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208 - Modern Hybrid Fitting: The Next Generation

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Two Steps to Receive CE Units

- Complete the course evaluation
- Hand in your course ticket at the conclusion of this course

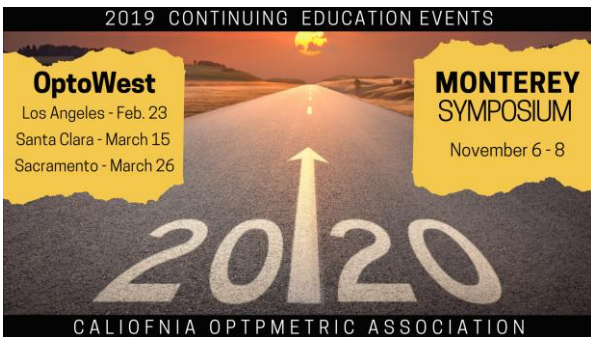
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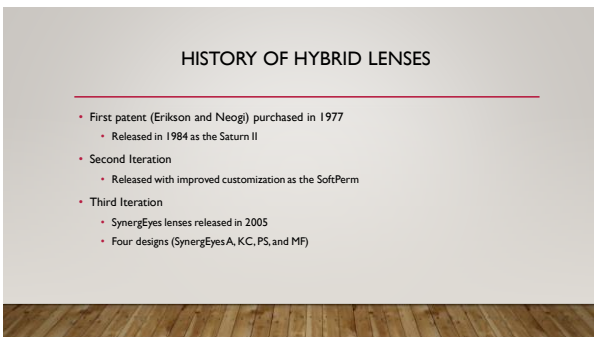
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Commercial Interest	Nature of Relevant Financial Relationship	Title or Role
SynergEyes	Honoraria	Speaker
International Keratoconus Academy	Honoraria	Speaker
Reed Expositions (Vision Expo)	Honoraria	Speaker

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COMMON COMPLICATIONS

- Separation of the RGP and skirt**
- Limited oxygen permeability**
 - Epithelial erosions
 - Peripheral neovascularization
- Tight fitting characteristics**

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MODERN IMPROVEMENTS

- Hyper-dK RGP button
- SiHy soft skirt
- Hyperbond of RGP and soft skirt
- Advanced customization

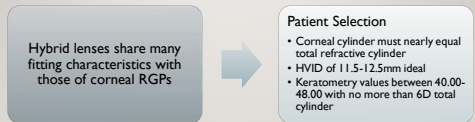
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FITTING THE MODERN HYBRID LENS

Normal Corneas: Pre-Presbyopic

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THE BASICS



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THE BASICS

- 1**
Select the base curve of the RGP based on flat K
 - Approximately 0.5D steeper than flat K
 - Base curves available from 7.1 – 8.3
- 2**
Select the initial skirt curve based on the HVID
 - Larger HVIDs show a steeper scleral profile
 - Smaller HVIDs show a flatter scleral profile
- 3**
Determine the starting Rx from the spectacle Rx
 - If using the online calculator it will traditionally be within +/- 0.50D

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THE BASICS

Duette Great Vision for Patients with Astigmatism

Diameter	14.5mm
Base Curves	7.1 to 8.3 in 0.1 mm steps
Start Curves	0.7 Flat, 0.4 Flat, 0.1 Medium
Lens Powers	+0.00 to -0.000 in 0.250 steps +0.00 to -0.500 in 0.500 steps -0.50 to -10.000 in 0.500 steps
Materials	04.0k SiHy skirt, 130.0k GP center
Class II UV blocker	UVA and UVB

Duette® Advanced Hybrid Design High Dk (04) SiHy Skirt & Hyper Dk (130) GP utilizing patented HyperBond® technology.

Landing zone design enhances tear exchange & comfort. Hyper Dk (130) GP center tear area optimizes vision. High Dk (04) SiHy skirt.

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JUDGING THE FIT

No longer need to instill NaFI

Proper vault of the RGP portion is maintained by selecting the proper base curve

Centration of the lens system relies on the proper skirt curve

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JUDGING THE FIT

RGP	Skirt
Too steep = tight fitting lens/corneal molding Too flat = excessive lens awareness	Too steep = poor lens movement upon blinking and lens adherence Too flat = skirt fluting

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CORNEAL MOLDING

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COMMON PITFALLS

The Dry Eye Patient	<ul style="list-style-type: none"> High modulus of the soft skirt Tendency for SiHy materials to attract lipids
Residual Cylinder	<ul style="list-style-type: none"> Recheck initial keratometry readings (manual vs. topographical) Lens flexure

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SOLUTION FOR PITFALLS

Dry Eye Patient	All SynergEyes lenses are treated with Tangible HydraPEG
Lens Flexure	Able to order lenses in an "Enhanced Profile"

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TANGIBLE HYDRA-PEG

- A revolutionary lens treatment that encapsulates the contact lens from the ocular surface in a hydrophilic shell
 - Improves lens surface wettability
 - Inhibits deposit formation on the lens surface
 - Decreases frictional relationship between the upper eyelid and the lens surface

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TANGIBLE HYDRA-PEG



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ADVANCED TECHNIQUES

For those patient with a high degree of corneal cylinder (>2.50D) select an initial base curve based on "mean-K" rather than flat K

Those patients with >2.50D of cylinder may immediately benefit from the enhanced profile option

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CASE EXAMPLE

- A 51 year old female NASA engineer reports for a contact lens fitting
- History of high myopia and soft contact lens wear
- Dissatisfied with acuity of soft contact lenses
- Told by previous office that she was a poor candidate for RGP's or hybrid lenses

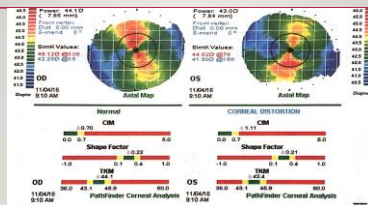
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CASE EXAMPLE

- Manifest Refraction
 - OD: -17.75 -4.50 x 020 20/40
 - OS: -18.50 -4.00 x 165 20/40
- Keratometry Readings
 - OD: 42.25/45.12 @ 016
 - OS: 41.50/44.62 @ 166

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CASE EXAMPLE



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CASE EXAMPLE

- Why was she told she was a poor candidate?
 - Difference of K values in each meridian = approx 3.00D
 - Difference of K values in each meridian in refraction = 4.00D
- But was she really a poor candidate?
- Don't forget the basics!
 - Vertex distance!

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CASE EXAMPLE

• Vertex Compensation Example

Spectacle Plane

-17.75

-22.25

12mm

Corneal Plane

-14.75

-17.75

Refraction at corneal plane = $-14.75 - 3.00 \times 0.020$

Total cylinder does in fact equal corneal cylinder!

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CASE EXAMPLE

- Original lenses ordered based off of online calculator
- Special permission given by consultation to exceed -15.00 DS
- Final Lenses
 - OD: 7.80/14.5/Flat/-16.00 DS 20/25
 - OS: 8.00/14.5/Flat/-16.00 DS 20/25

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FITTING THE MODERN HYBRID LENS

Normal Corneas: Presbyopes

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THE BASICS

- Fitting philosophy and required data are identical to that of the traditional Duette platform
- We now have two options!
 - Duette Progressive CN (The Original)
 - Duette Progressive CD

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DUETTE PROGRESSIVE

- Center-Near Design
 - Three add powers (+1.00/+1.75/+2.50)
 - Fixed 3.0 mm zone size

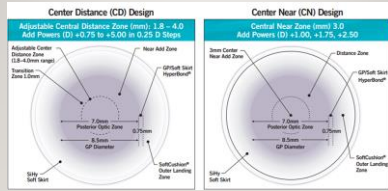
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DUETTE PROGRESSIVE CD

- Center-Distance Design
 - Adjustable zone sizes from 1.8 mm to 4.0 mm
 - Adjustable add powers from +0.75 to +5.00
 - Other fitting characteristics unchanged from original Duette Progressive

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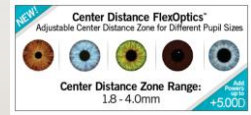
CENTER-DISTANCE VS. CENTER-NEAR



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DUETTE PROGRESSIVE CD

- Fitting Characteristics
 - Recommended initial zone size is 1.0 mm smaller than pupil size in normal room lighting
 - Proper add power is based on the spectacle add
 - Skirt curve is based on HVID (11.8 mm cutoff)



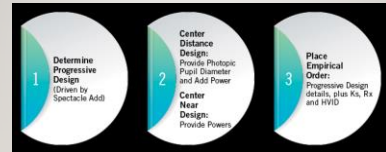
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SELECTING THE PROPER DESIGN

- Opinion Alert!
 - Most of my patients have felt their vision was more natural and in turn preferred the center-distance design
 - Those that preferred the center-near design were:
 - Those already successfully wearing the design
 - Those that necessitated a high degree of near acuity

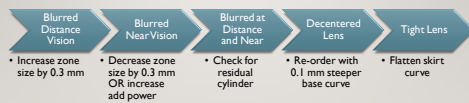
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ORDERING THE DUETTE PROGRESSIVE



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TROUBLESHOOTING: DUETTE PROGRESSIVE CD



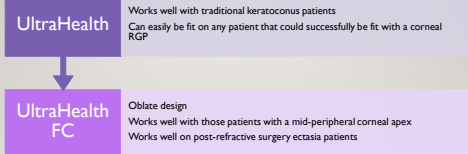
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SO WHAT'S NEXT?

- Generation 3 Hybrid Design
- Total redesign of soft skirt fitting characteristics
- Available in single vision and multifocal design
- Multifocal incorporates Extended Depth of Focus optics

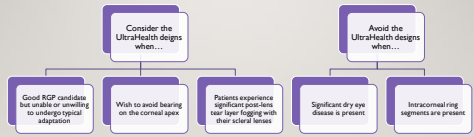
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PROPER LENS SELECTION



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TIPS FOR SUCCESS



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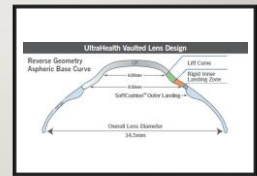
ADVANCED FITTING PEARLS

- Remember to utilize OCT imaging to confirm vault (if available)
- Always start with the flat skirt curve
 - Only adjust the skirt curve if lens centration is poor or if fluting of the skirt is present
- Utilize the 290 lens
 - Similar in design to the 300 vault EXCEPT no variable lift curve
 - Basically a 300 vault lens designed to perform like the 50-250 vault lenses

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NUANCES ABOVE 290 VAULT

- The UltraHealth design fundamentally changes once you reach the 300 vault
 - Flatter central base curves
 - Variable lift profile = fundamental change in RGP/skirt relationship
 - Fundamental difference in weight distribution of lens



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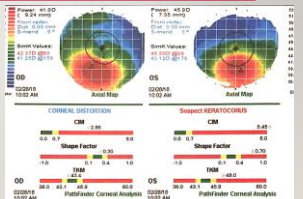
ADVANCED TROUBLESHOOTING

- Excessive lens awareness almost always means a lens that is fit with excessive vault
- Remove the lens at follow-up visits to monitor for corneal staining
 - Central Corneal Staining
 - Flat fit
 - Excessive force used when inserting lens
 - Limbal Corneal Staining
 - Large HVID – may require a fully vaulting design

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CASE EXAMPLE

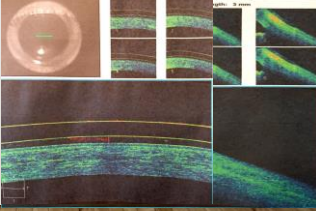
- 32 year old male of Middle-Eastern descent
- Diagnosed with keratoconus OS-OD approximately five years earlier



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FITTING PROCESS

- 250 vault lens inserted
- NaFl pattern appeared ideal!
- Confirmed via OCT



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THE FUTURE OF HYBRID LENSES

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MYOPIA CONTROL

Orthokeratology	Center-Distance Multifocal
<ul style="list-style-type: none"> • A hybrid lens system will center well • Could the treatment zone be large enough? • If hyper-DK materials are utilized could it be worn safely overnight? 	<ul style="list-style-type: none"> • High amounts of peripheral plus available with the Duette Progressive CD • Ability to correct large amounts of cylinder

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HIGHER ORDER ABERRATIONS

Measuring	Correcting
<p>Measuring Higher Order Aberrations (HOAs)</p> <ul style="list-style-type: none"> • Ray tracing vs. wavefront pattern distortion • Shack-Hartmann aberrometry (Orbscan) 	<p>Correcting Higher Order Aberrations</p> <ul style="list-style-type: none"> • Numerous papers have been written about the benefits of utilizing customized soft and RGP lenses to reduce ocular HOAs • Research is ongoing regarding how to implement such technology into the hybrid platform

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THANK YOU!



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