

OAO Specialty Lens Workshop 2026

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Agenda

1. Corneal Gas Permeable (GP) Lenses
 - Orthokeratology
2. Hybrid Lenses
 - Vaulting vs corneal alignment designs
3. Scleral Lenses
 - Unique features
4. Care Systems

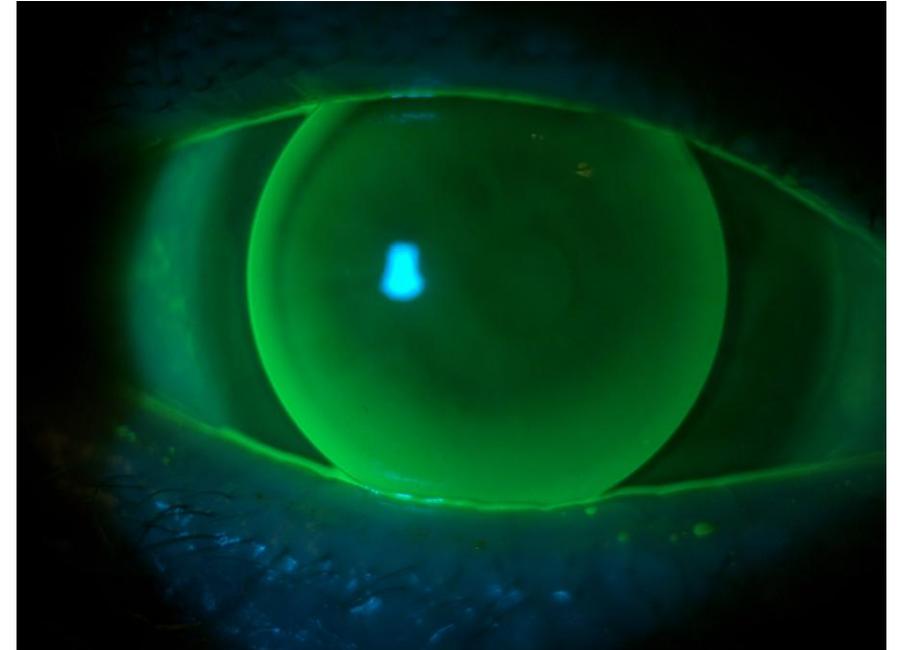
What are Corneal Gas Permeable Lenses?

- Small plastic lenses (typically smaller or equal to the diameter of the cornea) that rest directly on the cornea
- Provide unparallelled visual correction
- Available in spherical, astigmatism, and multifocal designs

Corneal Gas Permeable Lenses

Indications

- High refractive error
- High astigmatism
- Irregular astigmatism
 - Keratoconus
 - Corneal Grafts
 - Trauma
 - Post-refractive surgery
- Myopia Control (Orthokeratology)
- Anyone looking for superior optics!



Corneal Gas Permeable Lenses

Insertion

- Consider anesthetic drops during fitting appointment
 - Do not use for training appointment
- #1 tip: make sure lids are pinned
- place lens directly on central cornea



Corneal Gas Permeable Lenses

2 removal methods

- Scissor technique
- Horizontal lid squeeze



Video Time!

<https://www.youtube.com/watch?v=ZY4bEhhIba8>

Using Positive Language During Trainings

- “It is normal to have *lens awareness* with corneal GP lenses which your eyes adapt to over the first 1-2 weeks”
- Avoid:
 - Painful
 - Irritation
 - Discomfort
 - “feels like an eyelash in your eye”

Corneal GP Patient Education

- Building up lens wear over time
 - Usually can increase by 1-2 hours per day until full 12-14 hours of wear reached
- No sleeping in CL! (except ortho-k... we'll return to this)
- NO TAP WATER WITH USE*
 - Dry hands!
 - No hot tubs/showers with lenses on
 - Goggles for swimming
- No lanolin-based soaps
- Always recommend patients have spare lenses!

Patient Education Tips for Orthokeratology

- Hygiene is critical!
- 1gt preservative-free artificial tear *before* insertion to help cushion lens (could be in bowl of lens)
- 1gt preservative-free artificial tear *before* removal in the morning to ensure lens is moving
- Educate on what to do with any red eye, discharge, or pain
 - = emergency!

Recentring a corneal GP lens

- Have patient close eye
- Look in the direction where the lens is, then back to center & open eye
- With closed eyes, hold finger on the side of the dislodged lens and gently massage toward the center
- Use DMV remover to remove lens and reinsert

Piggybacks

- Corneal GP lens wear overtop of soft daily/weekly/monthly lens
- Improves comfort
- Sometimes improves fit

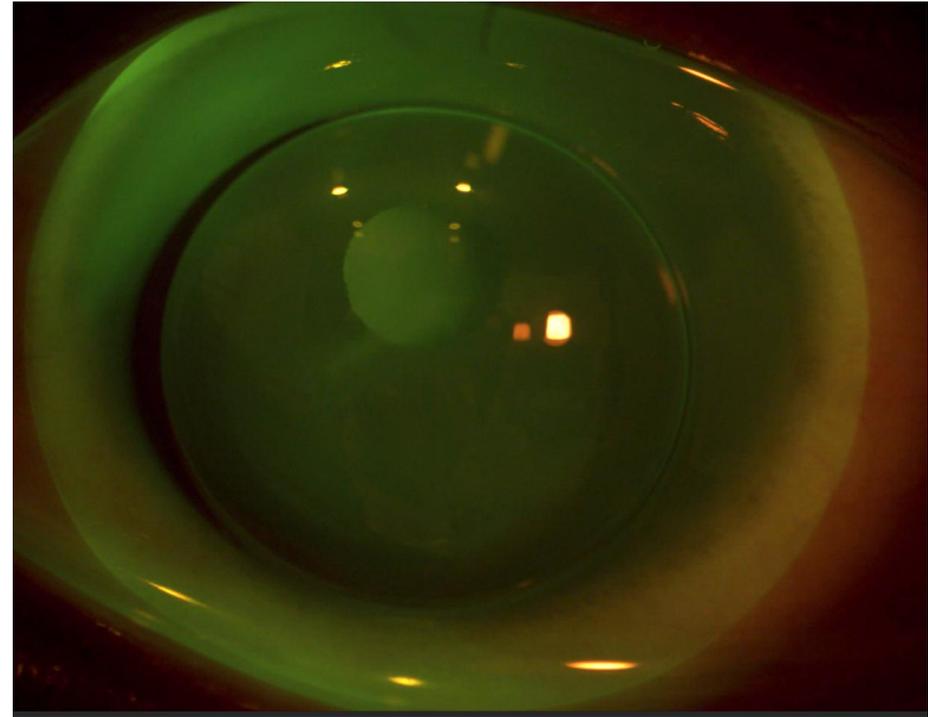


Photo Courtesy of Dr. Wincy Chung

Let's try it on each other!

A very special Corneal GP patient...

Infant Aphakia

- Custom Soft lenses or Corneal GP lenses can be used
- Taco technique
 - Insert under upper lid, then pull lower lid down around lens edge

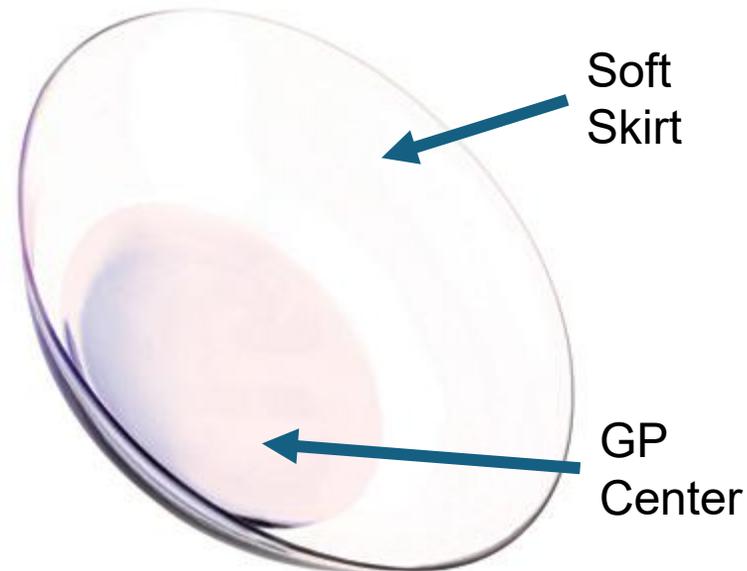


Video Time!

<https://www.youtube.com/watch?v=gH0x8i5aDQU>

What are Hybrid Lenses?

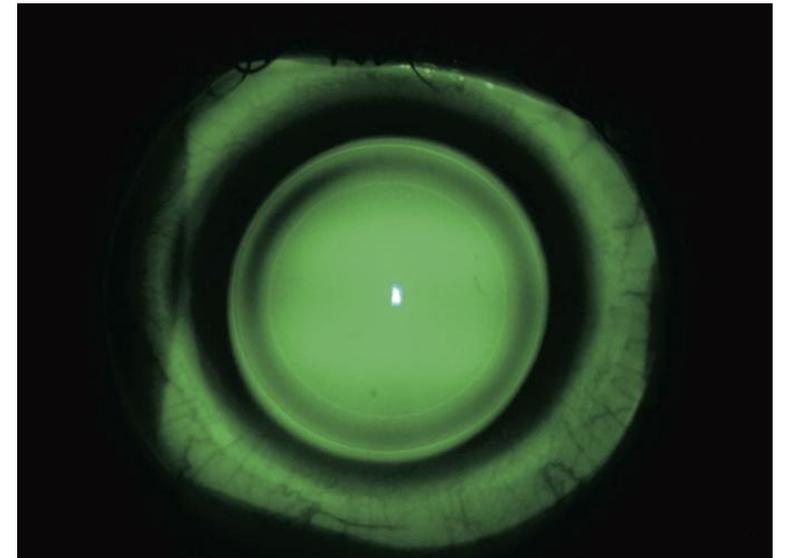
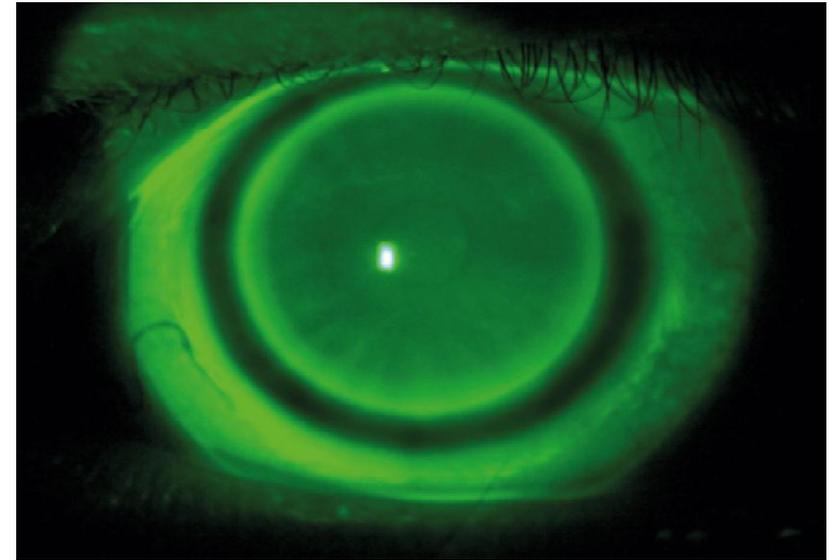
- 6-month replaceable
- Central GP material covalently bonded to peripheral silicone hydrogel (in newer designs)



Hybrid Lenses

Indications

- Same as corneal GP indications
- No overnight wear
- 2 types of design:
 - Duette + iD: lenses have alignment fit over cornea (like GP lenses)
 - Older hydrogel skirt designs such as Synergeyes A/KC/PG also fit like this
 - Ultrahealth: lenses vault over the central cornea
 - Older hydrogel skirt design: Clearkone



Hybrid Lens Insertion

- Very similar to corneal GPs: need to place lens directly on cornea
- Duette + iD: 1gt artificial tear in bowl
- Ultrahealth: Fill bowl with preservative-free saline
 - Also with 1gt NaFl or swirling NaFl stick in bowl
 - Insert face-down, parallel to the floor
 - May be sitting or standing
- DMV inserter vs 3-finger method

Assessing the fit prior to seating

- Autorefraction overtop
- Ultrahealth designs:
 - Central Vault on OCT
 - Checking NaFl pattern with handheld blue light

Hybrid Lens Removal

- Pinching skirt of lens inferior to button
- Should feel inferior half of GP lens between fingers like a taco



Video Time!

<https://www.youtube.com/watch?v=5BMrpRMTjew>

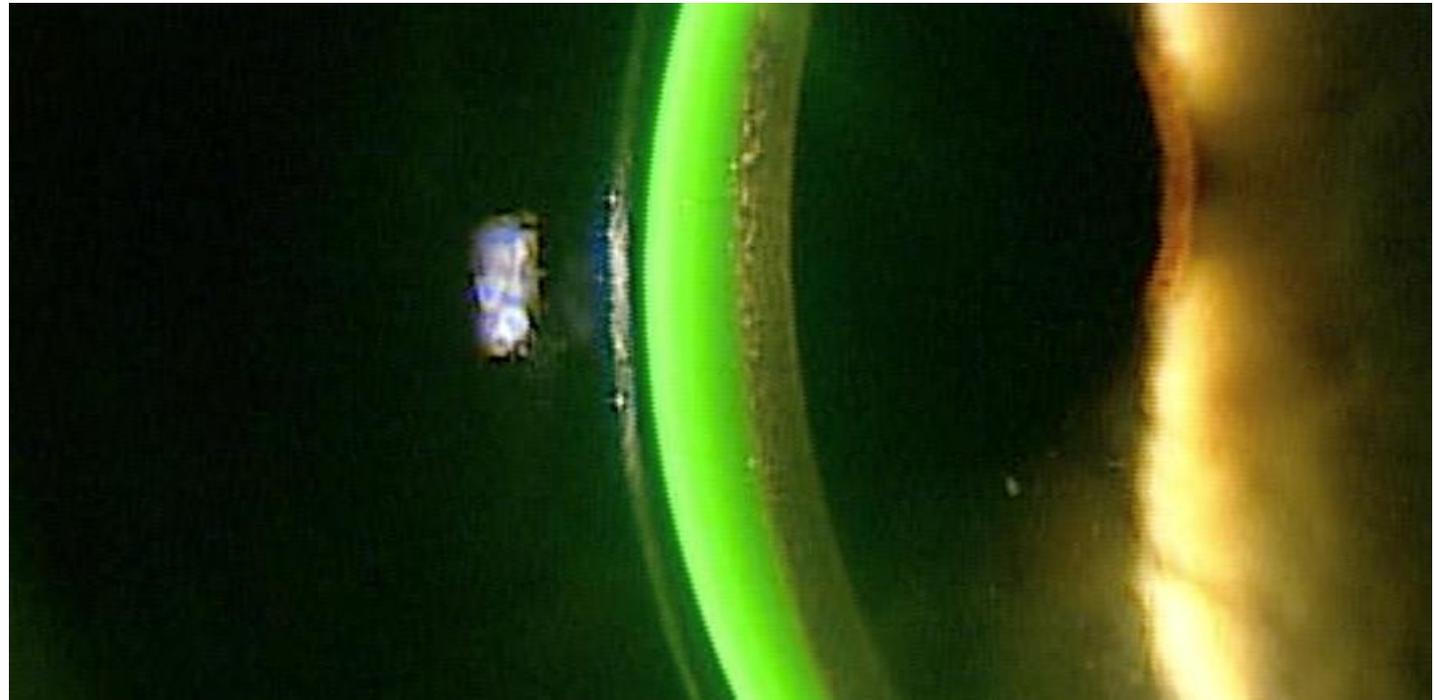
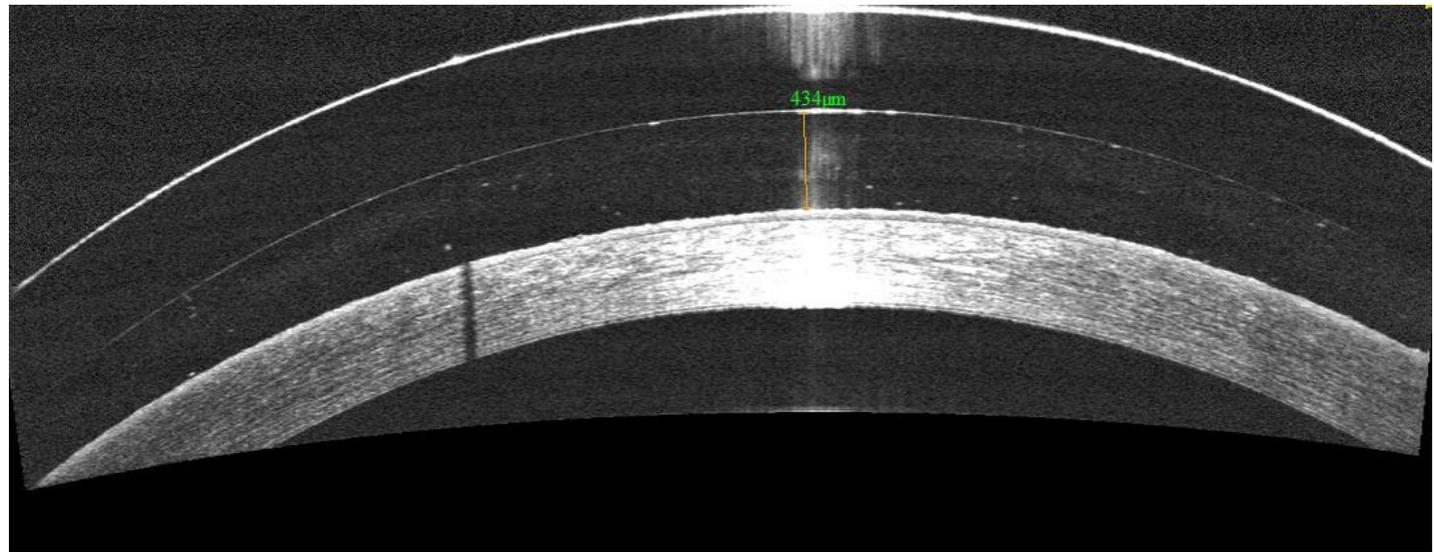
Hybrid Lens Patient Education

- Building up lens wear over time (if needed)
- No sleeping in CL!
- **NO TAP WATER WITH USE***
 - Dry hands!
 - No hot tubs/showers with lenses on
 - Goggles for swimming
- No lanolin-based soaps
- Lenses always come in 2-pack so patient has spare or lens they can start in 6 months

Time to try it!

What are Scleral Lenses?

- GP lenses that completely vault the cornea, landing solely on the conjunctiva



Scleral Lenses

- Indications

- Irregular Astigmatism

- Keratoconus/Ectasia
 - Scarring
 - Nodules
 - Grafts/post-surgical

- Regular Eyes

- High myopia/hyperopia
 - Astigmatism

- Ocular Surface Disease

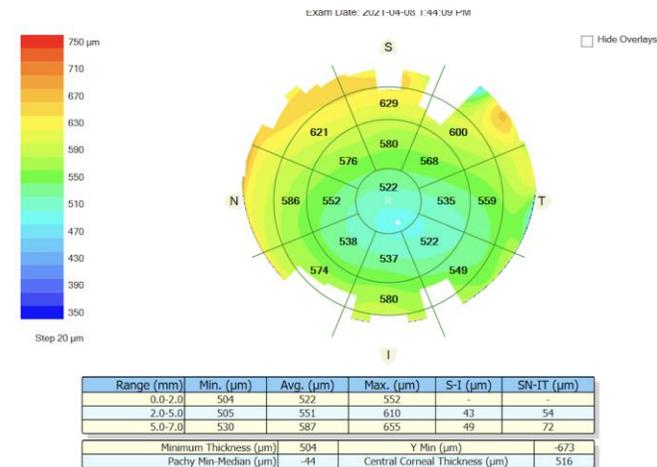
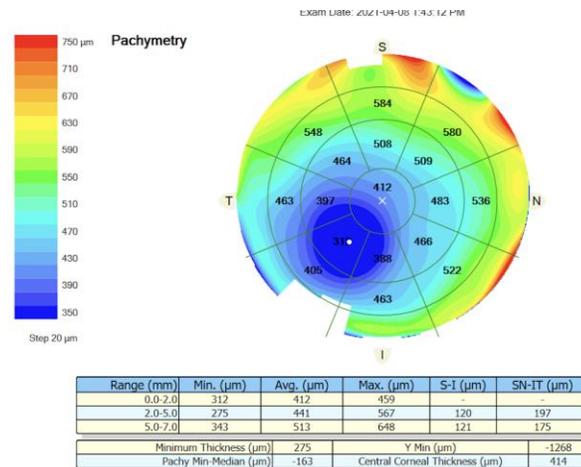
- Recalcitrant Dry Eye
 - Steven Johnson's Syndrome
 - Recurrent Corneal Erosions
 - Neurotrophic Keratitis
 - Stroke/Bell's Palsy/Exposure Keratopathy

Special Features

- Fenestrations
- Channels
- Microvaults
- Laser etchings
- Orientation Dots (usually go at 6 o'clock*)

Tests Before Fitting Scleral Lenses

- Corneal Topography
- Scleral Profilometry
- Corneal Pachymetry
 - Pre- and post-wear to monitor for corneal swelling



Lens Prep

- Clean the lens
- Rinse with PF sodium chloride (or other PF filling solution)
- Overfill the bowl with PF sodium chloride
 - Most important step to avoid bubbles!
- During fit/dispense:
 - Add sodium fluorescein to the bowl





Scleral Lenses

Types of insertion stands available

Scleral Lens Insertion

- Similar to vaulting hybrid lenses
 - Use NaFl in bowl for initial evaluation
- Patient may sit or stand
- Look down parallel to the ground
- Fixation Target on floor
- Patient retracts lower lid, assistant retracts upper lid
- Gentle Application pressure
- Release lids before lowering plunger

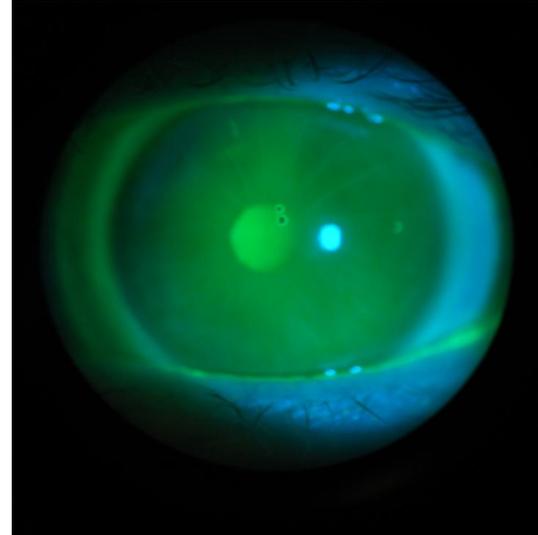


Video Time!

<https://www.youtube.com/watch?v=-o0vADGV2Vg>

Insertion Troubleshooting

- Bubbles immediately after insertion
 - Check with blue light
 - Remove lens and try again
 - Lens was tilted
 - Lens not completely filled



Scleral Lens Removal

- Bubble technique
- DMV remover at 12 o'clock
- Aim for bottom 1/3 of lens
 - Pull "down and out"
 - Ensure lids out of the way
 - Apply AT's to DMV to improve suction
- In rare cases: can also perform scissor technique
 - For smaller diameters and large palpebral apertures



Scleral Lens Removal Troubleshooting

- Keep Calm
- Do not continue to pull
 - Release the plunger
 - Try to rotate 90deg before removing
 - Try bubble technique again
 - Do not go to the ER!



Video Time!

<https://www.youtube.com/watch?v=z-iMmPzYMuk>

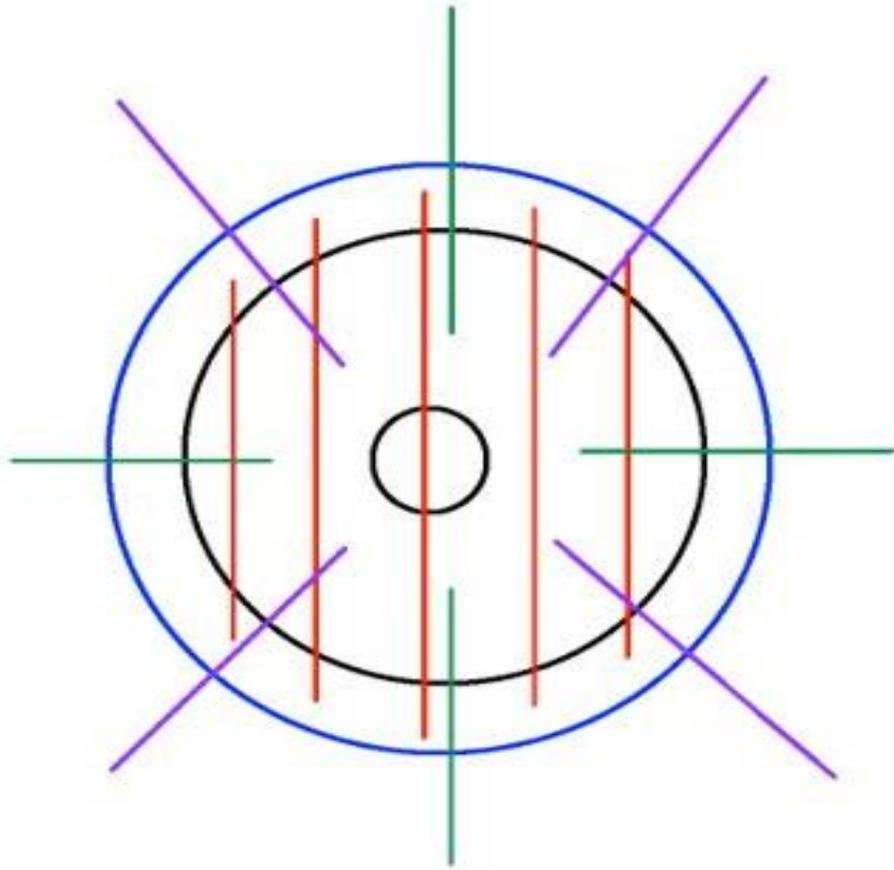
When removal goes wrong

- Corneal abrasions
- Subconjunctival hemorrhage
- Corneal hemorrhage

Assessing the fit prior to doctor evaluation

- Ensure no edge cracks/chips
- Blue light evaluation check for bubbles
- Autorefraction
- Central vaults – edge alignment (if doctor requires this)

Scans we Do



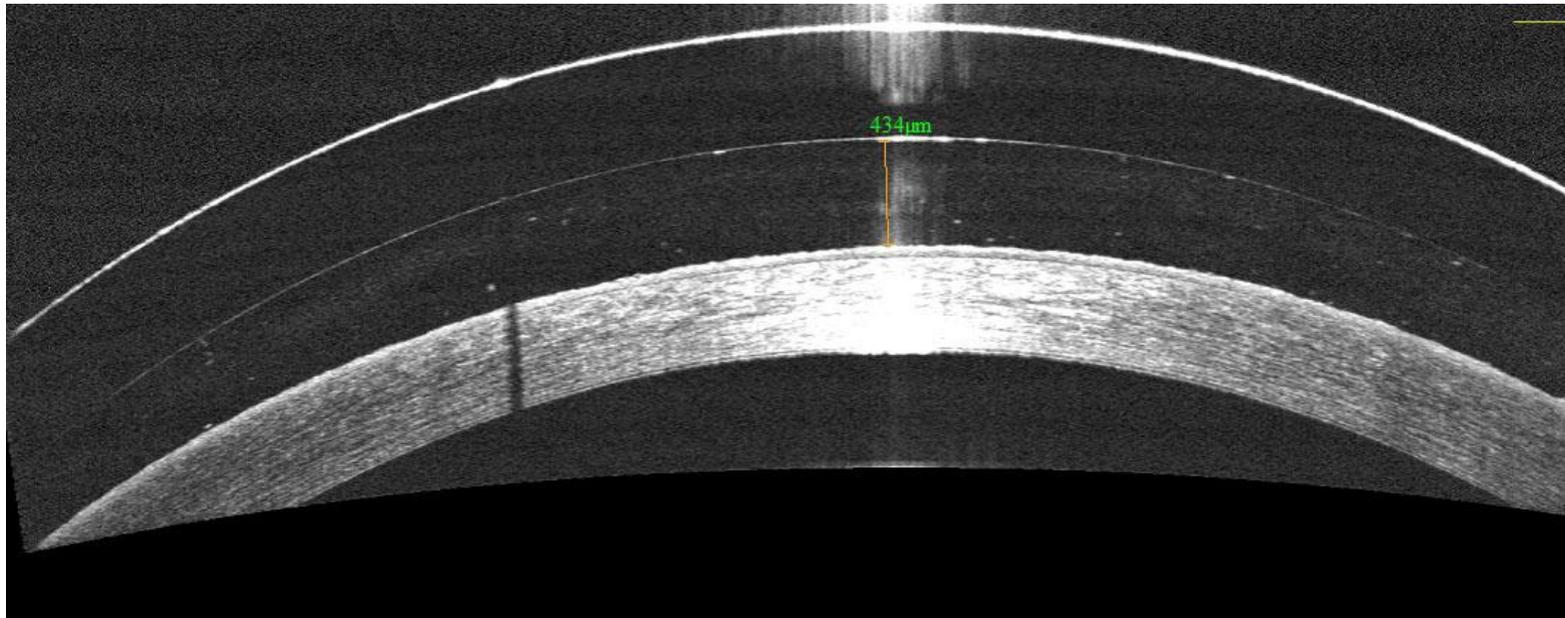
Red = central/mid-peripheral vault

Green = edge/limbal clearance

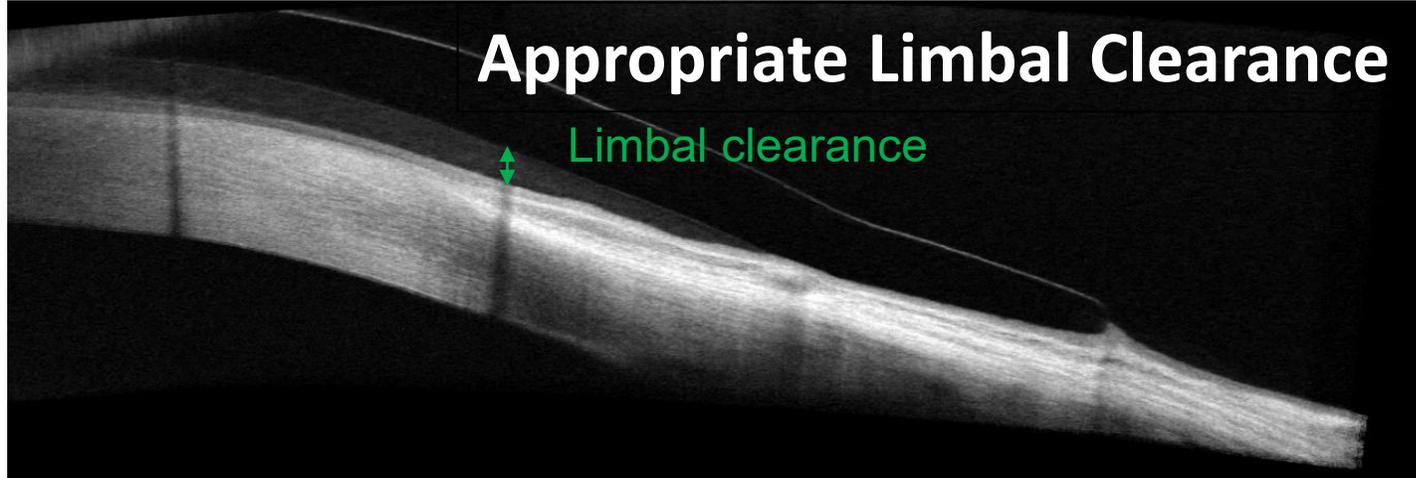
Purple = occasional requested if lens rotating diagonally – for edge/limbal clearance

Central Clearance with OCT

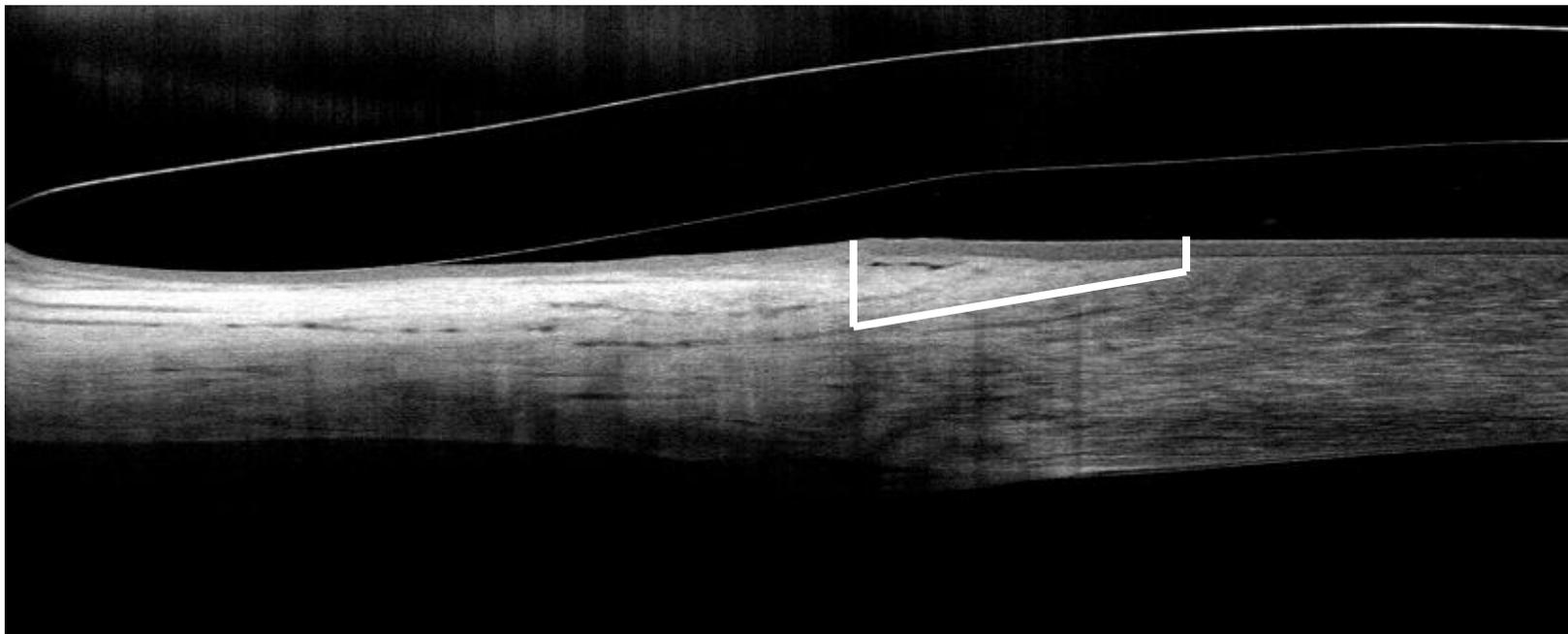
- May automatically measure or may have to measure manually, ideally, take vertically!



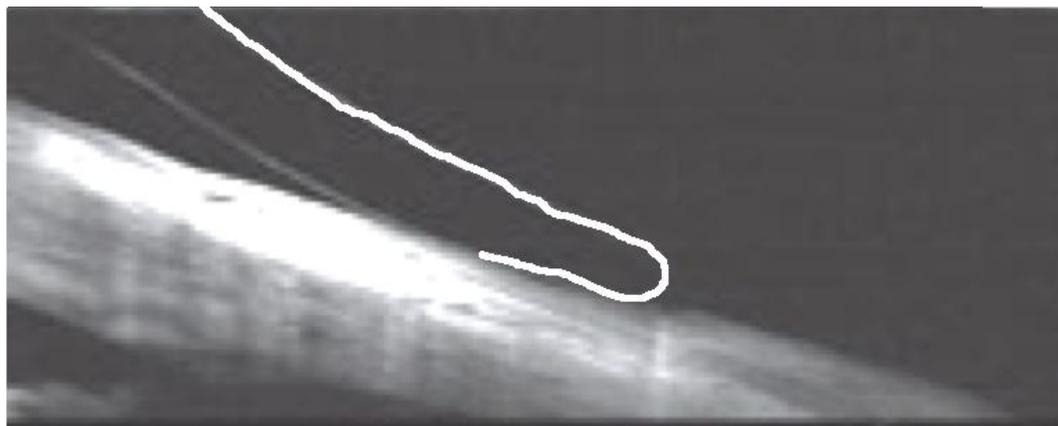
Limbal Zone on OCT



Where is the limbus?

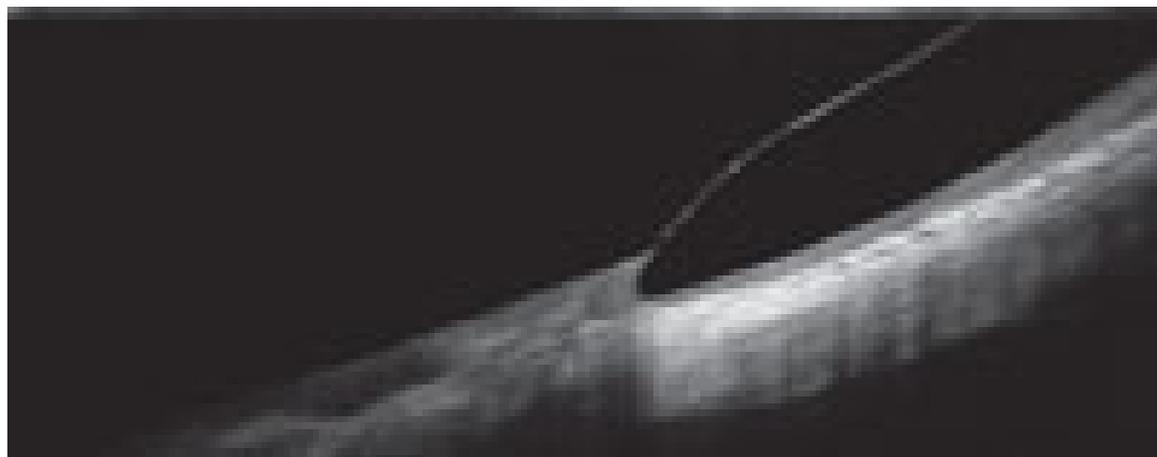


Landing Zone on OCT



Too Flat

Too Steep



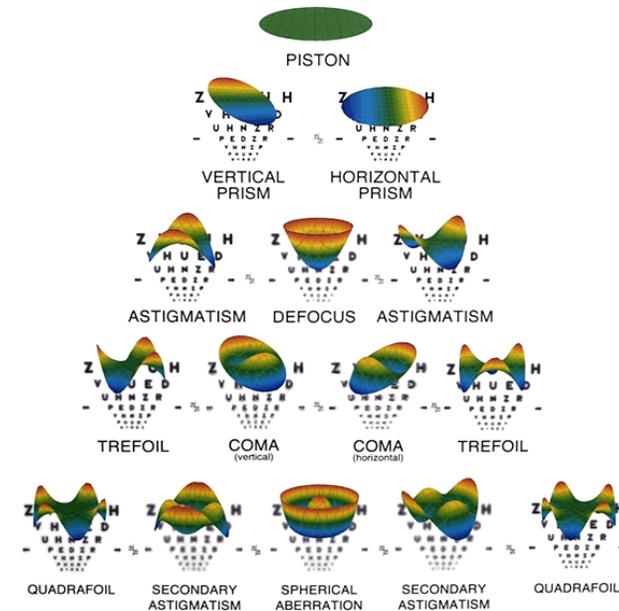
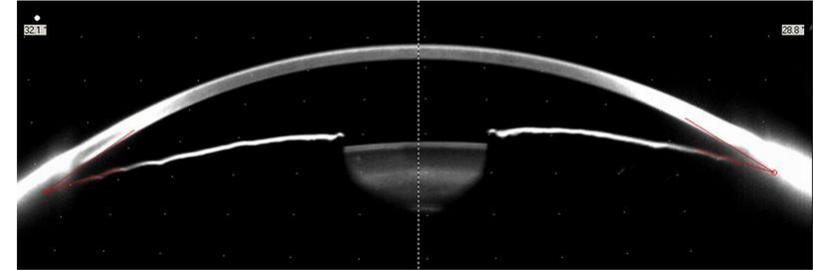
Scleral Lens Patient Education

- Building up lens wear over time (if needed)
- No sleeping in CL!
- **NO TAP WATER WITH USE***
 - Dry hands!
 - No hot tubs/showers with lenses on
 - Goggles for swimming
- No lanolin-based soaps
- Spare lenses recommended

Let's give it a whirl!

Higher Order Aberrations

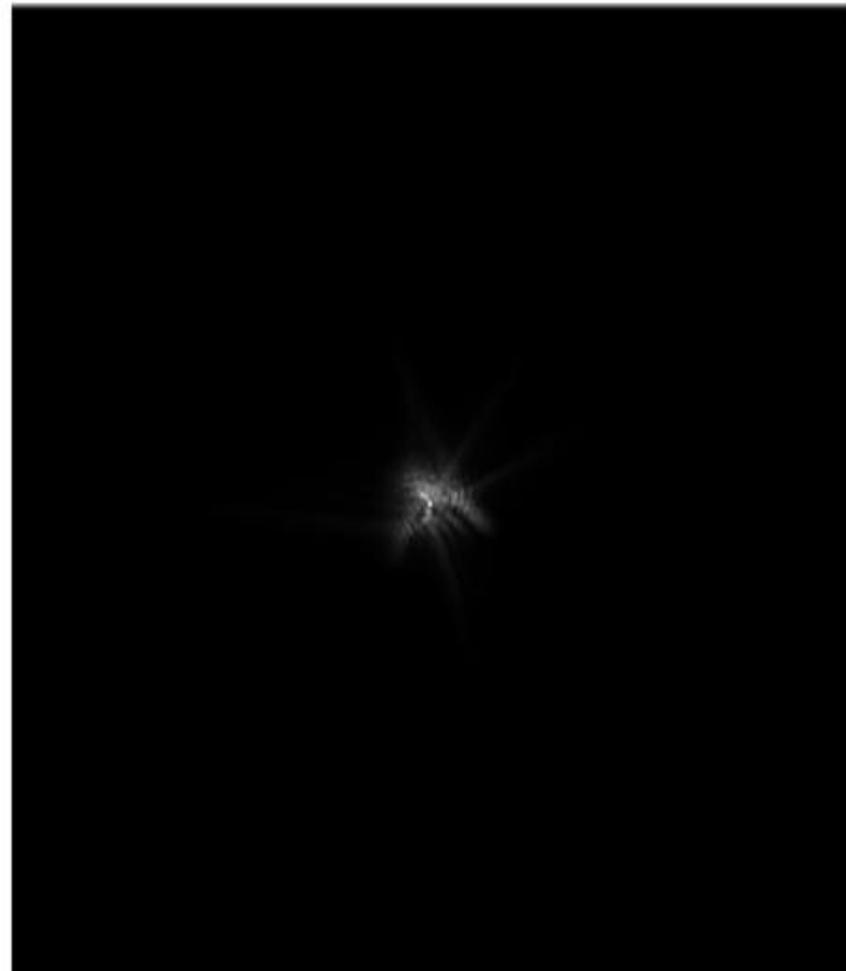
- Now available for scleral lenses
- Must have access to aberrometer
 - Measures HOA's of the entire ocular system
- Best for patients with 20/40 BCVA or better
- NOT good for any opacities
 - Corneal scars
 - Cataracts
- May not be economically feasible for every patient



Standard (LOA) Scleral Lens



Ovitz-Added (HOA) Scleral Lens



Contact Lens Care Systems for Specialty Lenses

- Corneal GP
 - Boston Simplus
 - Clearcare
 - Boston Advance
- Hybrid Lenses
 - Clearcare (Alcon)
 - Biotrue (Bausch & Lomb)
 - Preservative-free addipack for filling (Ultrahealth)

Contact Lens Care Systems for Specialty Lenses

- Scleral Lenses
 - Boston Advance
 - Progent
 - If hydrapog coating on lenses:
 - Boston Simplus
 - Clearcare
 - Rinse with saline
 - Insert with preservative-free saline
 - Buffered preservative-free saline

Cleaning & storing diagnostic lenses between patients

- 3 hours straight hydrogen peroxide
- or
- Electrophoresis



Thank you!

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