#specialtylenspractice

Louise A. Sclafani, OD, FAOO
Diplomate, AAO Cornea, Contact Lens and Refractive Technology
University of Chicago

Louise Sclafani, OD, FAAO

CONSULTING/SPEAKER
Alcon Labs
Aerie Pharmaceutical
Allergan
AMO
Bausch & Lomb
BVR
Cooper Vision
EyeprintPRO
SynergEyes
Vistakon
Zealvision
Husband, Jeff McClimans
works for OPTOS, North American

Clinical Associate Professor
University of Chicago Hospital
Department of Ophthalmology
Diplomate, AAO Cornea, Contact Lens, Refractive Technology
Diplomate, American Board Optometry
Adjunct Faculty: ICO

Description: Discussion of the latest contact lens materials, solutions, trends, research, industry issues and practice topics

#SPECIALTYLENSPRACTICE
HOT TOPIC AREAS

• DROP-OUTS
  – Presbyopic
  – Astigmatism
  – ONIT Study for Dry Eye

• SCLERAL LENSES
  – Challenges in Handling
  – Impression Technology

• MYOPIA CONTROL
  – Benefits of Outdoors
  – Center distance MF

• TAKING CONTROL
  – AOA efforts

Introducing Biofinity Energys™

The only contact lenses with Digital Zone Optics™ lens design
Multiple front surface aspheric curves, equally distributed that concentrates plus power in the center to help with eye fatigue

Professional Affairs Corner

Getting old 51%
Procrastinated 43%
Sad 18%
Anxious 15%
Dental 14%
Sleep 25%

Figure: Percentage of Patients Reporting Reactions to Emerging Presbyopic Symptoms
#3 EASE INTO PRESBYOPIA

1. Have the conversation
2. Modify the habitual
3. OTC Readers are OK
4. Treat the whole eye

#4 LISTEN AND USE REASONING
Eye is Ready, but Patient is Not!

1. Cost or Time
2. When the Status quo is acceptable
3. When they are better without them

- More than half of adults requiring multifocal vision correction (54%) received a recommendation from their eye doctor, down from a high of 62% in 2011.
- Recommendations for bifocal eyeglasses have been slowly declining since 2009, down from a high of 35% to 29% currently, which may be a factor in the decline in awareness of this vision correction option.
- One in nine (11%) received a recommendation for a multifocal contact lens option.
#5 CREATE SUCCESS

REFRACTIVE ERROR

PRESENT ALL OPTIONS

Spectacles
Distance CLS/ROSRx
Monovision
Multifocals
Daily, FRP
Soft, Toric, Hybrids
GP: Corneal, Scleral
MONOVISION

- Previous studies showed that 70% of patients can adapt to mono-vision
- Affordable, patient-pleasing, practice-friendly, safe alternative for presbyopic CL correction
- Sometimes “NATURAL”

Westin et al, 2000; Jain et al, 1996

BENEFITS OF MV do not Out-Weigh MF

Multiple studies show that Multi-focal CLS preferred over Mono-Vision
Improved “real-life” binocularity
Multi-focal GP performed similar to spectacles

2015 CONTACT LENS SPECTRUM Survey
Practitioner Preference
71% prefer Multi-focal CLS
19% prefer mono-vision (12% in 2014)
10% prefer over-spectacles (8%)
In Practice, presbyopes are wearing
48% Multi-focal CLS (46% in 2014)
31% Monovision (36% in 2014)
Correction Modes of Presbyopes in Contact lens.
42% Soft lens Multi-focals
28% Soft lens Monovision

BENEFITS OF MV do not Out-Weigh MF

- 63yo. WF, DES, Restasis
- VA uncorrected
  - RE 20/30 D
  - LE 20/20 N
- MRx
  - RE -.75 sphere
  - LE -.75 sphere
- GOAL: improve distance vision for skiing
- CLRx: -.75
- Acuvue Oasys 1-day 8.5/14.3

 Benjamin, 2007; Beutlich et al, 2006; Bai et al, 2003; Ahronson et al, 2002; Rajagopalan et al, 2006; Gupta et al, 2009

DESIGNS

ALTERNATING
- Lined/Translating
- Work well for looser lids
- GP, higher adds

SIMULTANEOUS
- Center can be distance or near
  - Concentric
  - Alternating distance and near zones that brain selects to see
  - GP, SCL, Scleral
  - Aspheric
  - curvature change within OZ alters focal point
  - GP, SCL, Scleral

Benjamin, 2007; Beutlich et al, 2006; Bai et al, 2003; Ahronson et al, 2002; Rajagopalan et al, 2006; Gupta et al, 2009
Innovation by Design

**FOR CRISP, CLEAR VISION AT ALL DISTANCES**
- Consistent ADD power across entire spherical power range for a predictable fit
- Proven aspheric back surface design for optimal centration and fitting
  Offsets loss of accommodation by extending the depth of focus
- All 3 ADD designs offer a smooth transition from the center-near zone
- Delivers smooth transitions between near, intermediate and far zones

Two Unique Technologies for Comfort All Day or All Month

Two unique technologies for comfort all day or all month:
- AIR OPTIX® Aqua Multifocal
  Permanent Plasma Surface Technology for superior resistance and consistent comfort
  Balanced Moisture Technology for all-day comfort.

Water Gradient Technology Now in a Multifocal

DAILIES TOTAL 1<sup>st</sup> Multifocal Contact Lenses

Help Your Patients See Clearly at All Distances With Predictably Seamless Vision

DAILIES TOTAL<sup>®</sup> Water Gradient Technology
**Lens Design | An Example**

- Optical design larger than pupil size
- Optic design similar to pupil size
- Optical design smaller than pupil size

**Lens Design | Pupil Optimization**

- Innovative Technology | Pupil Optimization: The FIRST AND ONLY multifocal lens with uniquely optimized optical designs that address the natural variation in pupil size according to AGE and REFRACTIVE POWER to create 183 designs.
- INTUISINGHT™ Technology
- Unique Hybrid Back-Curve Design
- Aspheric center maintains the integrity of the complex front surface optics
- Aspheric Center near design: +6.00 to -9.00 with 3 ADDS

**Digital device use and age-related dryness may compromise comfort**

- 9 Hours per day spent on digital devices by 1/3 of Gen Xers and 1/4 of Baby Boomers³
- Patients may blink 60% less on average when using a digital device, which could contribute to lens dehydration⁴
- 1 of 3 multifocal contact lens wearers cite dryness as an issue⁵

*Comfort is the number 1 reasons people over 40 drop out of contact lenses⁶*
Bausch + Lomb ULTRA® for Presbyopia contact lenses

Innovation in Silicone Hydrogel
The world's first and only family of daily disposable silicone hydrogel lenses

Originally Sauflon in Europe
FRESH Day for Vision Source LPP
TIPS FOR SUCCESS WITH SOFT MF

- SET EXPECTATIONS: their goals, wearing schedule
- PROVIDE A GOOD ENVIRONMENT/MATERIAL
- USE REAL-LIFE TARGETS
- USE THE FITTING TOOLS/RULES SUGGESTED
- USE LEAST AMOUNT OF PLUS
- DETERMINE DOMINANT EYE and Utilize that INFO!
- GIVE LENSES ENOUGH TIME TO SETTLE
- BE CREATIVE: 80% RULE
  - Alternate designs
  - Modify: ADD in Dom. Eye, PLUS
  - OVER-CLS Spectacles for near OR distance

DO SOFT MULTIFOCALS WORK

OF COURSE THEY DO!
THERE IS NO BEST!
USE MORE THAN ONE DESIGN!

BUT SOMETIMES PATIENTS NEED MORE

THEY SEE 20/20 , BUT THEY DON’T SEE
- Exceed available sphere parameters
- Astigmatism affects near and distance
- Angle Kappa
- Be prepared to move on to more custom fits
  - Specialty Designs
  - Hybrid
  - GP Corneal and Scleral
ASTIGMATISM AND PRESBYOPIA

Diagnosis of astigmatism among vision corrected teens/adults has been around 4 out of 10 since 2008 (36%–42%)

Proclear Multi-focal Toric

- Double slab-off back surface toric with 3-9 markings.
- D and N Lens
- Trial Fit and Fine-tune Distance Toric lens
- Optional 3rd lens for MV
- Order both D/N lens
- Trial N-OU first
- Then fine tune
Astigmatic Annoyances

The Hybrid Advantage

Clear GP vision with soft lens comfort

Ideal for patients with astigmatism, presbyopia and irregular cornea conditions like keratoconus

Duette Progressive Lens Design

- Center near progressive multifocal
- True progressive with dual aspheric GP optics
- Empirical fitting without the need for trial lenses
  Initial base curve is 0.50D steeper than the flat K, no more than 0.75D steeper than the flat K

ONLINE CALCULATOR...
Enhanced Profile available

- +1.00, +1.75 and +2.50 powers available
- 3.0mm add zone for near
Empirical fitting without the need for trial lenses
Initial base curve is 0.50D steeper than the flat K, no more than 0.75D steeper than the flat K.

ONLINE CALCULATOR… Enhanced Profile available

TROUBLE SHOOTING HYBRIDS

• For decenteration or pupil size issues
• Change zone size of progressive
• Standard zone size is 3.0mm
• Custom designs allow reducing to 2.8mm, increase to 3.2mm, or anything

TROUBLE SHOOTING HYBRIDS: Uncorrected Cylinder

■ Lens flexure can be a problem
■ Manifests as visual fluctuation or over-refracted cy
■ Solution: Enhanced Profile (EP) lens
■ 0.09mm thicker to resist flexure
Duette Progressive

- Duette hybrid lens are expanding from a center-near add zone to a center-distance add zone
- Includes Center Distance FlexOptics™
- Flex Optics: zone size is based on pupil size
  - 1.5 mm less than photopic pupil size
  - Zone sizes range from 1.5 mm to 4.0 mm
- Flexible Ad Powers
- Tangible-Hydra-PEG is standard on Duette Progressive hybrid lenses

THE FIX: Improved Comfort

- Tangible Science Hydra-PEG
- Surface appears oily
- Do not expose to tap water
- Hydrogen Peroxide systems work well
- Pinch with fingers touching
- Tissue removal in emergency

NEW!

Lubricious BREAKTHROUGH POLYMER COATING™ now available on Duette and UltraHealth hybrid contact lenses.
**NEW!**

Duette and UltraHealth Hybrid Lenses

- Tangible Hydra-PEG is a breakthrough polymer coating designed to solve problem of contact lens discomfort*
  - Improved wettability
  - Increased surface water retention
  - Increased lubricity
- Duette with Tangible Hydra-PEG available in January
- UltraHealth with Tangible Hydra-PEG available in May

*Tangible Science

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**Latest in Surface Technology:**

Hydra-PEG Contact Lens Surfacing

- Biocompatible Polyethylene Glycol based polymer mixture
- Crosslinked structure hides underlying lens material from ocular surface
- Covalently (permanently) bound to lens surface
- May be applied to hydrogel, silicone hydrogel and gas permeable materials
- Scalable process easily integrates into high volume manufacturing

**TANGIBLE SCIENCE**

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**TROUBLE-SHOOTING HYBRIDS**

- If lenses become tight and uncomfortable after 2-3 hours, you have too much vault
TROUBLE-SHOOTING HYBRIDS: VACUUM

New Innovations in Specialty Contact Lenses

1. Tangible Hydra-PEG on Duette and UltraHealth hybrid contact lenses
2. Duette Progressive with adjustable center-distance FlexOptics
3. SynergEyes VS™ scleral lens

ESSENTIAL #1 Prescribed Multifocal in North America
Emerging, Midlife and Mature Presbyopia
S-Form technology: simultaneous and translating technology
Posterior surface technology for aspheric designs (8.75 D steep) to prevent molding and then front surface concentrics as patient mature
SCLERAL MULTI-FOCALS

Dry Eye Syndrome

- Up to 40 million Americans have symptoms or risk of dry eye (13% of population)
- Despite prevalence, dry eye remains under-diagnosed
- Self-treatment with palliative OTC agents may delay diagnosis and effective therapy
- Untreated inflammation associated with dry eye can lead to significant ocular damage

**DEWS Report**
Sponsored by The Tear Film & Ocular Surface Society
Published April 2007
Dry eye grading scale: Levels 1 – 4
Based on Ocular Surface Disease Index (OSDI)

- Level 1 dry eye recommendations: Education and environmental/dietary modifications, Elimination of offending systemic medications, Artificial tear substitutes, gels/ointments, Eye lid therapy
- Level 2 dry eye recommendations: If Level 1 treatments are inadequate, add: Anti-inflammatory (omega-3 fatty acids, topical CsA and corticosteroids), Tetracyclines (for meibomianitis, rosacea), Punctal plugs, Secretagogues, Moisture chamber spectacles


TFos News from across the world!

**DEWS II: ALL EYES ON DRY EYE**

We anticipate that TFOS DEWS II will update the definition, classification and diagnosis of dry eye disease, critically assess the etiology, mechanism, distribution and global impact of this disorder, and address its management and therapy.

This report will be published in a peer-reviewed journal and the TFOS DEWS II members will be authors. We anticipate that this evidence-based process may require more than six months to complete. The TFOS DEWS II will be, as with all TFOS workshops, an international effort that will lead to a global consensus on dry eye disease. Preliminary subcommittee summaries may be presented at the next TFOS Conference, which will occur from September 19 to 22, 2013, in Montpellier, France.

More information available on:
http://www.tfosdewreport.org/

THE ONLY PRESCRIPTION EYE DROP
FDA APPROVED TO TREAT BOTH SIGNS AND SYMPTOMS OF DRY EYE DISEASE

Please use caution. Safety information is provided throughout this presentation.
Please visit a Shire Representative for full prescribing information.

www.shire.com/products/dex:01031507, 1-800-548-7437
Meibomian gland dysfunction (mGD) Workshop

Tear Rhe & Ocular Surface Society, Dr. Kelly Nichols, chairperson
International Workshop - 15 dry eye experts
Published in IOVS – 2011, volume 52, #4
Dry eye grading scale: Stages 1 – 4

- Level 1 dry eye recommendations: Inform patient about MGD, the potential impact of diet and the effect of work/home environments on tear evaporation, and the possible drying effect of certain systemic medications.

- Level 2 dry eye recommendations: Advise patient on improving ambient humidity; optimizing workstations and increasing dietary omega-3 fatty acid intake.

EyePromise EZ Tears
was specifically formulated for ocular surface support with 9 anti-inflammatory ingredients to reduce inflammation, stimulate tear production, and support optimal tear film structure.

EyePromise EZ Tears Formulation

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A - Retinyl Palmitate</td>
<td>1,000 IU</td>
</tr>
<tr>
<td>Vitamin D3</td>
<td>2,000 IU</td>
</tr>
<tr>
<td>Fish Oil EE 70%</td>
<td>1,480 mg</td>
</tr>
<tr>
<td>Total Omega 3’s</td>
<td>1,100 mg</td>
</tr>
<tr>
<td>EPA</td>
<td>590 mg</td>
</tr>
<tr>
<td>DHA</td>
<td>440 mg</td>
</tr>
<tr>
<td>Proprietary Blend (ingredients below)</td>
<td>220 mg</td>
</tr>
<tr>
<td>Evening Primrose Oil</td>
<td>100 mg</td>
</tr>
<tr>
<td>Turmeric Extract</td>
<td>50 mg</td>
</tr>
<tr>
<td>Green Tea Extract</td>
<td>50 mg</td>
</tr>
<tr>
<td>Mixed Tocotrienols/Tocopherols</td>
<td>20 mg</td>
</tr>
</tbody>
</table>

Convenient 2 softgel per day dosing
SUMMARY OF ACTIVE INGREDIENTS

- VITAMIN A
- VITAMIN D3
- VITAMIN E
- Evening Primrose
- Tumeric Extract
- Green Tea
- Omega 3 Fatty Acids
- N-Acetyl Cysteine
- Tocotrienols/Tocopherols
- Aids Genes/Cell to express mucin
- Immunity/Systemic Inflammation
- Stabilizes omega3 fatty acids
- Omega6FA conversion to Pro-Infl
- Pro-Inflam. signals on surface COX2
- Natural Anti-oxidant/MMP-9
- Internationally recognized anti-inflammatory for MGD/DES
- Modulates cytokine synthesis
- Systemic inflammatory adjustments

ONIT STUDY

The Benefits of EZ Tears for the Contact Lens Population

Ocular Nutrition Impact On Tear Film (ONIT)

- FDA Registered Trial
- Eight-week study
- 67 Patients
- 4 Investigators

Published March 26, 2015 in Advances in Ophthalmology & Visual System
Ocular Nutrition Impact on Tear Film (ONIT) Results

OSDI
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

38% Improvement

45% Improvement

Tear Break-up Time
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

33% Improvement

50% Improvement

Ocular Nutrition Impact on Tear Film (ONIT) Results

Phenol Red
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

50% Improvement

Tear meniscus height
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

38% Improvement

50% Improvement

Ocular Nutrition Impact on Tear Film (ONIT) Results

Corneal Staining Score
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

33% Improvement

Conjunctival staining score
Ocular Nutrition Impact On Tear Film Clinical Study (ONIT)

50% Improvement
In future trials, extending the length of the study might result in better correlation between osmolarity and other tests.

56-Patient
EyePromise EZ Tears Dry Eye Patient Trial
96% of patients reported symptoms as moderate to severe

- Results:
  - 54% reported some symptomatic relief at 2 weeks.

90-Patient
EyePromise EZ Tears Contact Lens Patient Trial

- Results:
  - Patients realized additional 2.2 hours/day of comfortable contact lens wear
  - 32% reported some symptomatic relief at 2 weeks

Medical INDICATIONS

TRAUMA OR DISEASE RESULTING IN

- Cornea Abnormality
- Pupil Abnormality
- Anisometropia
- Aphakia

9 quality ingredients work faster than Omega 3 Fish Oil Alone
Its Easier than you think  
How to Implement Myopia  
Prevention & Control  
Louise A. Sclafani, OD, FAAO  
University of Chicago Hospital  
Clinical Associate Professor  
AAO Diplomate, Cornea and Contact Lenses  
lsclafan@bsd.uchicago.edu

U.S. MYOPIA Prevalence

- US: 42-46%  
  - 68% increase in 20 years!  
  - Likely higher, statistic from >15 years ago

- Prevalence was greater for higher myopia  
  >-8.00D myopia: 8x increase

By 2050  
the number of high myopes (>5D) will reach >900 million  
increased from 200 million in 2010

Projected number of high myopes in 2050

Substantial increase in high myopes  
912 million high myopes in 2050
Myopia is a Disease

- Increased risk for:
  - Glaucoma
  - Retinal detachment
  - Earlier cataract development
  - Myopic Macular degeneration***
  - Leading cause of visual impairment for many nations

Implications of Myopia

- **Lifetime economic burden**
  - Cost of optical devices, treatments, Tx of secondary diseases, etc.
- < Productivity/Independence
  - Uncorrected myopia is the most frequent cause of distance visual impairment in the world (1)
- **Reduced “Quality of Life”**
  - Confirmed by numerous studies(2)
- **Ocular health risks**

2. Ref avail. upon request.

MYOPIA due to INCREASED CORNEAL CURVE, LENS POWER OR AXIAL LENGTH

what can we control?
Benefits of Outdoors

International Myopia Conference 2008

- ORINDA and SCORM study showed that children who spend 2-3 hours/day outdoors have a lower risk for myopia progression
- Less accommodative demands?
- Related to outdoor light, not sports or reduced reading
- Sun induced pupil constriction
- Leads to greater depth of focus?

Dopamine release reduces AL in chicks Vitamin D levels higher, prohibits growth?

Near Work, Outdoor Activity, and their Association with Refractive Error

- **Methods**: The Beijing Myopia Progression Study is a hospital-based myopia study, in which 386 students from primary (aged 6 to 12 years) and secondary (aged 13-17) Cycloplegic refraction and a detailed questionnaire
- **Conclusions**: Higher levels of outdoor activity were associated with less myopic refraction in primary school students in the inner city of Beijing.
- Near work activity was not found to be associated with refraction at either school level.

Lin, Zhong; Vasudevan, Balamurali; Jhanji, Vishal; Mao, Guang Yun; Gao, Tie Ying; Wang, Feng Hua; Song, Shu Jing; Ciuffreda, Kenneth J.; Liang, Yuan Bo 2014

Clinical Dictum

Emmetropic children with two myopic parents (the largest genetic risk) who spent the lowest amount of time outside (5 hours or less per week) have a 60% chance of becoming myopic.

Emmetropic children with two myopic parents who spent 14 hours per week or more outside, the probability of becoming myopic was reduced to 20%-

Donald O. Mutti, OD, PhD
"MYOPIC PROFILE"

GENETIC FACTORS
• 1 parent 2-3X ↑ risk
• 2 parents 5-6X ↑ risk

ENVIRONMENTAL FACTORS
• < 1.5 hours outside
• > 3 hours of near work (2.6)

Kate Gifford
Global Specialty Lens Symposium 2017

Attempts at Myopic Control

• Bifocals COMET
• Spectacle Under-correction at distance
• Gas Permeable Contact Lens
• Non-Selective Muscarinic
• Sunlight!

In US 1970 25% Myopic. Today 42% Myopic
Also 80% 18% in Taiwan - 40

Myopia (corrected)

CONTROL THE OPTICS
ENTERING THE EYE
LORIC STUDY: CORNEAL RE-SHAPING

Jeff Walline OD, PhD and McVey @ OSU
Ortho-K studies show growth slowed 50%
Not just from central cornea flattening
Peripheral defocus of lens inhibits growth

MYOPIA CONTROL

Earl Smith used animal models:
Importance of peripheral retinal and what happens when peripheral blur is introduced on the growth of the eye, less emphasis on macular deprivation as previous thought

Hyperopic Defocus (-) Myopic Defocus (+)

Promotes growth Inhibits growth

Hyperopic Blur is great stimulus to grow than myopic Blur is to not grow

Corneal Reshaping and Myopia Progression Management:
Evidence Based Data

- "Orthokeratology and Myopia Progression"
  - 51 pubmed cited articles
  - More published every year
  - Articles accepted in both optometry and ophthalmology peer reviewed journals
  - Eg:

Retardation of myopia in Orthokeratology (ROMIO) study: a 2-year randomized clinical trial.


**BLIMP Study Protocol**

- Historical control – ACHIEVE Study
  - 8-11 years
  - -0.75 to -4.00 DS
  - Less than 1.00 DC
  - 2 yrs N=32 in each
  - PC MF-D +2.00 add
  - Baseline and annual examinations
  - Cycloplegic AR
    - Avg. 10 rdgs./1% M
  - A-scan ultrasound
    - Average 5 readings

- Average reduction in myopia progression is approximately +50%
- Average reduction in axial length is approximately +40%

At 2 years, myopic progression 50% slower, eye elongation 32% slower. Not stat significant yet.
BLIMP Contact Lenses

<table>
<thead>
<tr>
<th></th>
<th>Soft Bifocal</th>
<th>Soft Spherical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand</strong></td>
<td>Proclear Multifocal &amp; Acuvue 1 Day</td>
<td></td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>omafilcon A</td>
<td>etafilcon A</td>
</tr>
<tr>
<td><strong>Water Content</strong></td>
<td>62%</td>
<td>58%</td>
</tr>
<tr>
<td><strong>Add Power</strong></td>
<td>+2.00</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Replacement</strong></td>
<td>Monthly</td>
<td>Daily</td>
</tr>
<tr>
<td><strong>dK</strong></td>
<td>27</td>
<td>28</td>
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</tbody>
</table>

Proclear Multifocal Fitting Guide

Baseline OD only

<table>
<thead>
<tr>
<th></th>
<th>Soft Bifocal</th>
<th>Soft Spherical</th>
<th><strong>p-value</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M (D)</strong></td>
<td>-2.28 ± 1.03</td>
<td>-2.24 ± 1.02</td>
<td>0.38</td>
</tr>
<tr>
<td><strong>J0 (D)</strong></td>
<td>-0.08 ± 0.23</td>
<td>-0.06 ± 0.16</td>
<td>0.40</td>
</tr>
<tr>
<td><strong>J45 (D)</strong></td>
<td>-0.02 ± 0.29</td>
<td>-0.07 ± 0.18</td>
<td>0.47</td>
</tr>
<tr>
<td><strong>Anterior Chamber Depth (mm)</strong></td>
<td>3.84 ± 0.28</td>
<td>4.00 ± 0.24</td>
<td>0.003</td>
</tr>
<tr>
<td><strong>Lens Thickness(mm)</strong></td>
<td>3.46 ± 0.18</td>
<td>3.37 ± 0.17</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Vitreous Chamber Depth (mm)</strong></td>
<td>16.94 ± 1.02</td>
<td>16.98 ± 0.86</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>Axial Length (mm)</strong></td>
<td>24.23 ± 0.98</td>
<td>24.26 ± 0.85</td>
<td>0.66</td>
</tr>
</tbody>
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Soft Bifocal CL
**Soft Bifocal CL**

![Graph showing axial length changes over time with soft bifocal CLs.]

**Adjusted 2 Year Change**

<table>
<thead>
<tr>
<th></th>
<th>Soft Bifocal (n=32)</th>
<th>Soft Spherical (n=32)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M (D)</td>
<td>-0.53 ± 0.07</td>
<td>-1.03 ± 0.07</td>
<td>(6 \times V &lt; 0.0001)</td>
</tr>
<tr>
<td>J0 (D)</td>
<td>+0.10 ± 0.04</td>
<td>-0.01 ± 0.05</td>
<td>NS</td>
</tr>
<tr>
<td>J45 (D)</td>
<td>-0.02 ± 0.04</td>
<td>-0.03 ± 0.04</td>
<td>NS</td>
</tr>
<tr>
<td>Anterior Chamber Depth (mm)</td>
<td>+0.04 ± 0.02</td>
<td>+0.002 ± 0.02</td>
<td>NS</td>
</tr>
<tr>
<td>Lens Thickness (mm)</td>
<td>+0.02 ± 0.02</td>
<td>+0.06 ± 0.02</td>
<td>Group = 0.06</td>
</tr>
<tr>
<td>Vitreous Chamber Depth (mm)</td>
<td>+0.22 ± 0.04</td>
<td>+0.45 ± 0.04</td>
<td>(6 \times V &lt; 0.0001)</td>
</tr>
<tr>
<td>Axial Length (mm)</td>
<td>+0.27 ± 0.04</td>
<td>+0.45 ± 0.04</td>
<td>(6 \times V = 0.0038)</td>
</tr>
</tbody>
</table>

**Soft Distance Center Multifocal CLs**

Walline et al. Optom Vis Sci 2013;90:1207-1214
- Slows axial length growth 29%
- Slows myopia progression 50%
- 33% Dropout

- Slows axial length growth 31%
- Slows myopia progression 25%
- 42% Dropout
Visioneering Technologies, Inc.  
1-844-VTILENS (1-844-884-5367)  
www.vtivision.com

**ISIGHT MULTIFOCAL SOFT CONTACT LENSES**

Designing a custom soft multifocal is not viable... 

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<thead>
<tr>
<th>Lens Custom</th>
<th>Goal Lenses</th>
<th>Material</th>
<th>Wearable A</th>
<th>Wearable B</th>
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* Additional previsions available upon request

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**MYOPIA**

- In refractive surgery, patients with myopia of -0.50 to +0.50 dioptries (D). 
- Use in cases where patients have moderate to high myopia. 
- Benefits include improved visual acuity, reduced dependency on glasses, and improved cosmetic appearance.

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**FEATURE PRESENTATION**

INTRODUCING A CENTRAL PORTAL

Welcome to myopiacontrol.org! In an era of increasing connectivity, individuals are more connected than ever before. The internet is a central portal for accessing and sharing information. Myopiacontrol.org is a platform designed to offer comprehensive resources and support for those with myopia. Explore our site to discover a wealth of information, tools, and community support for managing myopia effectively.
They are never too Young!

• Introduce concept when you think it may be beneficial
• Kids events
• Test their “finger-poking” sensitivity and dirty fingers
• Allow enough time to train (re-train)
• DD or MF

BENEFITS OF SCLERALS

• TREATMENT OF CORNEAL DISEASE OR TRAUMA
• TREATMENT OF REFRACTIVE ERROR
• TREATMENT OF “CONTACT LENS DROPOUTS”
• TREATMENT OF DRY EYE

Scleral Lens MARKET

Jupiter*/Europa series (Visionary, Essilor®)
OneFit/MSD (Blanchard)
NormalEye/ICD (Paragon)
Macro / SO2Clear (Dakota)
Ezekiel Scleral Lens (Gelflex)
Boston Scleral Lens (Boston Foundation)
Custom Stable (Valley Contax)
Maxim (Acculens)
Dyna-E (Diversified)
Sag Site Technology (AVT)
EyePrint Prosthetic (AVT)
Zenlens (Alden)
SIGHT Scleral Lens
And growing every year
SCLERAL DESIGNS
basic rules evolving

• Don’t touch the cornea
• Different Designs utilize different guidelines
• VAULT (um) vs. BASECURVE
  – (.1 mm BCA = 50 um TLA)
• Protect the limbus
  – moderate clearance
  – Pressure “sucks” in ...conjunctival-chalasis
• Sicker eyes, need bigger lenses
  – ICN 11.2-16mm
  – DX 17-20mm (EPP = 18)
  – Cell count “800”... Need to be healthy... Obvious nuclei = BAD

Pat Carlenen, MD & Pacific University
Esther Simone Vissar, Netherlands

SCLERAL DESIGNS
basic rules evolving

Clearance “150-300 μ” (200-250 EPP)
  – Scleral CLS take longer to settle
  – Re-insert if bubbles (2/2 steep or technique)
  – Varies across surface...
  – Less clearance for smaller CLS
  – OCT or TL = 2/3 CTCLIN or 1/3 Cornea THICK
  – Average Scleral CT = 250 μ – 450 μ (EPP)
  – Scleral CLS getting thinner. Caution flexure
Excess clearance may cause
  – Hypoxia
  – Negative pressure, significant if mid-peripheral
  – Toxic swamp

PROBLEMS WITH SCLERALS

• FOGGING
• FLEXURE
• FEAR

Kristyn Reed, OD Houston Eye Associates
ETIOLOGY OF FOGGING

- More contact with goblet cells on the scleral conjunctiva stimulates more mucin production.
- Edge lift can stimulate MG on lids to produce more oils
- Preservatives in reservoir become toxic and set up inflammatory reaction
- Mucin gets trapped post-lens “toxic swamp” due to one way entry in areas of lift due to scleral toricity

FOGGING TREATMENT

- Treat Ocular Surface Disease
  - Dry spots on lens get build-up!
- May need to d/c Restasis due to goblet cell activity
- Give eye time to adapt
- Preservative-free Saline
- Create less clearance at the limbus by reducing diameter -
  - Toric peripheral curves

MAINTENANCE CHALLENGES WITH SCLERAL DESIGNS

- Proper technology for fitting/evaluation
- Size does matter with handling
- Proper cleaning techniques
- Surface treatment: Plasma, Hydro-peg *
- In office cleaning at follow-ups: PROGENT
- Create a Preservative-free tear reservoir
  - Inhalation Saline .9% Sodium Chloride
  - Lacripure by Menicon
- At home techniques: Flush and Squeegee!
INSERTION/REMOVAL AND MAINTENANCE CHALLENGES WITH SCLERAL DESIGNS

Impression Ring After Removal of scleral lens due to negative pressure

REMEDY
- Flatten BC or PCs
- Increase center thickness by .03 or junction thickness
- Make scleral portion wider = OPEN PC
- Scleral topography is not uniform Bi-Tangential angles on posterior surface

Courtesy Christine Sindt, OD
Research on Scleral Shape

- Toricity in the scleral area is more pronounced, irrespective of toricity of cornea.
- Shape of limbus and para-limbal scleral are linear rather than curved.
- What was needed was a scleral lens that matched the shape of the sclera.

Advantages of a Toric Periphery

- All day wear
  - Most patients wear the lens 15-16 hours a day without a break in wearing time
  - 82% have wearing time of ≥ 12 hours a day*
- Minimal mid-day lens removal
  - 81% wear lenses continuously during the day*
- Minimal lens fleming and fogging
  - The toric periphery controlled in two meridians has a good alignment in all directions and it helps reduce debris formation behind the scleral lens.

NEW! SynergEyes VS Scleral Lens

- Partnership with Menicon, the world leader in gas permeable lenses and hyper Dk materials
- Designed over two decades by leading European experts:
  - NKL Kontaktlinsen (Menicon Group)
  - Visser Contact Lens Eye Clinics
- Based on intense research over the last 20 years, the lens was designed to mimic the curved shape of the cornea and the linear shape of the sclera.
VS Scleral Lens - Design

- Distinctive bi-tangential periphery with two innovations:
  - Linear landing zones
  - Landing zones with bi-tangential toricity

- The linear landing zones are designed to follow the linear (rather than curved) shape of the sclera
- The landing zones may be precisely controlled in both the flat and steep meridians
- Adjustable angles distribute the lens pressure more equally over the sclera
- The standard lens has toric peripheries (in the rare case where the sclera is symmetrical, order a sphere).

sMap3D – Maximizing Scleral Coverage

Optimized 3D Imaging

- The sMapPro software is able to stitch together multiple images which produces a complete 3 dimensional model of the patient’s eye
  - Maps the entire cornea and sclera, with a true range of greater than 22mm diameter in all directions

sMap3D with Europa Scleral Lens Design

- Design Integration
  - Seamless integration with VO Europa Scleral lenses, designed to minimize refits by empirically prescribing lenses directly from surface measurements
  - View Virtual fits, customize lens parameters with the goal of achieving optimal fit for every eye in one simple platform.
What is EyePrintPRO™?

EyePrintPRO™ is a transparent prosthetic scleral cover shell designed to match the **exact** contours of the individual eye providing the best vision and comfort possible.

Elevation Specific Technology Corneal Toricity Scleral Toricity Front Torics Prism Multifocal Multizone/Back aspheric

EyePrint Prosthetics LLC

EyePrinting provides more information than high tech computerized topographical scanners

Pinguecula

EyePrint Software Designed OCT Verified
Device Design

<table>
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<tr>
<th>Material</th>
<th>Optics</th>
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<tbody>
<tr>
<td>Contamac Optimum Extra</td>
<td>Exceptional Stability</td>
</tr>
<tr>
<td>· Dx 100</td>
<td>· Spheres</td>
</tr>
<tr>
<td>· High Dk, wettable, stable</td>
<td>· Torics</td>
</tr>
<tr>
<td></td>
<td>· Decentered Optics</td>
</tr>
<tr>
<td></td>
<td>· Rotationally Stable</td>
</tr>
<tr>
<td></td>
<td>· Prism (in any direction)</td>
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To Come:
· Multifocals
· Higher Order Optics

WHAT HAPPENS NEXT?

· Doctor enters patient info online.
· Impressions are sent to AVT lab
· 3D Scanner analyzes 2 million data points of raw data and creates a “formula” with 250K points to design a lens along with the consultant.

Virtual Eye vs. “Real” Eye

EyePrint Software

OCT
• SUMMARY: Elevation Specific Technology for custom scleral designs.

• Contact EyePrintPRO for information
• Set up a 1-2 day training session in your office
  – Didactic Lecture
  – Practice making Impressions
  – Practice Management
  – Fit at least 3 patients in your office

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Contact Lens and Cornea Section
“Watchdog” Initiative

Thomas Quinn, OD, MS
AOA-CLCS Chair
Illegal Contact Lens Sales

- Contact lenses are being sold without an Rx or with an expired Rx
- In the decorative CL segment:*
  - 2013: 24% purchased without an Rx
  - 2014: 50% purchased without an Rx

* American Optometric Association's American Eye-Q® consumer survey

A New Approach: Proactive

- Designate a new email box for reports of illegal contact lens sales:  StopIllegalCLs@aoa.org
- Publicize watchdog group to demonstrate additional steps taken to stop illegal sales.
- Ensure illegal retailers are reported to FTC and FDA.
- Report quarterly to the BOT on watchdog group efforts.

SO MANY OPTIONS=OPPORTUNITIES

- Glasses for Fashion
- DD-MF for swim
- DD-Distance for hockey
- Monthly MF- All around
- Hybrid- Wearing them!
- Scleral- EyeprintPRO
  Because I deserve it!
Thank you for your attention

Louise Sclafani, OD, FAAO
louisesclafani@yahoo.com