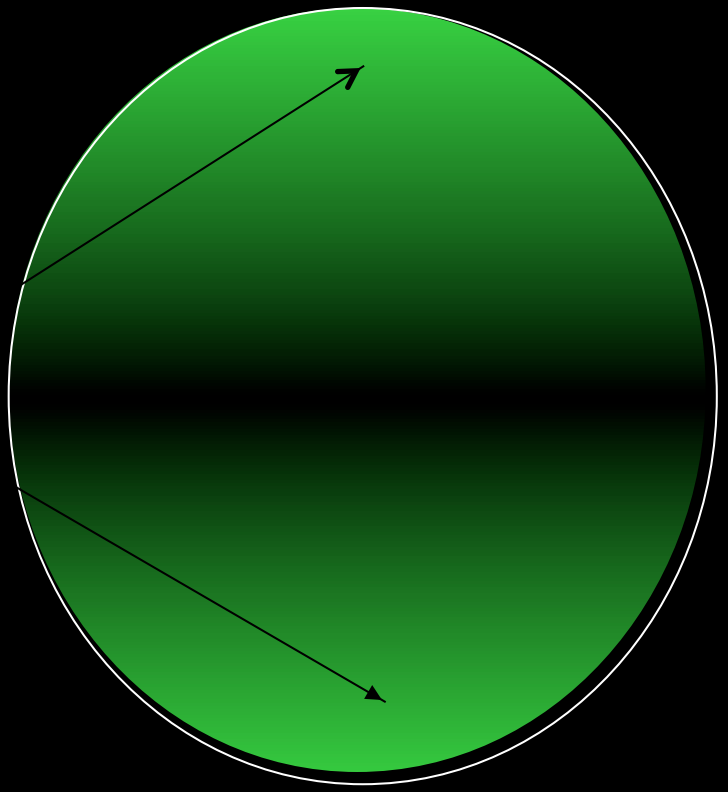
Brighter Green
larger tear film thickness

Fluorescein Patterns

Astigmatic cornea

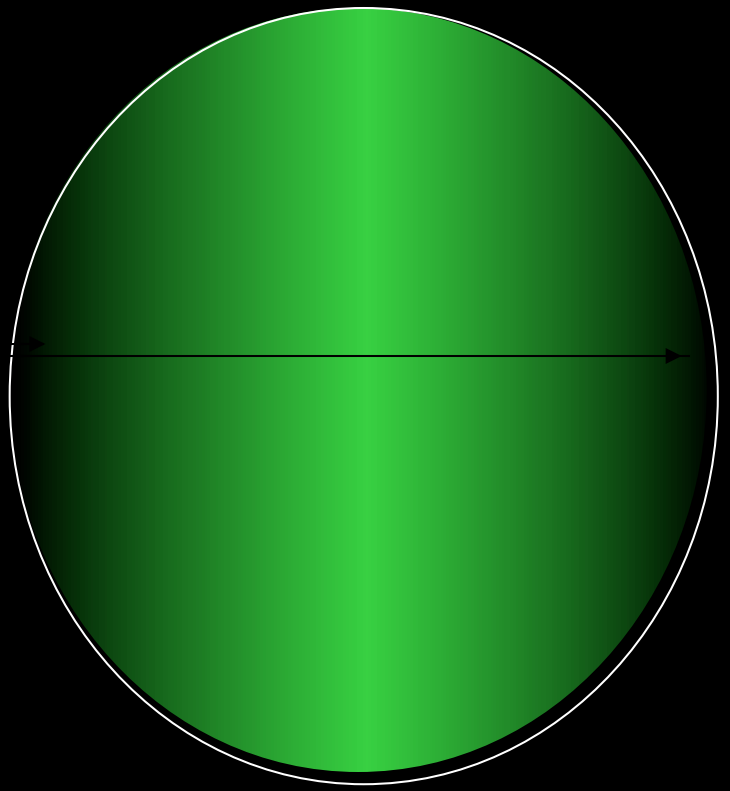
loose vertically

WTR

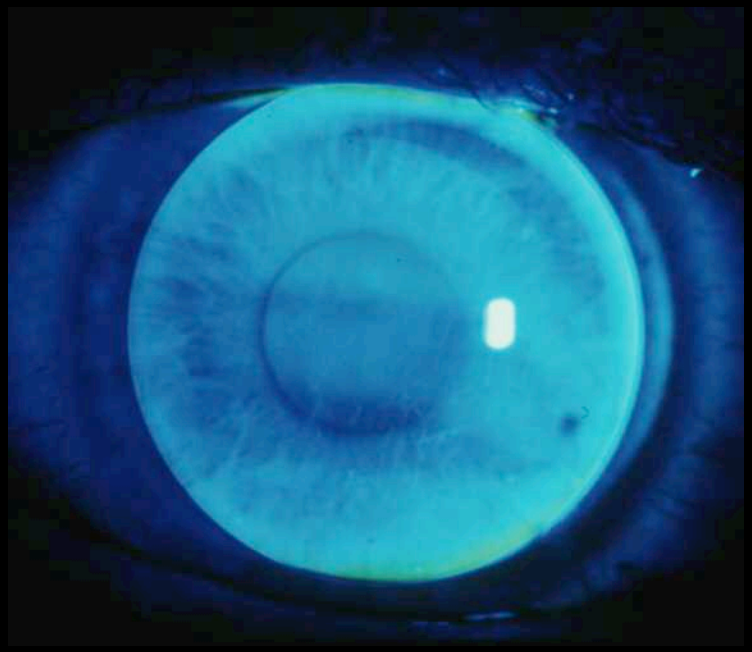


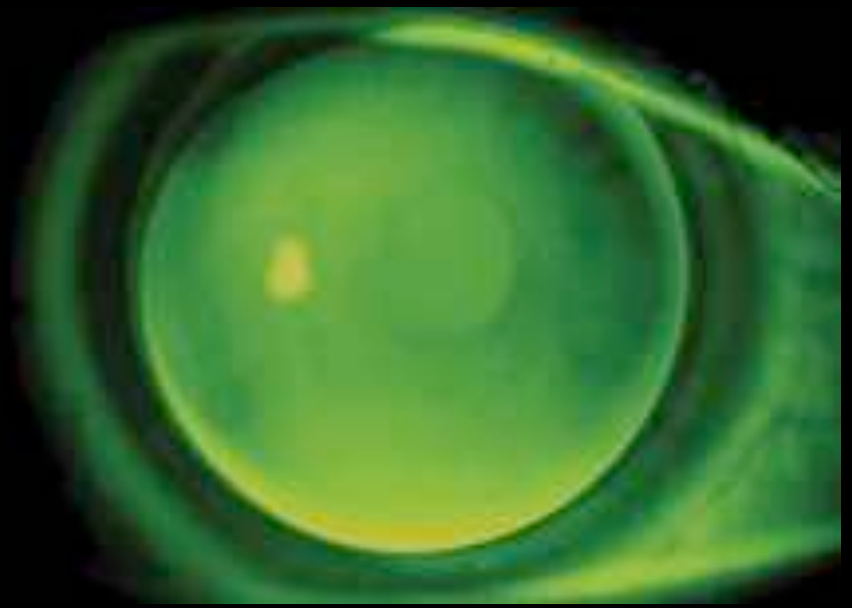
Fluorescein Patterns

Astigmatic cornea that is tight horizontally



Contact Lens Evaluation

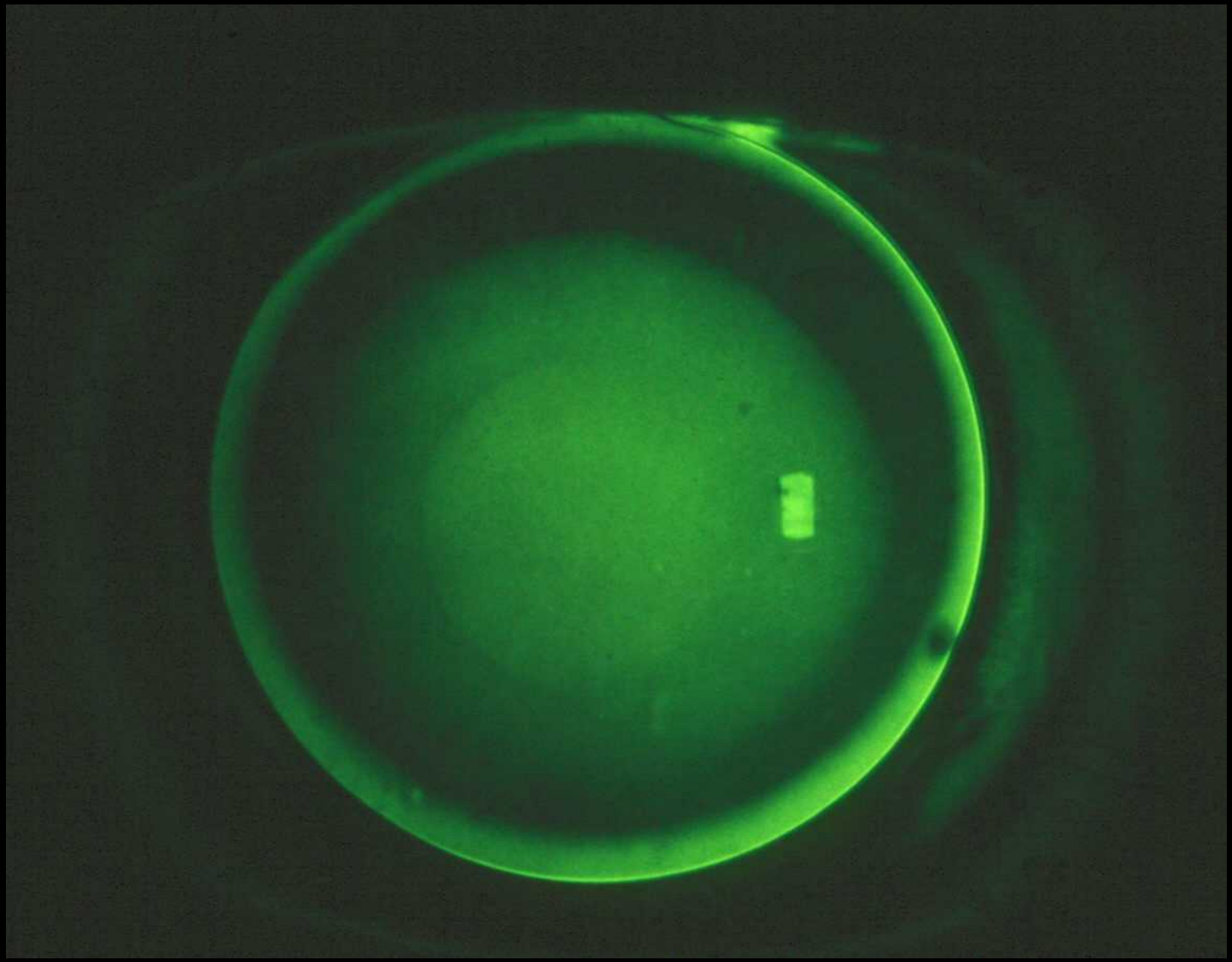




Wratten Filter

Wratten Filter

Contact Lens Evaluation

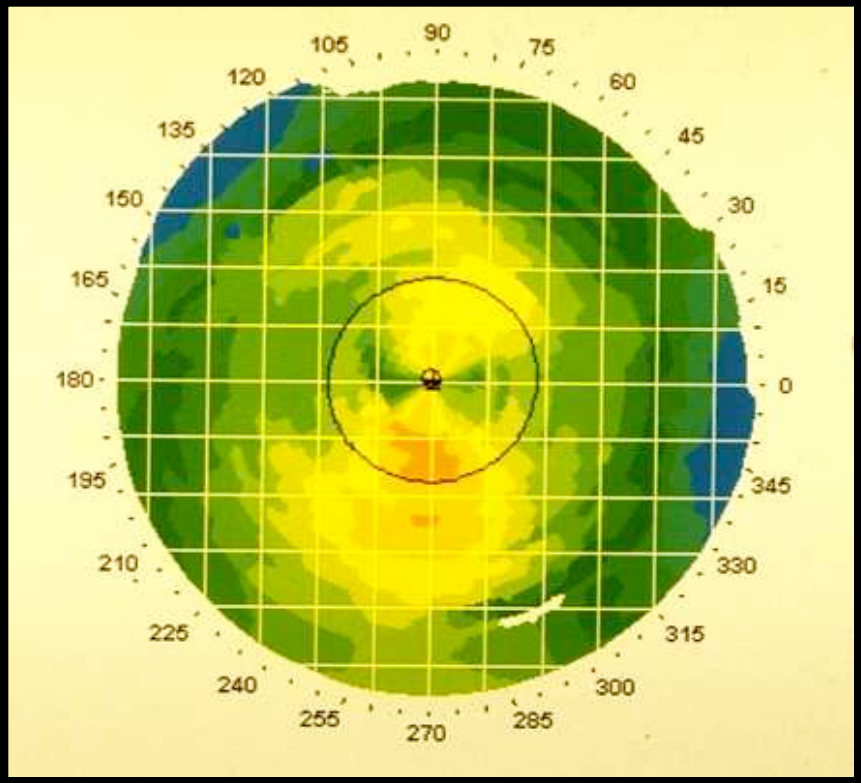


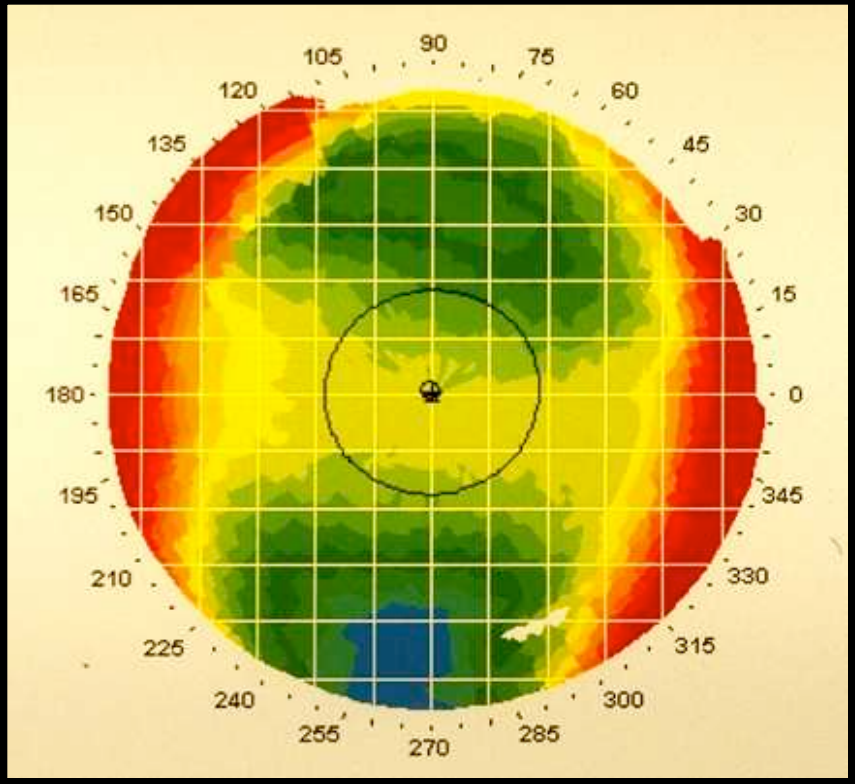
Corneal lenses will always
follow the
path of least resistance

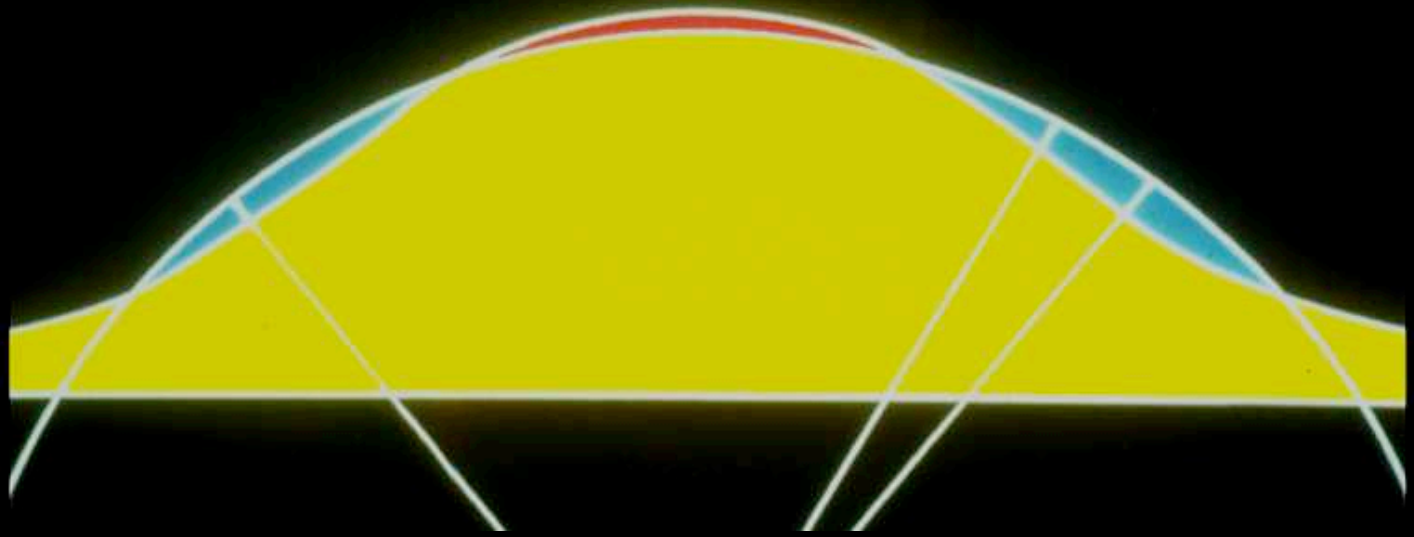
Corneal lenses will fit "tightest" where the cornea is flattest

Corneal lenses will fit "loosest" where the cornea is steepest

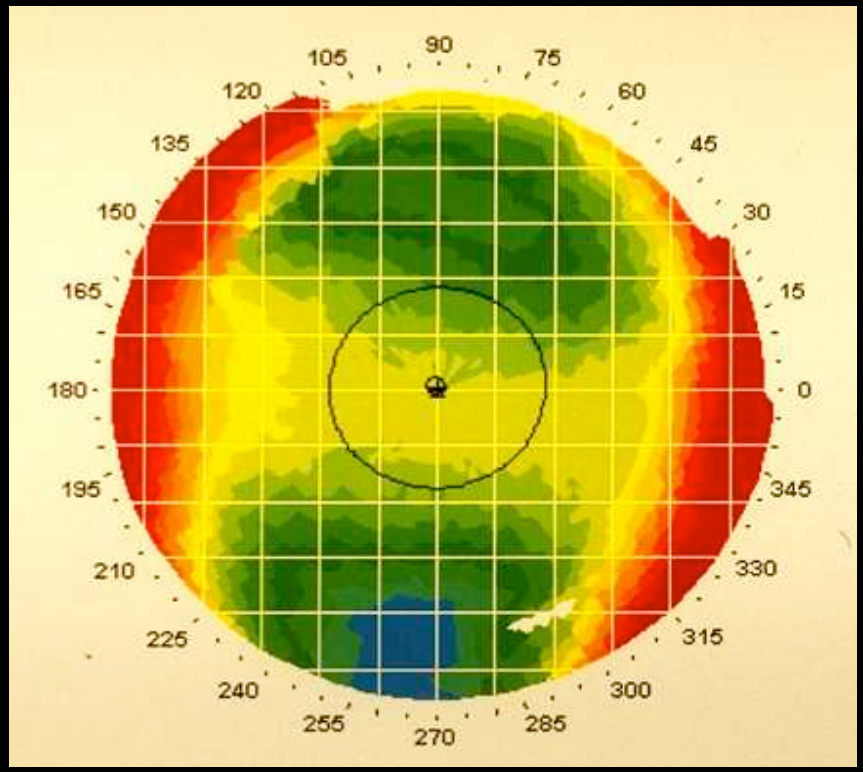
Axial vs Elevation Display

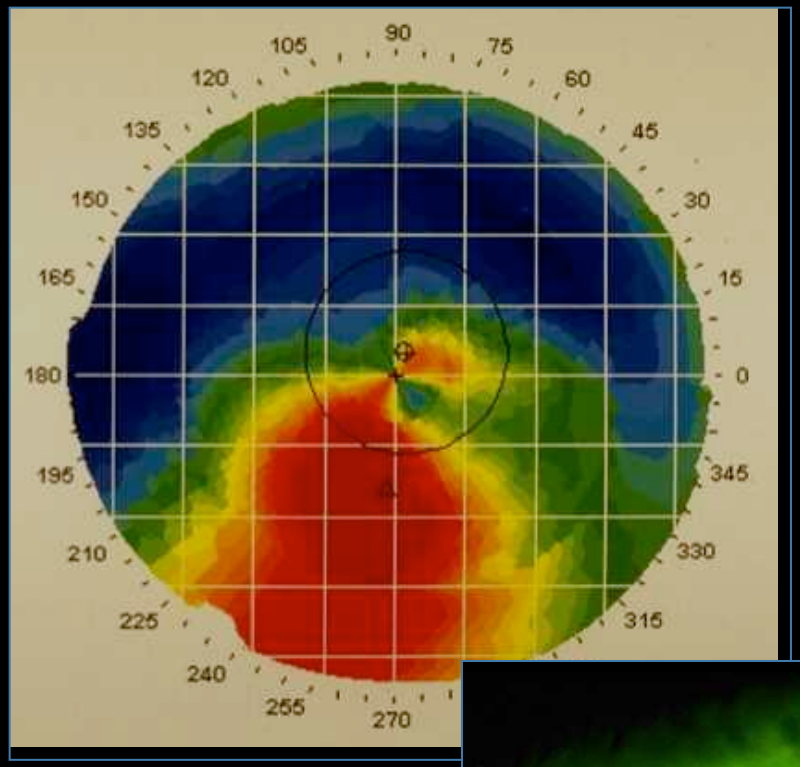


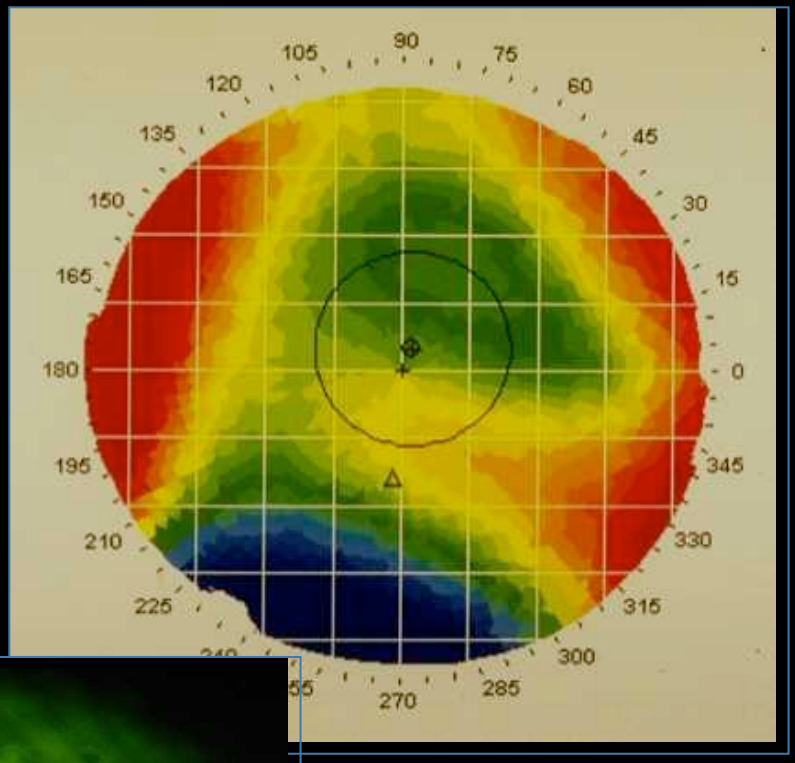


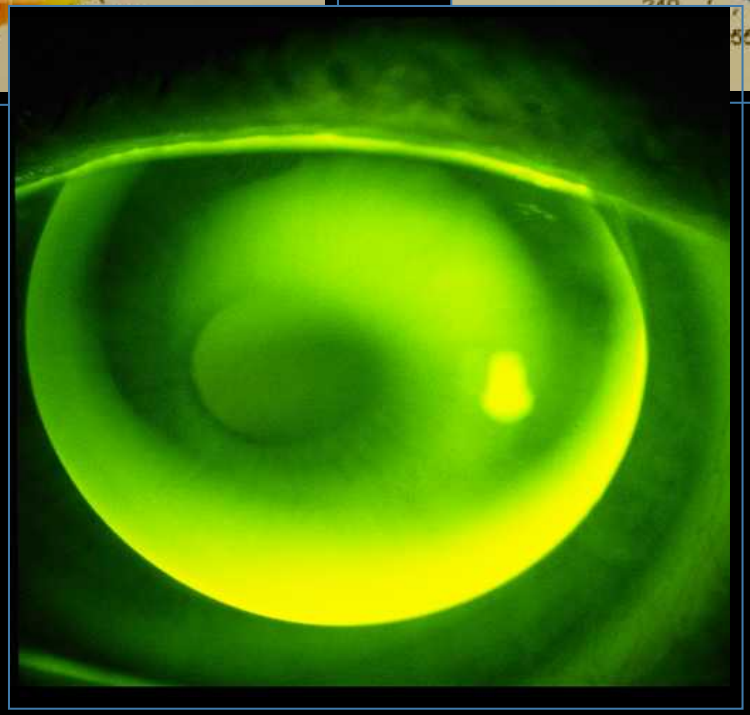


- (+) numbers, Cornea Red, is higher than the reference sphere.
- 0.00 Cornea is equal to the RS.
- (-) numbers, Cornea Blue, is lower than the reference sphere.

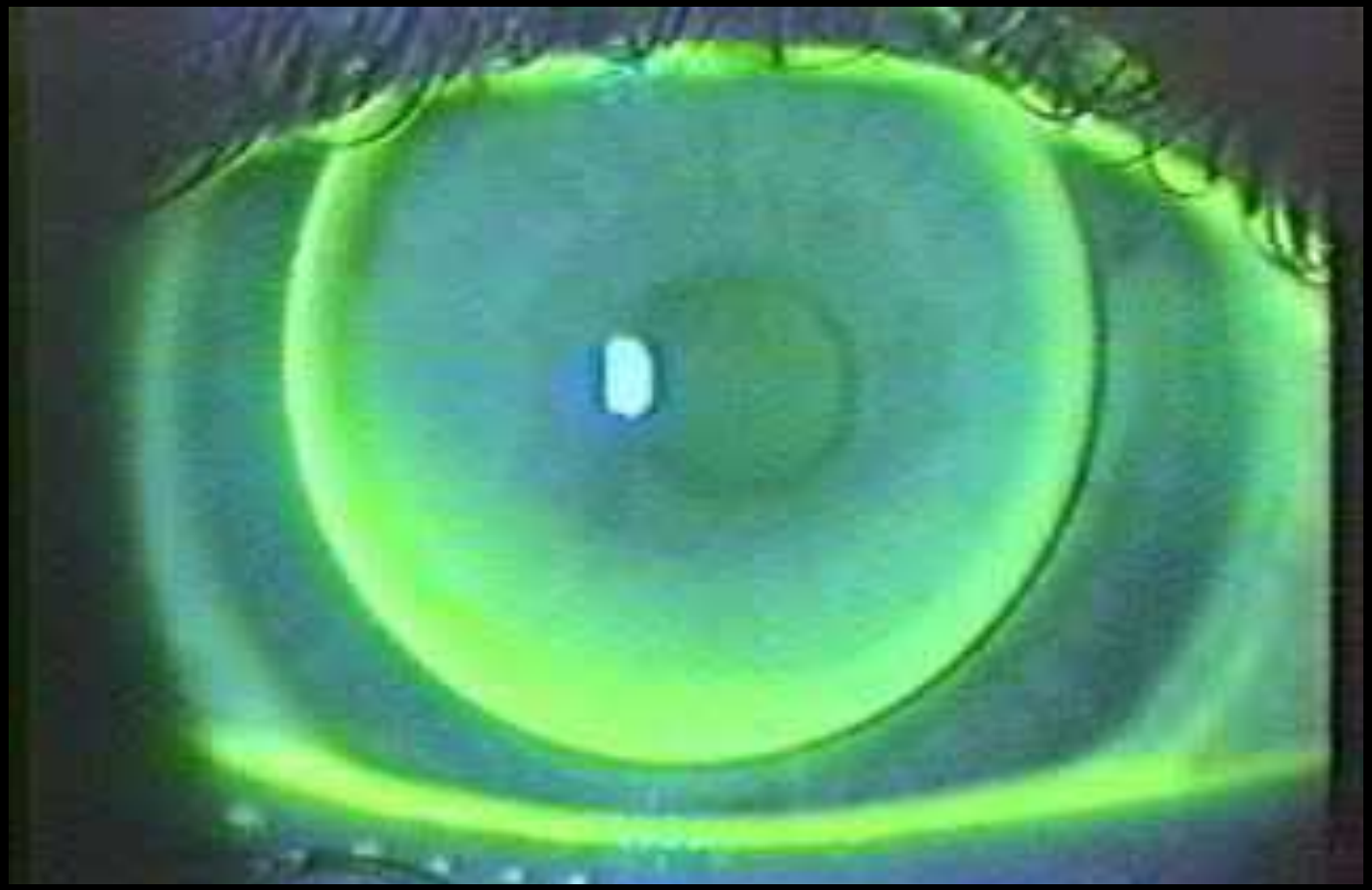



90
105
75
120
60
135
45
150
30
165
15
180
0
195
345
210
330
225
315
240
255
270


90
105
75
120
60
135
45
150
30
165
15
180
0
195
345
210
330
225
315
300
270
285



Interpretation of topography is easier with flatter lens

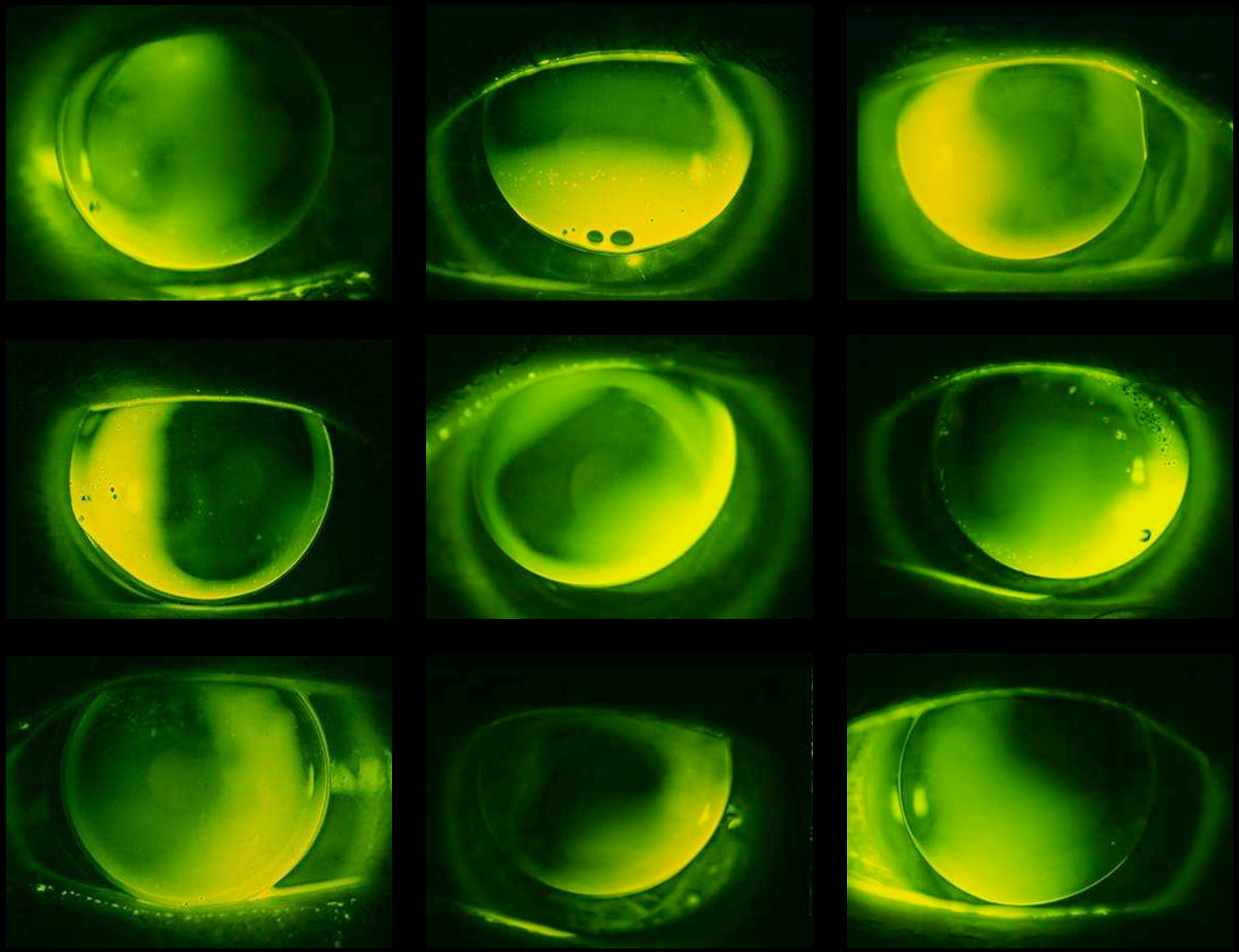


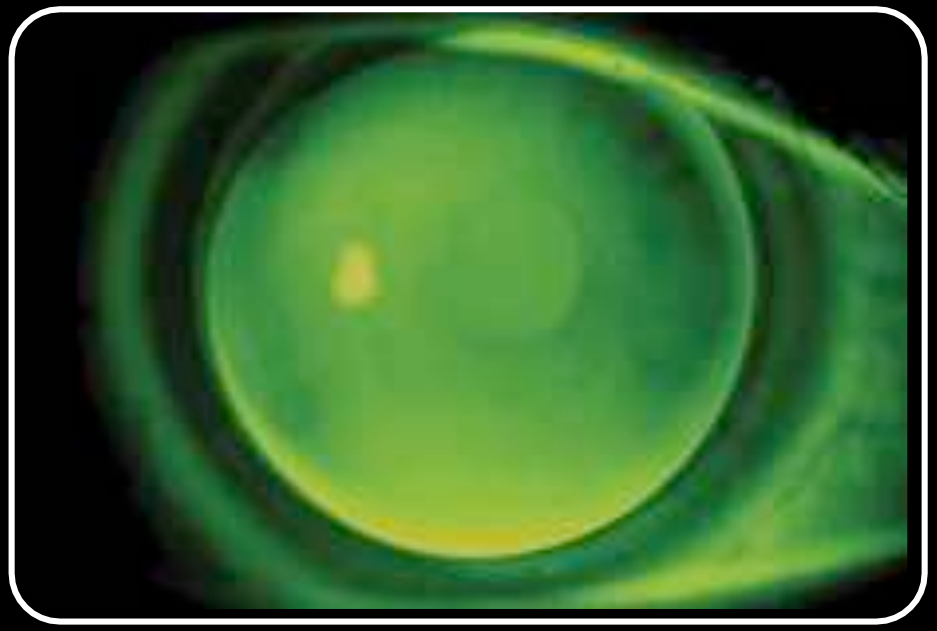
DX GP is 44.00D / 9.7

The lens is your best "elevation map"

GP General Tendencies

- Loose lenses tend to ride ???
- Tight lenses tend to ride ???
- Tight lenses feel ok for a shorter period of WT, then worsen
- Loose lenses take a little longer for adaption





You can't make 'em all pretty,
the "art" is making them effective

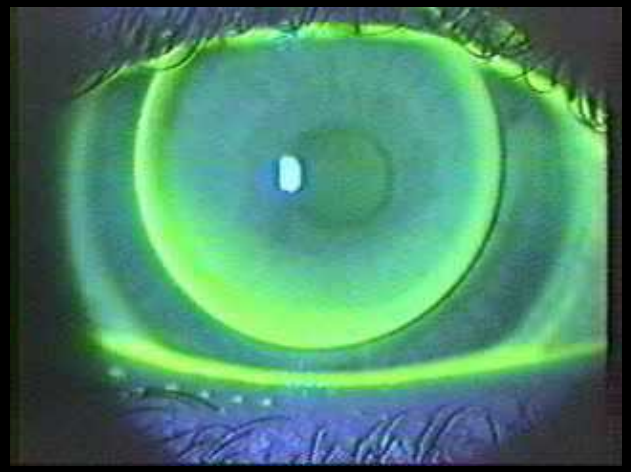
Place the GP lens where you want it and interpret the pattern

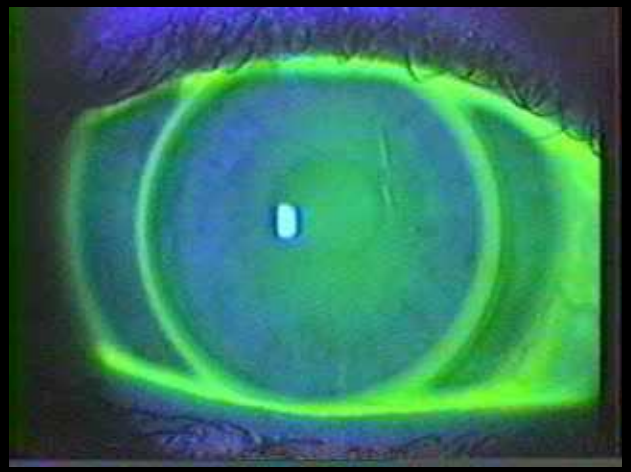
System of Lens Fit Characteristics

- Movement
  - good
  - fair
  - poor
  - sluggish
  - excessive

System of Lens Fit Characteristics

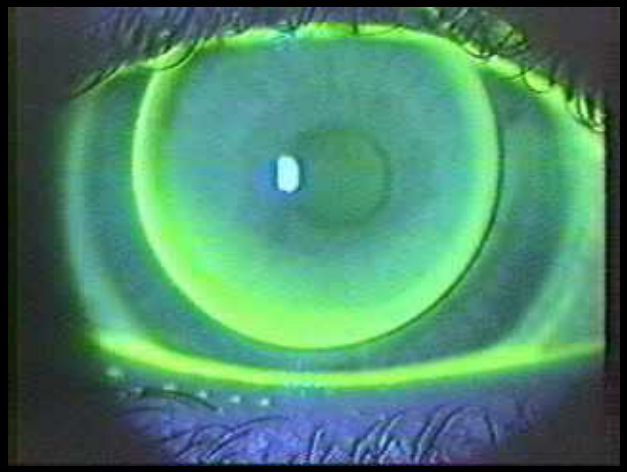
- Central Pattern
  - aligned
  - steep
  - flat

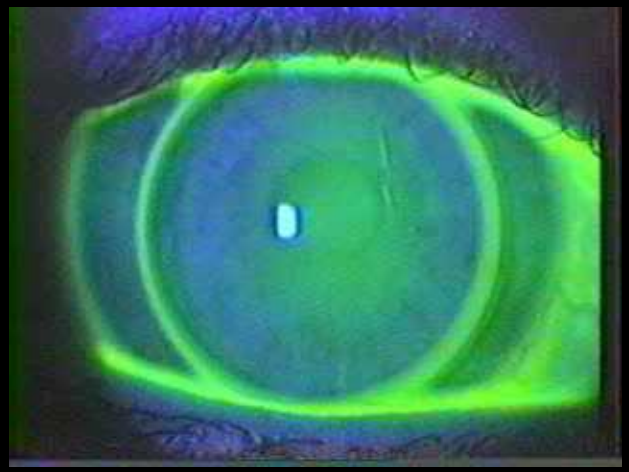




System of Lens Fit Characteristics

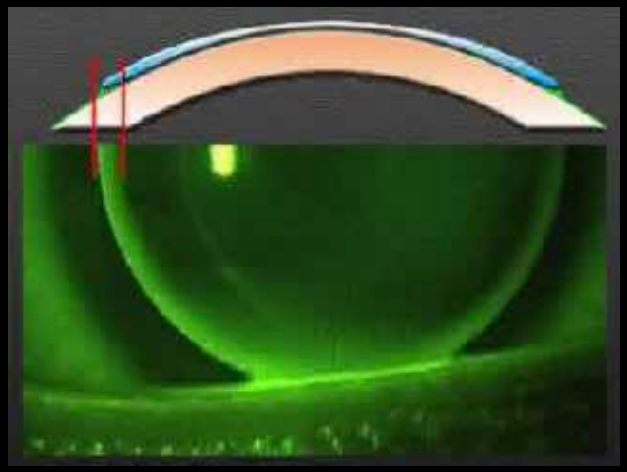
- Para central Pattern
  - aligned
  - steep
  - flat

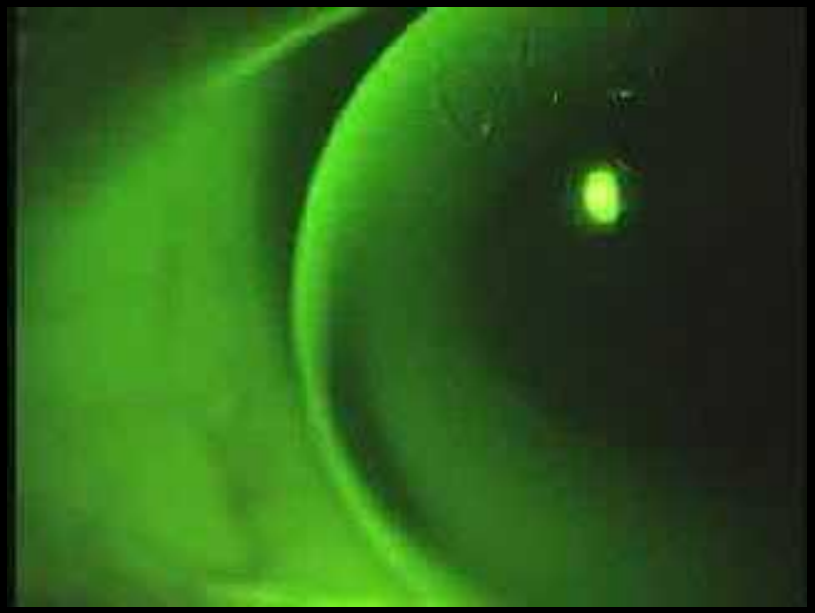


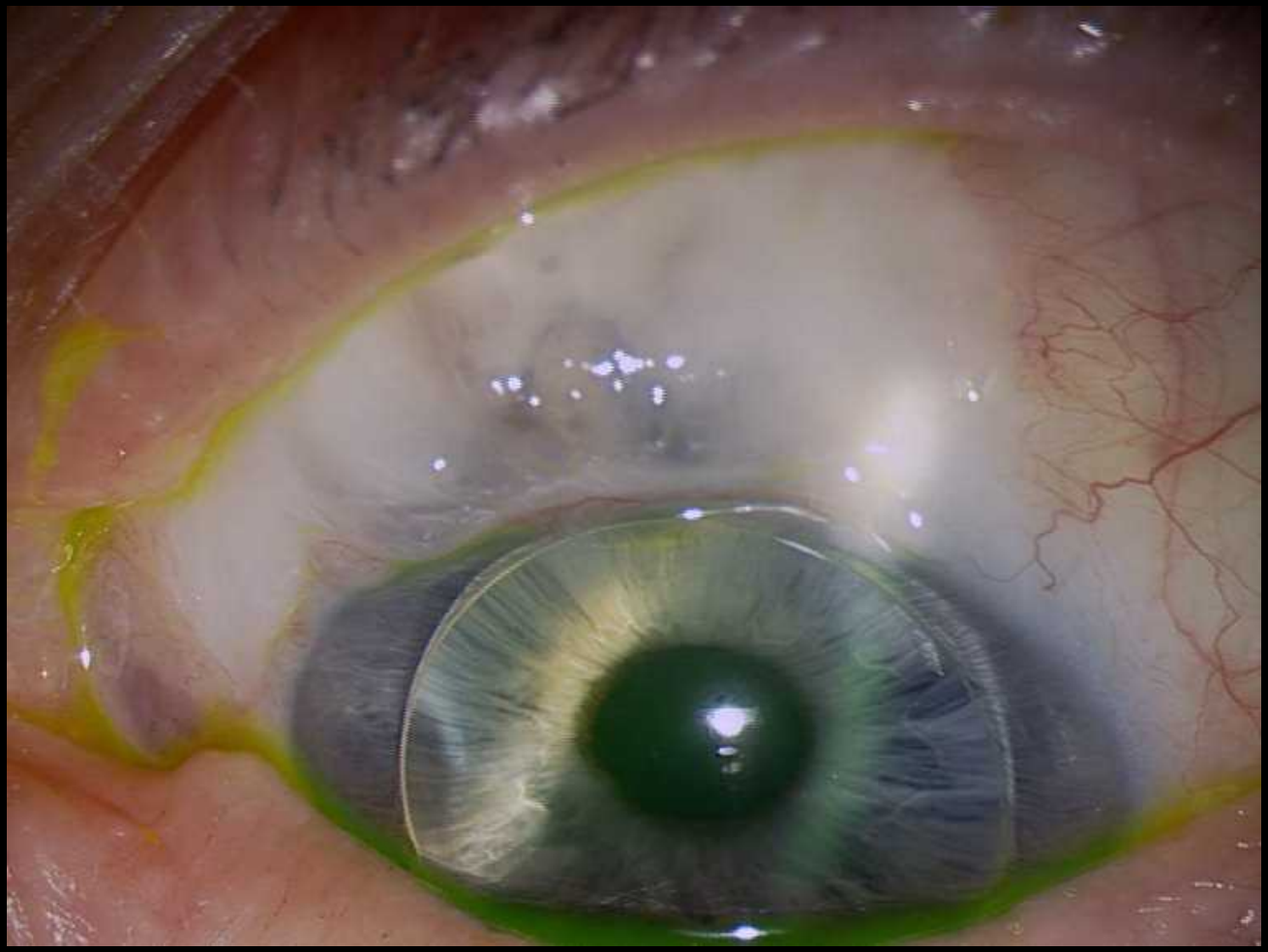


System of Lens Fit Characteristics

- Edge lift
  - adequate
  - excessive
  - poor

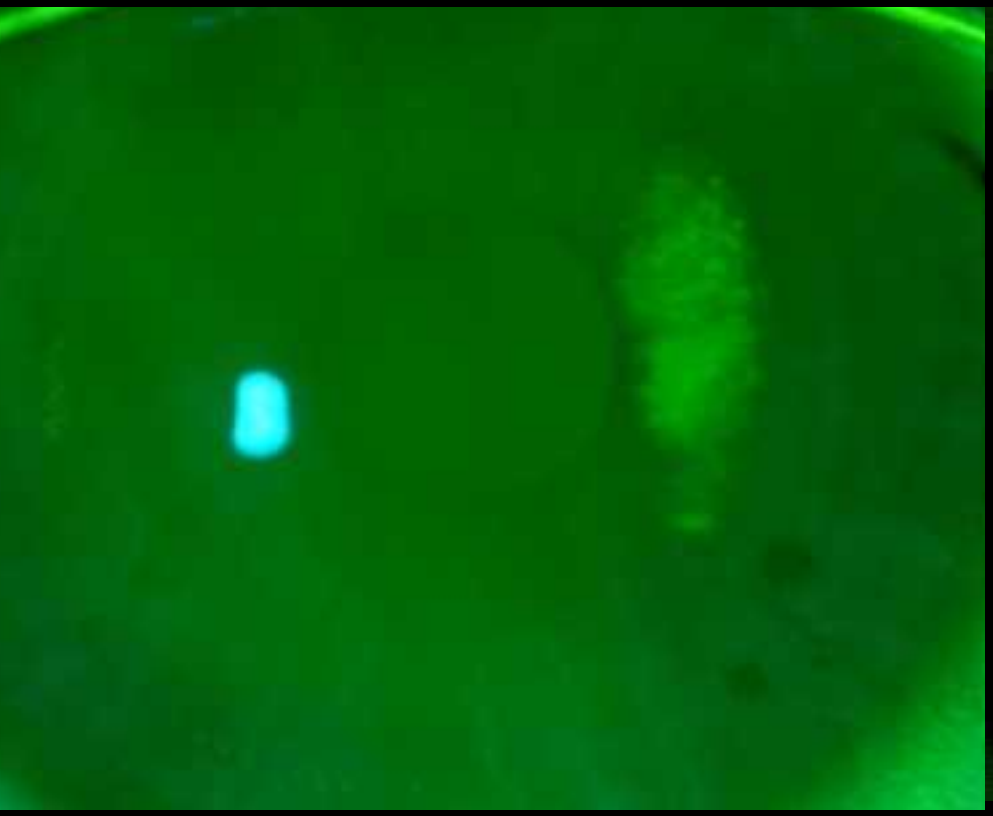




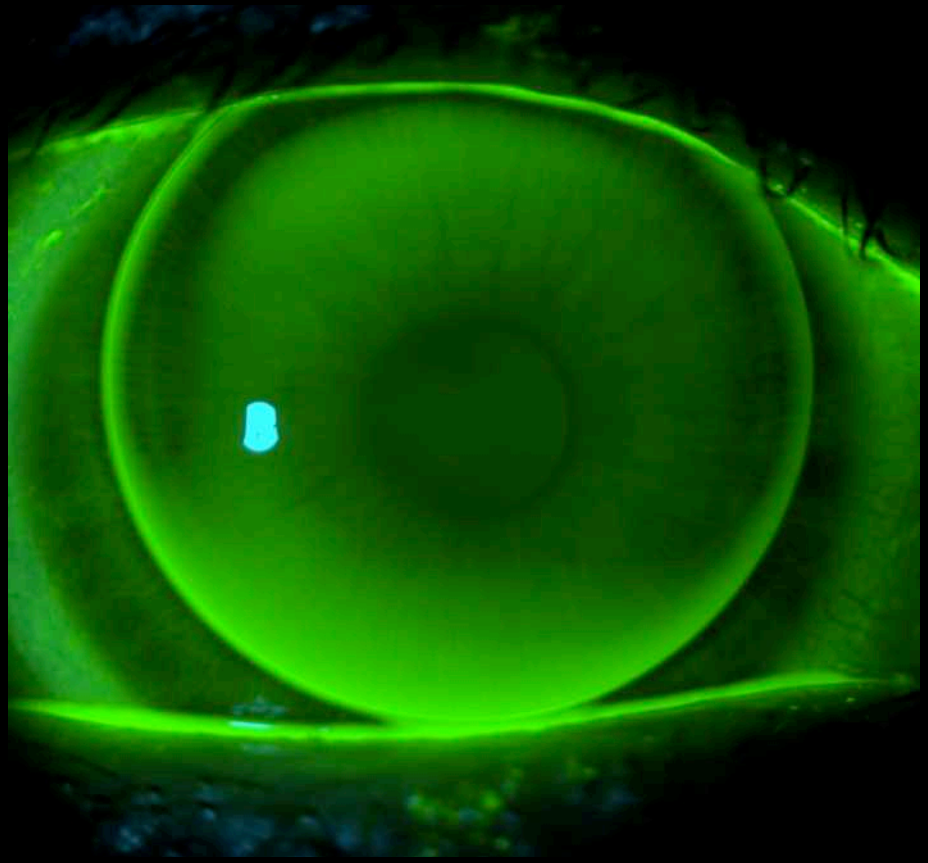


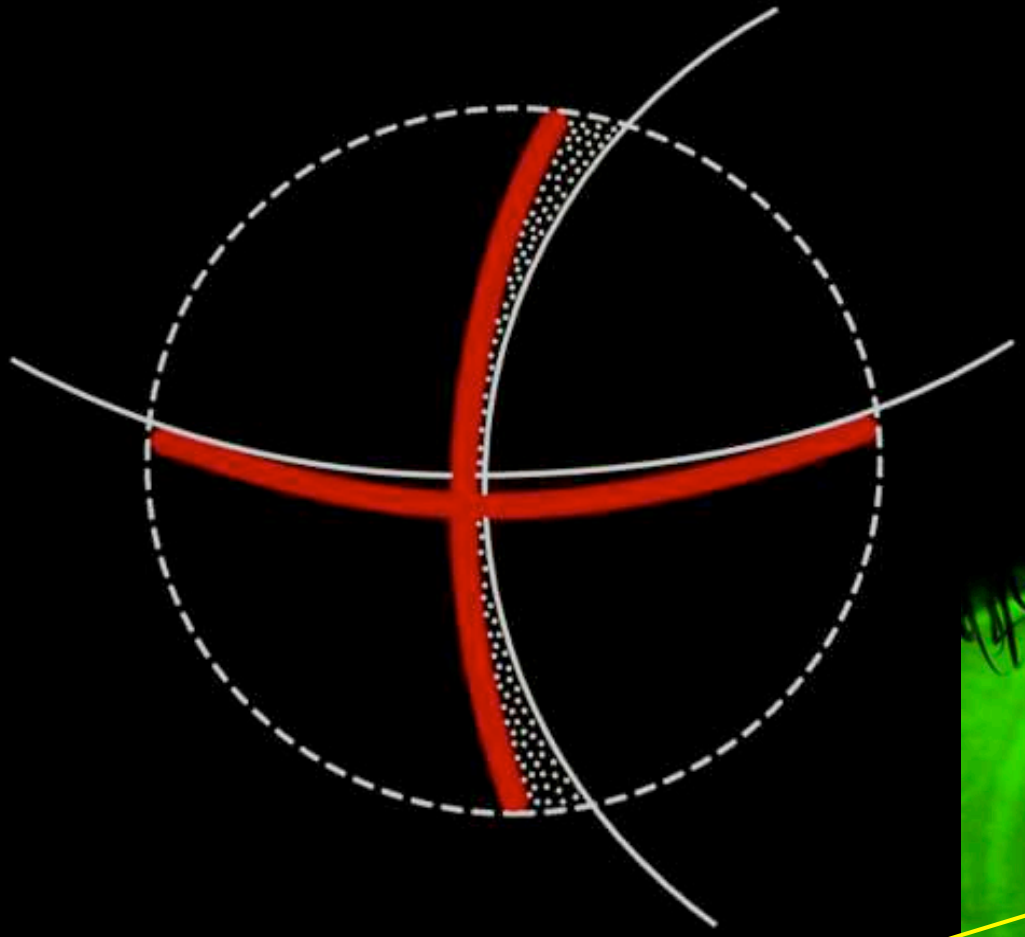
Evaluate lens position in downgaze

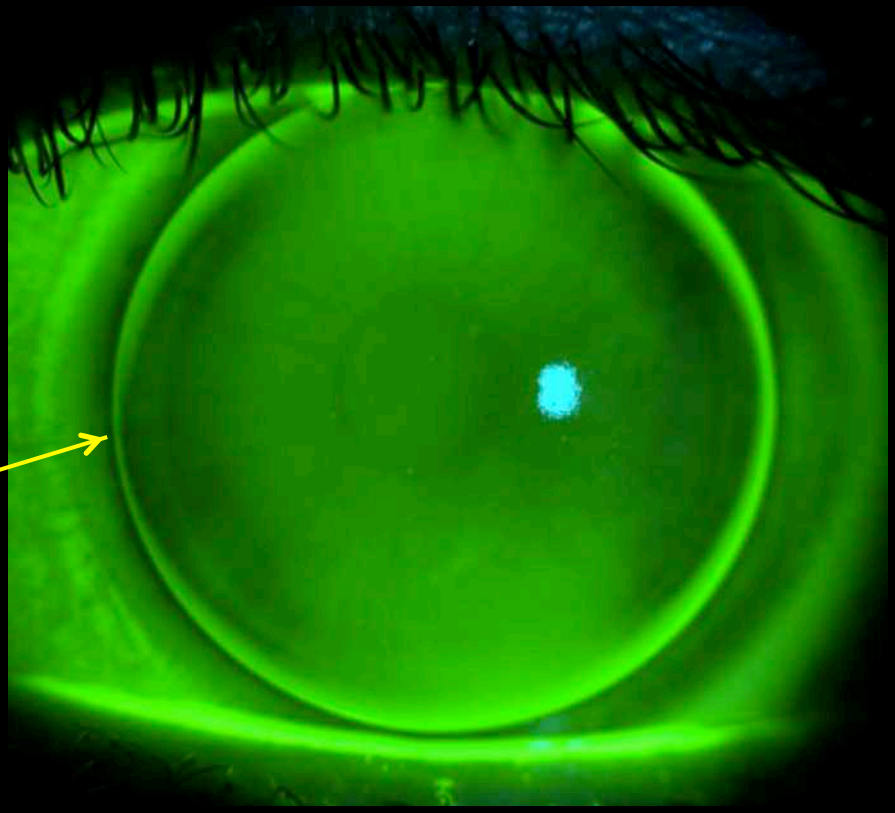
Keratopathy



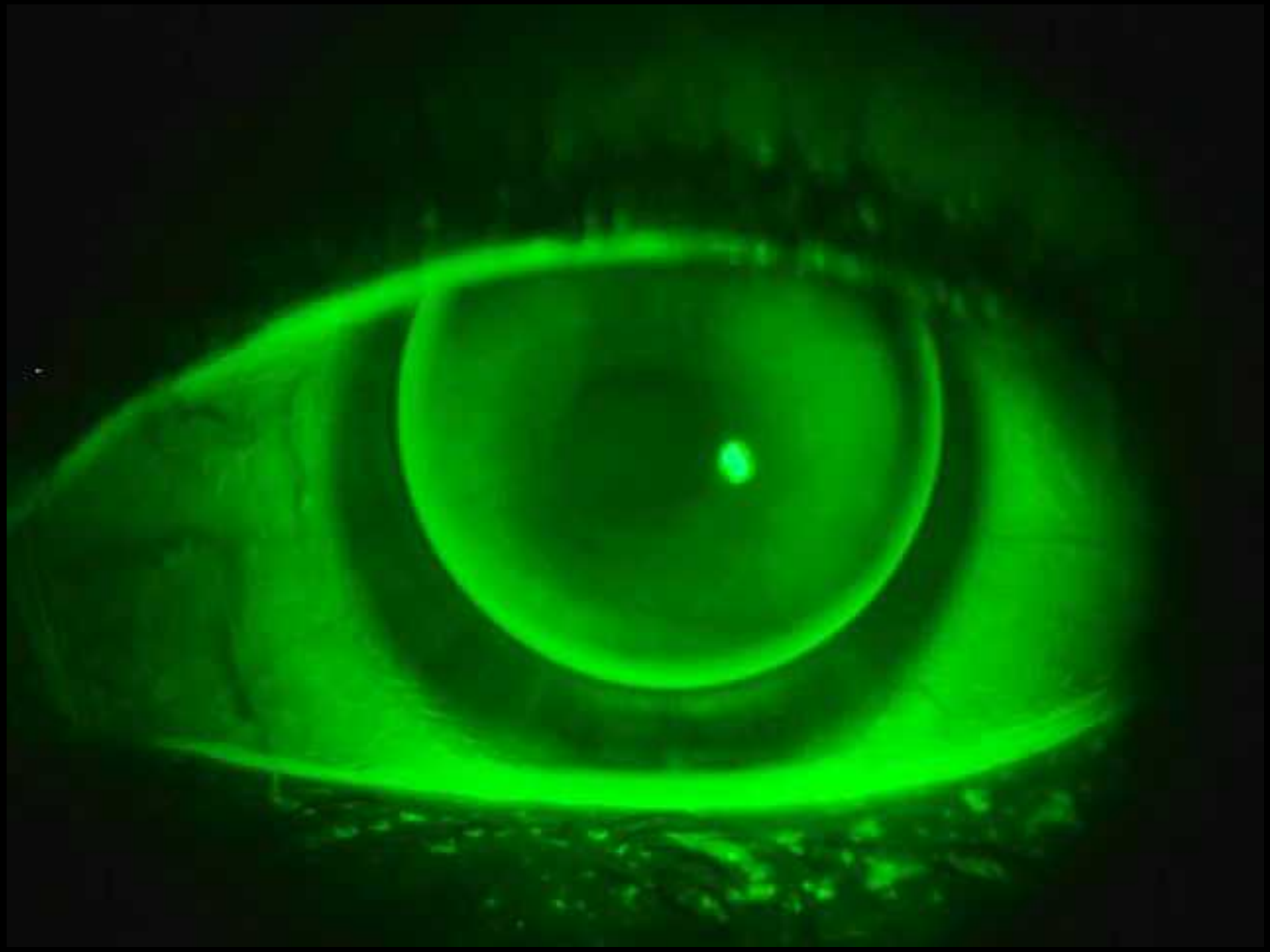
Peripheral Lens Design

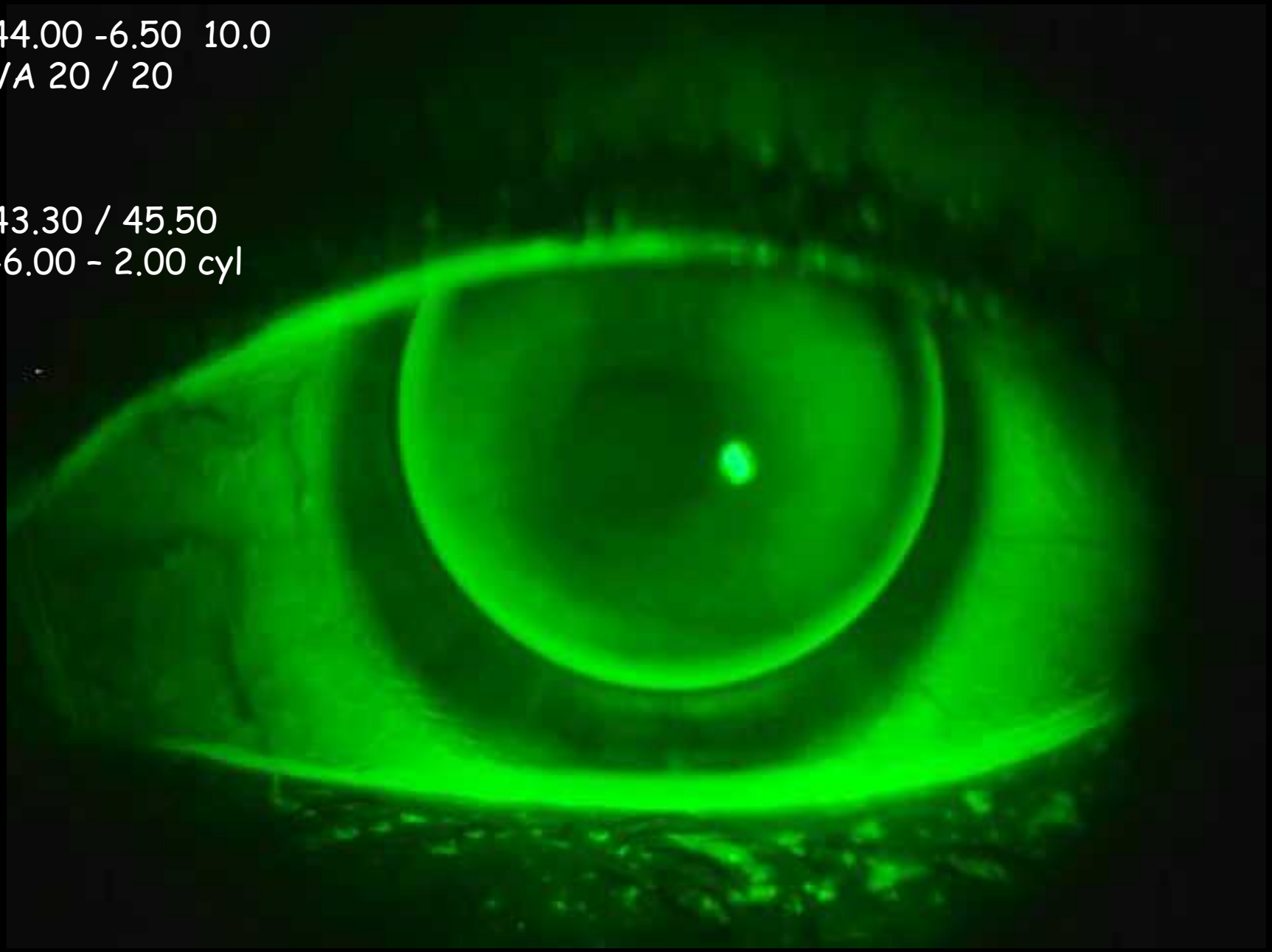


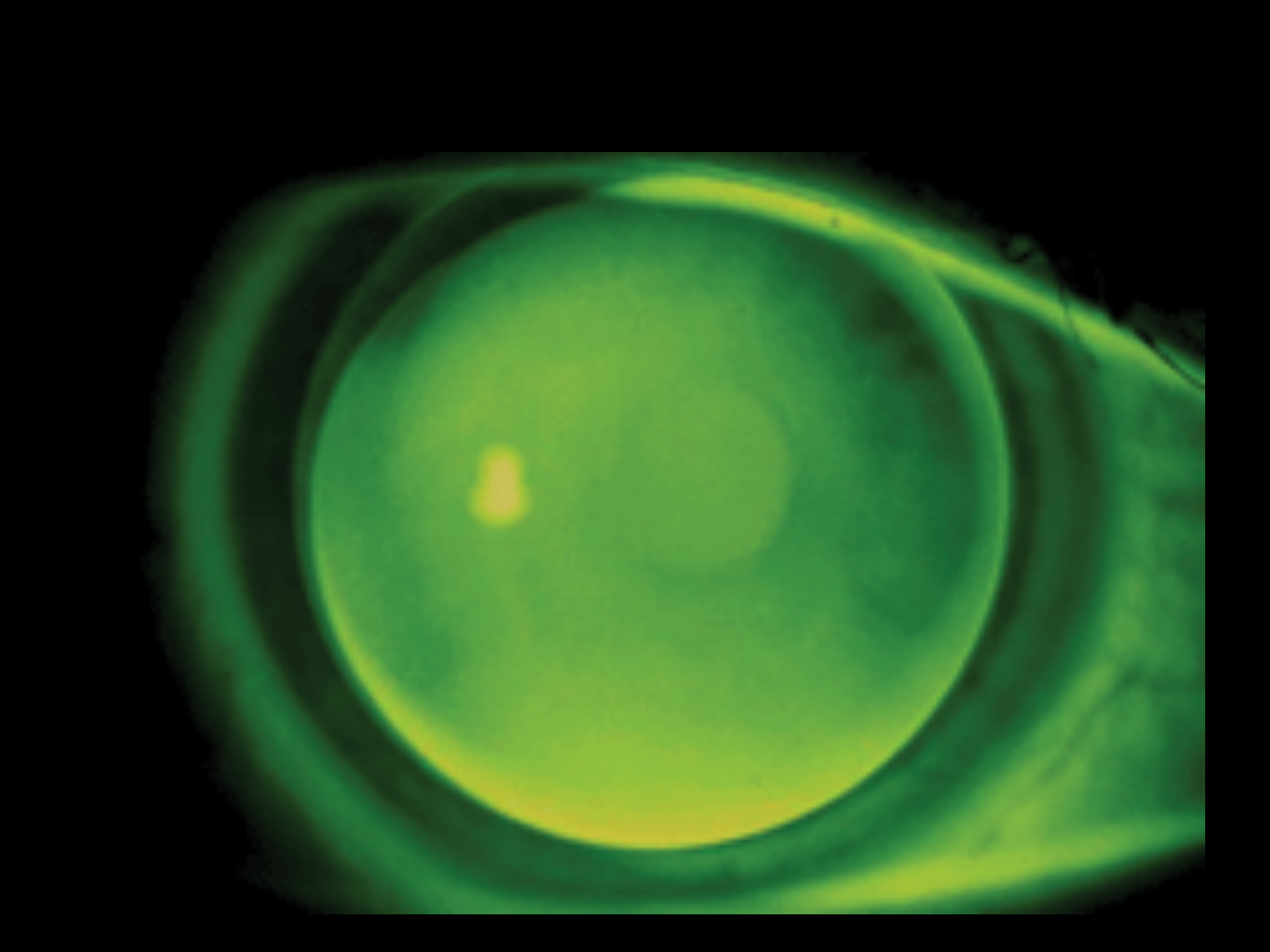




Inadequate Clearance




44.00 -6.50 10.0
VA 20 / 20
43.30 / 45.50
-6.00 – 2.00 cyl

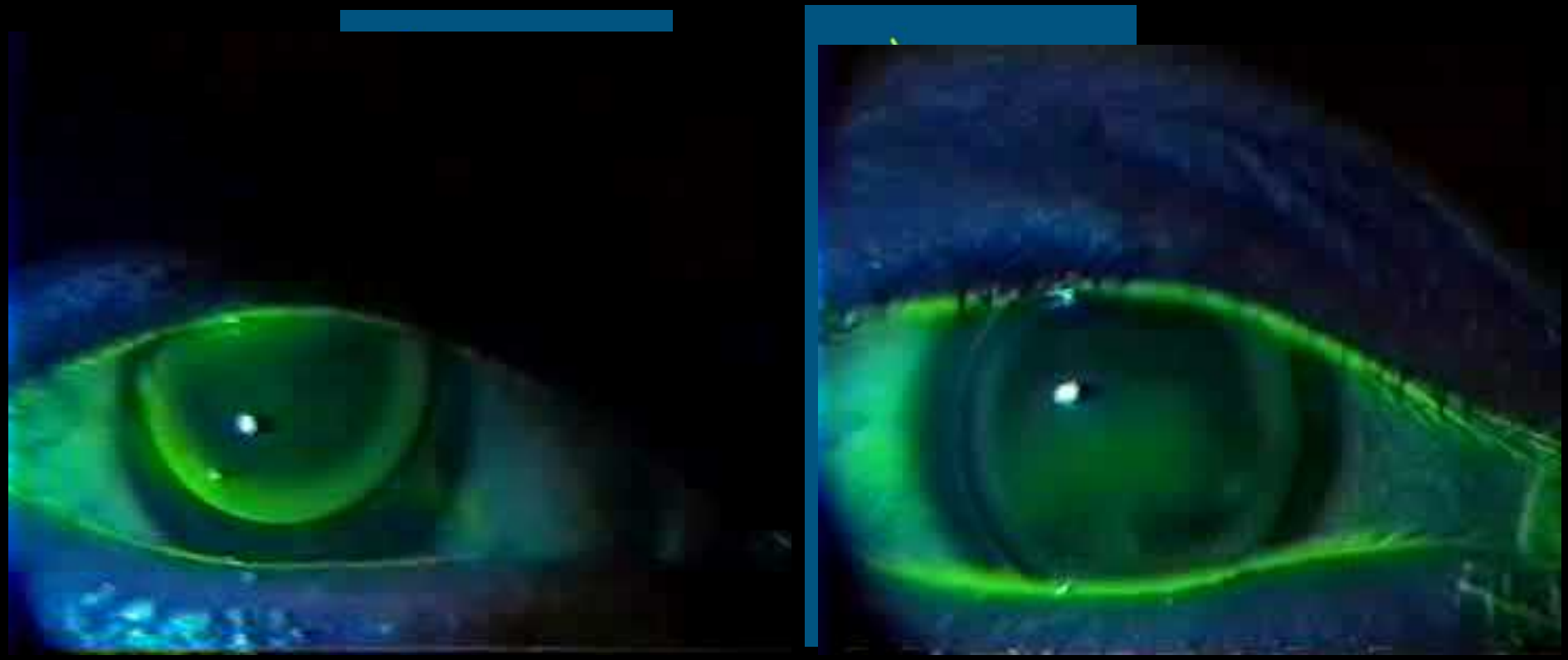


GP Lens Comfort Factors

Superior lens alignment / Inferior Clearance

GP Lens Comfort Factors

Unobstructed vertical movement



GP Lens Comfort Factors

Optic zone size

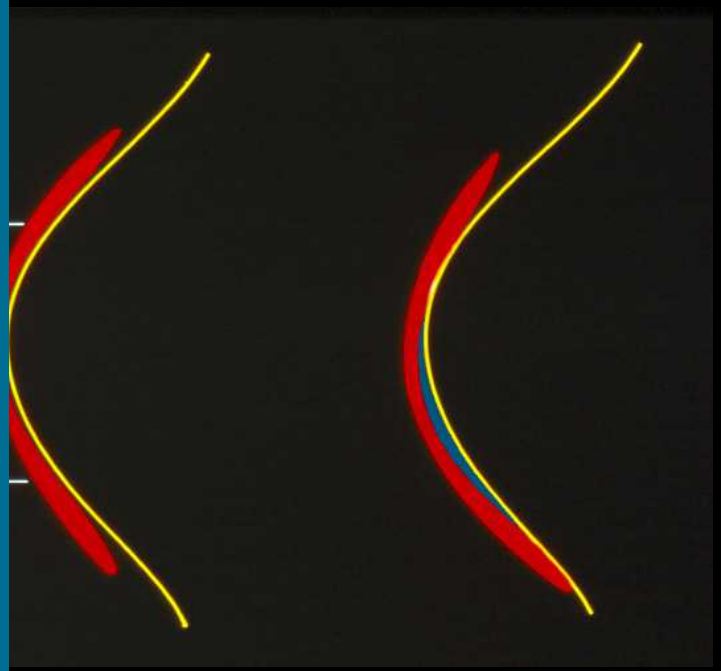
Overall lens diameter – 1.4mm

9.6 – 1.4 = 8.2 mm OZ

9.3 – 1.4 = 7.9mm OZ

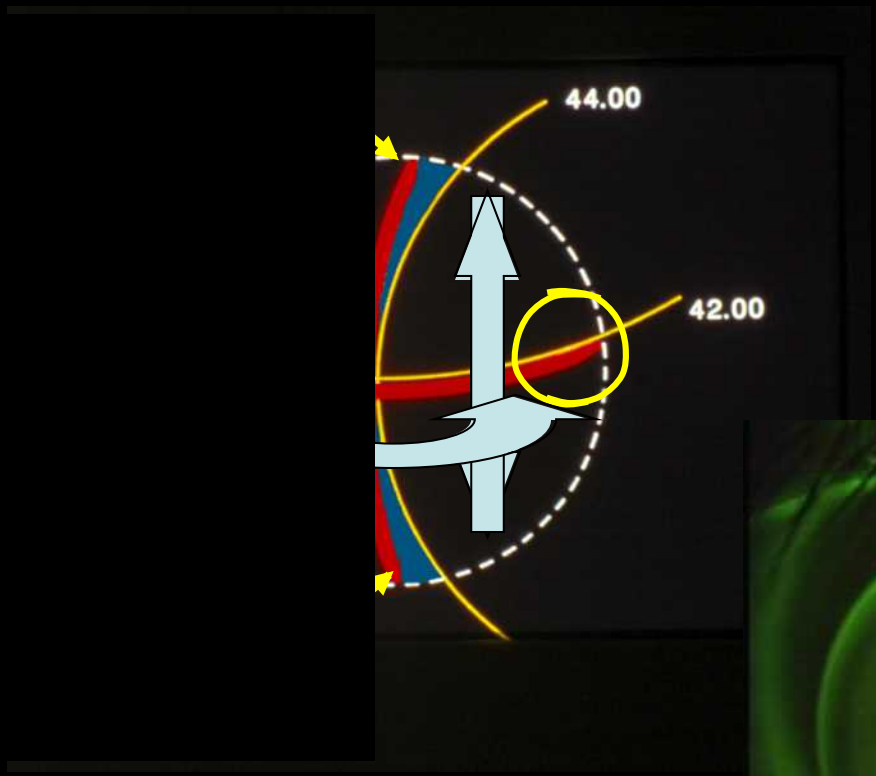
9.0 – 1.4 = 7.6mm OZ

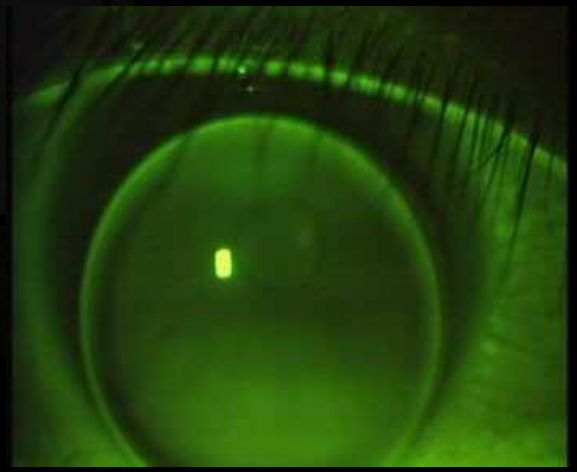
8.7 – 1.4 = 7.3mm OZ



GP Lens Comfort Factors

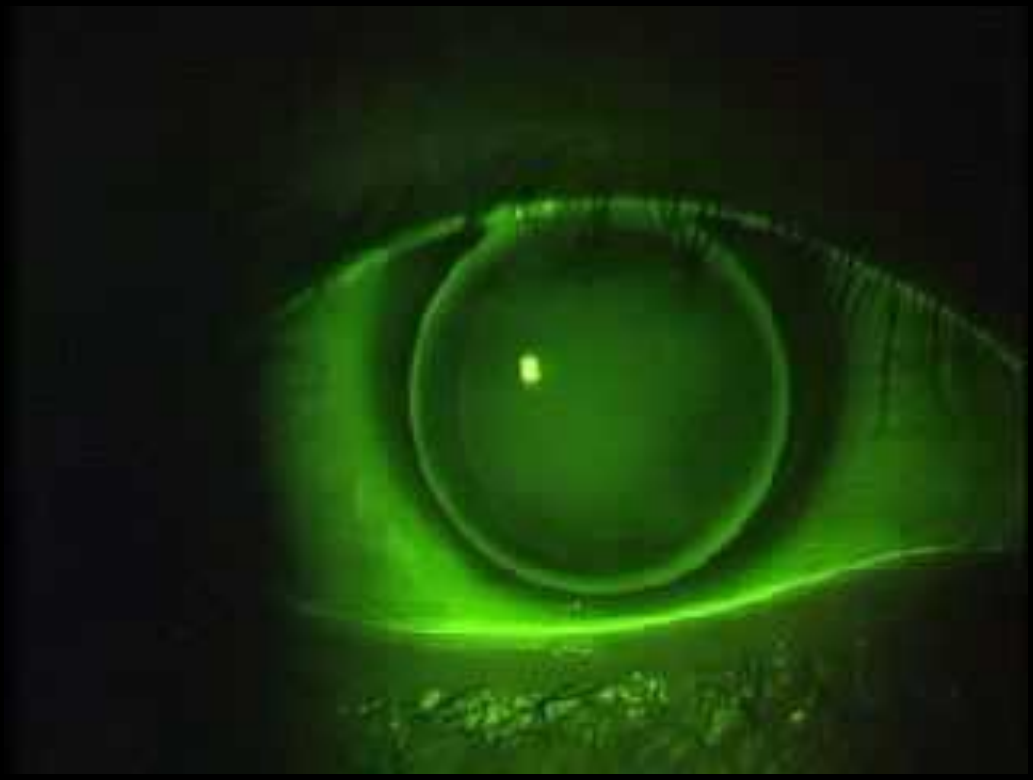
Corneal touch-points





GP Lens Comfort Factors

Corneal touch-points

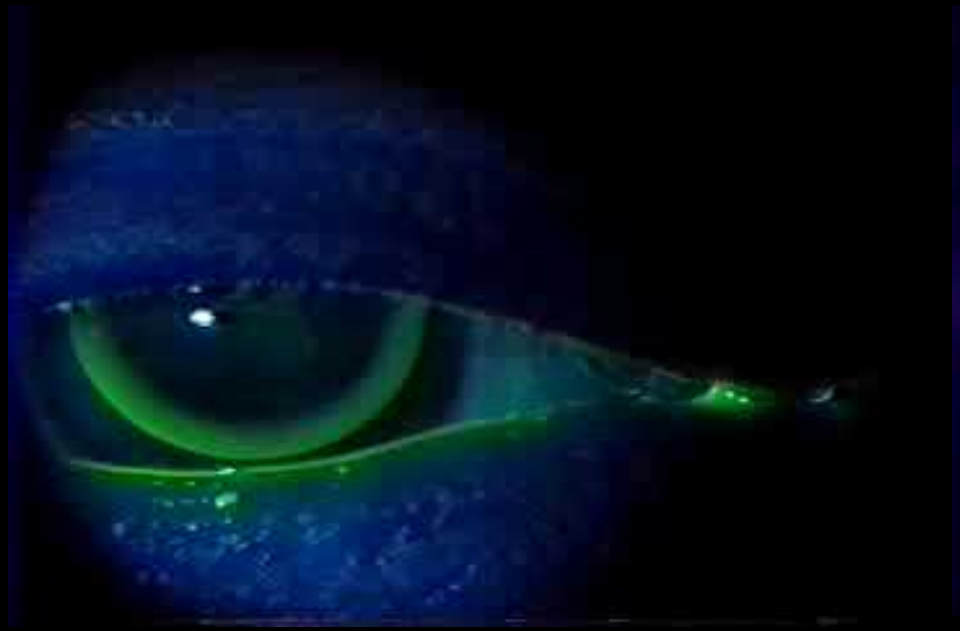


GP Lens Comfort Factors

Corneal touch-points

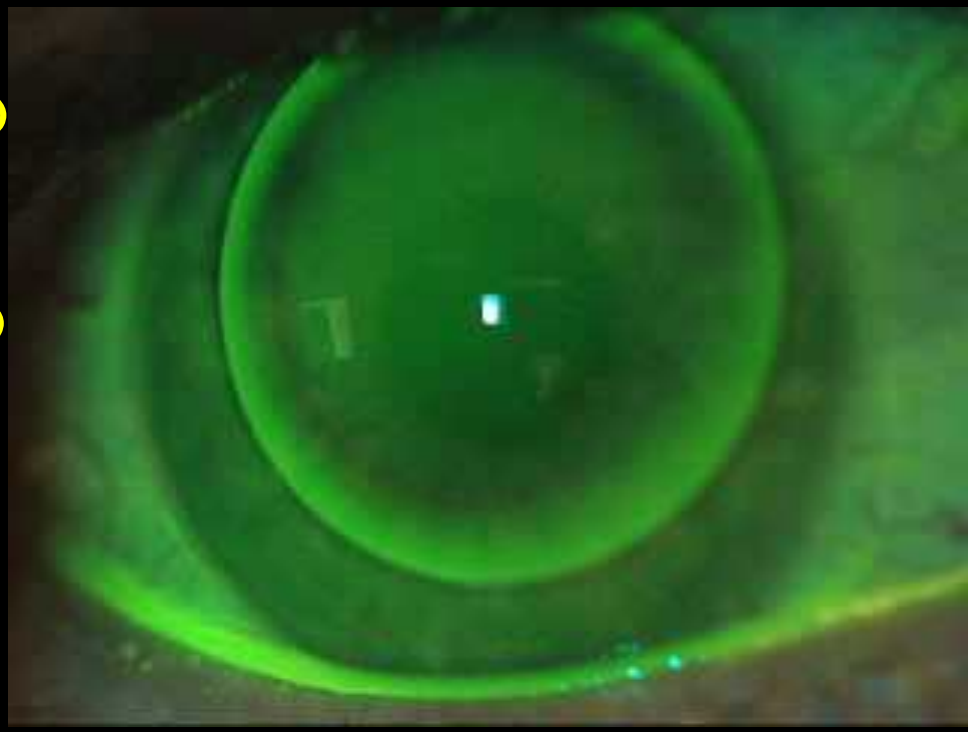
GP Lens Comfort Factors

Horizontal Movement / Limbal Clearance



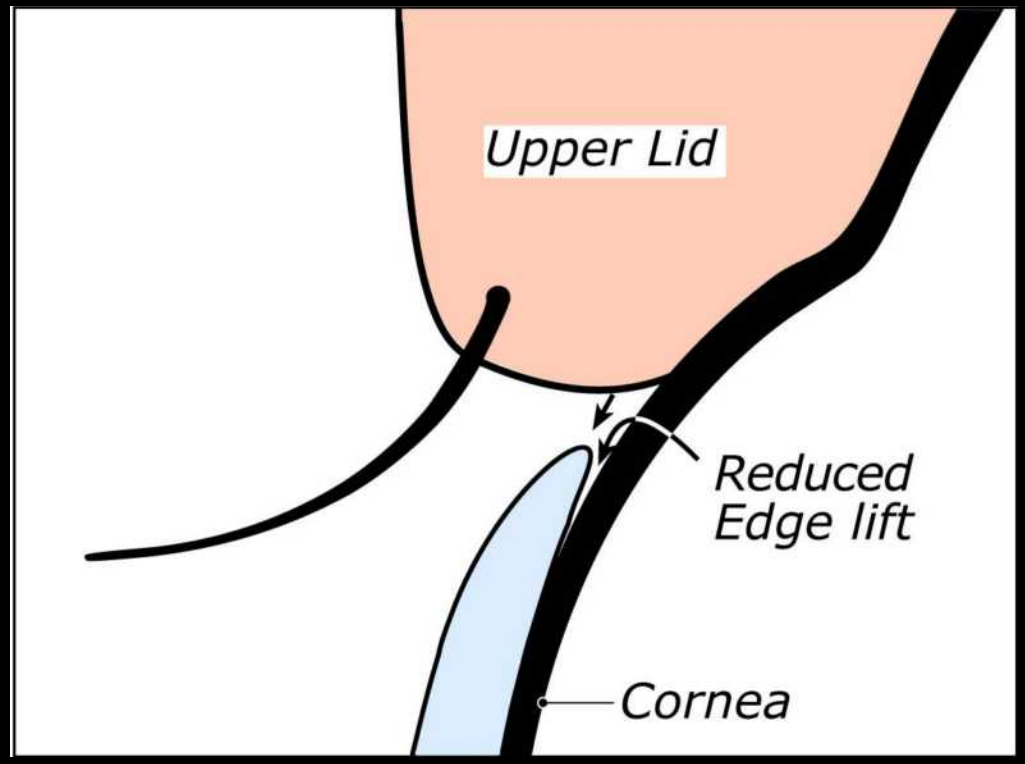
GP Lens Comfort Factors

Limiting Lens Mass-Lenticulation



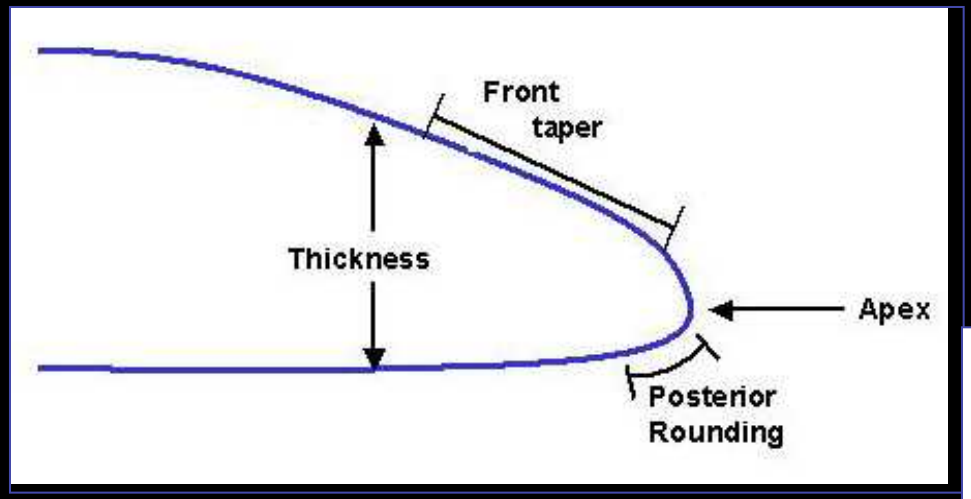
GP Lens Comfort Factors

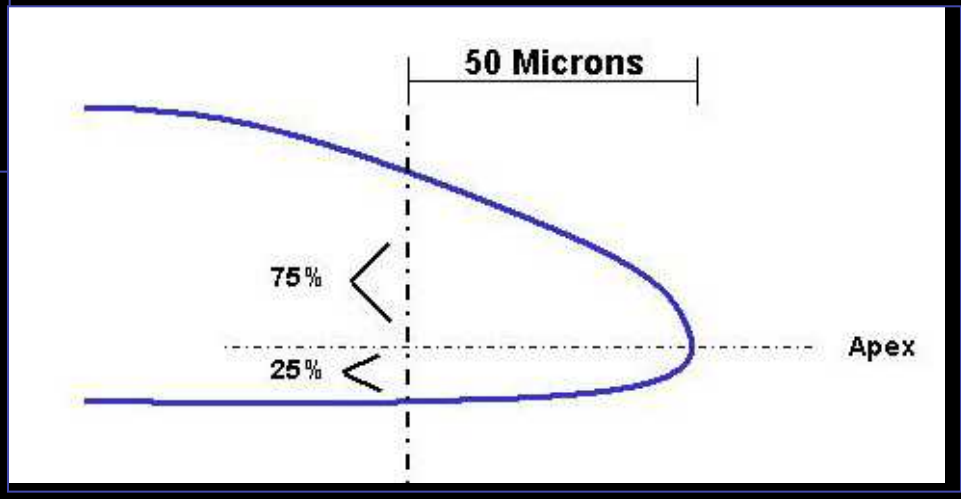
Edge Shape/Apex Direction & Edge



GP Lens Comfort Factors

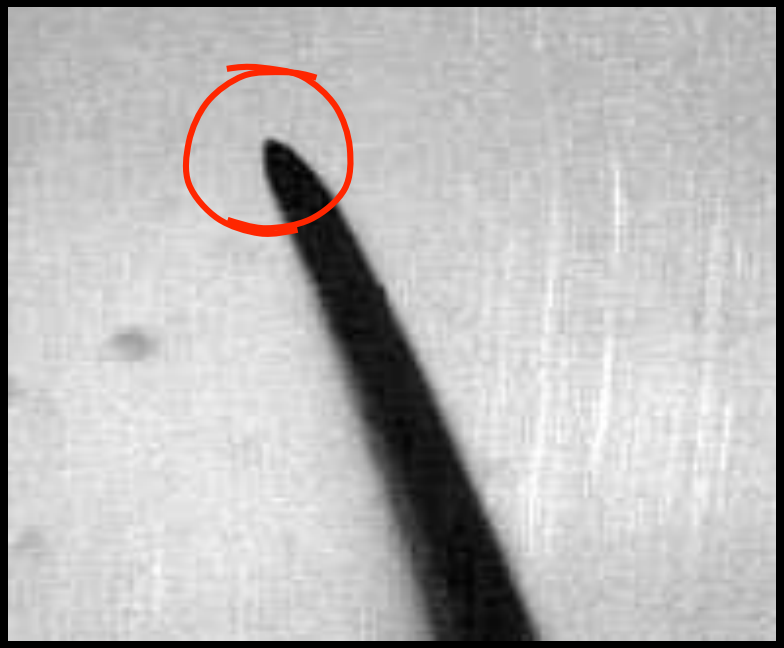
Edge Shape & Apex Direction

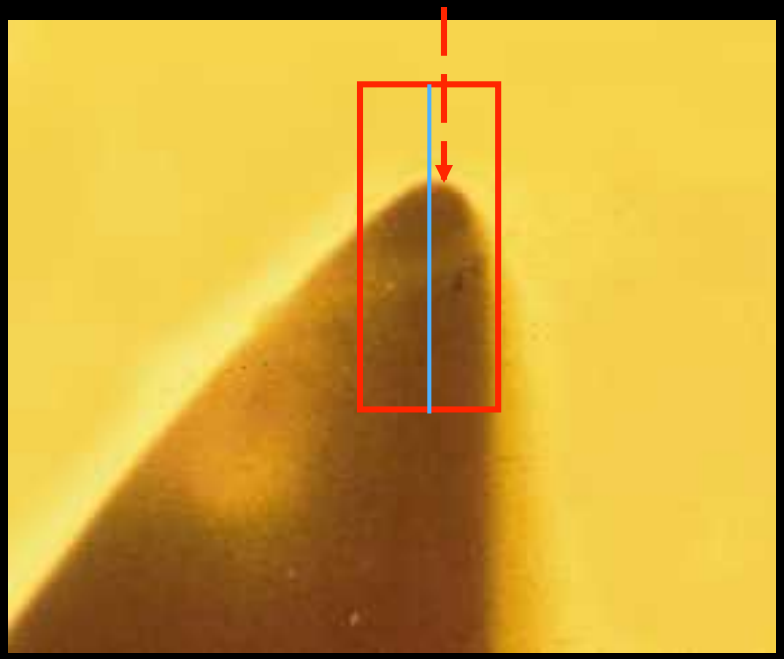




GP Lens Comfort Factors

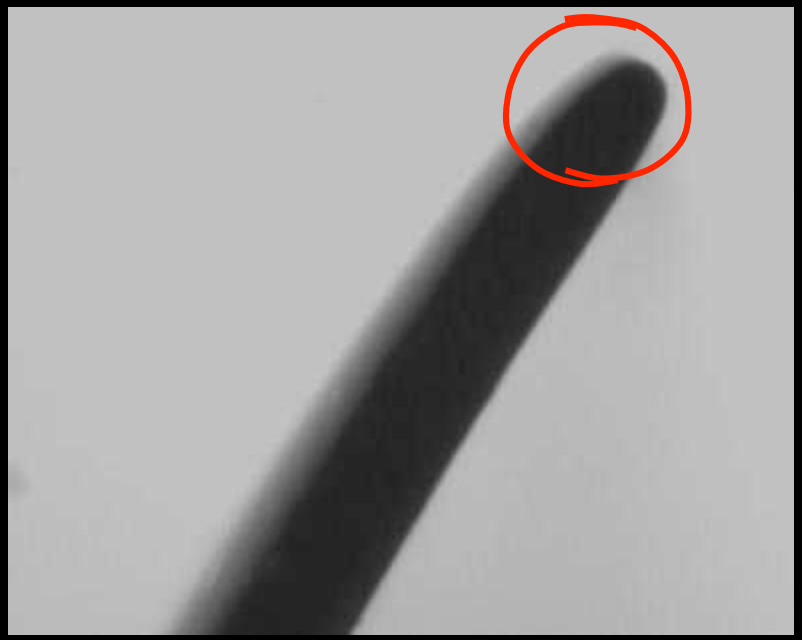
Edge Shape & Apex Direction

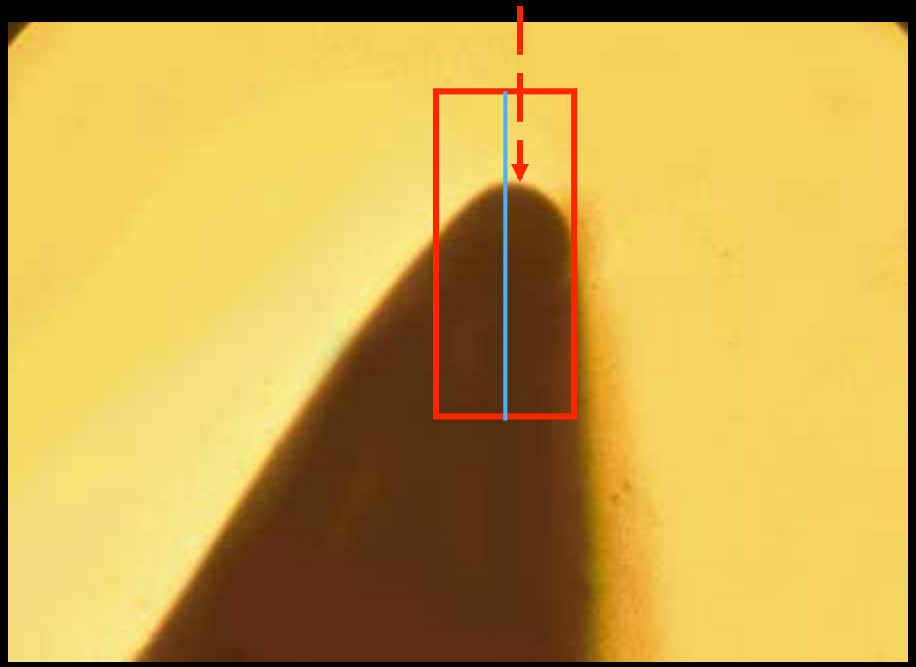




GP Lens Comfort Factors

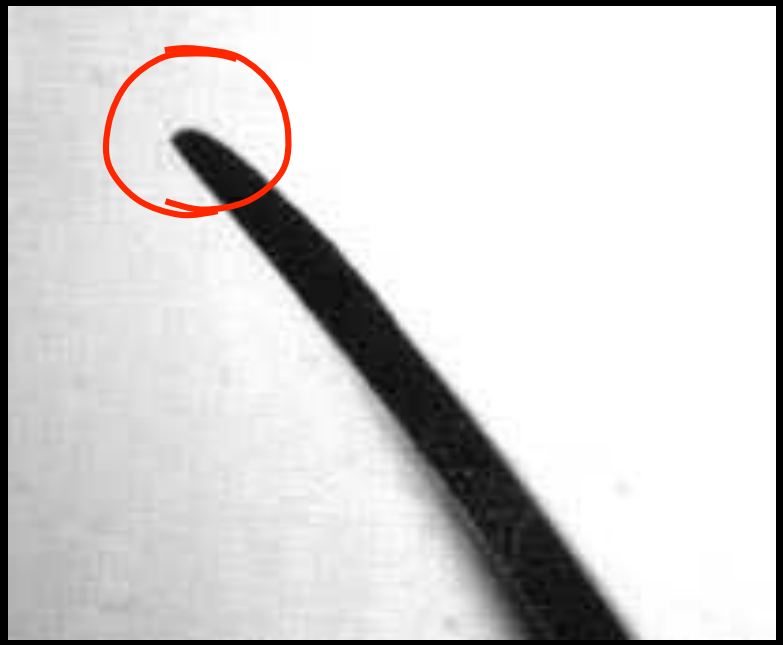
Edge Shape & Apex Direction

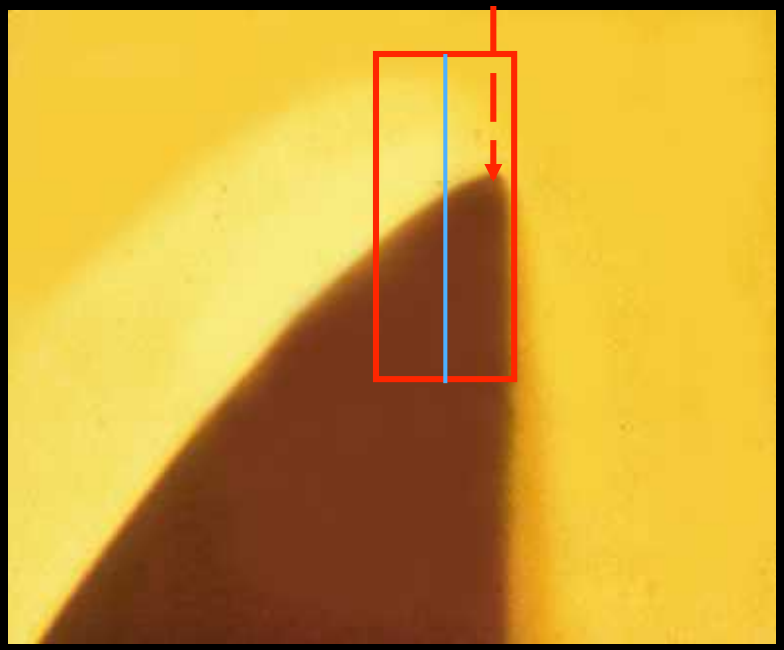




GP Lens Comfort Factors

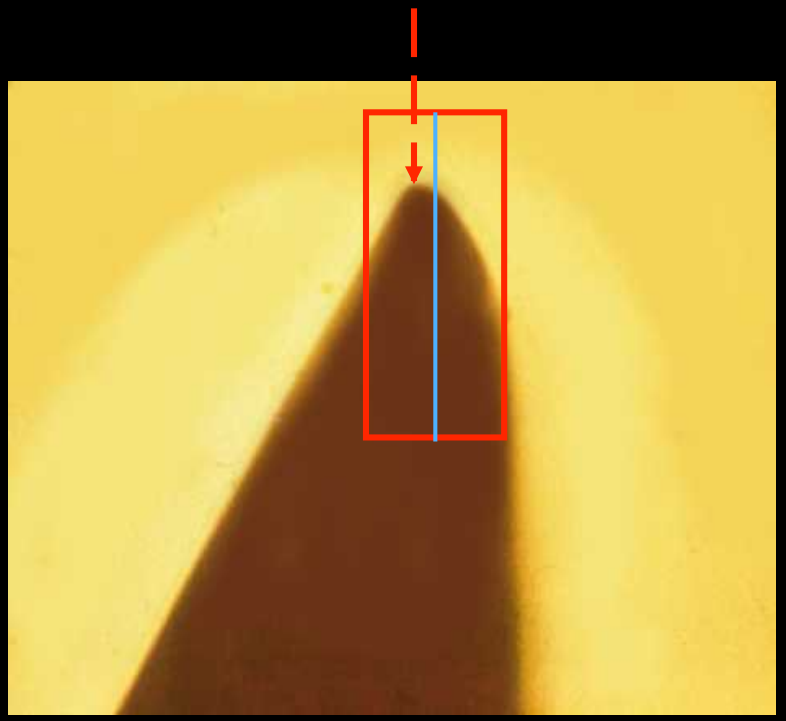
Edge Shape & Apex Direction

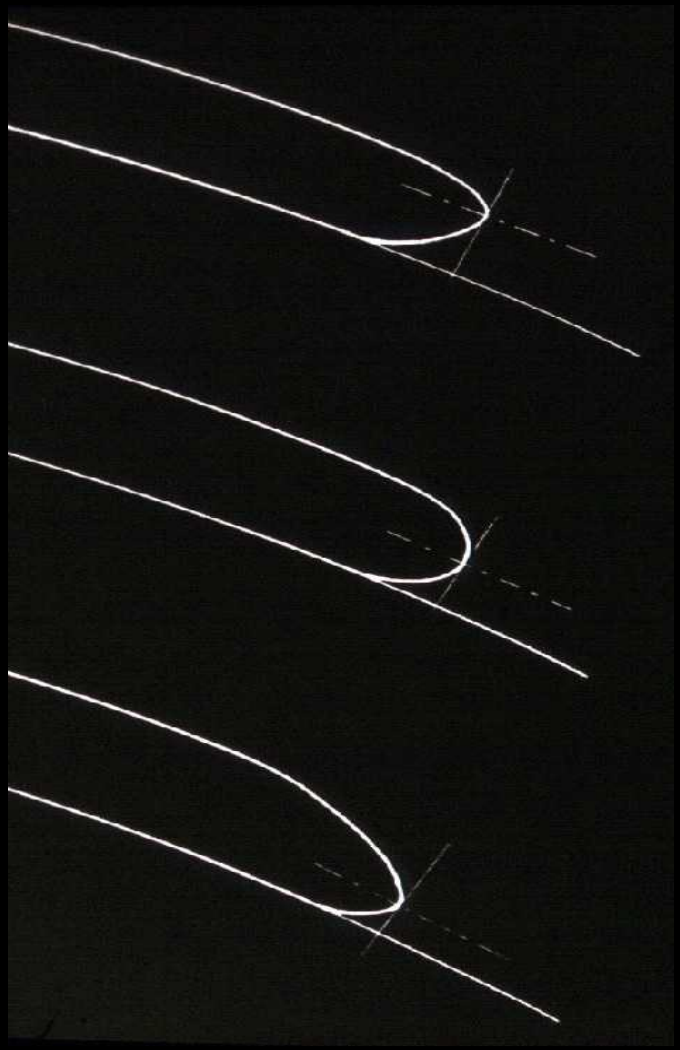


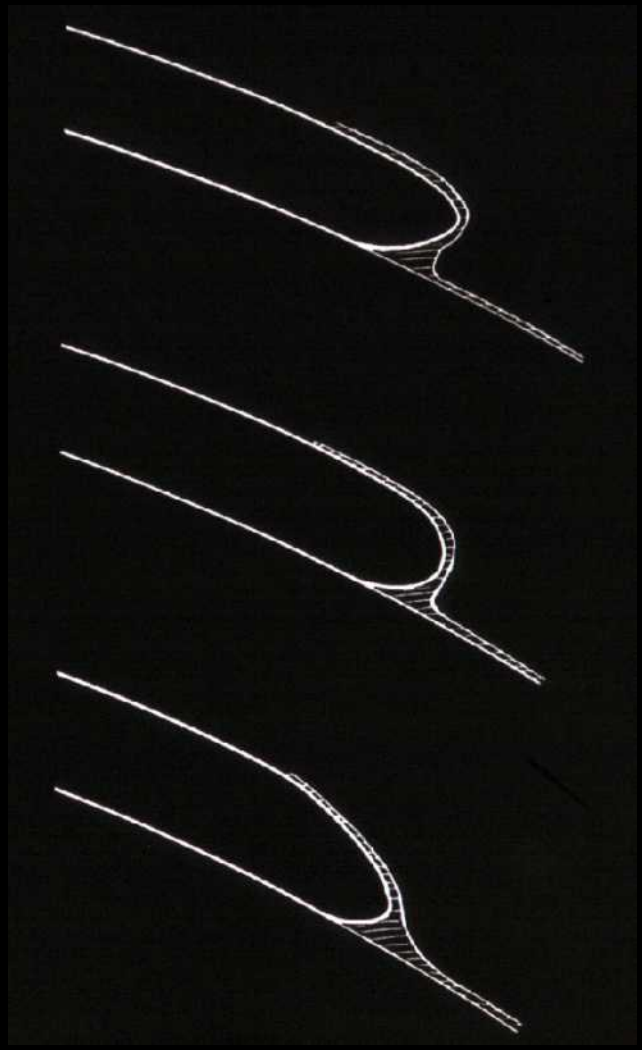


GP Lens Comfort Factors

Edge Shape & Apex Direction

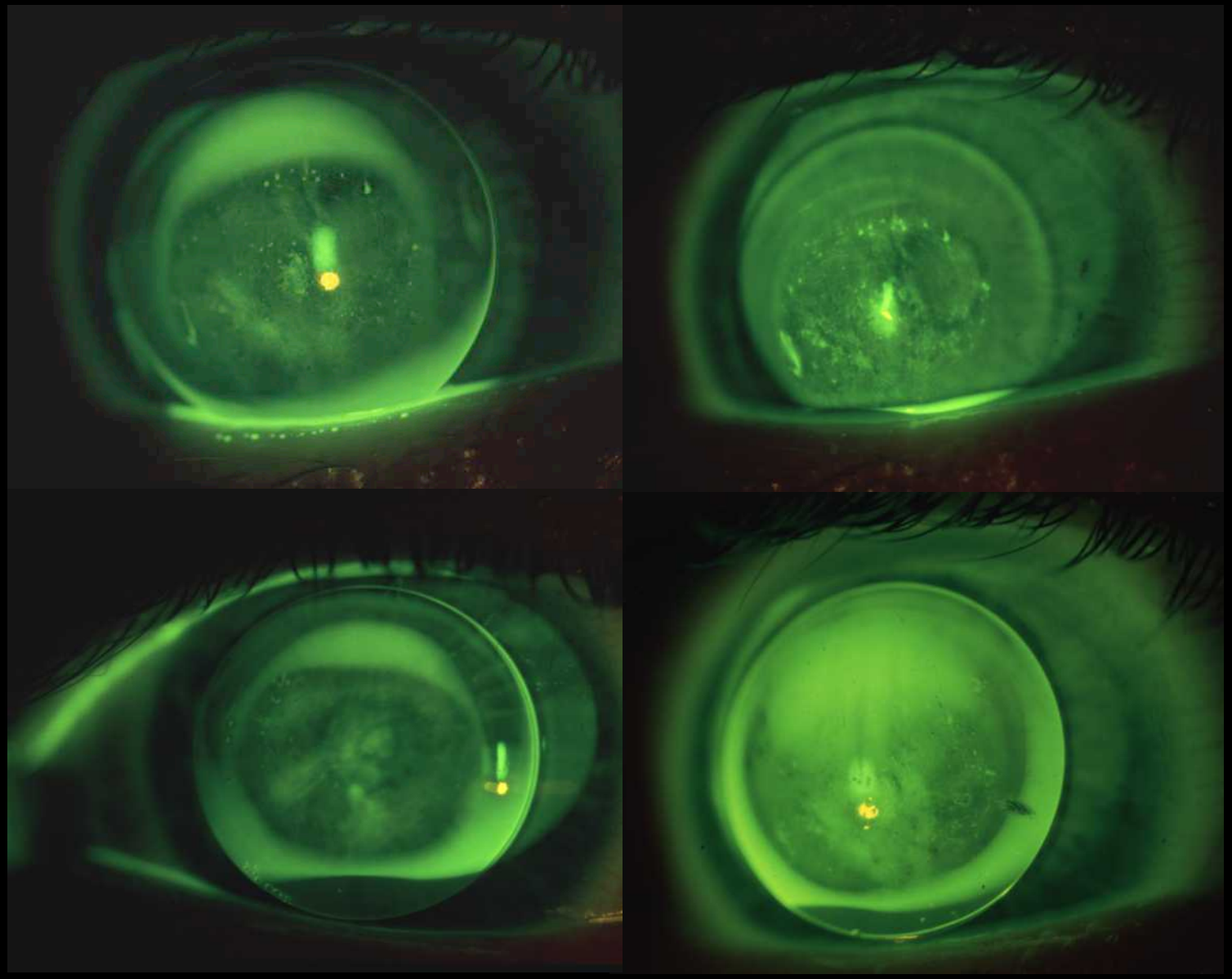




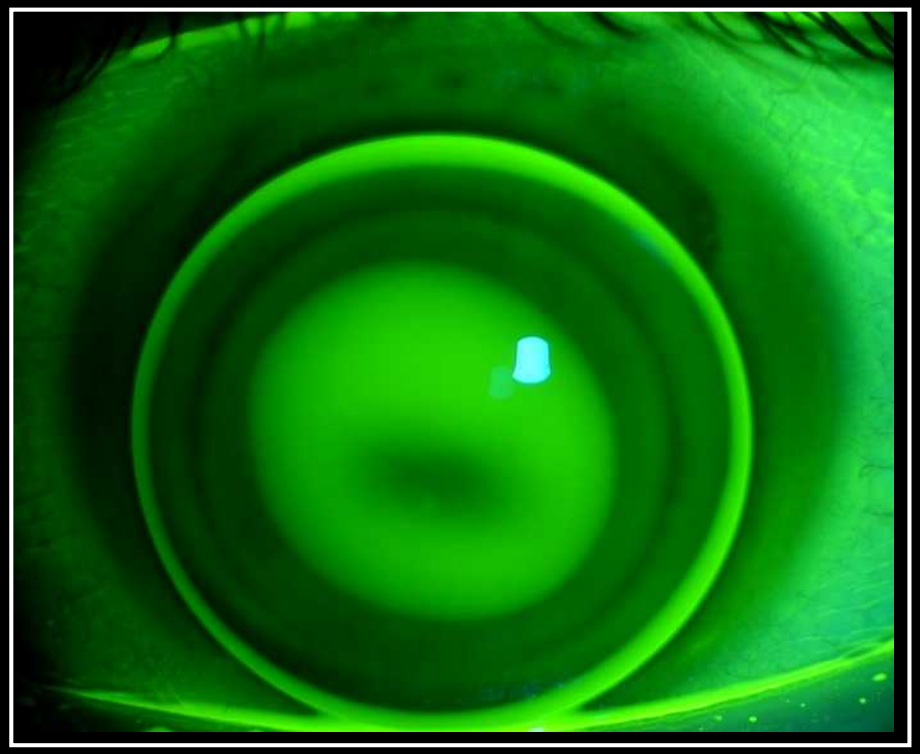


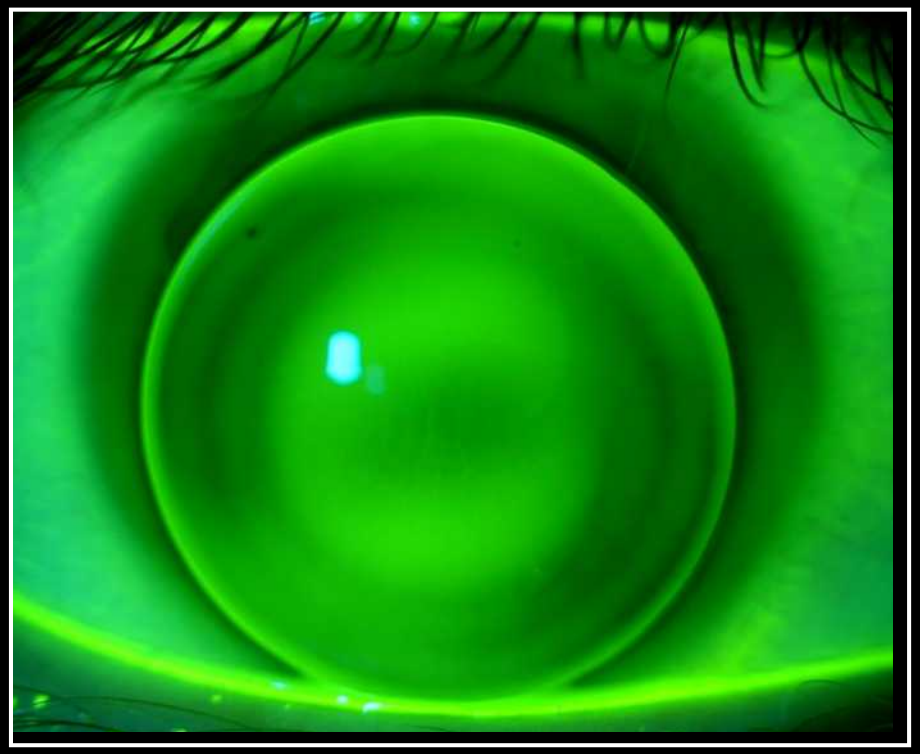
Current Wearers That Need New Lenses

- If accustomed to "loose" edges, stay "loose"
- Many "older" wearers are wearing "older" plastics, stay "old"
- Trying to be a "hero" may come back to haunt you

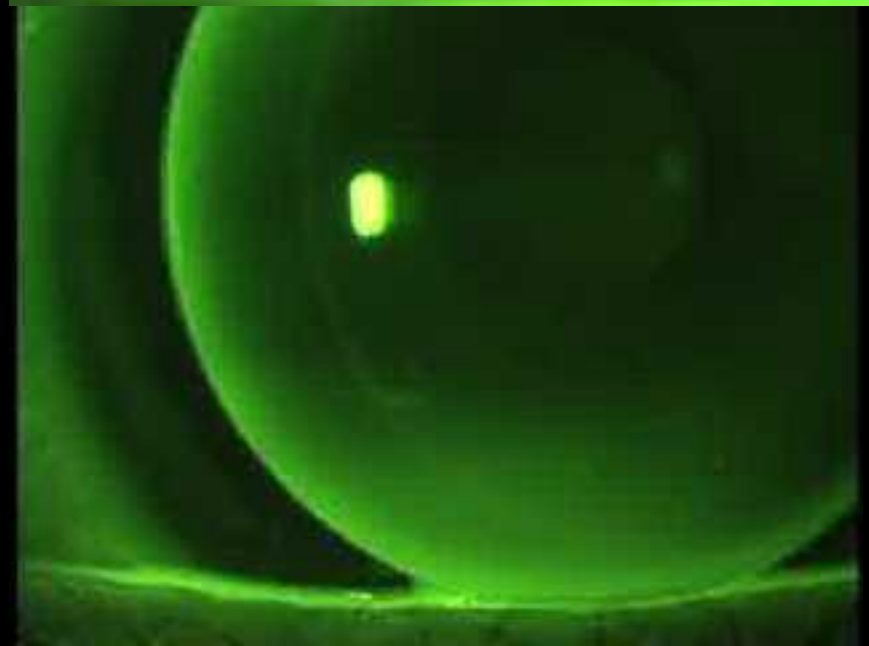


Decrease OZ and Increase EL

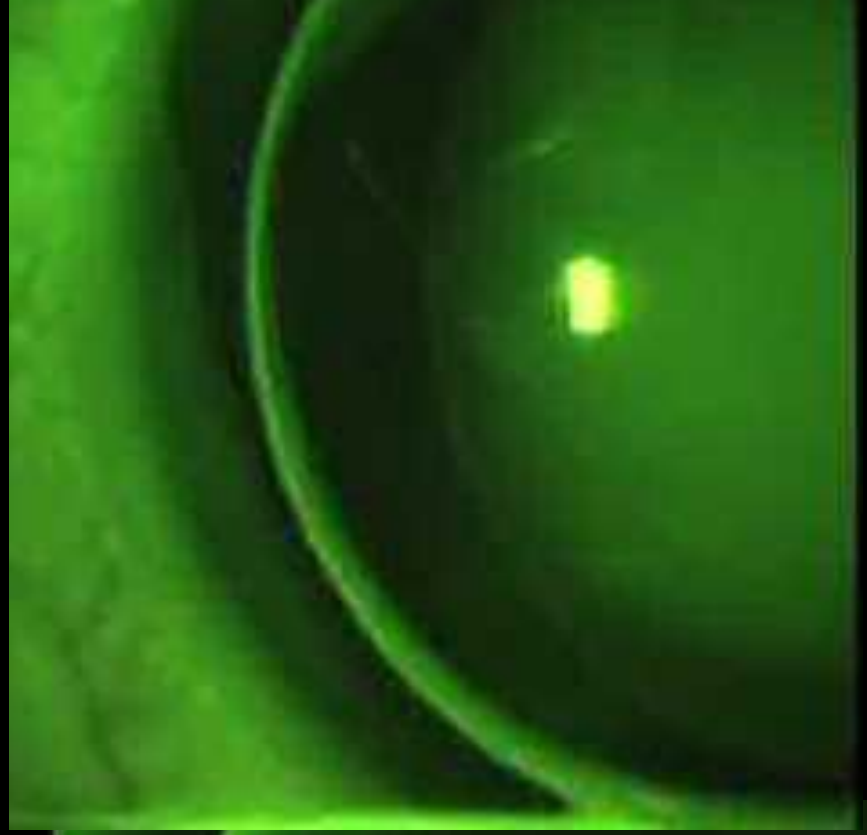




.4 / 12.00



.4 / 12.00



.4 / 12.00

Tighter @ 90

Looser @ 180

.4 / 12.00

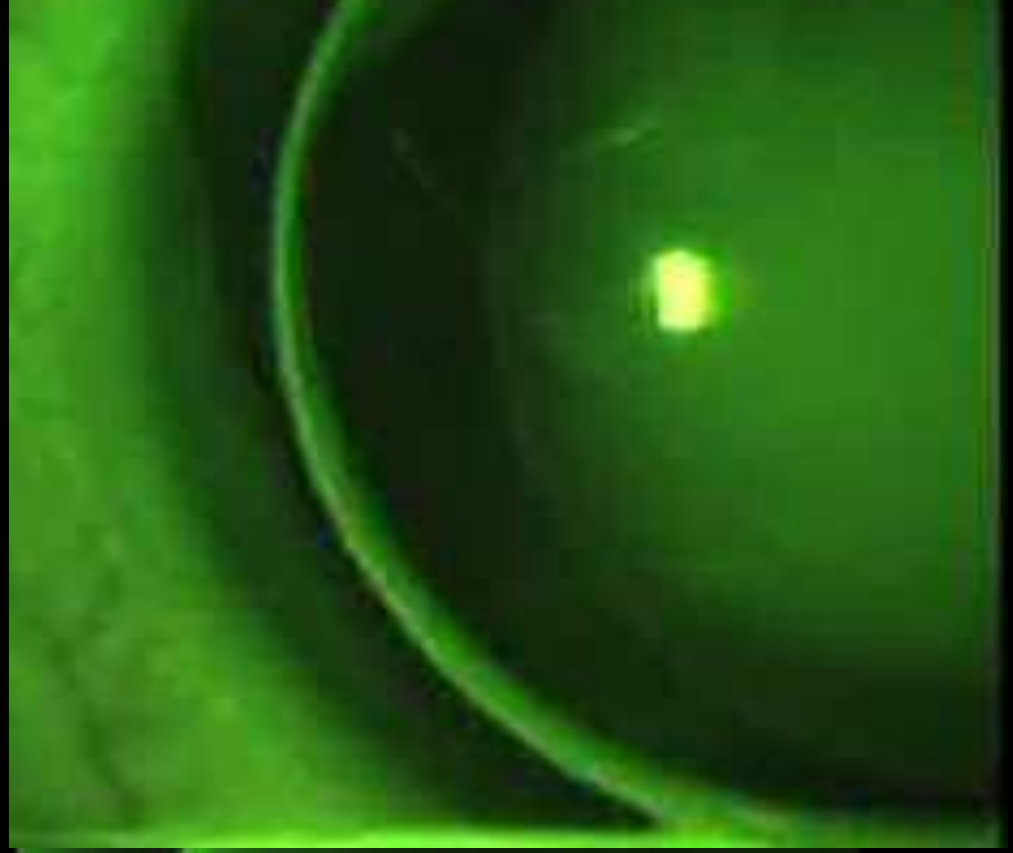
.4 / 12.00

Tighter @ 90

ATR

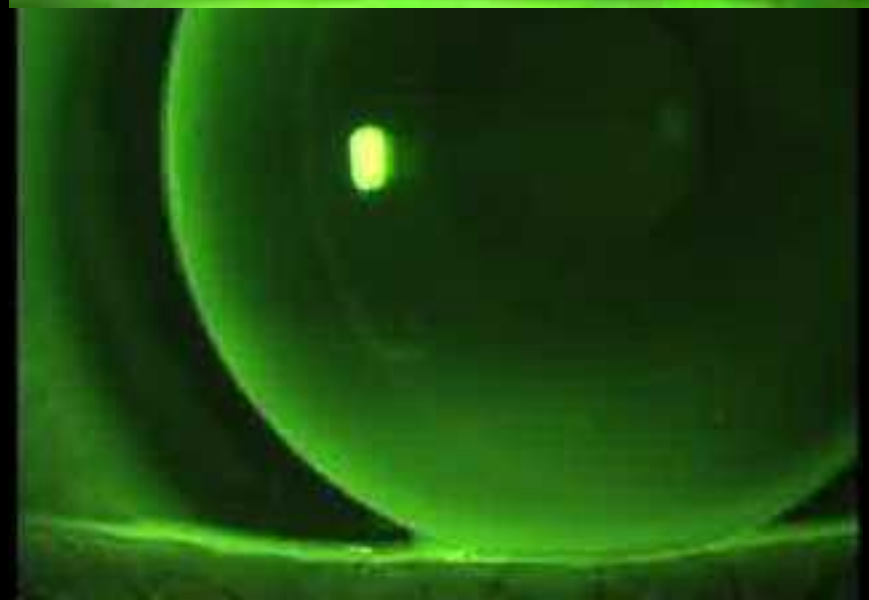
Looser @ 180

.4 / 12.00

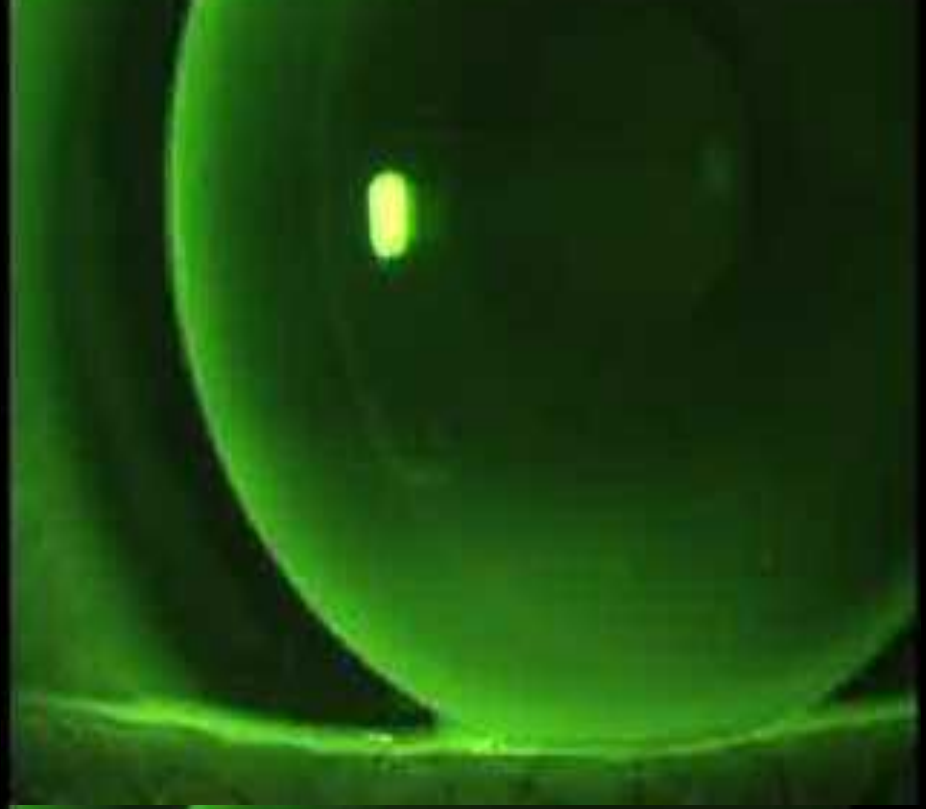


.Adjust to
.4 / 12.80

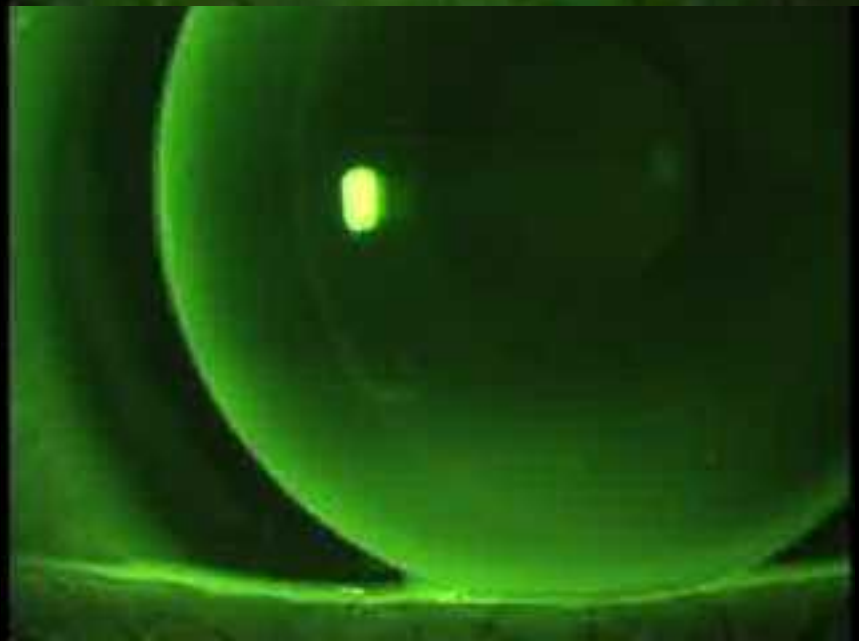
Toric curves
PC .4 / 11.50
.4 / 12.80



Adjust to
.4 / 11.50

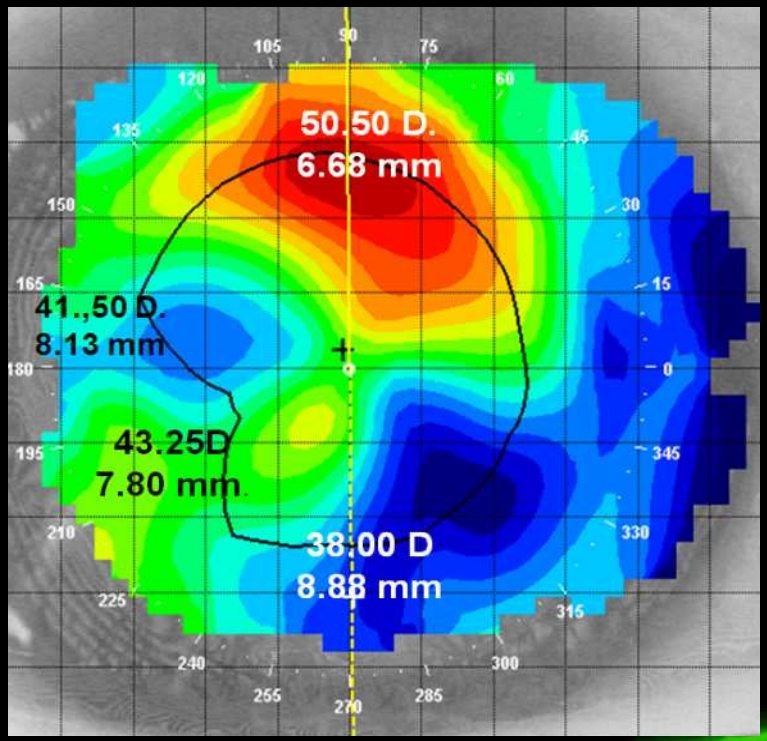


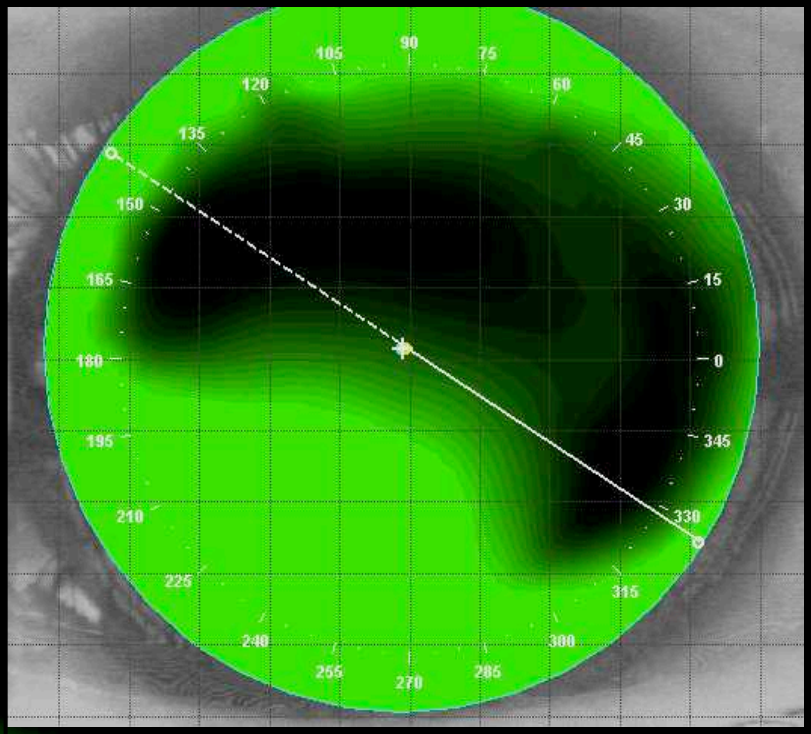
.Adjust to
.4 / 12.80

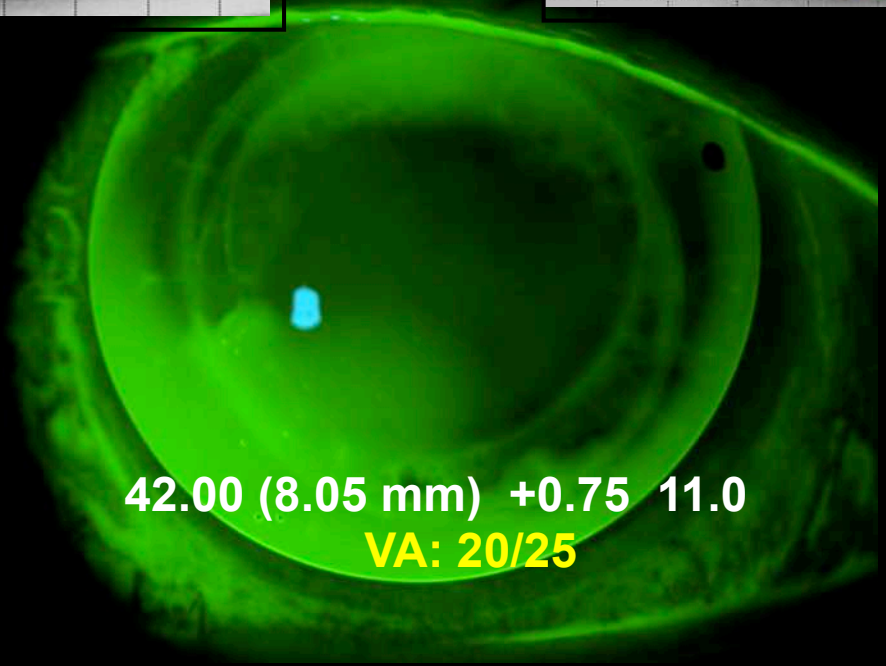


Toric curves
PC .4 / 11.50
.4 / 12.80

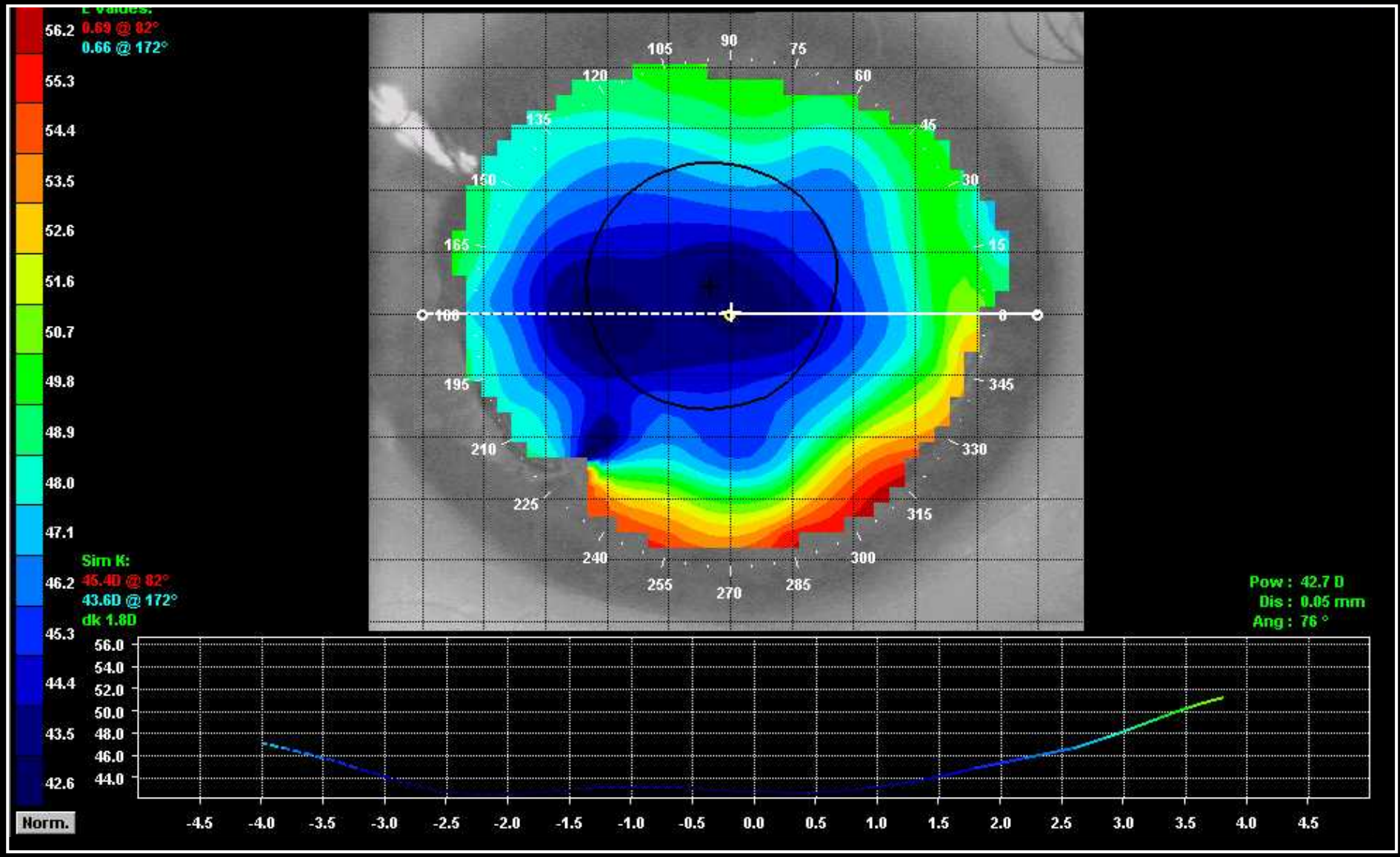
Adjust to
.4 / 11.50


50.50 D.
6.68 mm
41.,50 D.
8.13 mm
43.25D
7.80 mm.
38.00 D
8.88 mm

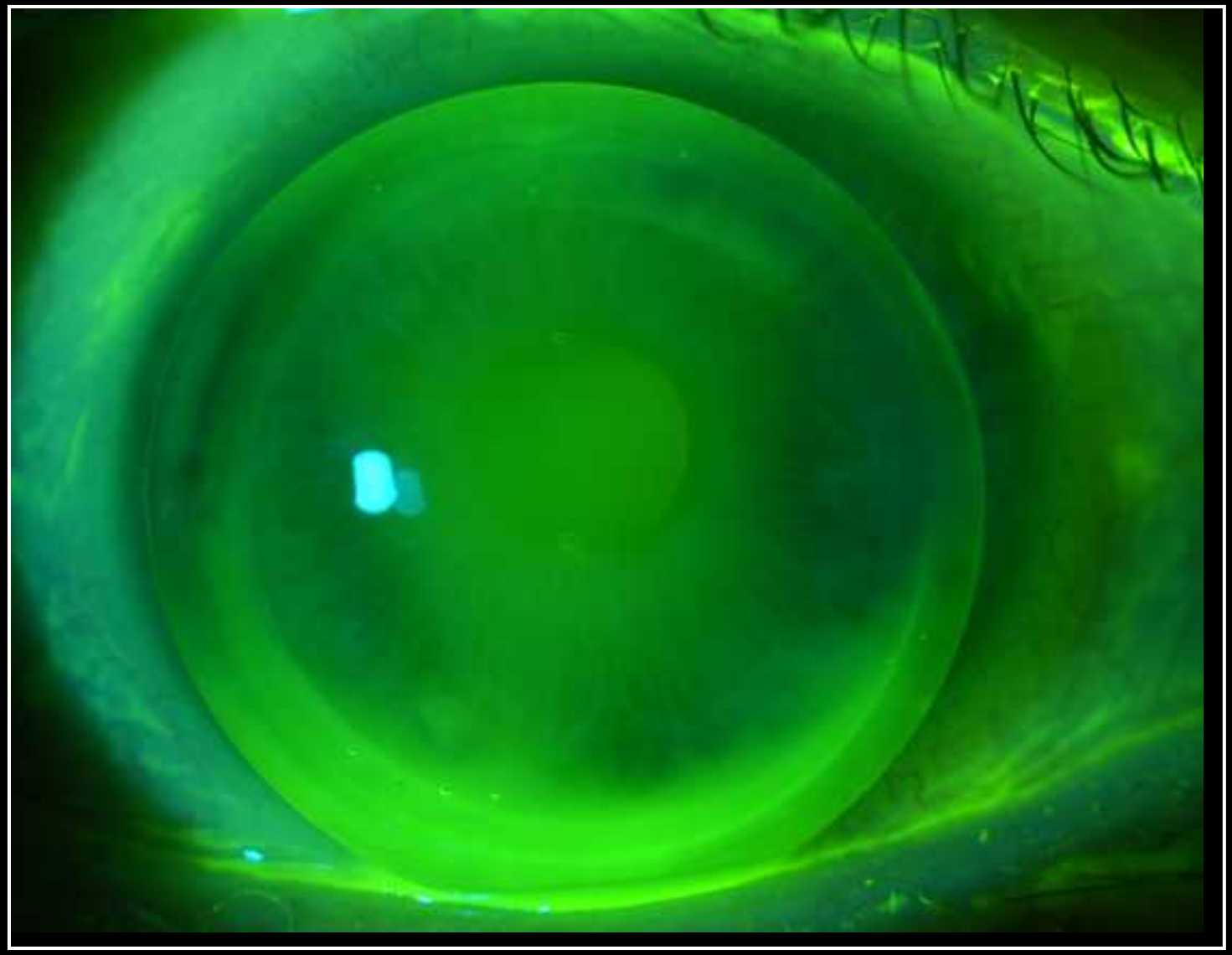



42.00 (8.05 mm) +0.75 11.0
VA: 20/25

KC s/p PK

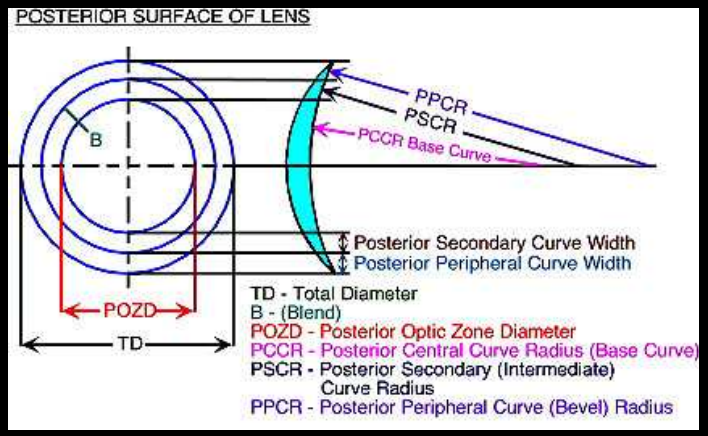

56.2
55.3
54.4
53.5
52.6
51.6
50.7
49.8
48.9
48.0
47.1
46.2
45.3
44.4
43.5
42.6
0.69 @ 82°
0.66 @ 172°
Sim K:
45.4D @ 82°
43.6D @ 172°
dk 1.8D
Norm.
105
90
75
120
60
135
45
150
30
165
15
180
0
195
345
210
330
225
315
240
300
255
270
285
Pow : 42.7 D
Dis : 0.05 mm
Ang : 76 °
56.0
54.0
52.0
50.0
48.0
46.0
44.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

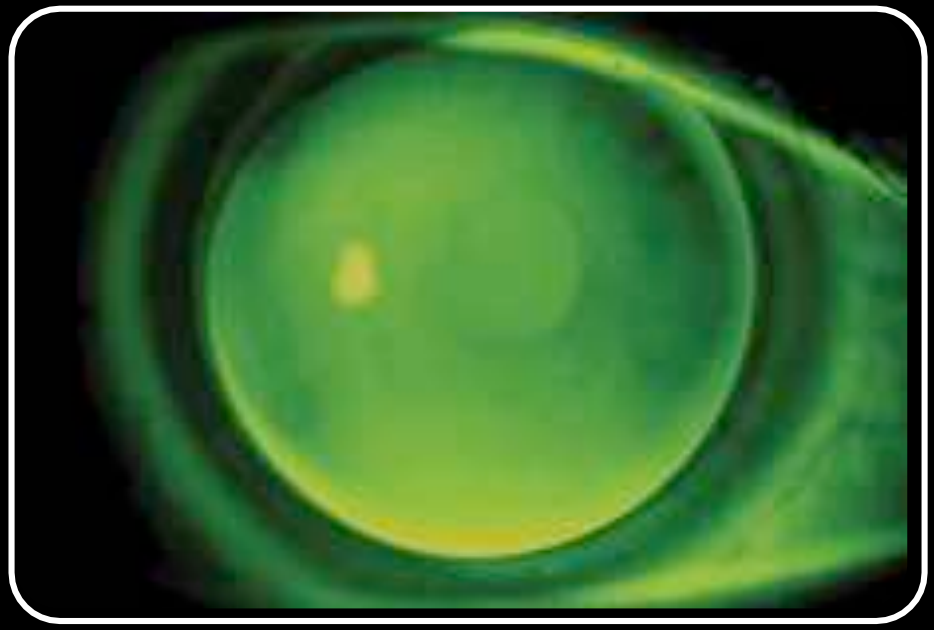
KC s/p PK



Outline

- Why an "art"?
- The presentation to potential patients
- Corneal GP tendencies
- Interpretation
- Remedies





Thank you for your attention

An acknowledgement to my friends

Alex Cannella
Pat Caroline