Success in Cataract Refractive Surgery

Presbyopic Lens Update
Managing Unhappy Premium IOL patient

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Disclosures

Speaker & Consultant

- Alcon/Novartis
- Allergan/Abbvie
- AMO/J&J/TearScience
- Bausch & Lomb
- Dompe
- EyeVance
- Kala Pharmaceuticals
- OTX
- Oyster Point
- Physician Recommended Nutriceuticals
- SUN Ophthalmics
- Tarsus
- TearLab Corp

Consultant

- Biotissue (C)
- BlephEx (C)
- Bruder (C)
- EyePoint (C)
- Imprimis (C)
- Omeros (C)
- SightSciences (C)
- Visus (C)
- Zeiss (C)

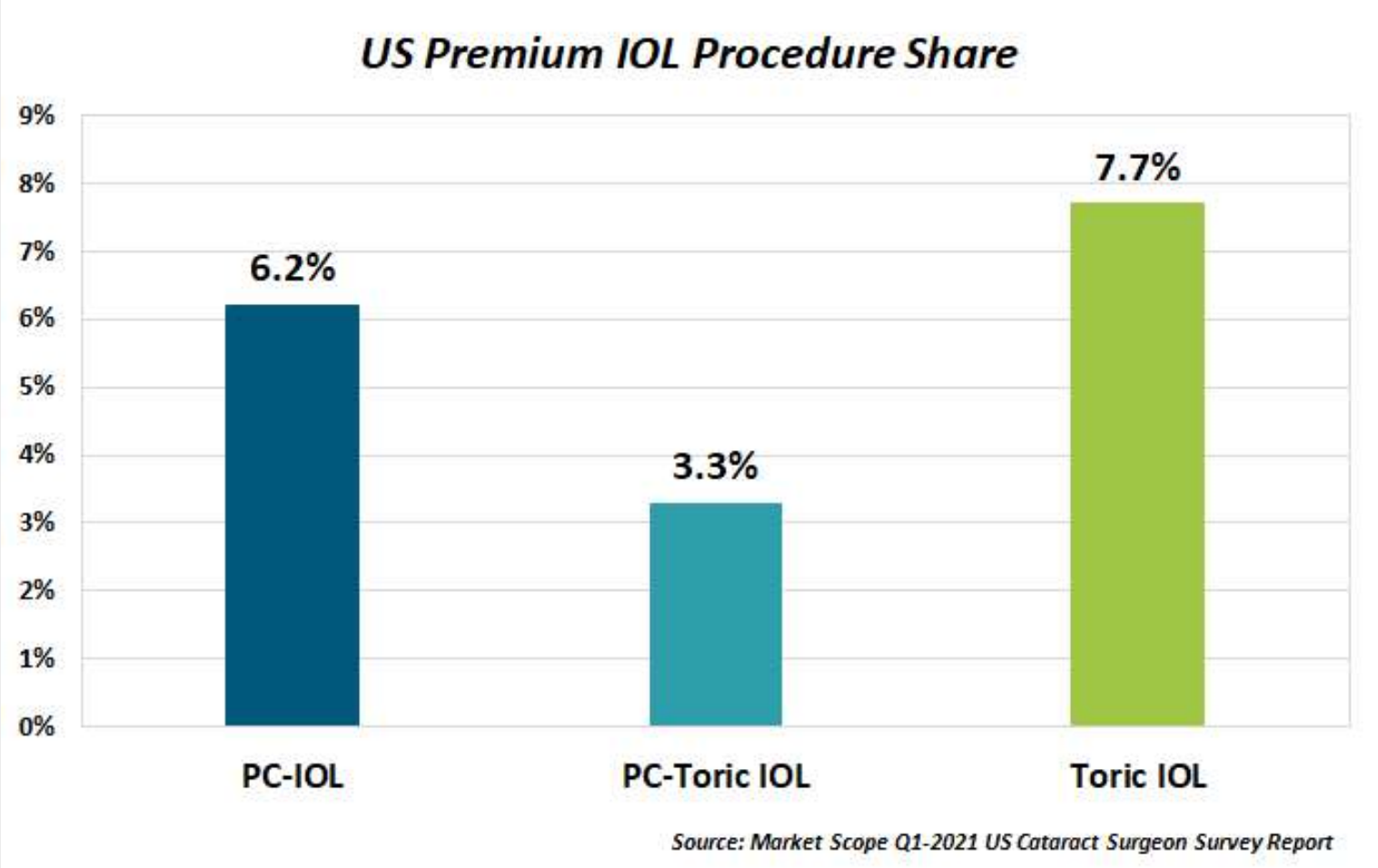
Contracted Research

- PRN
- Ocular Therapeutix
- Kala Pharmaceuticals
- B+L
- TearLab Corporation

Property Rights/Patent Holder

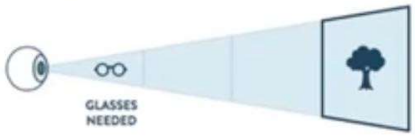
- EpiGlare Tester

US Market share in premium IOLs



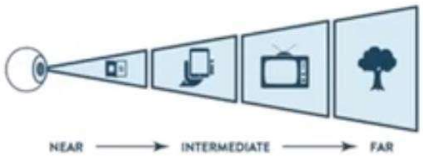
MONOFOCAL IOLs

Monofocal IOLs are used to restore vision for one area of focus–usually distance. Reading glasses may still be needed.



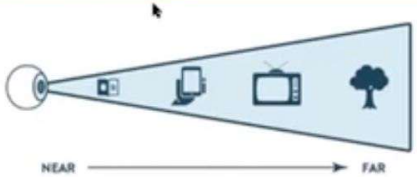
MULTIFOCAL IOLs

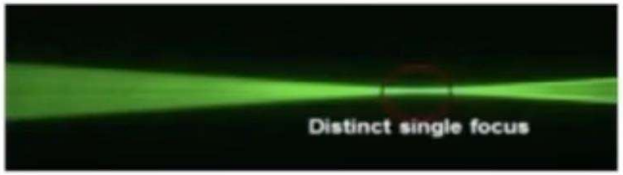
Multifocal IOLs provide high-quality vision at multiple distances, with enhanced vision at a distinct distance customized to suit the patient's lifestyle. They may increase freedom from glasses.



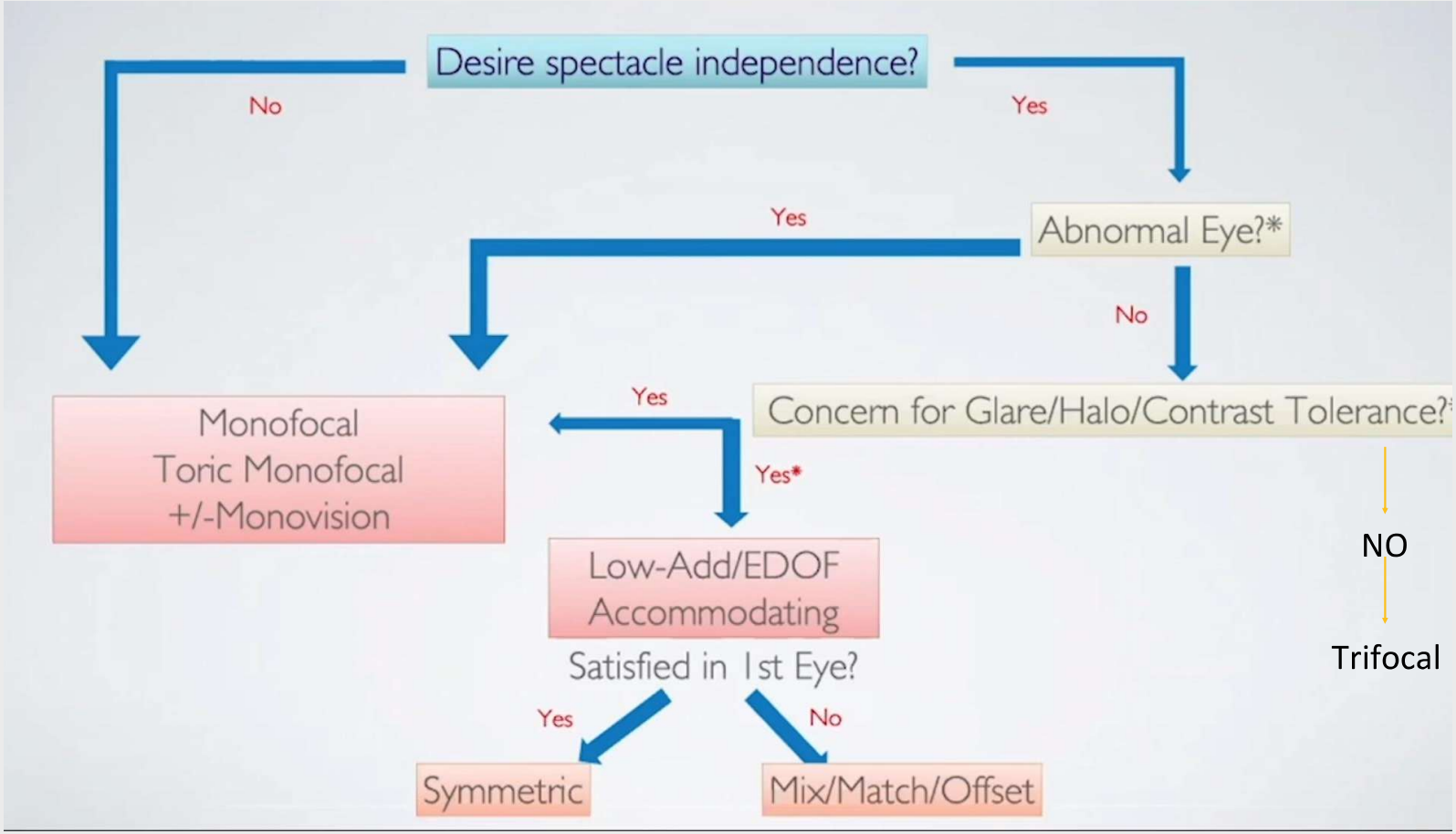
EXTENDED DEPTH OF FOCUS IOL

Extended depth of focus IOLs provide high-quality, continuous vision — from near to far and points in between — and may reduce the overall wearing of glasses.





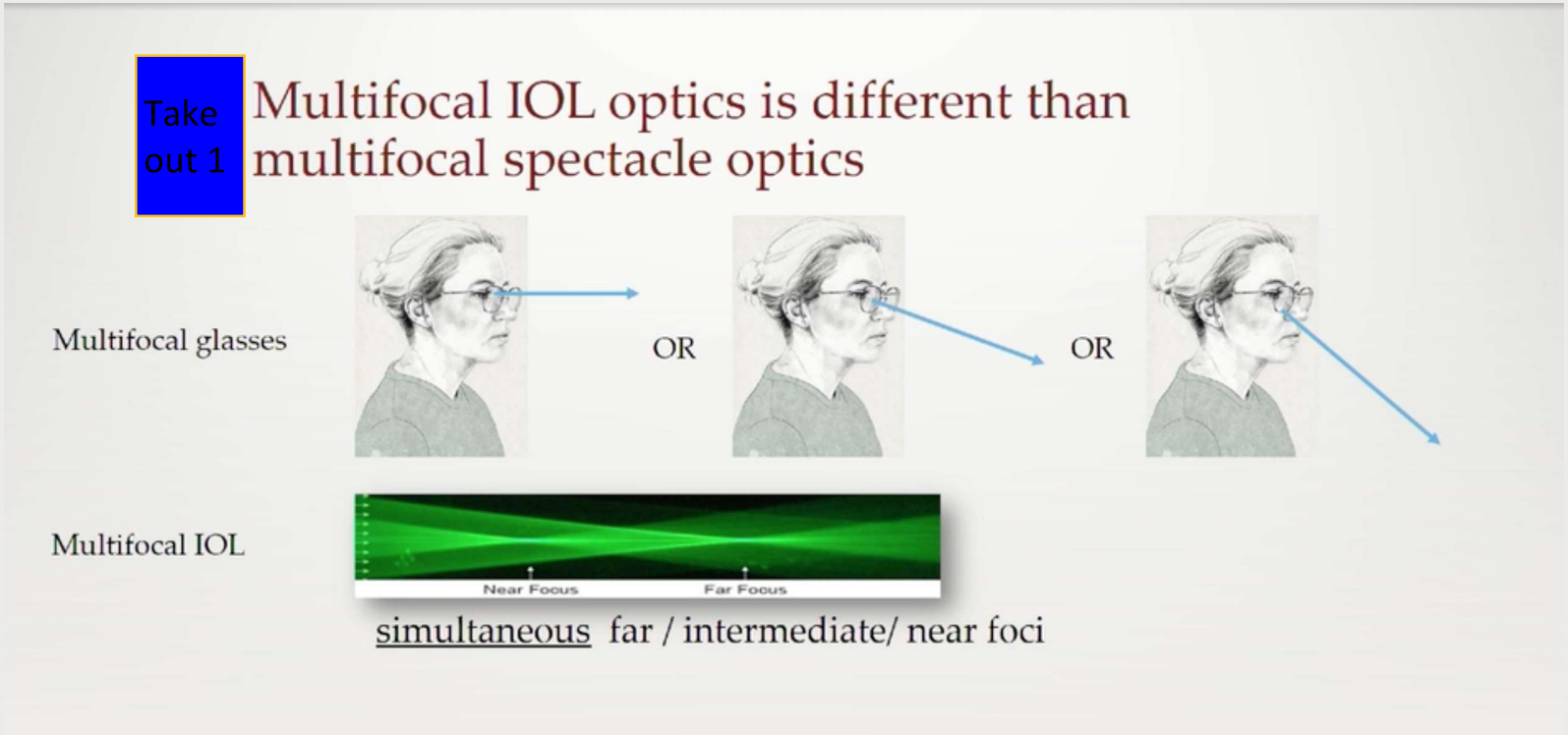
Desire spectacle independence



MFIOLs improve quality of life not quality of vision

- Goal – spectacle independence
- Presbyopic IOL technology may involve compromises

MFIOLs improve quality of life not quality of vision



Intolerance to multifocal glasses does NOT indicate intolerance to multifocal IOLs

Presbyopia lens options

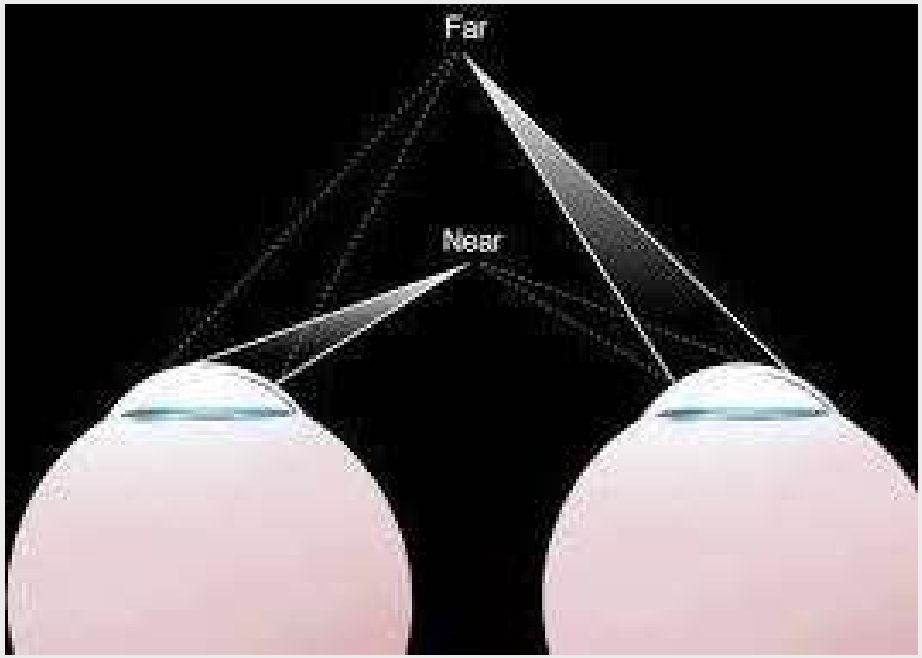
Choices available in conjunction w/lens surgery in US:

- **Glasses/Contact lenses**
  - Many patients want to have reduced dependence on them
  - Bifocals one of leading causes for falls

Presbyopia lens options

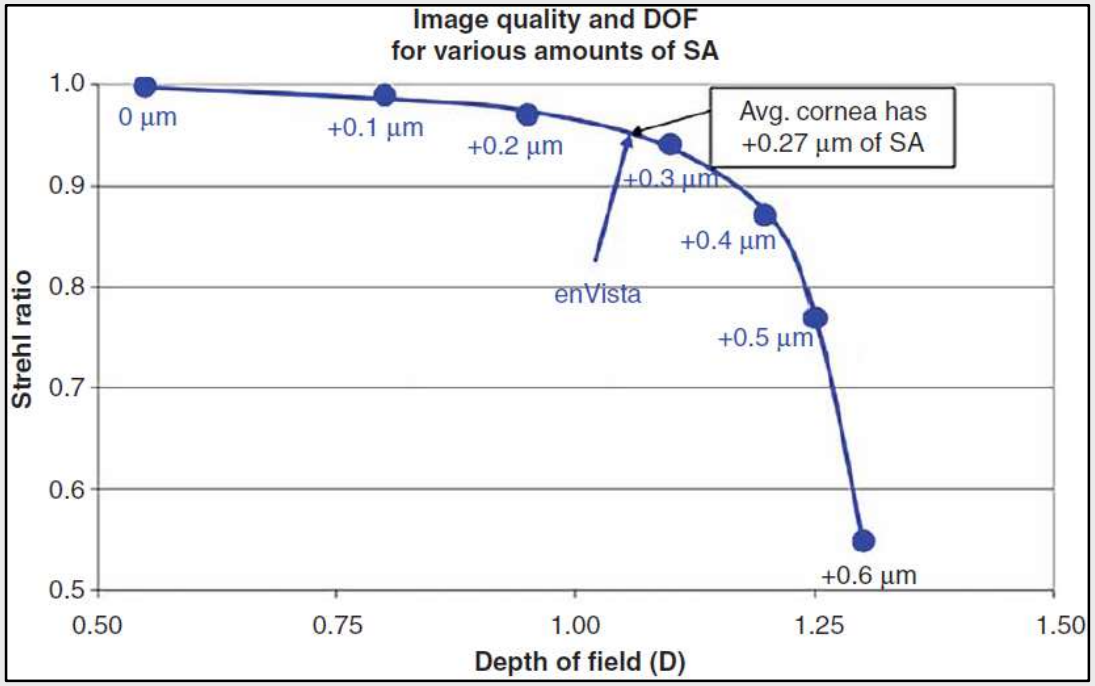
Choices available in conjunction w/lens surgery in US:

- Glasses/Contact lenses
- **Monovision**
  - Newer monofocal platforms
  - Works great for many, but…
  - Stereo vision may be compromised with greater anisometropia
  - Some patients don't like the idea of eyes being "different"
  - Some patients have difficulty in adaptation



Monofocal IOL - Envista Platform

- Aberration-free IOL in normal corneas provide more EDOF than negative spherical aberration IOLs
- Mini Monovision seems to be more impactful
- Correcting cylinder, can provide EDOF with monofocal with optimal quality of vision



Aberration free IOL

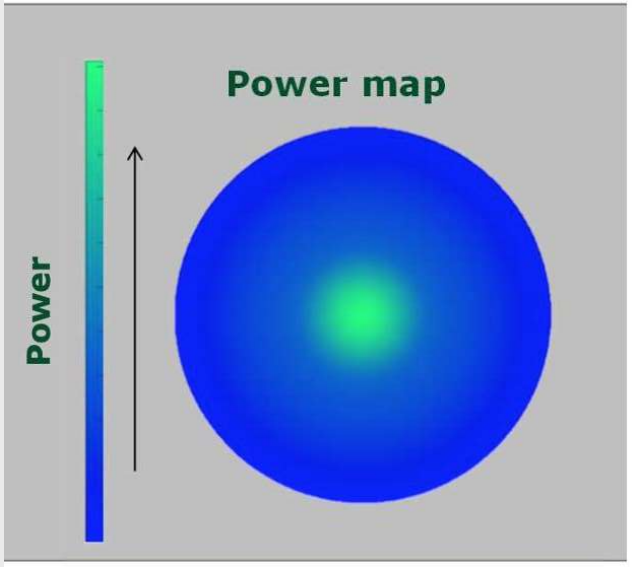
Monofocal IOL - Eyehance Platform

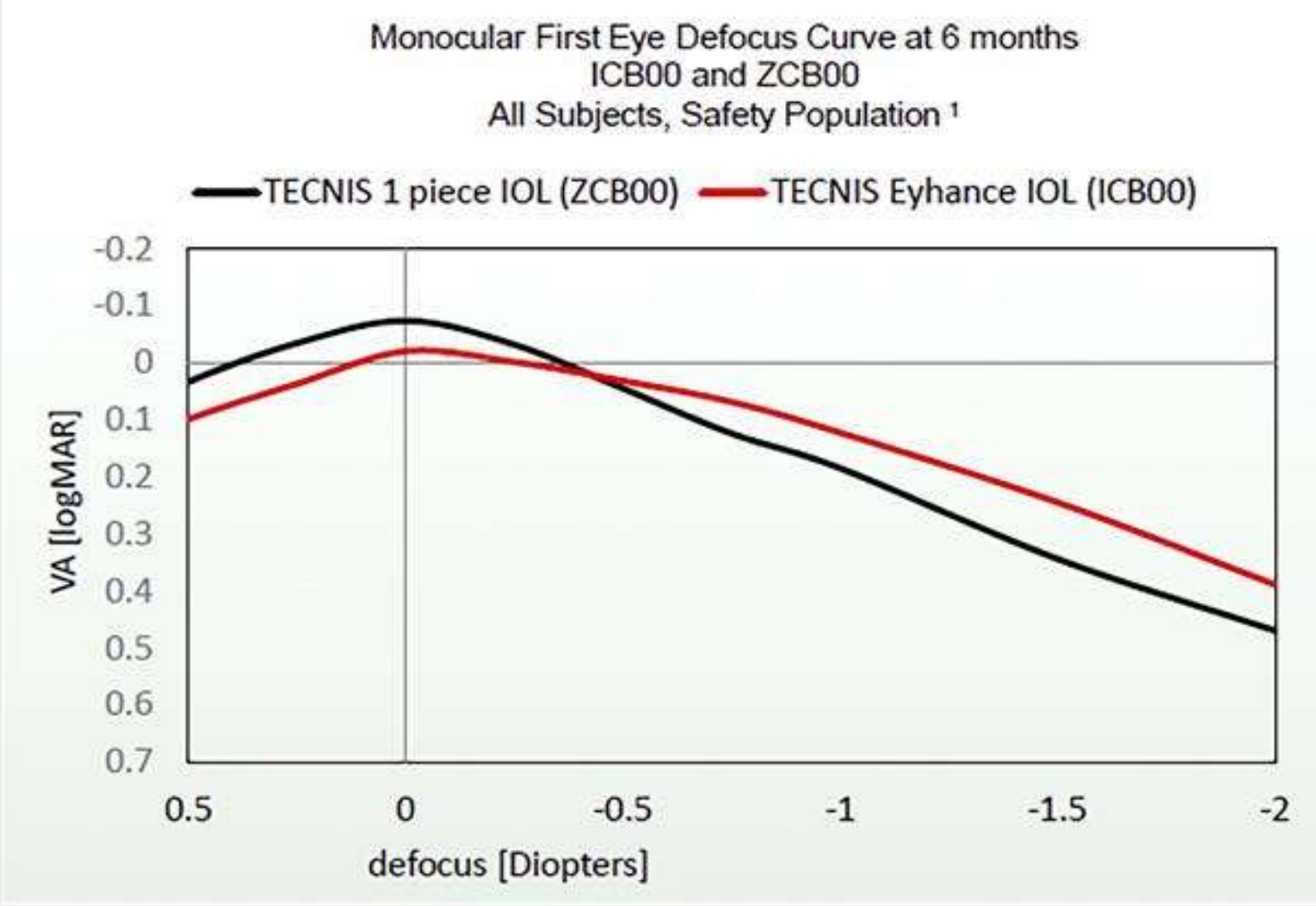
Similarities to monofocal design

- Refractive design (no rings)
- Visually indistinguishable from monofocal
- Same material, spherical aberration

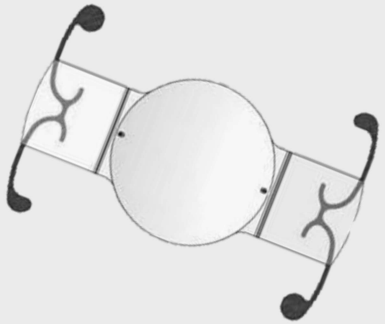
Differences from monofocal design

- Designed to improve intermediate vision while maintaining distance vision
- Progressive in power: The power changes continuously from the center to periphery creating a unique anterior surface power profile




Monocular First Eye Defocus Curve at 6 months
ICB00 and ZCB00
All Subjects, Safety Population 1
TECNIS 1 piece IOL (ZCB00)
TECNIS Eyhance IOL (ICB00)
VA [logMAR]
-0.2
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.5
0
-0.5
-1
-1.5
-2
defocus [Diopters]

Presbyopia lens options



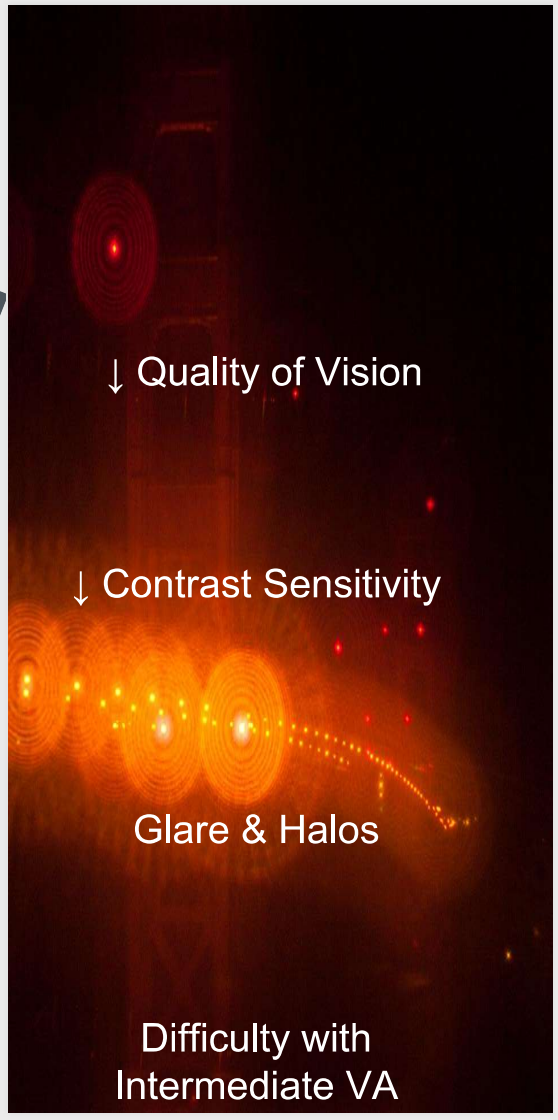
- Glasses/Contact lenses –
- Monovision
- **“Accommodating” IOL - Crystalens®**
  - Monofocal optic - excellent image quality
  - OK to use with mild macular pathology or in 1 eye
  - Better for distance/intermediate vision (e.g. computer work)
  - Susceptible to displacement w/ capsule contraction

Pipeline:

- Fluid-based lens technology of PowerVision (acquired last year by Alcon)
- Modular IOL design of Atia Vision (Shifamed)
- Shape-changing Opira IOL (ForSight Vision6)
- Juvene Curvature Changing Lens (LensGen)

Presbyopia lens options

- Glasses/Contact lenses
- Monovision
- Accommodating IOL - Crystalens®
- **Multifocal IOLs - ReSTOR® & Tecnis® - High Add**
  - Excellent near vision
  - Compromise intermediate
  - More diffractive rings – increase dysphotopsia & reduced contrast sensitivity

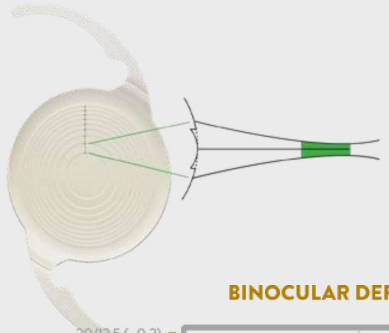


Presbyopia lens options

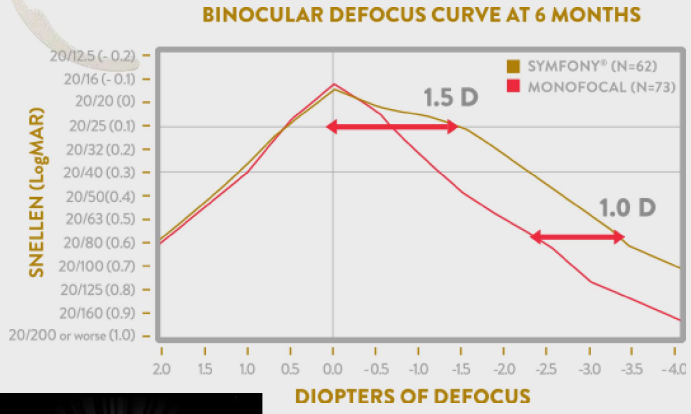
- Glasses/Contact lenses
- Monovision
- Accommodating IOL – Crystalens
- Multifocal IOLs – High Add
- **Multifocal IOLs - ReSTOR® & Tecnis® - Low Add**
  - Less diffractive rings – less compromise contrast and less dysphotopsia
  - Provides intermediate target
  - Less near vision
  - Toric available
  - Restor SN6AD1 (Alcon) ZLBOO, ZKBOO (J&J)

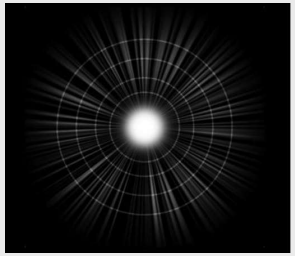
Presbyopia lens options

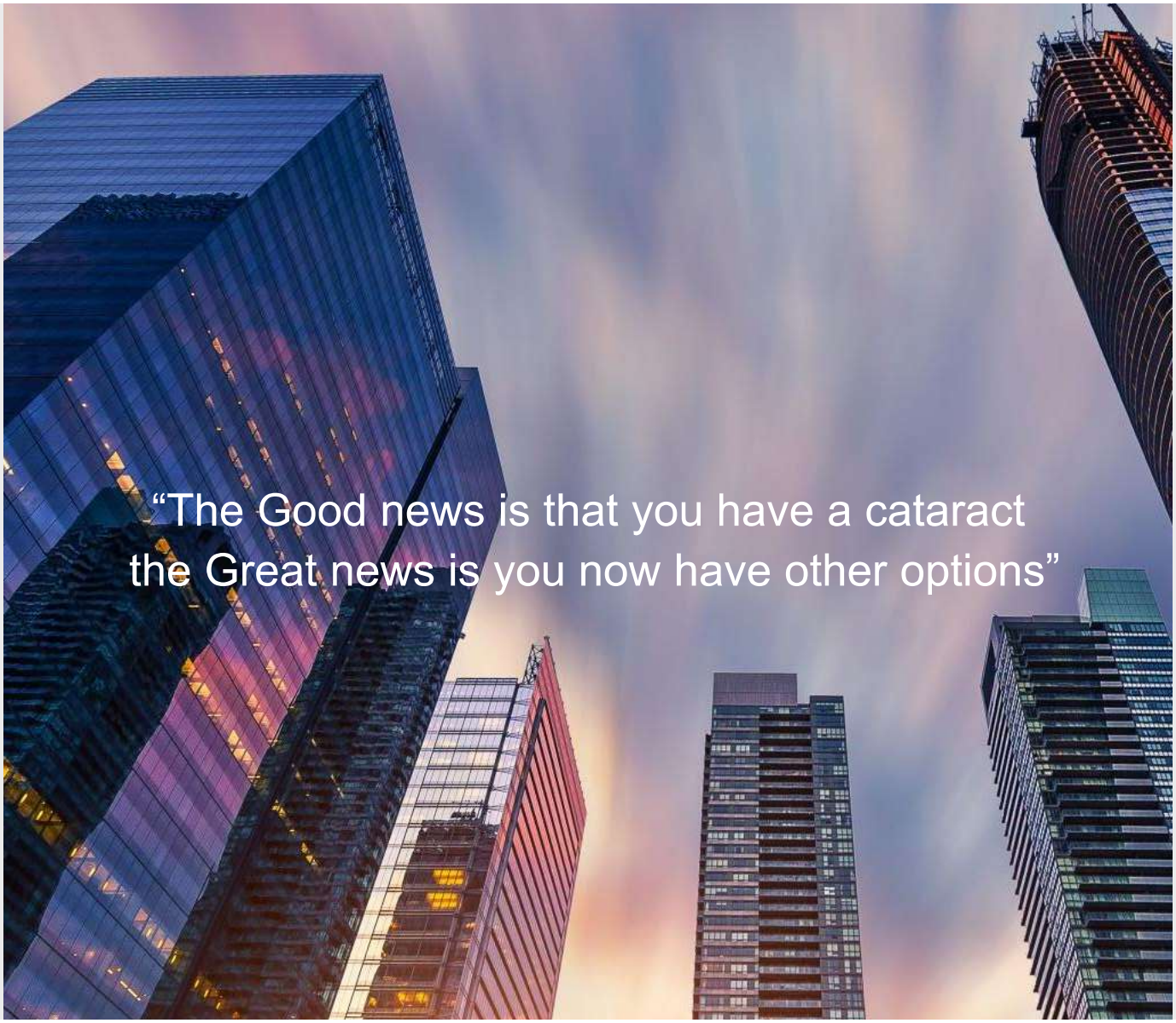
- Glasses/Contact lenses
- Monovision
- Accommodating IOL – Crystalens
- Multifocal IOLs –
  - High Add
  - Low Add
- **EDOF 1st generation Symfony**
  - No diffractive rings
  - Provides distance and intermediate, less near
  - Dysphotopsia “spider web phenomena”



Symfony

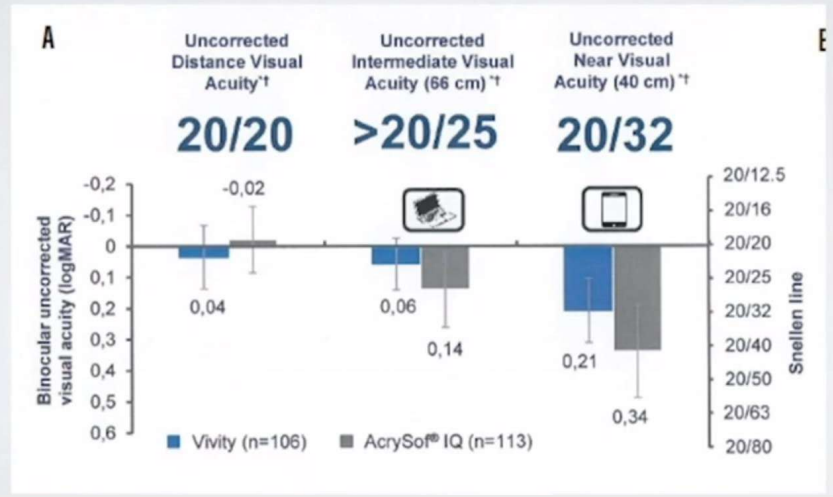





“The Good news is that you have a cataract
the Great news is you now have other options”

Presbyopia lens options

- Glasses/Contact lenses
- Monovision
- Accommodating IOL – Crystalens
- Multifocal IOLs –
  - High Add
  - Low Add
- **EDOF 2nd generation VIVITY**
  - No diffractive rings
  - Provides distance and intermediate, less near
  - Minimal dysphotopsia (similar to monofocal)
  - More forgiving



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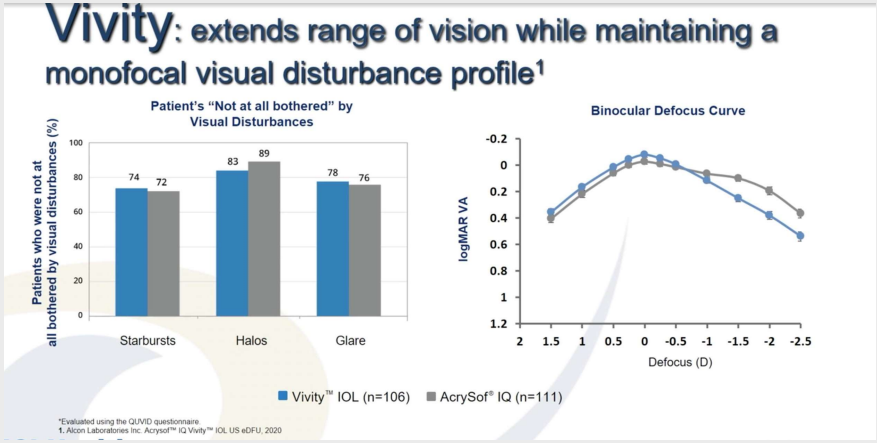
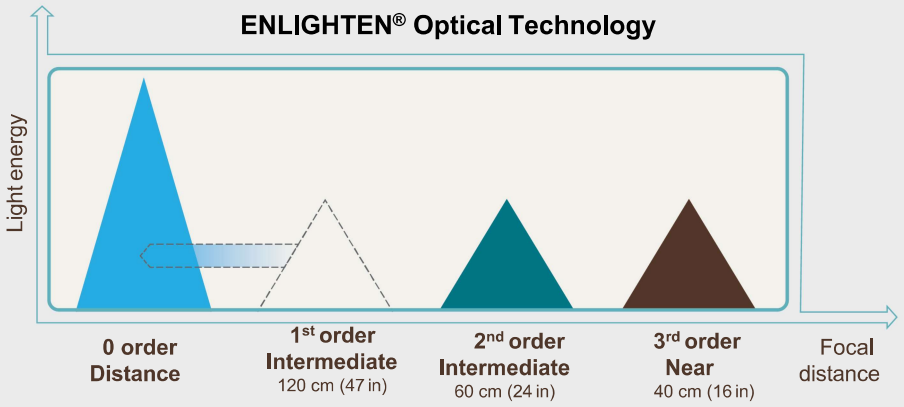


Presbyopia lens options

- Glasses/Contact lenses
- Monovision
- Accommodating IOL – Crystalens
- Multifocal IOLs –
  - High Add
  - Low Add
- EDOF 1st & 2nd generation
- **Trifocal/Quadrifocal**
  - Distance, intermediate & near vision
    - Wider range than EDOF, more foci than bifocal
  - Low dependence on pupil size
  - Similar or less dysphotopsia

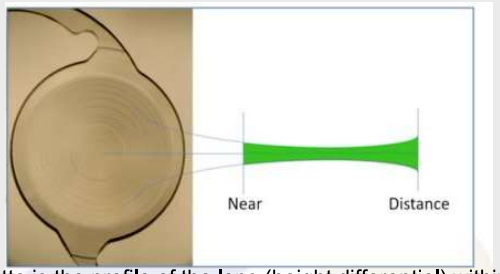
Panoptix



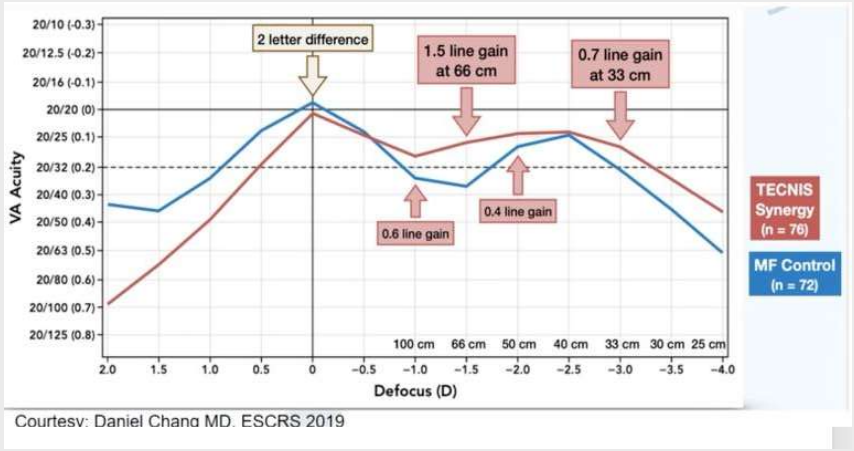
Presbyopia lens options

- Glasses/Contact lenses
- Monovision
- Accommodating IOL – Crystalens
- Multifocal IOLs –
  - High Add
  - Low Add
- EDOF 1st & 2nd generation
- Trifocal/Quadrifocal
- **Combined EDOF/MFIOL - Synergy**
  - New kid on the block!
  - Combines refractive technology from MFIL with EDOF
    - Large range of vision
    - High contrast

Synergy



The echelette is the profile of the lens (height differential) within each ring



Courtesy: Daniel Chang MD. ESCRS 2019

Summary

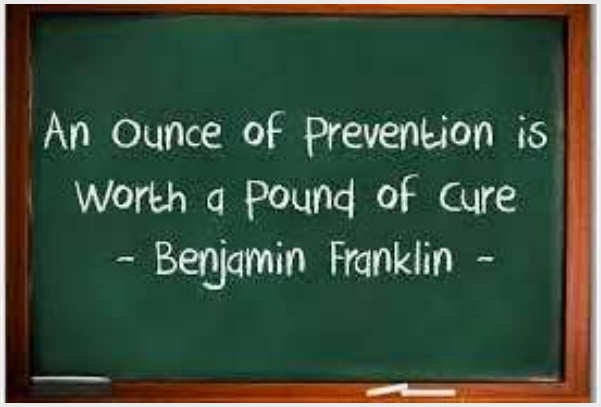
- Variety of presbyopia correcting options for cataract surgery
- No “best” lens, but what’s best for the patient
- Always under promise and over deliver

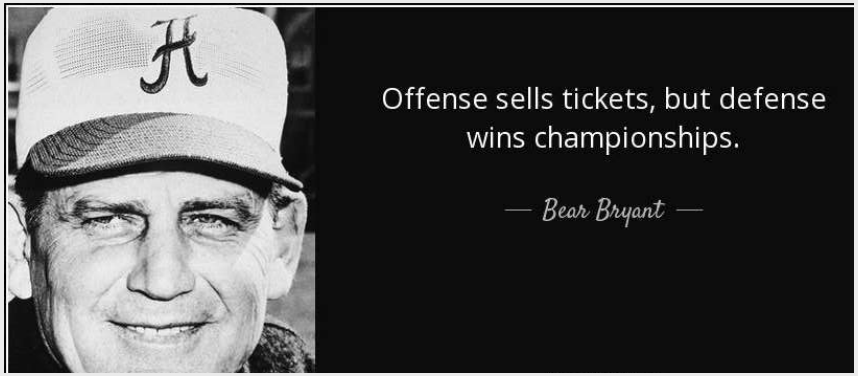
Summary suggestions of presby offerings

Managing the Unhappy Premium IOL Patient

Every patient is potentially an unhappy patient postop

- Build trust
  - Be patient, answer questions, understand their expectations
- Trust your gut
  - Not every patient is a good candidate for premium IOLs
- Transparency
  - Be upfront and honest





Thank you Dr Gary Wortz for slides

Understand why they are unhappy

- Unmet expectations – poor understanding of the consequences of IOL
- Missed refractive target
- Discomfort, increase dry eye symptoms
- Second Eye Syndrome
- Long wait times
- Dysphotopsia after premium EDOF/MFIOL
  - Neuroadaptation is not a myth it works
  - It may take several mos and may not provide full compensation but it occurs

Example

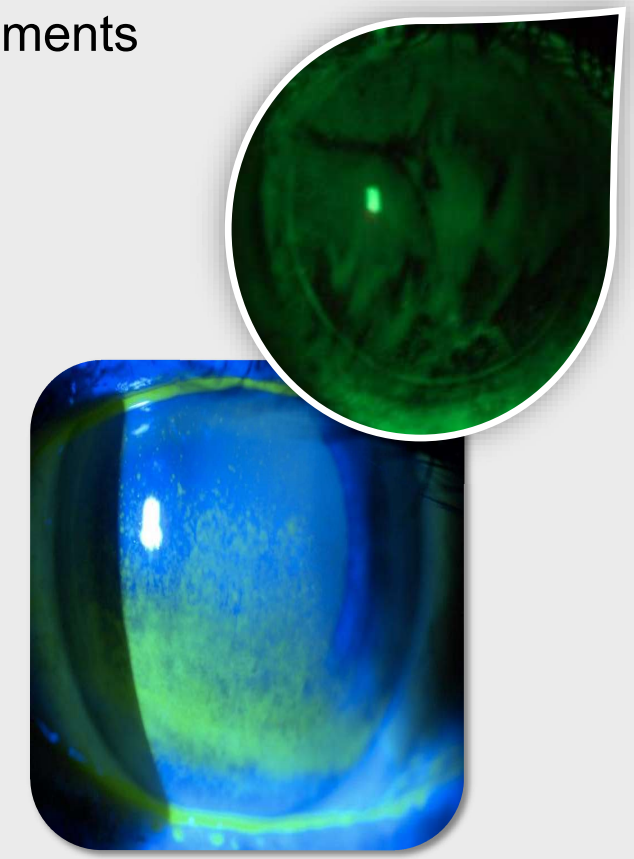
- MFIOL cataract patient. Preop BCVA 20/60, glares Off the chart
- Post op week 1 20/20 distance, intermediate and J1+ near
- Furious with their quality of vision, glare and halos at night

Premium IOL Patient Complaints

REASON FOR DISSATISFACTION	EYES (N = 74)
Residual Refractive Error	42 (57%)
Dry Eye	26 (35%)
Visual Disturbance	19 (26%) Waxy vision, Ghosting
Pre-existing Condition	15 (20%) Fuchs', ERM, CME, dry AMD, ABMD, strabismus
Intra-operative Complication (Vitreous loss)	6 (8%) Sulcus IOL
Post-operative Complication (Uveitis, RD, lens dislocation)	3 (4%)
Unreasonable Expectations	6 (8%)

TEAR FILM: **Most** Important Refracting Surface of the Eye

- Ocular Surface Disease
  - Unpredictable pre-operative measurements
  - Refractive errors postop
  - Delayed healing
  - Sub-optimal post-operative results



New Technologies

Femto

Premium

ORA

When surgery doesn’t live up to expectations…

DRY EYES IN OUR CATARACT PATIENTS

Clinical Ophthalmology

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

The Prospective Health Assessment of Cataract Patients' Ocular Surface (PHACO) study: the effect of dry eye

This article was published in the following Dove Press journal:
Clinical Ophthalmology
7 August 2017
Number of times this article has been viewed

William B Trattler[1]
Parag A Majmudar[2]
Eric D Donnenfeld[3]
Marguerite B McDonald[4]
Karl G Stonecipher[5]
Damien F Goldberg[6]

On behalf of the PHACO Study Group

[1]Center for Excellence in Eye Care, Miami, FL, USA; [2]Chicago Cornea Consultants, Chicago, IL, USA; [3]Ophthalmic Consultants of Long Island, Garden City, NY, USA; [4]Ophthalmic Consultants of Long Island, Lynbrook, NY, USA; [5]University North Carolina School of Medicine, Chapel Hill, NC, USA; [6]Wolstan & Goldberg Eye Associates, Torrance, CA, USA

Purpose: To determine the incidence and severity of dry eye as determined by the International Task Force (ITF) scale in patients being screened for cataract surgery.

Patients and methods: This was a prospective, multi-center, observational study of 136 patients, at least 55 years of age, who were scheduled to undergo cataract surgery. The primary outcome measure was the incidence of dry eye as evaluated by grade on the ITF scale and secondary outcome measures include tear break-up time (TBUT), ocular surface disease index score, corneal staining with fluorescein, conjunctival staining with lissamine green, and a patient questionnaire to evaluate symptoms of dry eye.

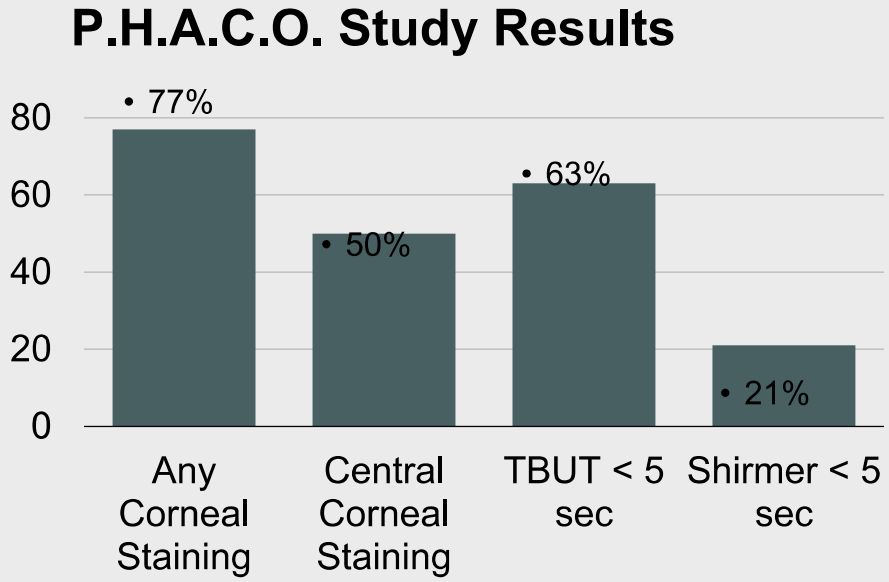
Results: Mean patient age was 70.7 years. A total of 73.5% of patients were Caucasian and 50% were female. Almost 60% had never complained of a foreign body sensation; only 13% complained of a foreign body sensation half or most of the time. The majority of patients (62.9%) had a TBUT ≤5 seconds, 77% of eyes had positive corneal staining and 50% of the eyes had positive central corneal staining. Eighteen percent had Schirmer's score with anesthesia ≤5 mm.

Conclusion: The incidence of dry eye in patients scheduled to undergo cataract surgery in a real-world setting is higher than anticipated.

Keywords: cataract surgery screening, dry eye, International Task Force scale, observational study

Prevalence of Dry Eye in Patients Scheduled for Cataract Surgery

- 87% of patients scheduled for cataract surgery diagnosed with DED
- Blurred vision more likely than burning/FBS
- Clinical signs of dry eye commonly found in preop cataract patients



Trattler WB, Majmudar PA, Donnenfeld ED et al, Cataract and Dry Eye: Prospective Health Assessment of Cataract Patients' Ocular Surface (PHACO). Clinical Ophthalmology 2017:11;1423-1430

FURTHER CONSIDERATIONS OF THE OCULAR SURFACE TO THINK ABOUT

Prevalence of ocular surface dysfunction in patients presenting for cataract surgery evaluation

Preeya K. Gupta, MD, Owen J. Drinkwater, BS, BA, Keith W. VanDusen, BS, Ashley R. Brissette, MD, MSc, Christopher E. Starr, MD

Purpose: To report the prevalence of ocular surface dysfunction in patients presenting for cataract surgery evaluation.

Setting: Duke University Eye Center and Weill Cornell Ophthalmology, single-physician practices.

Design: Prospective case series.

Methods: Consecutive patients presenting for cataract surgery evaluation were identified. Patient information including demographics, medical history, slitlamp findings, tear osmolarity, and tear matrix metalloproteinase-9 (MMP-9) levels were recorded. Patients were considered to have ocular surface dysfunction if any of the following outcomes were present: visually significant abnormal corneal surface examination, positive MMP-9 test, or abnormal osmolarity values (>307 mOsm/L or >7 mOsm/L intereye difference). Patient symptoms were recorded using the ocular surface disease index (OSDI) or Symptom Assessment iN Dry Eye questionnaires.

Results: There were 120 patients (69% women), mean age 69.5 years ± 8.4 (SD). Abnormal osmolarity was found in 68 patients (56.7%), and abnormal MMP-9 in 76 patients (63.3%). Clinical findings showed that 47 patients (39.2%) had positive corneal staining on presentation, 9 patients (7.5%) had epithelial basement membrane dystrophy, and 2 patients (1.6%) had Salzmann nodules. Questionnaire data showed 54 (54.0%) of 100 patients reported symptoms suggestive of ocular surface dysfunction. In the asymptomatic group of 46 patients, 39 (85%) had at least 1 abnormal tear test (osmolarity or MMP-9) and 22 (48%) had both tests abnormal. Overall, 96 (80%) of 120 patients had at least 1 abnormal tear test result suggestive of ocular surface dysfunction and 48 patients (40%) had 2 abnormal results.

Conclusions: Objective ocular surface dysfunction findings were common among patients presenting for cataract surgery, yet many presented undiagnosed. Clinicians should be aware of this high prevalence and consider screening with tear testing before surgery.

J Cataract Refract Surg 2018; 44:1090–1096

ARTICLE

Effect of tear osmolarity on repeatability of keratometry for cataract surgery planning

Alice T. Epitropoulos, MD, Cynthia Matossian, MD, Gregg J. Berdy, MD, Ranjan P. Malhotra, MD, Richard Potvin, OD

PURPOSE: To evaluate the effects of tear osmolarity on the repeatability of keratometry (K) measurements in patients presenting for cataract surgery.

SETTING: Three clinical practices.

DESIGN: Observational prospective nonrandomized study.

METHODS: Subjects were prospectively recruited based on tear osmolarity (Tearlab Osmolarity System); that is, osmolarity more than 316 mOsm/L in at least 1 eye (hyperosmolar) and osmolarity less than 308 mOsm/L in both eyes (normal). The baseline K value was measured, and a second measurement was taken on the same instrument (IOLMaster) within 3 weeks of the first. Variability in average K, calculated corneal astigmatism using vector analysis, and intraocular lens (IOL) sphere power calculations were compared between groups.

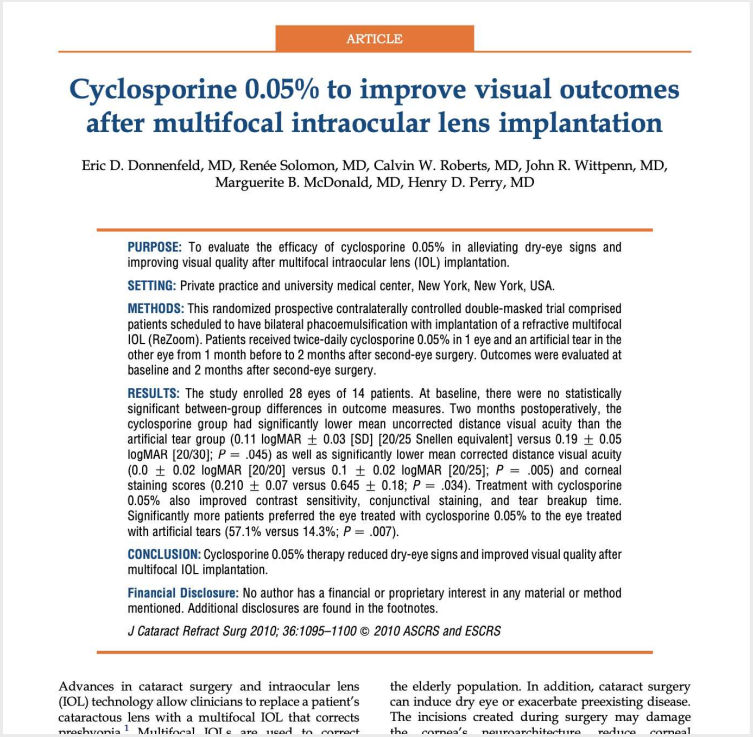
RESULTS: The hyperosmolar group (50 subjects) had a statistically significantly higher variability in the average K reading ($P = .05$) than the normal group (25 subjects) and a statistically significantly higher percentage of eyes with a 1.0 diopter (D) or greater difference in the measured corneal astigmatism ($P = .02$). A statistically significantly higher percentage of eyes in the hyperosmolar group had an IOL power difference of more than 0.5 D ($P = .02$). No statistically significant differences were present when the subjects were grouped by self-reported dry eye.

CONCLUSIONS: Significantly more variability in average K and anterior corneal astigmatism was observed in the hyperosmolar group, with significant resultant differences in IOL power calculations. Variability was not significantly different when subjects were grouped by self-reported dry

JOURNAL OF CATARACT & REFRACTIVE SURGERY

Optimize health of Tear film - Optimize Outcomes Topical CsA

- Improves:
- Tear production
- Visual acuity
- Corneal staining
- MGD
- Prevents progression of disease



ARTICLE

Cyclosporine 0.05% to improve visual outcomes after multifocal intraocular lens implantation

Eric D. Donnenfeld, MD, Renée Solomon, MD, Calvin W. Roberts, MD, John R. Wittpenn, MD, Marguerite B. McDonald, MD, Henry D. Perry, MD

PURPOSE: To evaluate the efficacy of cyclosporine 0.05% in alleviating dry-eye signs and improving visual quality after multifocal intraocular lens (IOL) implantation.

SETTING: Private practice and university medical center, New York, New York, USA.

METHODS: This randomized prospective contralaterally controlled double-masked trial comprised patients scheduled to have bilateral phacoemulsification with implantation of a refractive multifocal IOL (ReZoom). Patients received twice-daily cyclosporine 0.05% in 1 eye and an artificial tear in the other eye from 1 month before to 2 months after second-eye surgery. Outcomes were evaluated at baseline and 2 months after second-eye surgery.

RESULTS: The study enrolled 28 eyes of 14 patients. At baseline, there were no statistically significant between-group differences in outcome measures. Two months postoperatively, the cyclosporine group had significantly lower mean uncorrected distance visual acuity than the artificial tear group (0.11 logMAR ± 0.03 [SD] [20/25 Snellen equivalent] versus 0.19 ± 0.05 logMAR [20/30]; $P = .045$) as well as significantly lower mean corrected distance visual acuity (0.0 ± 0.02 logMAR [20/20] versus 0.1 ± 0.02 logMAR [20/25]; $P = .005$) and corneal staining scores (0.210 ± 0.07 versus 0.645 ± 0.18; $P = .034$). Treatment with cyclosporine 0.05% also improved contrast sensitivity, conjunctival staining, and tear breakup time. Significantly more patients preferred the eye treated with cyclosporine 0.05% to the eye treated with artificial tears (57.1% versus 14.3%; $P = .007$).

CONCLUSION: Cyclosporine 0.05% therapy reduced dry-eye signs and improved visual quality after multifocal IOL implantation.

Financial Disclosure: No author has a financial or proprietary interest in any material or method mentioned. Additional disclosures are found in the footnotes.

J Cataract Refract Surg 2010; 36:1095–1100 © 2010 ASCRS and ESCRS

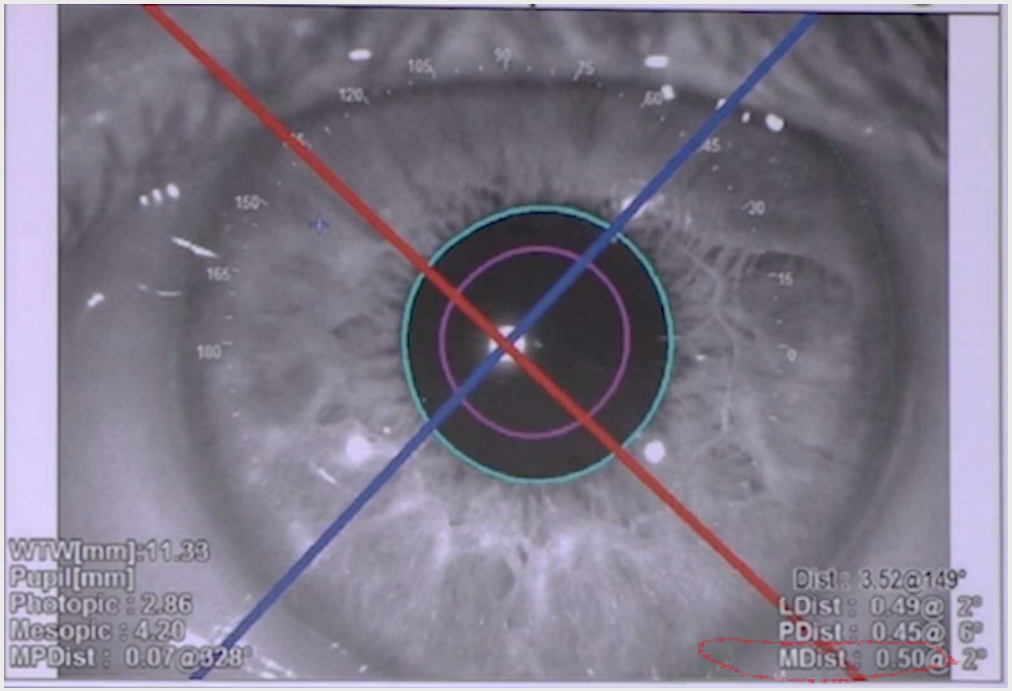
Advances in cataract surgery and intraocular lens (IOL) technology allow clinicians to replace a patient's cataractous lens with a multifocal IOL that corrects presbyopia.[1] Multifocal IOLs are used to correct

the elderly population. In addition, cataract surgery can induce dry eye or exacerbate preexisting disease. The incisions created during surgery may damage the cornea's neuroarchitecture, reduce corneal

Donnenfeld ED, et al Cyclosporine 0.05% to improve visual outcomes after multifocal intraocular lens implantation. J Cataract Refract Surg. 2010 Jul;36(7):1095-100

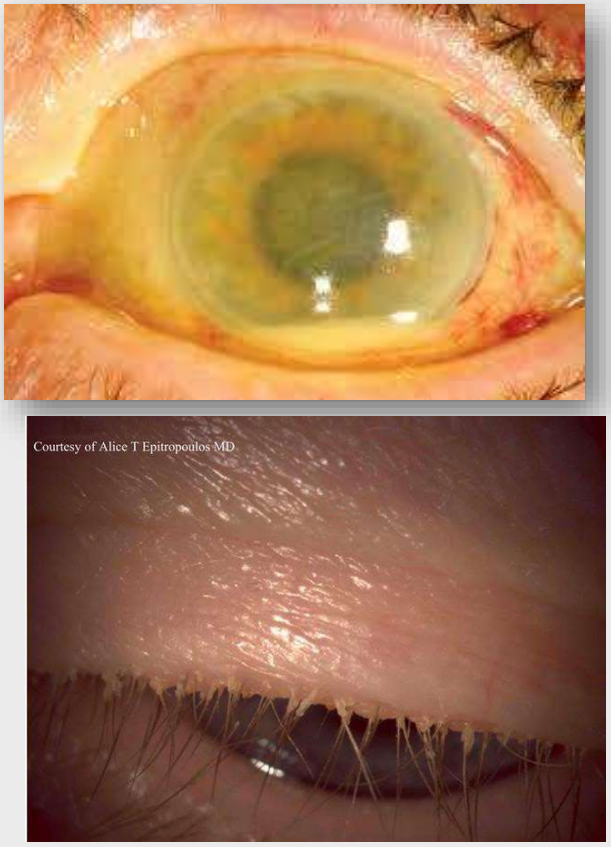
Multiple measurements, treating OSD – better accuracy

- Multiple measurements
- Account for posterior astigmatism
- Surface regularity
- If SD >15-20 microns signifies outlier, red flag for irregular astigmatism or DED
- CAUTION: If the Angle Kappa (Chord) is greater than 0.6 mm, patients with MFIOL are more likely to experience glare and halos
- OCT



Endophthalmitis Prophylaxis

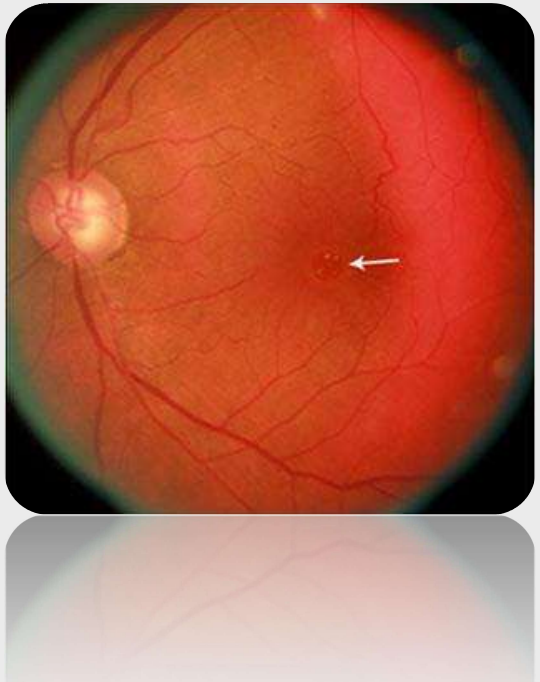
"The source of infecting bacteria is often unknown in postoperative endophthalmitis. Using techniques of molecular epidemiology, the authors demonstrate that **an organism isolated from the vitreous was genetically indistinguishable from an isolate recovered from the patient's eyelid, conjunctiva, or nose in 14 (82%) of 17 cases of endophthalmitis…."**

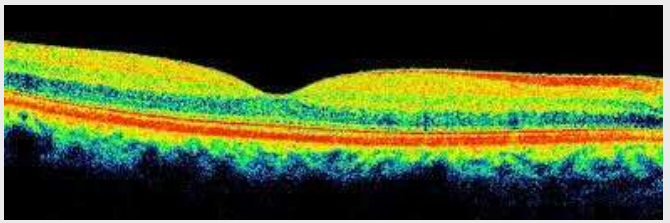


Speaker MG, Milch FA, Shah MK, et. al. Role of external bacterial flora in the pathogenesis of acute postoperative endophthalmitis. Ophthalmology. 1991;98(5):639-49

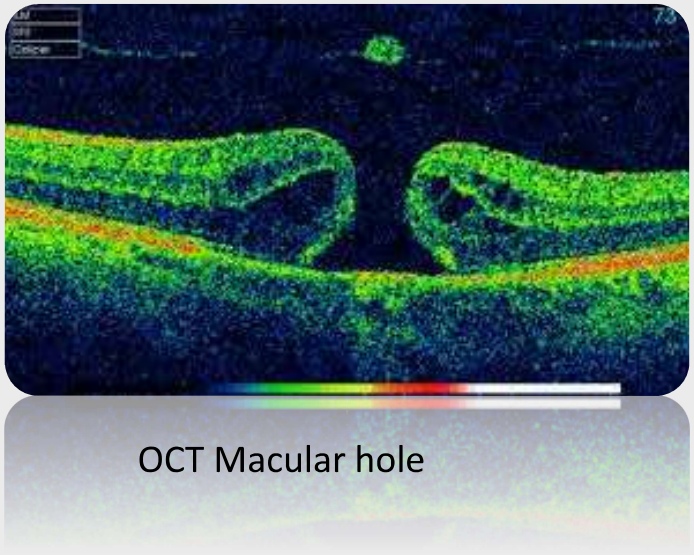
Pre-Surgical Evaluation

- Retinal Macular Exam
- OCT





Normal OCT

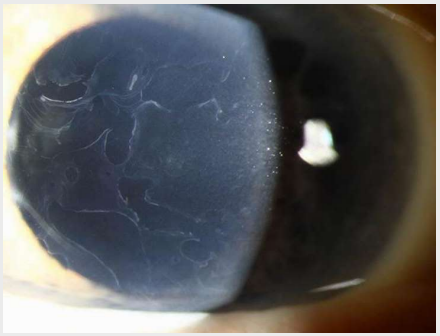


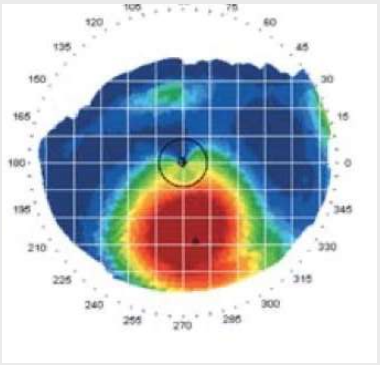
OCT Macular hole

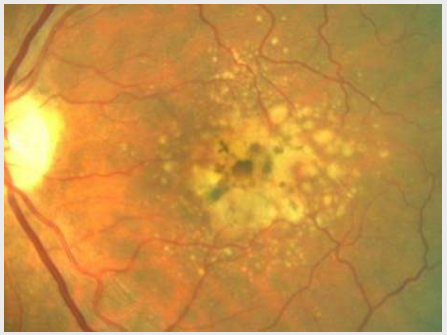
Reasons to say “NO” to Multifocality

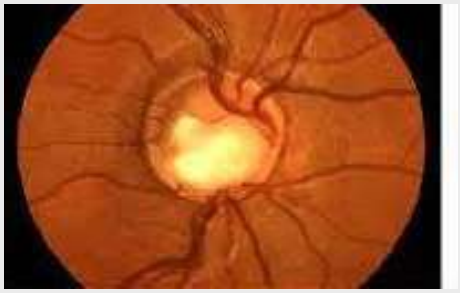
One out of 4 candidates – disqualified (in my experience)

- Corneal abnormalities
- Irregular astigmatism
- Retinal pathology
- Optic nerve abnormalities (adv POAG)
- Amblyopia
- Severe DED
- Irregular ablation s/p LVC







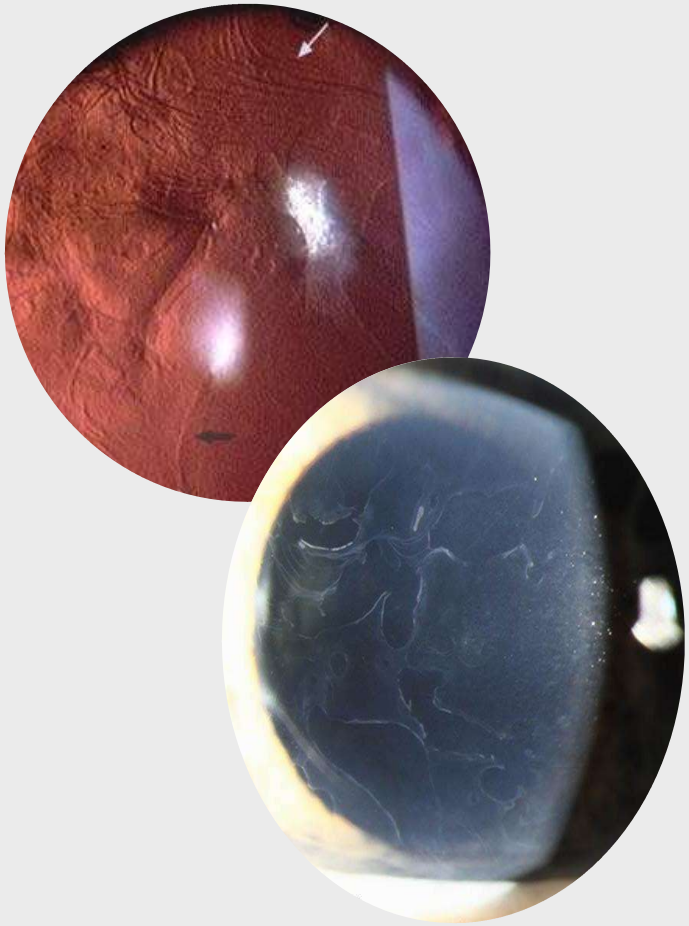


Emmetropia for optimal results

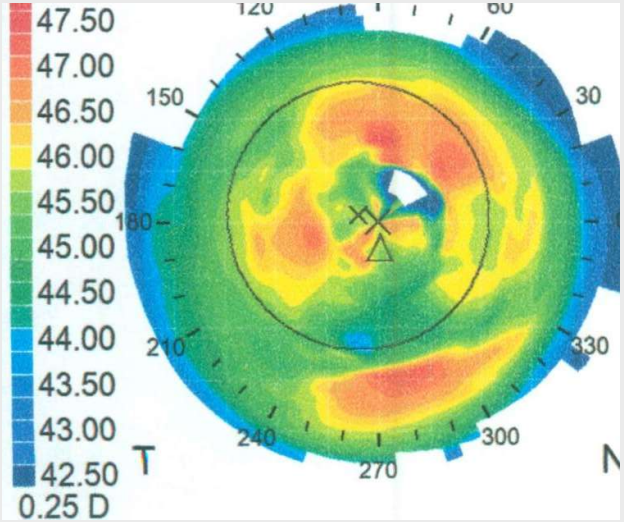
- SE ± 0.5D, Cyl ± 0.5D
- UDVA ≥ 20/30
- If emmetropia not achieved
- More likely to need glasses
- and may
- experience photic phenomena

Case presentation

- 58 yo physician referred for cataract evaluation
- Decrease VA interferes with ADL
- 2+ Nuclear and cortical cataracts
- Wants to reduce dependence on glasses



Preoperative Biometry OD



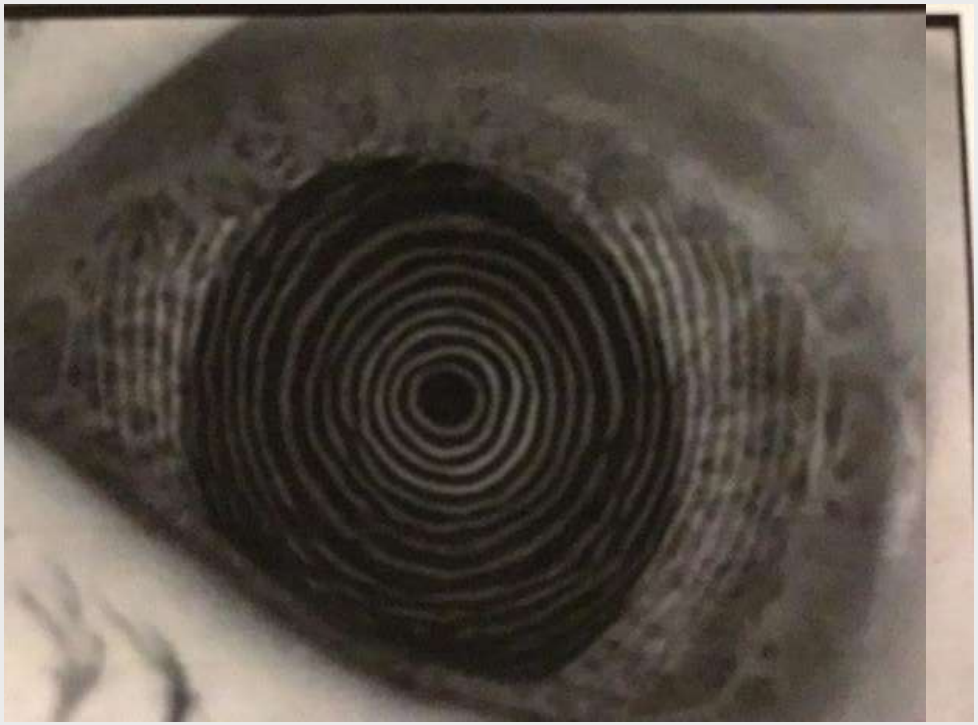
OD
right

AL: 23.17 mm (SNR = 172.5)
K1: 44.23 D / 7.63 mm @ 135°
K2: 46.23 D / 7.30 mm @ 45°
R / SE: 7.46 mm / 45.23 D
Cyl.: 2.00 D @ 45°
ACD: 3.34 mm

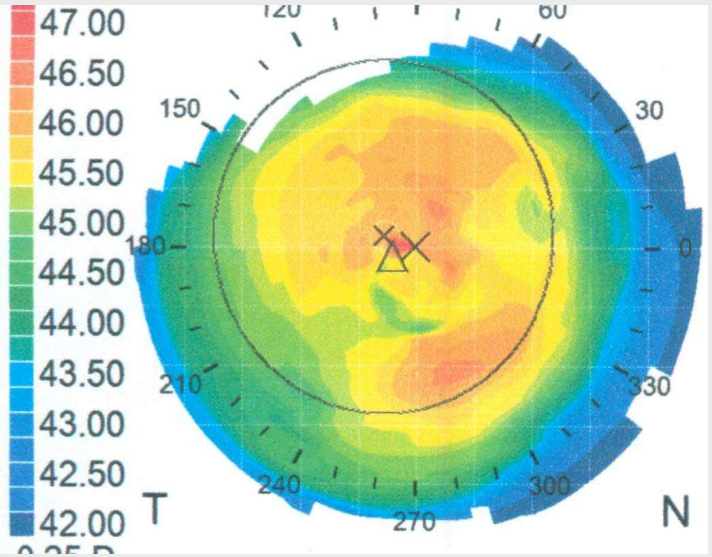
A const:	119.10
IOL (D)	REF (D)
22.5	-1.23
22.0	-0.89
21.5	-0.56
21.0	**-0.23**
20.5	0.10
20.0	0.42
19.5	0.74

EBMD Recommendations

- Keratectomy/Amniotic membrane
- Affects visual axis & distorts central mires



Post Epi-Debridement Biometry prior to cataract surgery



OD
right

AL: 23.17 mm (SNR = 115.7)
K1: 45.92 D / 7.35 mm @ 4°
K2: 46.49 D / 7.26 mm @ 94°
R / SE: 7.30 mm / 46.20 D
Cyl.: 0.57 D @ 94°
ACD: 3.32 mm
Refraction: 0 D 0 D @ 0°
Status: Phakic

IOL Power changed from 21.0 to 20.0D
Cylinder changed from 2 D to .5 D

A const:	119.10
IOL (D)	REF (D)
21.5	-1.24
21.0	-0.91
20.5	-0.58
20.0	**-0.26**
19.5	0.06
19.0	0.37
18.5	0.68

Case Presentation

- Patient presents for cataract eval
- cc: presents S/P LASIK (15 years ago)
- fluctuating vision
- symptoms of discomfort (burning, tearing FBS)
  - SPEED 20
- exam:
- Tear Osmo 295 324
- + MMP-9
- Unstable tear film
- + corneal staining
- Unreliable biometry

dx:

- OSD

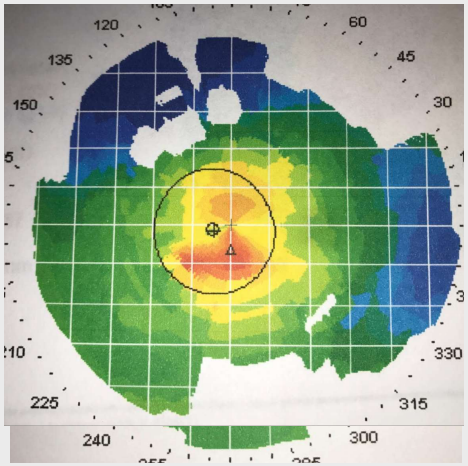
Preop measurements - patient with OSD

Pre

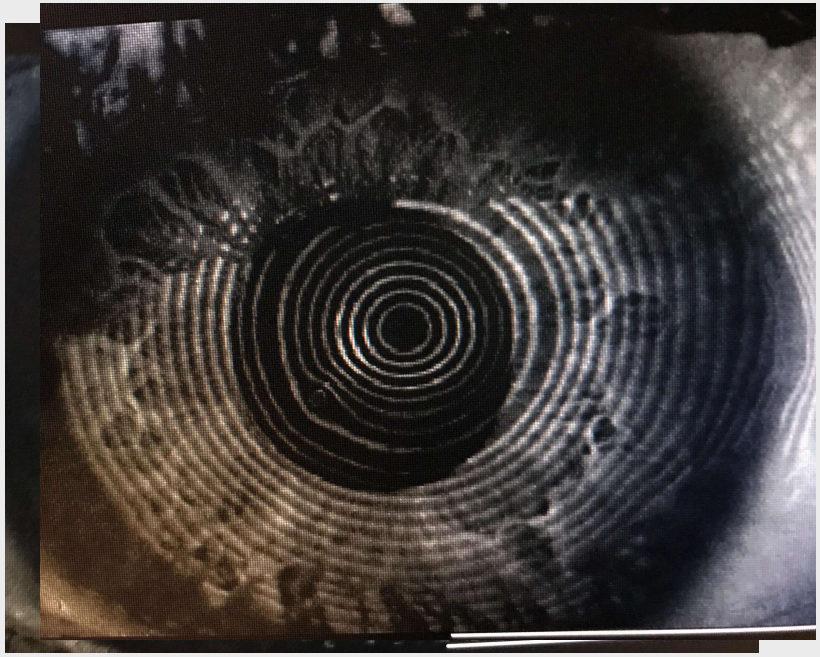
Power: 46.5 D
Radius 7.26mm
Steep K: 47.62D @56
Flat K: 45.25D @146
Astigmatism: 2.37D
CIM: 3.68
Shape Factor: 0.72

Post

Power: 44.7 D
Radius 7.55mm
Steep K: 44.75D @56
Flat K: 44.12D @146
Astigmatism: 0.63D
CIM: 1.39
Shape Factor: 0.87

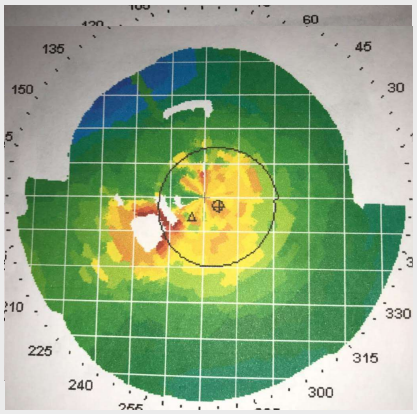


OD - Placido Disc



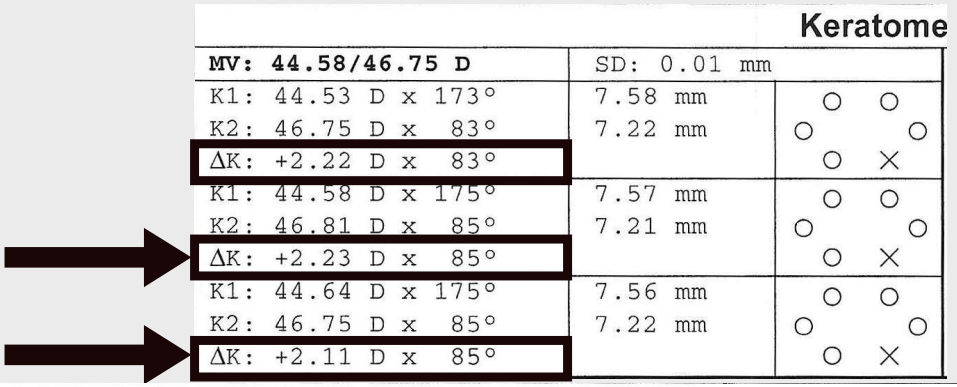
Preop measurements - patient with treated OSD

Pre	Post
Power: 46.1 D	Power: 46.0 D
Radius 7.33mm	Radius 7.33mm
Steep K: 47.12D @40?	Steep K: 45.00D @90
Flat K: 44.75D @130?	Flat K: 44.37D @180
Astigmatism: 2.37D	Astigmatism: 0.63D
CIM: 4.45	CIM: 0.82
Shape Factor: 0.79	Shape Factor: 0.95



- OS - Placido Disc

No Aberrations



Keratome

MV: 44.58/46.75 D	SD: 0.01 mm	
K1: 44.53 D x 173°	7.58 mm	○ ○
K2: 46.75 D x 83°	7.22 mm	○ ○
ΔK: +2.22 D x 83°		○ ×
K1: 44.58 D x 175°	7.57 mm	○ ○
K2: 46.81 D x 85°	7.21 mm	○ ○
ΔK: +2.23 D x 85°		○ ×
K1: 44.64 D x 175°	7.56 mm	○ ○
K2: 46.75 D x 85°	7.22 mm	○ ○
ΔK: +2.11 D x 85°		○ ×

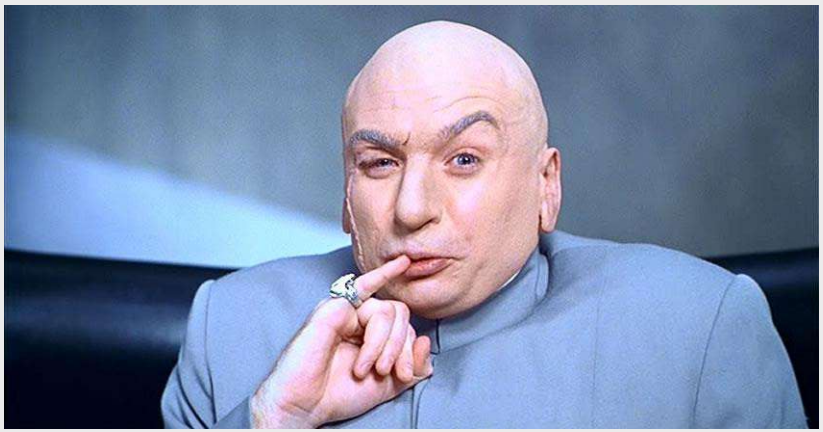
Keratometer values Before Treatment

MV: 44.58/46.75 D	SD: 0.01 mm		**MV: 44.94/45.67 D**	SD: 0.00 mm	
K1: 44.53 D x 173°	7.58 mm	○ ○	K1: 45.00 D x 22°	7.50 mm	○ ○
K2: 46.75 D x 83°	7.22 mm	○ ○	K2: 45.67 D x 112°	7.39 mm	○ ○
ΔK: +2.22 D x 83°		○ ×	ΔK: +0.67 D x 112°		× ○
K1: 44.58 D x 175°	7.57 mm	○ ○	K1: 44.94 D x 25°	7.51 mm	○ ○
K2: 46.81 D x 85°	7.21 mm	○ ○	K2: 45.67 D x 115°	7.39 mm	○ ○
ΔK: +2.23 D x 85°		○ ×	ΔK: +0.73 D x 115°		× ○
K1: 44.64 D x 175°	7.56 mm	○ ○	K1: 44.94 D x 29°	7.51 mm	○ ○
K2: 46.75 D x 85°	7.22 mm	○ ○	K2: 45.73 D x 119°	7.38 mm	○ ○
ΔK: +2.11 D x 85°		○ ×	ΔK: +0.79 D x 119°		× ○

Tell Patient They Have OSD

BEFORE Surgery

AFTER Surgery



Conclusions

Dry Eye Disease Pre/Post Cataract & Refractive Surgery

- Are Common
- Are Underdiagnosed

Impact on surgical outcomes can be significant

- Decreases surgical predictability
- Adversely affects surgical outcomes
- High level suspicion even in asymptomatic pts
- Delay surgery until ocular surface optimized
- Effective treatment results in better vision & better quality of life

Summary

- High prevalence of MGD resulting in chronic DED
- Early identification and treatment is key
- Educate patients on importance of treating
- Incorporating advanced office-based treatments greater chance successfully managing this chronic disease and improving long term outcomes

Thank You!
Questions?