

GP, Hybrid, and Scleral Multifocal Lens Fitting and Problem-Solving

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1

Disclosures (TQ)

- Bausch + Lomb
- CooperVision
- GPLI
- LENTECHS, LLC
- STAPLES Program
- JJ VC Vistakon

2

Disclosures (EB)

- LENTECHS, LLC
 - Consultant to the Contact Lens Manufacturers Association (i.e., Executive Director, GP Lens Institute)
- And thank you to Stephanie Woo!

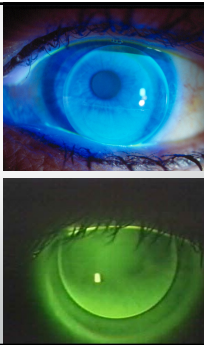
3

Aristotle's Elements of Persuasion

- The credibility of the speaker
 - Do you come across as credible?
- The strength of the argument
 - Describe the benefits ("Does it solve my problem?")
 - Share the challenges (The No Surprise Approach)
- Your ability to emotionally move the audience
 - Draw comparisons
 - Storytelling
 - Recognize the other person and where they stand

4

Corneal GPs



5


Presenting Corneal GPs

- Describe the benefits
 - "This lens will provide you with the vision you are looking for"
- The No Surprise Approach
 - "There is some initial awareness of the lens..."
- Draw comparisons
 - "...But, similar to wearing a new watch or ring, you adapt"
- Storytelling
 - "I've had many patients in situations similar to yours do quite well with this approach"

6

R.W.- Stargazer

- 72 yo retired college professor
- Astronomy enthusiast
 - Goals:
 - View stars through binoculars
 - consult his celestial map



7


R.W.- Stargazer

- Spectacle Rx
 - OD -1.75-0.75x175 +2.50 add
 - OS -1.25-1.50x005 +2.50 add
- Keratometry
 - OD [43.50/44.25@089](#)
 - OS [43.00/44.50@095](#)
- Options?

8

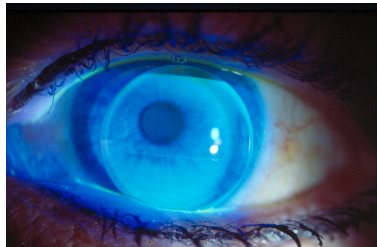
Corneal Astigmatism = Spectacle Astigmatism

- A Host of Multifocal Options!
 - GP MF
 - Corneal
 - Scleral
 - Hybrid MF
 - Toric Soft MF



9

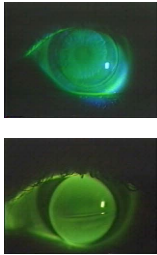
Translating GP Multifocals



10


Basics of the Translating BF Fit

- lens movement
- lens centration
- seg height
- lens translation
- fluorescein evaluation:
 - ✓ helps us control centration and movement



11

Selecting Seg Height



12



13

Selecting Seg Height

Goal: Just below lower pupil margin
Where to start?
1mm below geometric center of lens

$$10.0 \text{ mm} / 2 = 5.0 \text{ mm}$$

$$\underline{-1.0 \text{ mm}}$$

$$4.0 \text{ mm}$$

14



15

Lens Translation

- Flatten BC 0.50 D
- Add prism: 0.50 D

16

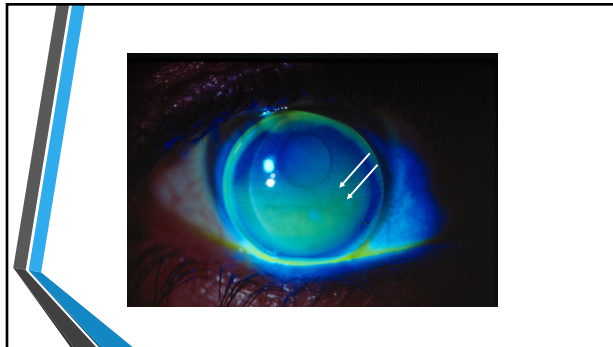
Lens Rotation

- Flatten BC 0.50 D
- Add prism: 0.50 D
- Offset prism
- Truncation

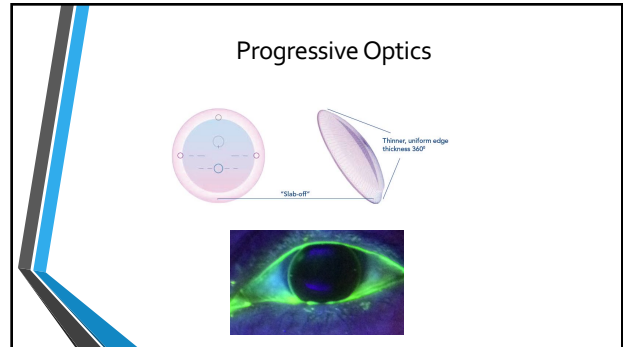
17

What about the arms length distance?

18



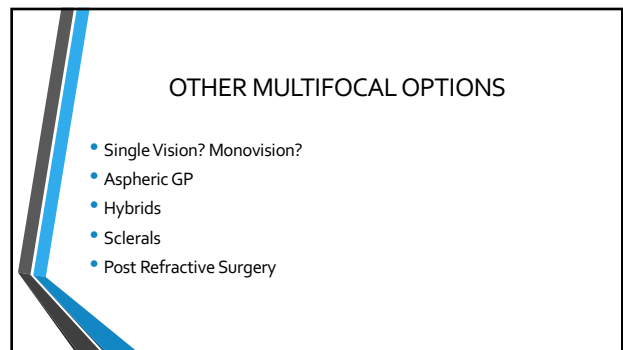
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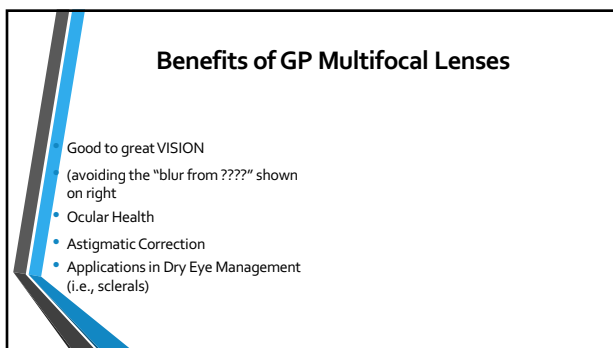
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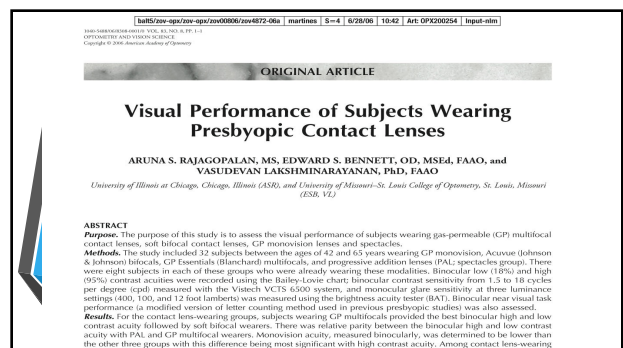
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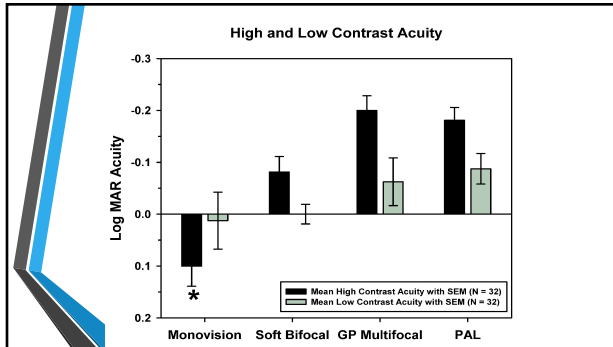
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23



24



25

MONOVISION VERSUS CL BI/MULTIFOCALS

- Rajagopalan A, et al: CONCLUSIONS
- GP wearers exhibited highest contrast sensitivity at all frequencies, high and low contrast acuity and least disability glare; soft bifocals were second; monovision last in all categories

26

... and they have become the option of choice (Nichols J, Starcher L, CL Spectrum 1/22)

- Survey via **Jeff Johnson OD** (Vice-President, Robert W. Baird & Co.)
- For presbyopes wearing CLs, practitioner preference was:
 - Multifocal lenses: 80% (59% in 2008)
 - Monovision: 14% (27% in 2008)
 - Over-spectacles: 6% (14% in 2008)

27

RULE OF THREE'S

- Number of Fits
- Pre-Fit
- Fitting
- Problem-Solving

28

ADAPTATION/LENS CHANGES

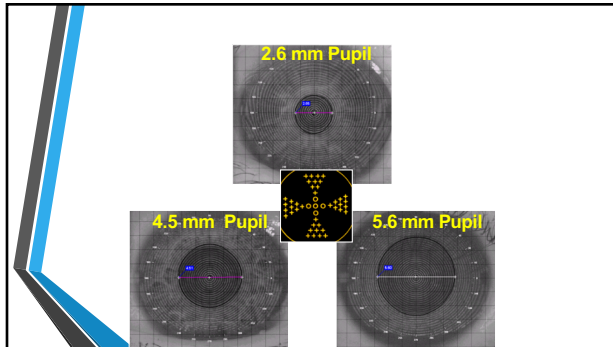
- If interested, present all options to them
- Lens changes are the rule (1/eye initially, then 1/patient)
- AS MUCH AS 6 - 8 weeks to adapt
- No Monday morning surprises
- BOTTOM LINE: "If you are patient and motivated, there is an 80% success rate with these lenses."

29

PRE-FIT FACTORS

- Pupil Size
- Tear Film
- Lower Lid Position/tightness

30



31

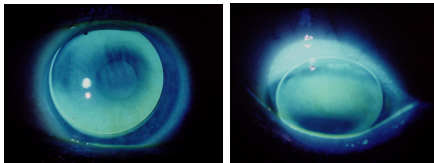
ASPHERIC ADVANCEMENTS

Has evolved into a very popular type due to advancements in technology

- New Technology resulting in better polished surfaces
- Addition of higher add power lenses
- Lower eccentricity lens designs
- Translation???

32

ASPHERIC LENS TRANSLATION



33

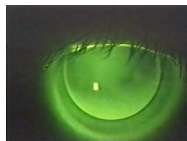
ASPHERIC CANDIDATES

- Any Add Power (Don't R/O High)
- Computer use
- Athletes
- Low lower lid &/or loose lids
- Small-avg. pupil size
- (very) Critical Vision not essential

34

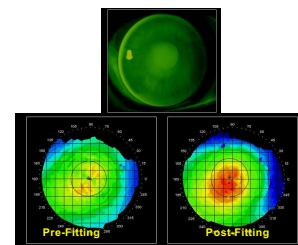
ASPHERIC MULTIFOCAL FITTING

- Front surface fit "On K" Back surface fit 1 - 1.5D steeper than K
- Must center with limited movement with the blink
- Easy to fit via manufacturers' fitting guide/user friendly
- Empirical Fitting !!
- Good design to start with

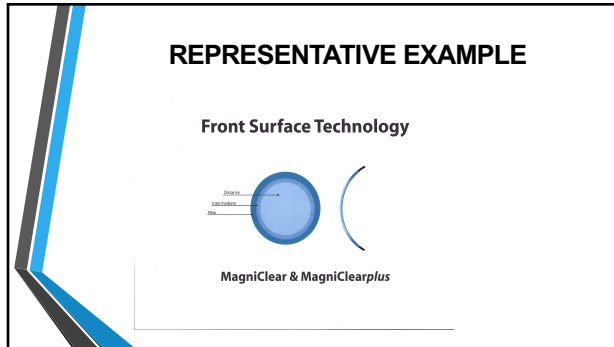


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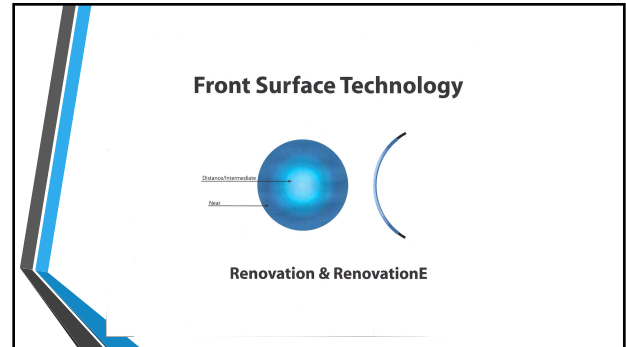
Topographic Changes with Posterior Aspheric Lens Designs



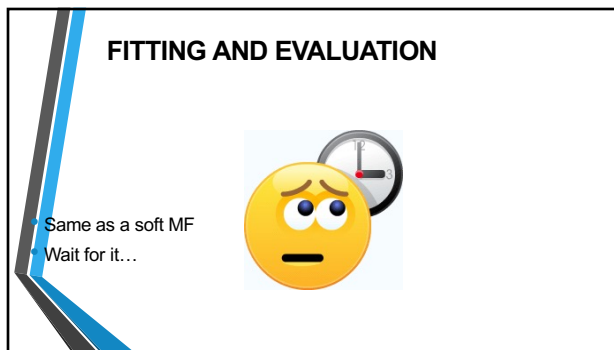
36



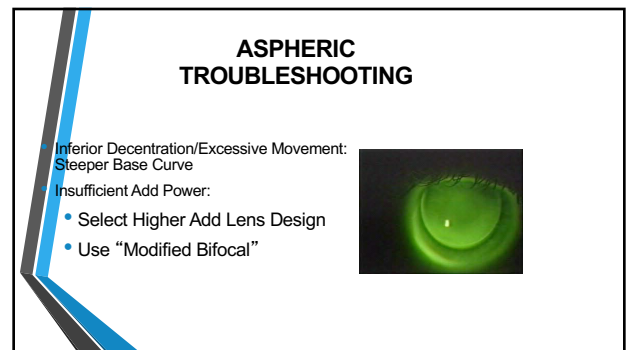
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38



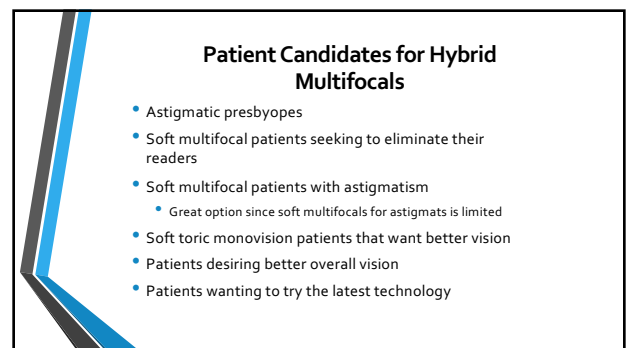
39



40



41



42

Other benefits to hybrid lenses

- Hybrids eliminate rotation issues
- Built in UV protection
- Can only order through independent eye care providers

I would like my contact lens Rx now

43

Patient ready to try hybrid multifocals?

- Empirical vs diagnostic fitting
- Empirical is recommended
 - Information needed:
 - Manifest refraction
 - Keratometry values
 - Add power
 - Dominant eye
 - Photopic pupil size

44

Built on the Duette™ Platform

Diagram labels:

- Mark II™ 130 Dk GP Center (perforated A)
- Hydrogel™ 20% Water Silicone Hydrogel Skirt (semi-perforated A)
- 14.5 mm Overall Diameter
- 8.4 mm GP Diameter
- Hybrid Center Diameter
- UV Blocker >90% of UVA >99% of UVB
- HealthyEyes™ Surface Treatment

45

SynergEyes Hybrids

Hyperbond® junction bonds materials at molecular level

46

Duette Progressive DESIGNS allows for ALL SIZES, SHAPES AND AGES

Center Distance (CD) Design

Adjustable Central Distance Zone (mm): 1.8 – 4.0
Add Powers (D): +0.75 to +5.00 in 0.25 D Steps

Center Near (CN) Design

Central Near Zone (mm): 3.0
Add Powers (D): +1.00, +1.75, +2.50

Parameters		Lens Powers (D)		Materials		Enhanced Profile
Base Curves (mm)	7.1 to 8.3 in 0.1mm steps	Skirt Radius	8.1 (Medium)	8.4 (Flat)	8.7 (Flat2)	14.5
Base Curves (mm)	N/A	Power	OAP	Skirt Radius	8.4 (Flat)	ADD 0.00
Base Curves (mm)	N/A	Power	OAP	Skirt Radius	8.4 (Flat)	ADD 0.00

Enhanced Profile: Center Thickness option available

47

Duette Empirical Lens Calculator

Enter Keratometry Readings (D or mm):

Cor	Flat	Steep	HVD (mm)
OD	0.00	0.00	0.00
OS	0.00	0.00	0.00

Choose Lens Type (Choose one):

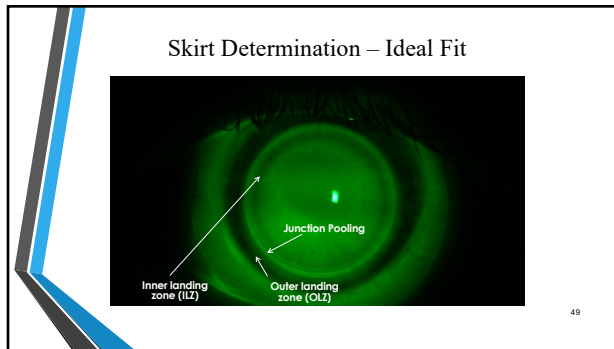
☐ Duette with Tangible Hyperband
☐ Duette Progressive with Tangible Hyperband

Enter Manifest Refraction: + or - cyl
 OD Sph Cyl Axis Add 0.00 EP*
 OS Sph Cyl Axis Add 0.00 EP*

Recommended Duette Lens:
 OD Base Curve N/A Power OAP Skirt Radius 8.4 (Flat) ADD 0.00
 OS Base Curve N/A Power OAP Skirt Radius 8.4 (Flat) ADD 0.00

Potential Residual Astigmatism:

48



49

OPTIMIZED BASECURVE

- BC Optic Zone is increased from 7.0 to 8.0 and with a Mono-curve design
- Allows for better centration and distribution of weight due to increased geography
- MTO per keratometric readings in .12D increments
- BC Range = 7.10 to 8.30 mm
- Fit mid K +.50 D (not to exceed 1.5 D steeper than flat K)

SynergEyes iD Hybrid Design

50

50

PRECISION SKIRTS

A new linear design that follows the scleral shape to reduce tension. Results in less lens tightening which increases comfort and eases removal.

Precisely MTO based on the HVID resulting in more options and a more personalized fit.

- Larger HVID = Tighter skirt

Traditional Skirt Curve (in fixed options)

New Linear Skirt (personalized based on HVID)

51

51

Good internal viewing distance, minimizing visual disturbance for glancing and halos. Consistent performance across individual pupillary distance and corneal aberrations.

EDOF UNIQUE POWER PROFILE

Not a zonal bifocal or an aspheric nor diffractive.

52

52

ORDER EMPIRICALLY

Just provide these three measurements and we'll take care of the rest.

Ks

Keratometry Readings

from keratometer, topographer, autorefractor or aberrometer

HVID

HVID measured to 0.1mm

from autorefractor, 10x magnifier, slit lamp reticle, aberrometer, topographer or ruler

Rx

Manifest Refraction and Add*

Spectacle Add	MF Add Profile
+1.25 or below	Low
+1.50 to +2.00	Medium
+2.25 and above	High

*if needed

Curve (Dk)	Skirt	Single Vision	Power	Multifocal
7.10mm to 8.30mm in increments of 0.01mm	38 to 40 in increments of 1 step to accommodate HVID range of 10.0 to 13.0mm	+10.00 to -15.00D	+5.00 to -10.00D	
	HVID outside the measurements will default to 10.0 or 13.0mm	+8.00 to -8.00D in 0.25D steps	+5.00 to -8.00D in 0.25D steps	
		+8.50 to +10.00D in 0.50D steps	-8.50 to -10.00D in 0.50D steps	
		-8.50 to -15.00D in 0.50D steps		
			Add Power: Low, Medium, High	

Additional Options

- Tangible Hydro-PES coating available on request.
- If your patient requires a thicker GP lens to reduce flexure and mask higher amounts of corneal cylinder, they would benefit from the Enhanced Profile Design. Enhanced Profile is automatically added to orders with 2.50D or more of corneal cylinder, and may be requested for less amounts of corneal cylinder.

53

53

ORDERING PROCESS: SynergEyesCalculator.com

Visit RxConnect.SynergEyes.com

54

54

Good Candidates for Scleral Multifocals

- Current scleral lens wearers
- Patients with moderate-to-severe dry eyes
- Patients with irregular corneas (no scarring), desiring more freedom from glasses
- Post refractive surgery patients (RK, LASIK, etc)
 - These patients never wanted to wear glasses anyway!
 - Usually more motivated!

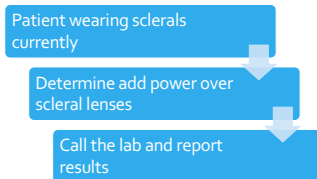
55

Scleral Multifocal Designs

- No translation required
- Most are concentric or aspheric designs
- Many scleral MF are center near, which have a similar design to other soft or GP designs
- Very customizable!
 - Changing diameter, base curve: no problem!
 - Some designs can adjust add power and zone size
 - Some designs available in toric or quadrant specific designs. Wow how custom is that?!

56

Fitting Scleral Multifocals



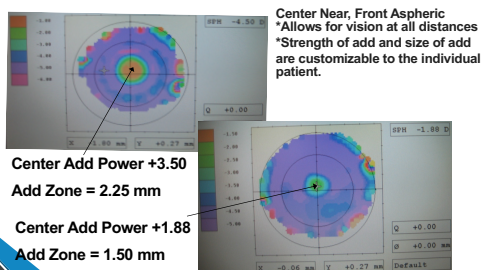
57

Diagnostic fitting

- Use a diagnostic scleral lens set to fit the patient
- After determining a lens with the proper fit, over refract at distance and near.
- Determine eye dominance (optional)
- Report results to the laboratory
 - They will create a lens they feel will work best
 - Add power, zone sizes, lens diameter, etc can be modified with many different designs

58

So₂Clear Multifocal Lens (Dakota Sciences/Art Optical)

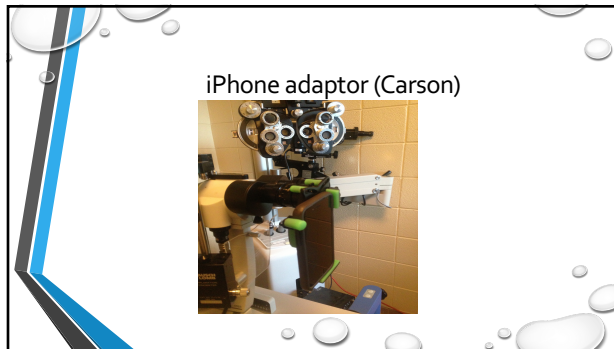


59

Troubleshooting Scleral Multifocals

- Problems with distance or near vision
 - First assess their vision OU at distance and near
 - If they are seeing relatively well (ex: 20/40 at near), patient education on expectations of vision
 - If their vision is poor, perform over-refraction at distance and near
 - Best to report the results to a lab consultant
 - Since the designs are highly customizable, they will be able to assist in appropriate design changes

60



61

Designs are being introduced with decentered optics (i.e., axis slightly sup-nasal)

- Scleral lenses – due to both the greater elevation of the nasal (versus temporal) sclera – in combination with the mass tend to decenter slightly inferior-temporal.
- Over-topography can help in determining amount of decentration and recently introduced multifocal scleral lenses can decenter their optical center superior-nasally. (Gelles, et al: Rev Cornea Contact Lenses, Sept 15, 2019)
- Gidosh (2021, GSLS) reported on 2.5mm C-N zone lenses compensated for decentration; avg. lens decentration was 1.75mm; 77% of eyes achieved VA within 1 line of BC spectacle VA

62

Zenlens Scleral Multifocal with decentered optics

Design Parameters

- + Center-near optics in both eyes
- + ADD powers from +1.00D to +3.50D in 0.25D steps
- + Variable center-near zones from 1.5 mm to 3.0mm in 0.5 mm steps
- + Diameters: 14.8mm, 15.4mm – Zen™ RC; 16.0mm, 17.0mm – Zenlens™

Visual Axis - Line of Sight

- + The visual center (line of sight) is not centered geometrically within the pupil. Studies show that soft multifocal contact lenses with decentered optics provide clear near vision.
- + Zen™ Multifocal places the near zone slightly nasal and superior for each eye.

63

POST-REFRACTIVE SURGERY MULTIFOCAL DESIGNS

Typically reverse geometry designs with add on the front surface

- Beneficial for oblate corneal shape (typical of post-RS) and unable to achieve good vision with soft designs)

64

BOTTOM LINE: LENS SELECTION

GP WEARER NOW PRESBYOPIC: **ASPHERIC GP**

SOFT MULTIFOCAL/MONOVISION WEARER C/O VISION: **ASPHERIC GP, SEGMENTED, TRANSLATING GP, OR HYBRID**

- ASTIGMATIC NON-CONTACT LENS WEARER: **ASPHERIC GP, SEGMENTED TRANSLATING GP, OR HYBRID**
- ASTIGMATIC PRESBYOPE DESIRING NO DECREMENT IN DISTANCE OR NEAR VISION: **SEGMENTED, TRANSLATING GP**
- SCLERAL LENS WEARER NOW PRESBYOPIC: **SCLERAL MF**

PRESBYOPE WITH DRY EYES: **SCLERAL MF**

PRESBYOPE WITH IRREGULAR CORNEA: **SCLERAL MF OR OVER-READERS**

65

RESOURCES

- **Your best resource is your laboratory consultant**
- They can provide diagnostic fitting sets, online resources for the fitting and troubleshooting of their designs, and well as very good advice based upon extensive experience
- If possible, topographies and photos can be beneficial as well

66