Scleral Lens Virtual Fitting – How You Can Improve Scleral Lens Patient Outcomes

Dr. Jennifer Harthan

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WELCOME!

Host: Dr. Stephanie Woo

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Thank you to Metro Optics for exhibiting at this event.

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- For a 1-hour webinar attendees must be online for a minimum of 50 minutes
- For a COPE certificate, please fill out the survey link in the chat. Also, the survey link will appear when the webinar ends.
- CE certificates will be delivered by email and sent to ARBO with OE tracker numbers
- **CE certificates will be emailed within 4 weeks**
- Ask questions using the zoom on-screen floating panel

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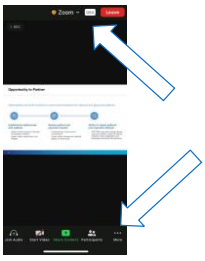

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Speaker Bio

Jennifer S. Harthan, OD is a graduate of the Illinois College of Optometry (ICO). After completing a Residency in Cornea and Contact Lenses at ICO, she became a full-time faculty member. Dr. Harthan is a Professor at ICO and Chief of the Cornea Center for Clinical Excellence at the Illinois Eye Institute. Dr. Harthan is a Fellow of the American Academy of Optometry, Scleral Lens Education Society and serves on the Medical Advisory Board for the International Keratoconus Academy. Dr. Harthan is a founding member of the SCOPE (Scleral Lenses in Current Ophthalmic Practice Evaluation) research team. She has numerous publications on the topics of complex contact lens fits and anterior segment disease. Dr. Harthan is actively involved in ocular surface disease and contact lens research and lectures on these topics at national meetings.

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Financial Disclosures

- Allergan- honorarium,
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- Kala Pharmaceuticals-research,
- Ocular Therapeutix-research,
- MetroOptics-research, honorarium, consulting,
- SynergEyes-honorarium,
- Tangible Science-research,
- Visioneering Technologies, Inc.-honorarium

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Scleral Lens Virtual Fitting: How You Can Improve Scleral Lens Patient Outcomes January 13, 2022

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Thank You

- Dr. Stephanie Woo
- Metro Optics

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Objectives

- Review benefits of scleral lenses for patients with OSD, post-surgical corneas, and corneal ectasia.
- Discuss the latest prescribing and fitting trends in scleral lenses.
- Have general knowledge on scleral lens selection based on case history, ocular presentation, and corneal tomography.
- Understand troubleshooting techniques and evidenced based strategies through case examples to enhance outcomes.

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Scleral Lens Anatomy

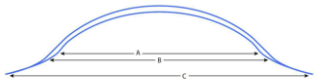

Fig. 2. Anatomy of a scleral lens comprising 3 zones.

A = optical zone
B= transition zone
C= landing zone

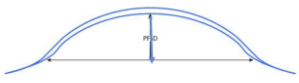

Fig. 3. Primary functional sagittal depth of the lens.

Michaud L, Lipson M, Kramer E, Walker M. The official guide to scleral lens terminology. Contact Lens and Anterior Eye. 2019 Sep 25.

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Scleral Lens Fit Indications: SCOPE

From Harthan et al, SCOPE study group (2018) - Table 3:

- keratoconus
- pellucid marginal degeneration
- s/p refractive surgery
- s/p keratoplasty
- astigmatism
- s/p trauma
- keratoconjunctivitis sicca
- exposure keratopathy
- myopia
- Sjogren syndrome
- graft vs. host disease (GVHD)
- neurotrophic keratopathy
- Stevens-Johnson syndrome
- aphakia
- hyperopia
- limbal stem cell deficiency
- presbyopia
- ocular cicatricial pemphigoid

Harthan J, Nau CB, Barr J, Nau A, Shorter E, Chimato NT, Hodge DO, Schornack MM. Scleral lens prescription and management practices: the SCOPE study. Eye & Contact Lens. 2018 Sep 1;44:S228-32.

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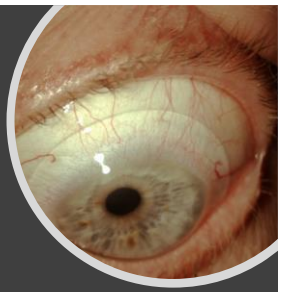
Scleral Lens Prescribing Trends

- SCOPE I
  - Corneal Irregularity 74%
  - Ocular Surface Disease 16%
  - Refractive Error 10%
- SCOPE II
  - Primary Indications:
    - Corneal irregularity (87%)
    - Ocular surface disease (8%)
    - Refractive correction (4%)
  - Duration of lens wear: 2.4 [1.7] years
  - Daily lens wear: 12.7 [2.9] hours/day
  - Mid-day fogging: 28% positive responses
  - Complications: no microbial keratitis



Nau CB, Mathias J, Shorter E, Barr J, Nau A, Chimato NT, Hodge DO, Schornack MM. Demographic Characteristics and Prescribing Patterns of Scleral Lens Fitters: The SCOPE Study. Eye Contact Lens. 2017 Jun 16
Mathias J, Nau CB, Barr J, Nau A, Shorter E, Chimato NT, Hodge DO, Schornack MM. Scleral Lens Prescription and Management Practices: The SCOPE Study. Eye Contact Lens. 2017 Apr 6

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Role of Scleral Lenses in OSD

Ocular surface protection	Healing	Improved comfort

• post-lens fluid reservoir
• coverage of cornea and conjunctiva
• exposure
	• refractive consideration/visual improvement
	• quality of life
	  • NEI VFQ-25 scores
	  • OSDI scores
	• Autologous serum/PRGF
		• delay or avoid surgical intervention
		• failure with other lens options

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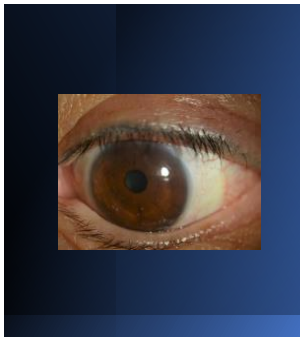
Scleral Lens Design Selection

Two Methodologies



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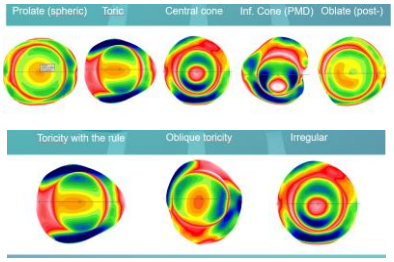

Images courtesy of Eaglet Eye

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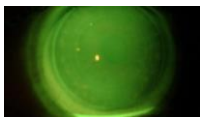
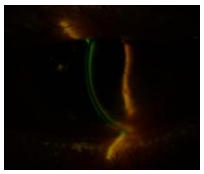
Smaller OAD

- Smaller OAD and shallower sagittal depth
  - Michaud et al.
    - High Dk (>150 microns)
    - Maximum central lens thickness of 250 microns
    - Maximum PLTL thickness of 200 microns
  - Fadel
    - Thinner lenses reduce lens mass
    - Improved centration





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Lids

- Patients with small fissures need smaller lenses
- May be needed with cicatricial diseases
- Must select a lens that can be easily applied between the lids
- May require:
  - Toric landing zone
  - Quadrant specific peripheral system

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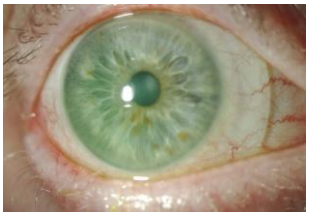
Larger OAD

- Covers more surface area
- Improved distribution of the lens weight on the sclera
- Have higher post-lens tear vault
- Less lid interaction
- Enhanced comfort
- Requires advanced toric scleral lens haptic or quadrant specific designs



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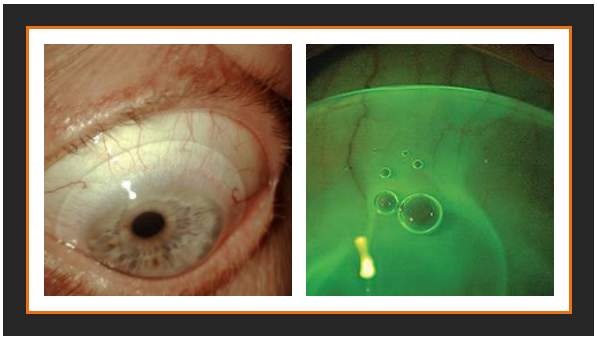

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Metro InSight Options

- Prolate
- Oblate
- Center Distance MF
- Bitoric Design
- Toric Landing Zone
- Quadrant Specified Landing Zone
- Notching

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Case 1

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30-year-old male

- Constant, blurry vision OS>OD
- Referred from ophthalmology
- h/o corneal GP wear > 4 years prior, lost lens
- Diagnosed with KC 2005
- (-) FHx of KC
- (+) seasonal allergies
- CLXT

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Examination

- VAcc
  - OD: 20/25
  - OS: 20/400
- Current SRx
  - OD: -1.00-2.00x053, 20/25
  - OS: -1.00-2.00x082, 20/400
- Manifest
  - OD: -2.50, 20/20
  - OS: -13.75, 20/70

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Slit Lamp Examination

	OD	OS
Adnexa	Normal	Normal
Lids/lashes	Normal	Normal
Conjunctiva	Trace palpebral injection, 1+ temporal bulbar injection, trace papillae	Trace palpebral injection, 1+ temporal bulbar injection, trace papillae
Sclera	White and quiet	White and quiet
Cornea	Apical thinning, steepening, (+) FR	Apical thinning, steepening, (+) FR, (+) Munson's sign
Angles	3-4+ Nasal and temporal	3-4+ Nasal and temporal
Anterior Chamber	Deep and quiet	Deep and quiet
Iris	Multiple flat nevi inferior and temporal	2 flat nevi inferior and nasal
Lens	Clear	Clear

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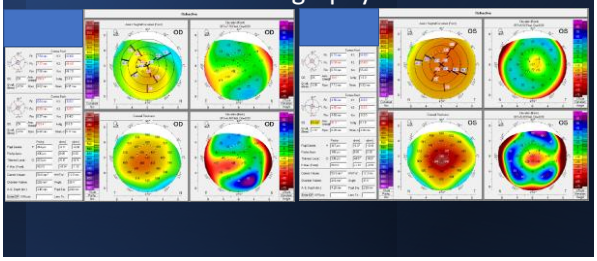
Tomography



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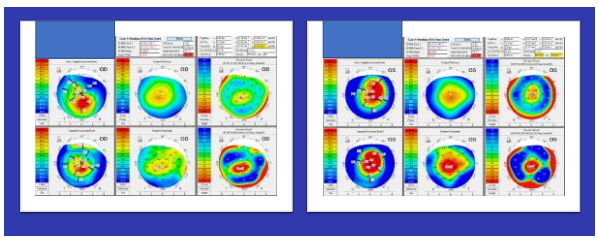
Tomography

	OD	OS
K's:	42.56/45.15	54.21/55.20
HWTW:	12.5mm	12.3mm
Pachy Min:	423 microns	338 microns



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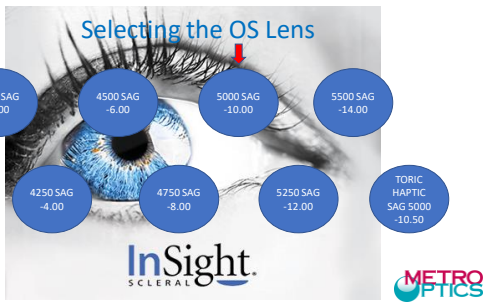

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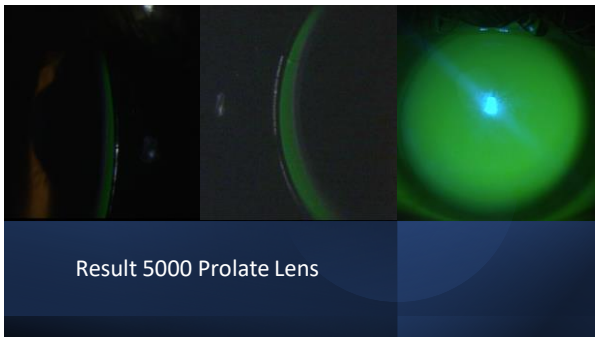

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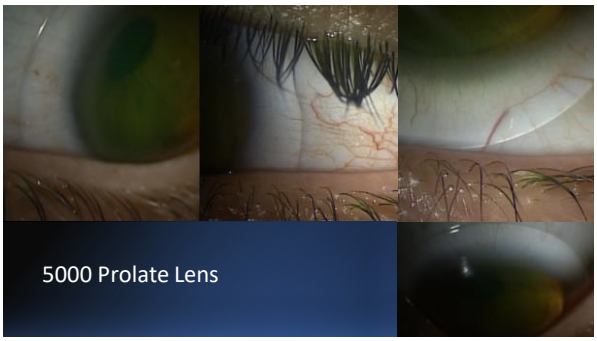

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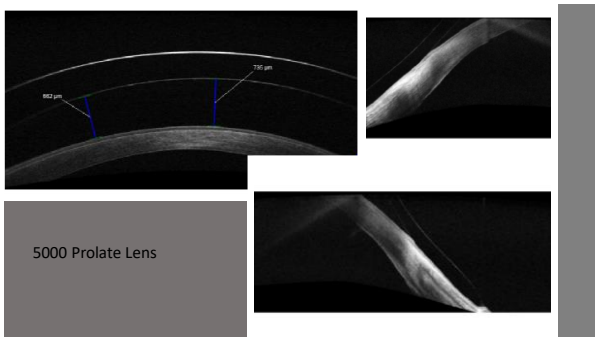

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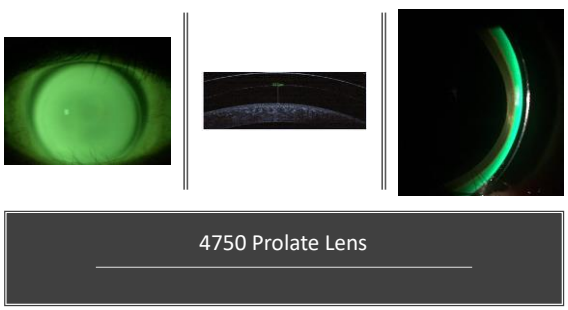

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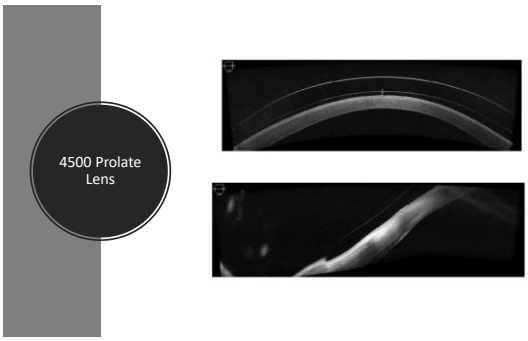

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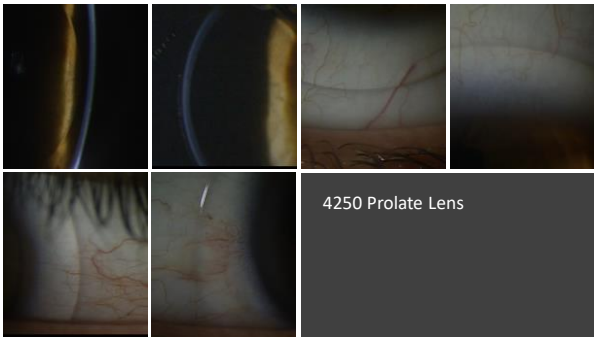

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What are you going to order?

	OS
SAG	
POWER	
OAD	
Landing Zone	

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Case 2

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29-year-old male

- Constant, blurry vision
- Referred from another provider
- h/o scleral lens wear
  - (+) pain and redness upon removal
- h/o intacs and CXL 2 years prior
- (-) FHx of KC
- (+) seasonal allergies

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Examination

- VAcc
  - OD: 20/20
  - OS: 20/50
- Manifest
  - OD: -2.00-3.75x010, 20/80
  - OS: -3.00-4.00x180, 20/150

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Slit Lamp Examination

	OD	OS
Adnexa	Normal	Normal
Lids/lashes	1+ MGD	1+ MGD
Conjunctiva	1+ bulbar injection, 1+ papillae	1+ bulbar injection, 1+ papillae
Sclera	White and quiet	White and quiet
Cornea	Corneal intacs 2 segments nasal and temporal (-) neo	Apical thinning, steepening, (+) FR, small peripheral scar
Angles	3-4+ Nasal and temporal	3-4+ Nasal and temporal
Anterior Chamber	Deep and quiet	Deep and quiet
Iris	Brown	Brown
Lens	Clear	Clear

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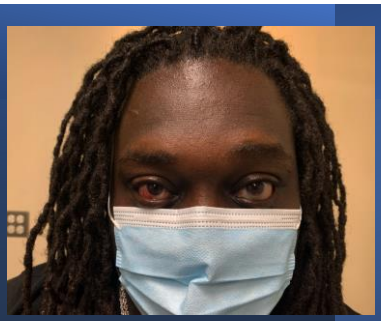

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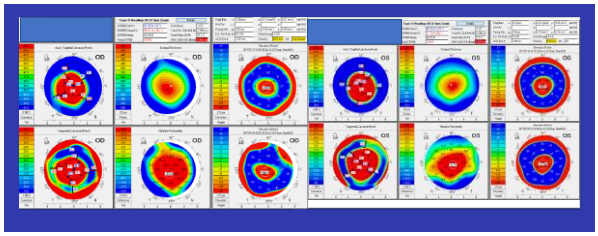
Tomography

	OD	OS
K's:	51.95/55.01	68.15/71.15
HWTW:	11.8mm	11.8mm
Pachy Min:	387 microns	319 microns



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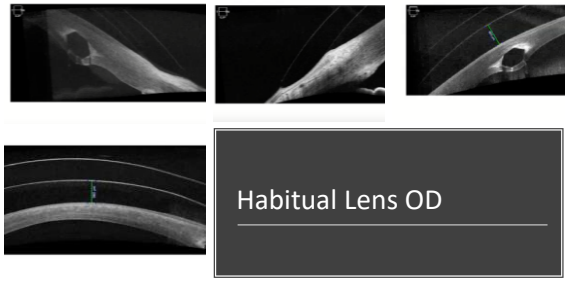

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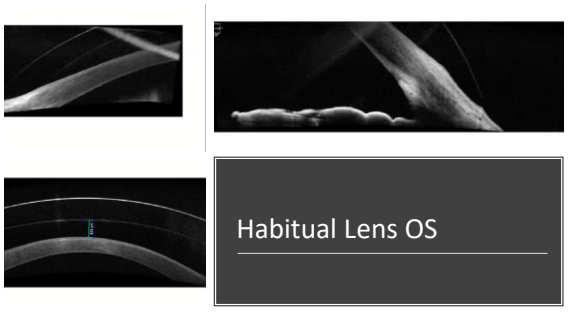

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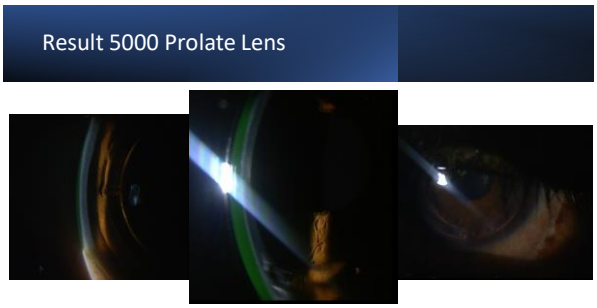

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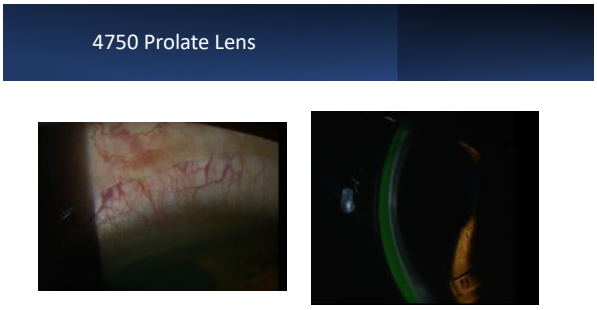

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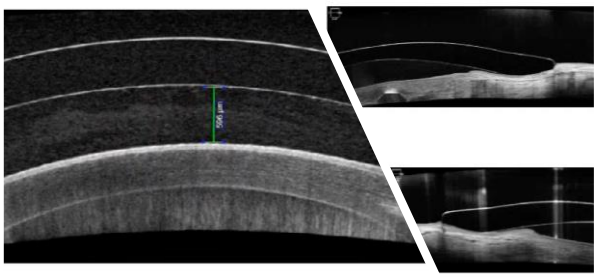

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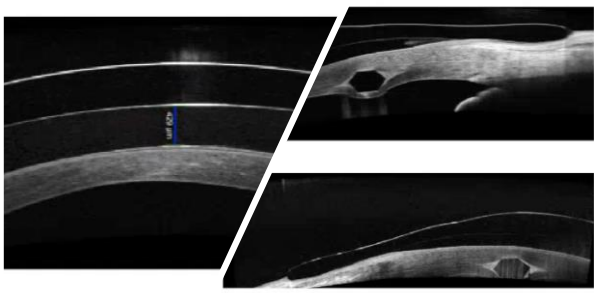

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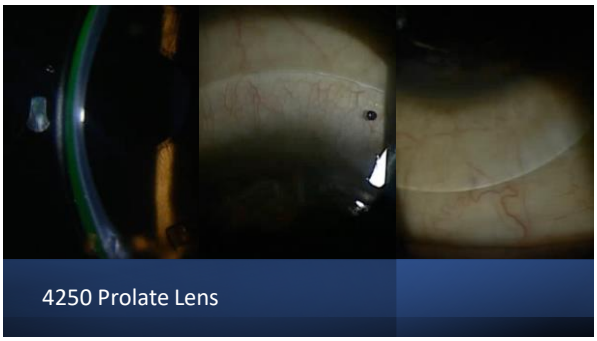

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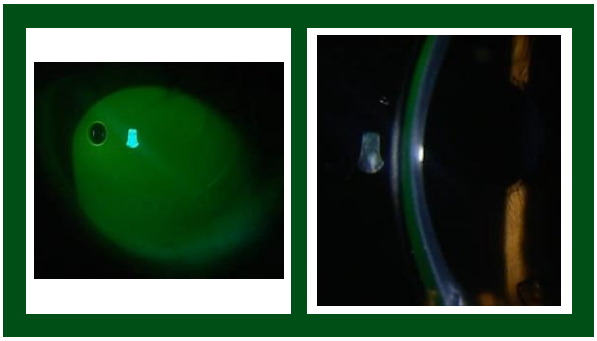

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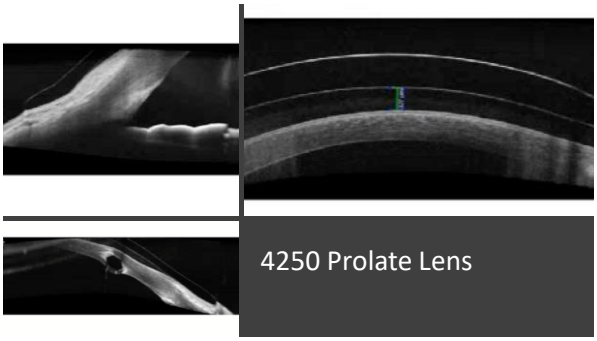

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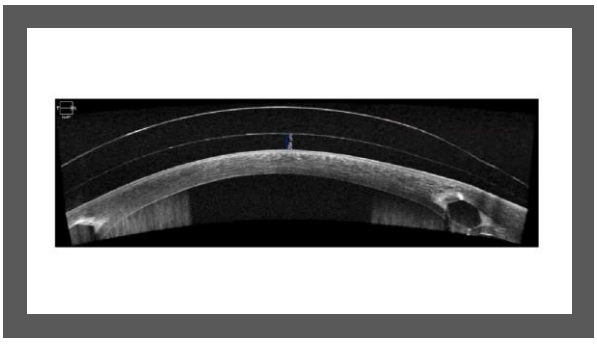

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What are you going to order?

	OD
SAG	
POWER	
OAD	
Landing Zone	

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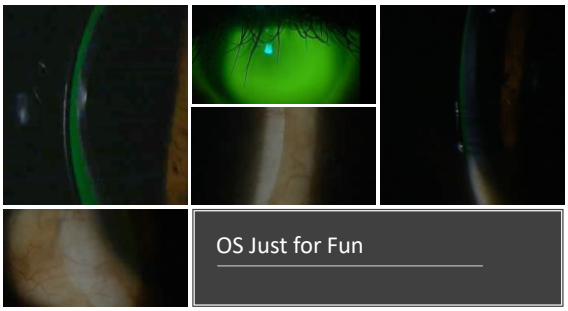

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Case 3

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38-year-old female

- Dryness that has progressively worsened over the last few years
- Soft Toric CLs- 3 hours of wear
- Vision fluctuates
- (+) seasonal allergies
- (+) DM
- (+) RA
- Has tried in the past:
  - Cyclosporine, lifitegrast, PFATs, punctal plugs, MG expression, topical steroids, oral antibiotics, Omega 3's

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Examination

- VAcc
  - OD: 20/20-
  - OS: 20/20-
- Manifest
  - OD: -2.00-2.25x167,20/20-
  - OS: -3.00-0.50x035, 20/20

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Slit Lamp Examination

	OD	OS
Adnexa	Normal	Normal
Lids/lashes	1+ MGD, LWE, (+) Korb Blackie	1+ MGD, LWE, (+) Korb Blackie
Conjunctiva	Trace papillae, 1+ LG stain	Trace papillae, 1+ LG stain
Sclera	White and quiet	White and quiet
Cornea	1+ scattered PEE, 2+ inferior PEE	1+ scattered PEE, 2+ inferior PEE
Angles	3-4+ Nasal and temporal	3-4+ Nasal and temporal
Anterior Chamber	Deep and quiet	Deep and quiet
Iris	Brown	Brown
Lens	Clear	Clear

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- OSDI
  - 62.34
- Osmolarity
  - OD: 329
  - OS: 308
- Inflammadry
  - OD: Mildly positive
  - OS: Negative
- Schirmer I
  - OD: 8mm
  - OS: 10mm
- Meibography
  - Grade 1.5 atrophy
  - Grade 1.5 atrophy

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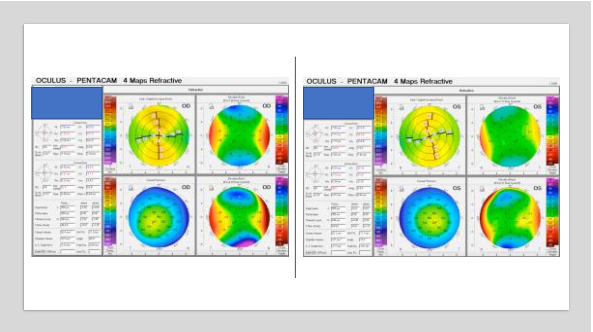

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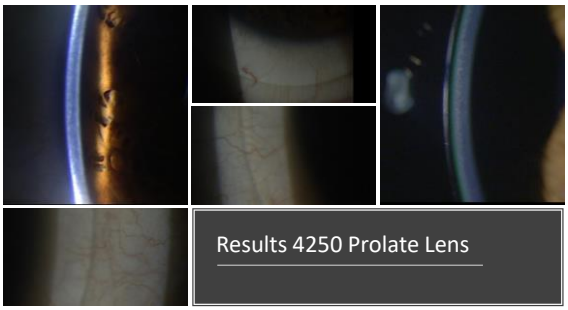

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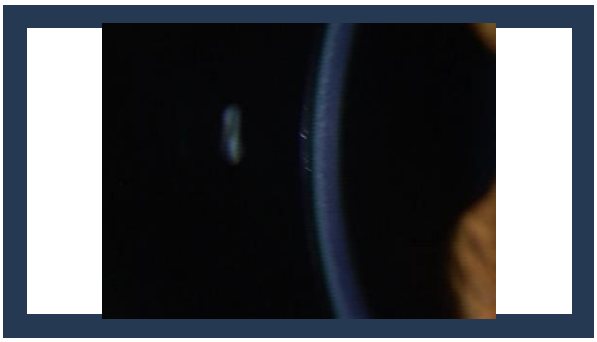

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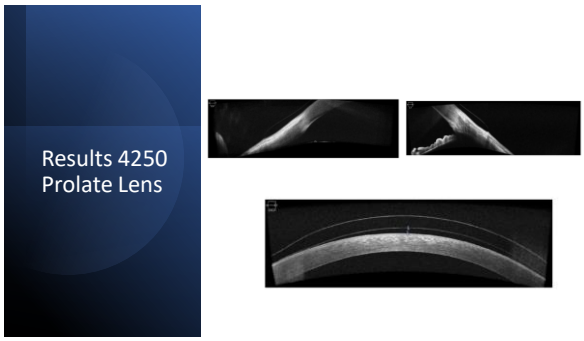

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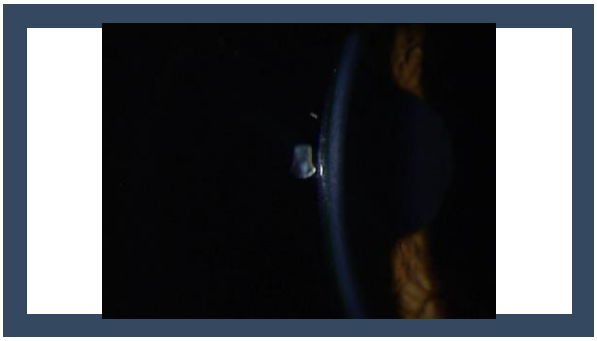

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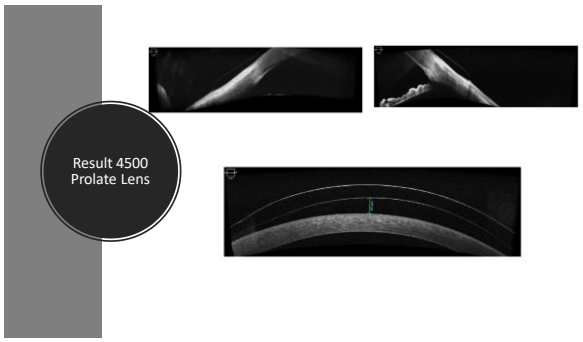

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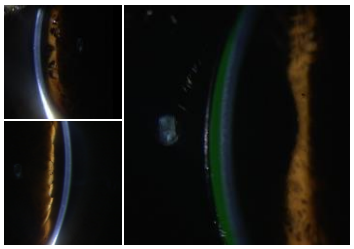
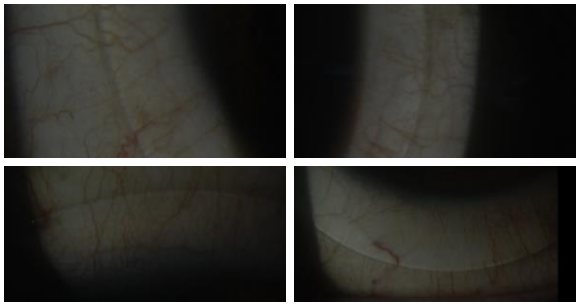
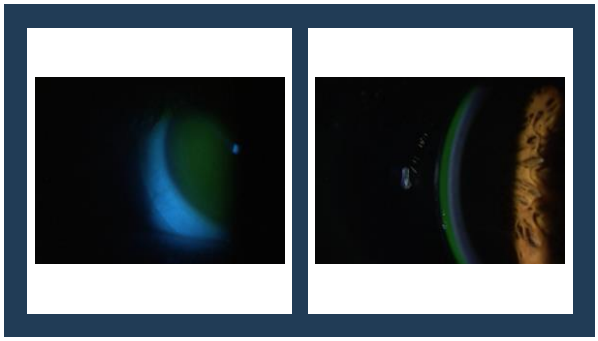
Results 4750
Prolate Lens



86



87



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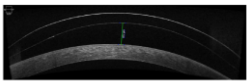
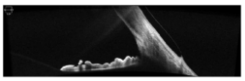
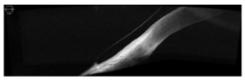
Result 4750
Prolate Lens







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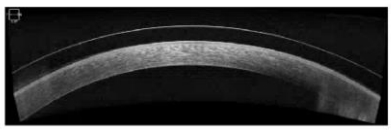
4000 Prolate Lens



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What are you going to order?

	OD
SAG	
POWER	
OAD	
Landing Zone	

92

93

Questions?

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Thank you!

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lcastle@metro-optics.com

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WOO UNIVERSITY

Thank you! Please join us for our next COPE event

Date: February 2, 2022
Time: 5:30 PM – 6:30 PM Pacific Time
Speaker: Dr. Mitch Ibach
Topic: Perimetry Primer: Fundamentals of Visual Fields
COPE: One hour live CE

Visit WooU.org for a full list of upcoming CE events!

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