

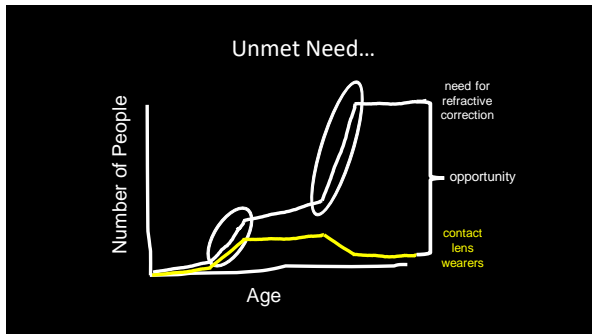


What's New In Contact Lenses

Mile Brujic, OD, FAO
Premier Vision Group

Disclosure

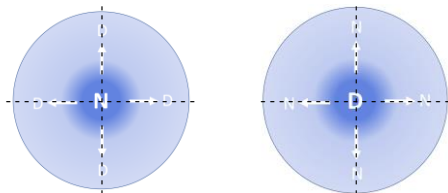
- Unfortunately, Mile Brujic has no financial or proprietary interest in any of the products that are mentioned
- I have received honoraria in the past 2 years for speaking, writing, participating in an advisory capacity or research from: ABB Optical, Akorn, Alcon Laboratories, Allergan, Art Optical, Avellino, Bausch + Lomb Health, Contamac, CooperVision, Euclid, Eye Vance, Johnson & Johnson Vision Care, Luneau, Lenstech, Oculus, Optovue, Sight Sciences, Sun Pharma, Tangible Science, TelScreen, TruForm Optics, Valley Contax, Visionary Optics, VMax Vision, Walman Optical, Weave, Zeiss and Zea Vision
- Owner of:
 - Premier Vision Group
 - Optometric Insights
 - Brujic Consulting



Multifocal Contact Lenses

- Daily Disposables
 - Dailies Total 1, Dailies ACP
 - Biotrue
 - MyDay, Clarity
 - Acuvue 1 Day Moist, Oasys Max
- Frequent Replacement
 - Air Optix
 - Ultra
 - Biofinity
 - Oasys

Multifocal Lens Design



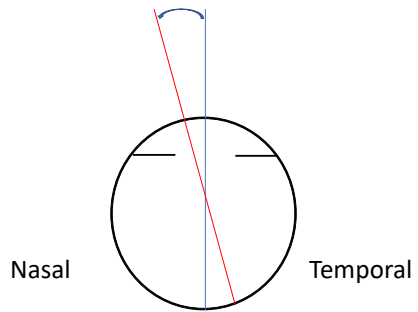
In Office Availability

- Near center-distance periphery design
- Silicone Hydrogel – Samfilcon A
- 46% water
- Sphere: +4.00 to -6.00 in 0.25D steps
- Cyl: -0.75, -1.25, -1.75, -2.25
- Axes: 10 to 180 in 10° Steps
- Low Add (up to +1.50 add)
- High Add (greater than +1.50 add)

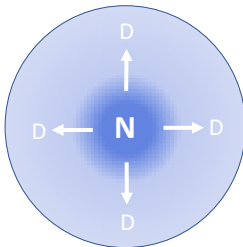


Toric Multifocal

D lens and N lens
 -10.00 to -6.50; 0.50 steps
 -6.00 to +6.00; 0.25 steps
 +6.50 to +10.00; 0.50 steps
 Cylinder Powers: -0.75 to -5.75; 0.50 steps
 in 5° increments
 Add Powers: +1.00, +1.50, +2.00, +2.50



Multifocal Lens Design



Assessing Soft Multifocal Contact Lens Centration with the Aid of Corneal Topography
 Matthew Lampa OD FFAO, Kelvin So OD, Patrick Caroline FFAO, Beth Kinoshita OD FFAO, Mark Andre FFAO, Randy Kojima FFAO
 Pacific University College of Optometry

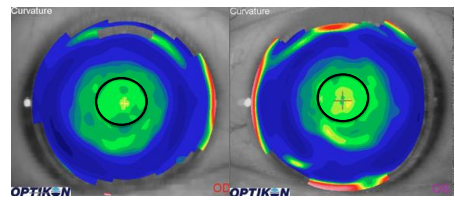
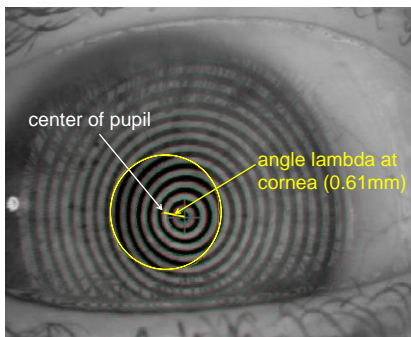
Introduction: Clinical experience has demonstrated that the success of soft multifocal contact lenses is compromised. The primary goal of this research is to provide the patient with clear distance and near vision simultaneously. Through the use of corneal topography and new processing algorithms, we can create a map of the cornea that allows the axis of the contact lens over the patient's line of sight.

Methods: We used a custom Matlab script to analyze corneal topography data from 100 patients. The script was designed to identify the location of the contact lens on the cornea. The script was run on 100 eyes. The results of the script are shown in the following table. The script was run on 100 eyes. The results of the script are shown in the following table.

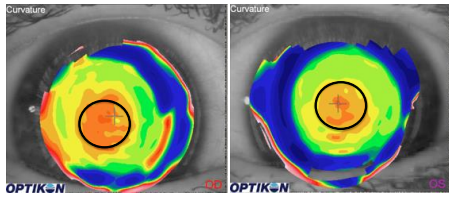
Visual Axis Deviation	Visual Axis Deviation	Visual Axis Deviation	Visual Axis Deviation	Visual Axis Deviation
CR	CR	CR	CR	CR
CI	CI	CI	CI	CI

Legend:
 Blue: Axis highlighting the distance axis
 Red: Axis highlighting the near axis

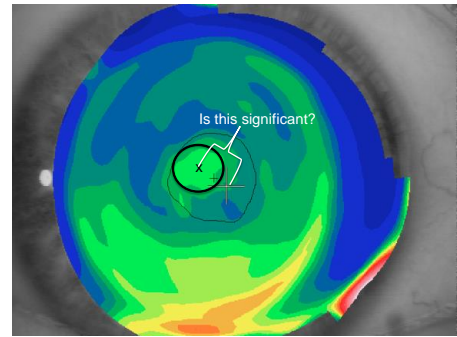
Angle Lambda: Angle Lambda is defined by the difference between the vertical axis and the line of sight. By utilizing the corneal topography data, we can calculate the angle lambda. The angle lambda is the angle between the vertical axis and the line of sight. The angle lambda is the angle between the vertical axis and the line of sight.



The Multifocal Success!



The "OK" Multifocal Experience!



How Important Is Optical Placement in Multifocal Lenses?

Introduction

As the use of multifocal contact lenses continues to grow, the importance of precise optical placement becomes increasingly significant. This study investigates the impact of optical placement on visual performance and patient satisfaction.

Methods

Participants were fitted with multifocal contact lenses and their visual performance was measured using standard clinical tests. The study compared different optical placements to determine their effect on visual acuity and contrast sensitivity.

Results

The results show that precise optical placement is crucial for optimal visual performance. Lenses with accurate placement resulted in higher visual acuity and contrast sensitivity compared to those with misaligned optics.

Conclusion

Optical placement is a critical factor in the success of multifocal contact lenses. Ensuring precise alignment is essential for providing the best possible visual experience for patients.

Effects of Line of Sight on Patients' Vision

Introduction

The effects of line of sight on vision are a complex topic that has been studied extensively. This research explores how different line of sight positions affect visual performance in multifocal contact lens wearers.

Methods

Participants wore multifocal contact lenses while their visual performance was measured at various line of sight positions. The study used a series of visual acuity tests to assess the impact of different line of sight locations.

Results

The findings indicate that line of sight position significantly affects visual performance. Optimal visual acuity was achieved when the line of sight was centered on the lens, while off-center positions resulted in reduced performance.

Discussion

These results highlight the importance of proper lens alignment and the need for precise optical placement. Understanding the effects of line of sight can help clinicians provide better care for their patients.

OptiSync Technology

- Available in the SpecialEyes 54 Multifocal
- Offset of multifocal optics nasally

<https://specialeyesqc.com/optisync-technology.php>

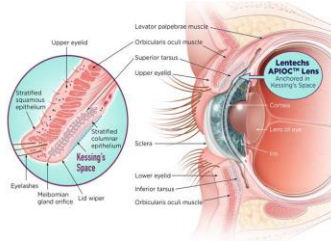
Scleral Lens with off center near optics

- Available in the ZenLens multifocal

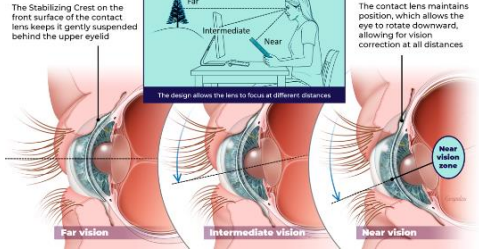
<http://www.aldenoptical.com/products/soft-specialty/zen-multifocal/zen-multifocal/>

APIOC™ Leverages Lid Anatomy

- Recent advances in material, engineering knowledge, and manufacturing techniques allow for suspension of soft lenses
- Uses the lid wiper as the inspiration for the unique design feature: The Stabilizing Crest™
- Balance Zones help ensure rotational stability and centration
- The unique features and optical zone allow for discrete vision correction at intermediate and



The APIOC™ Design



Theravision



New Delivery Mechanisms

- myeyeris.com
- Advanced doctor locator
- Hioxifilcon A (59% water); 8.5/14.3/-9.00 to +2.25



New Contact Lens Technology



Infuse

- Scientists at B+L looked at the DEWS 2 report to provide guidance on the design of the lens
- Poloxamine 1107 and poloxamer 181 in lens retain lens moisture
- Erythritol and glycerin present in the lens (helps maintain ocular surface homeostasis under hyperosmotic stress)
- Potassium is critical electrolyte for ocular homeostasis

New Contact Lens Technology



New Solutions



Myopia Progression Management

FDA NEWS RELEASE

FDA approves first contact lens indicated to slow the progression of nearsightedness in children

For Immediate Release November 15, 2019

The U.S. Food and Drug Administration today approved the first contact lens indicated to slow the progression of myopia (nearsightedness) in children between the ages of 8 and 12 years old at the initiation of treatment. The MiSight contact lens is a single use, disposable, soft contact lens that is discarded at the end of each day, and is not intended to be worn overnight.

“What’s approved is the first FDA-approved product to slow the progression of myopia in children, which ultimately could mean a reduced risk of developing other eye problems,” said Melissa Eubanks, M.D., Director of the Office of Ophthalmics, Otolithics, Acoustics, Respiratory, ENT and Dental Devices in the FDA’s Center for Devices and Radiological

MiSight

- First FDA approved contact lens that slows myopic progression in children ages 8-12
- Approved on November 18, 2019
- Launch in US March 2020



A 3-Year Randomized Clinical Trial of MiSight Lenses for Myopia Control

Paul Chamberlain, BSc,¹ Sofia C. Pezoto-de-Matos, MSc,² Nicola S. Lagan, PhD,¹ Cheryl Ngo, MBBS, MMed,³ Deborah Jones, BSc, FRCO,⁴ and Graeme Young, PhD, FRCO⁵

SIGNIFICANCE: Results of this randomized, double-masked clinical trial demonstrate the effectiveness of the MiSight soft contact lens in slowing myopia progression over multiple years.

IMPORTANCE: Assessment of this study was to quantify the effectiveness of MiSight daily disposable soft contact lens in slowing the progression of juvenile-onset myopia.

SETTING: Single children hospital assessment facilities. -0.75 to -4.00 D astigmatism, -1.00 D up to 12 years with no prior contact lens experience were enrolled in a 3-year, double-masked, randomized clinical trial at four international sites in four countries. Subjects in each group were matched for age, sex, and ethnicity and were randomized to either a MiSight 1-day contact lens (test) or Fourstar 1-day control, multifocal lens and wore on a daily disposable basis. Primary outcome measures were the change in corneal topographic spherical equivalent refraction and axial length.

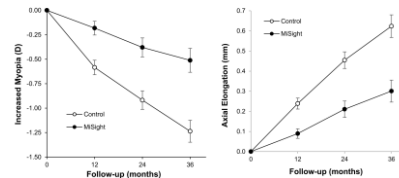
RESULTS: Of the subjects enrolled, 75.5% (209/141) completed the clinical trial (53 test, 56 control). Single-patient change in spherical equivalent refraction was -0.73 D (95% CI: -0.73 to -0.73) less in the test group than in the control group (P < 0.001). Mean change in axial length was 0.27 mm (95% CI: 0.27 to 0.27) less in the test group than in the control group (P < 0.001). Changes in spherical equivalent refraction and axial length were highly correlated (r = 0.90, P < 0.001). Over the course of the study, there were no cases of serious ocular adverse events reported. Four asymptomatic corneal infiltrates (one test, three control) events were observed at scheduled study visits.

CONCLUSIONS: Results of this clinical trial demonstrate the effectiveness of the MiSight daily disposable soft contact lens in slowing change in spherical equivalent refraction and axial length.

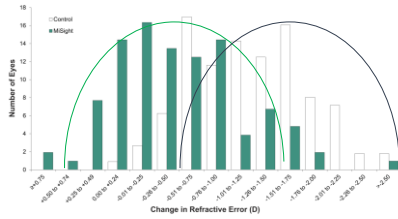


Author Affiliations: ¹Quantum Eye, Phoenix, California; ²Clinical and Experimental Optometry Research Unit, Centre for Vision, School of Science, University of Waikato, Rangi, Portugal; ³Optometric Research Group, School of Optometry, Aston University, Aston Triangle, Birmingham, United Kingdom; ⁴Department of Ophthalmology, National University Hospital, Singapore; ⁵Centre for Ocular Research and Education, School of Optometry and Vision Science, University of Waterloo, Waterloo, Ontario, Canada.

MiSight Data

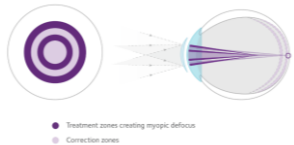


Misight Data

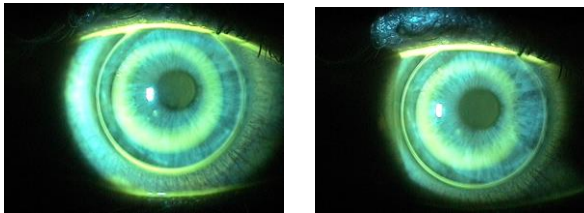


Parameters

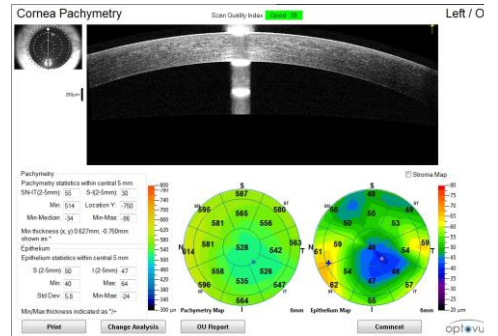
- Daily wear, daily disposable lens
- Material: Omafilcon A
- 8.7mm base curve, 14.2mm diameter
- ActivControl Technology
 - Central correction area of 3.36mm
 - Concentric zones of alternating distance and near powers



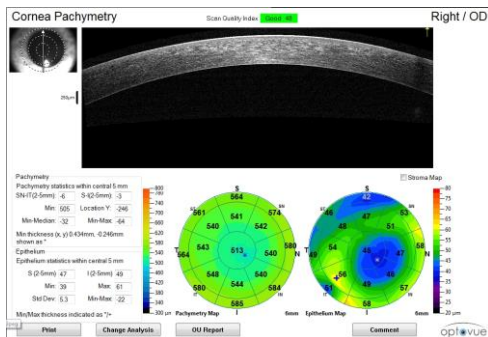
Orthokeratology



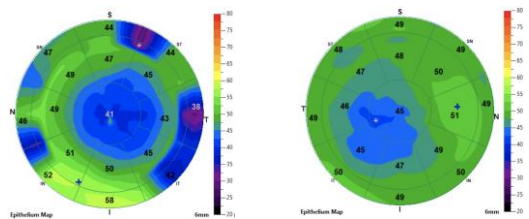
Ortho K



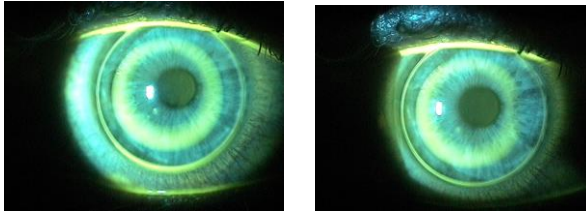
Ortho K



Anterior Segment OCT for Orthokeratology



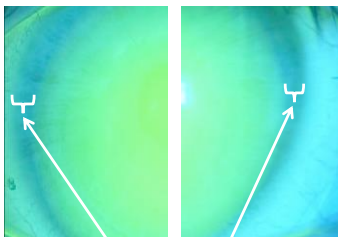
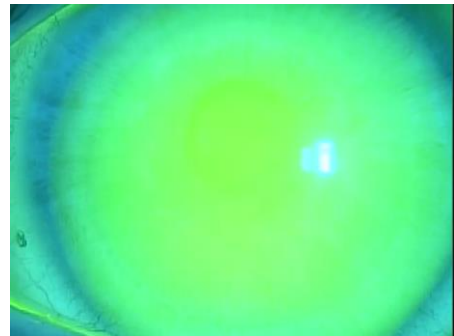
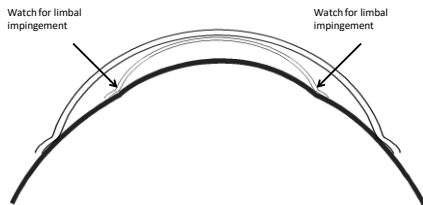
Orthokeratology

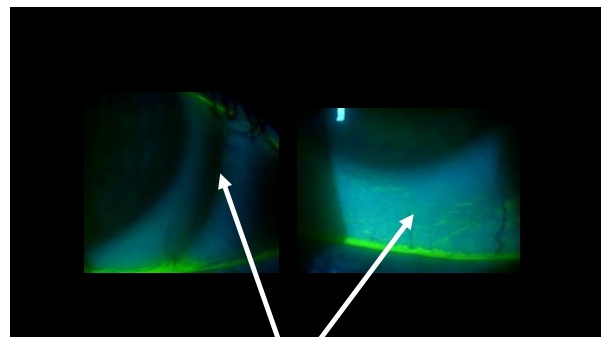
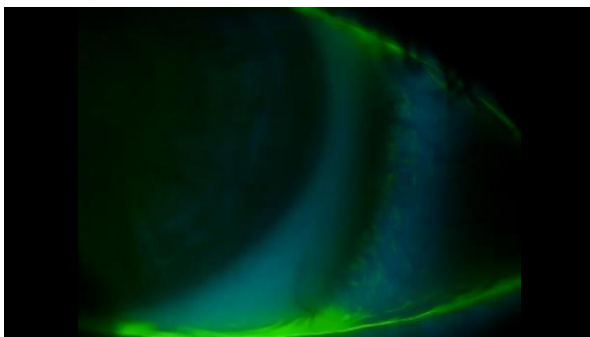
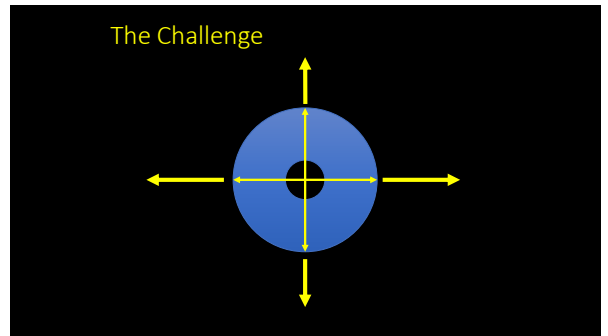
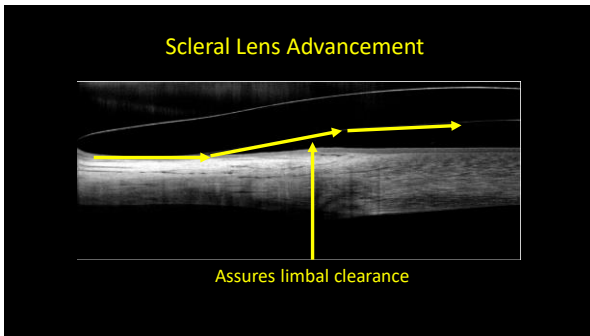
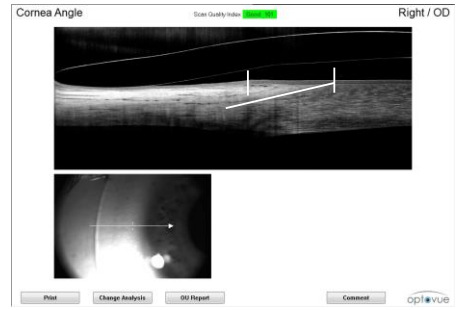
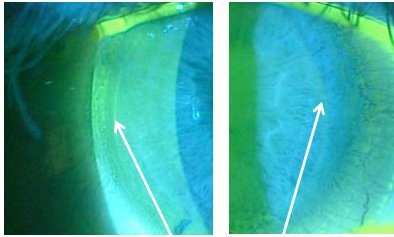


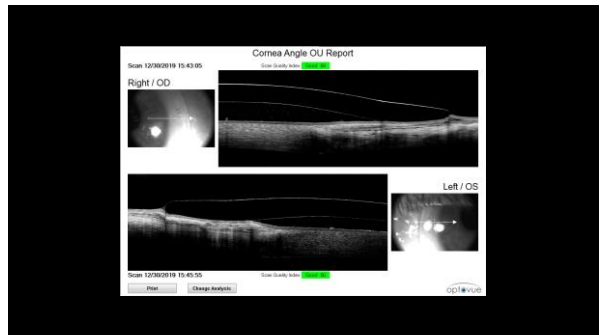
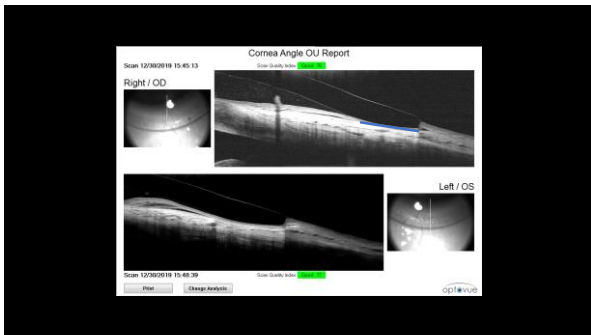
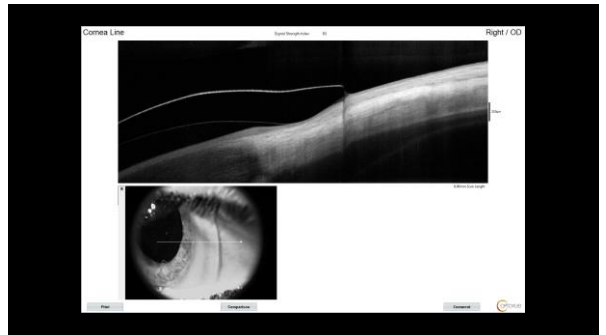
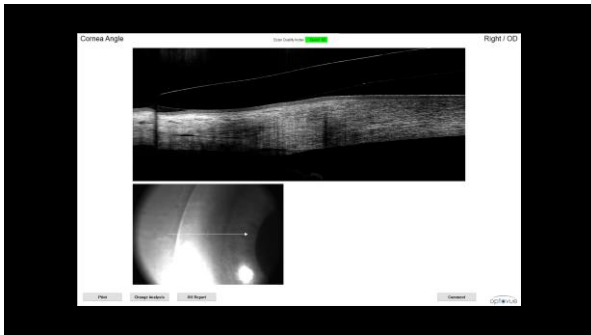
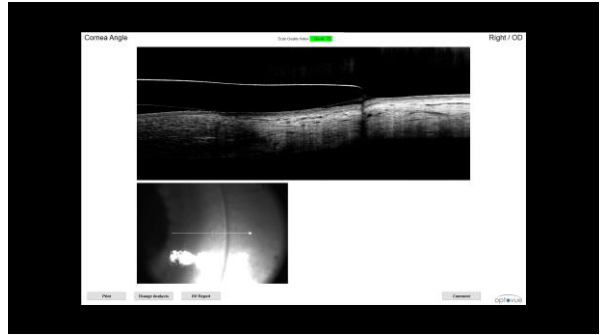
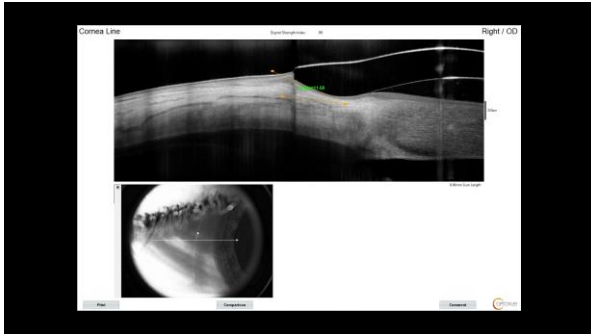
Pupil size

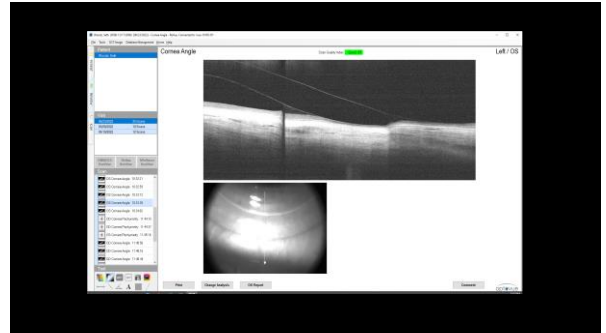
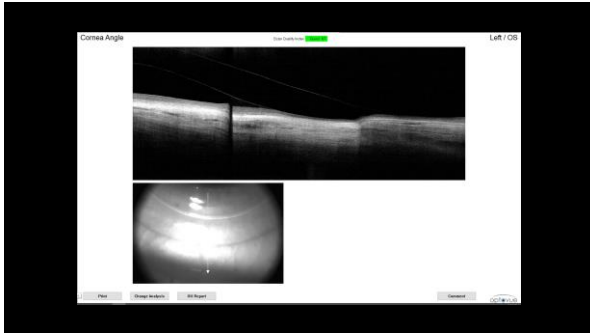


Limbal Impingement









Nutrifill®

Scleral, Hybrid, and Gas Permeable (GP) Lens Insertion Solution
Physiologic Formula

⊕ Electrolytes



US Patent No.: US 9,259,437 B2



Evaluation of Contact Lens Saline Solutions with Scleral GP Contact Lens Wearers Experiencing Fogging

- 36 subjects enrolled from three clinical sites (12 patients/site):
- Dr. Jeff Sonsino (Nashville, TN)
- Dr. Stephanie Woo (Lake Havasu, AZ)
- Dr. Mile Brujic (Bowling Green, OH)

Evaluation of Contact Lens Saline Solutions with Scleral GP Contact Lens Wearers Experiencing Fogging

- Existing scleral lens wearers
- Three visit study
- Patient randomized to either test product or control at visit #1
- Utilize for 2 weeks and is then seen for visit #2
- Patient utilizes other product for 2 weeks
- Patient is seen for visit #3

Evaluation of Contact Lens Saline Solutions with Scleral GP Contact Lens Wearers Experiencing Fogging

- TEST PRODUCT:
 - Sodium chloride, calcium chloride dehydrate, potassium chloride, sodium phosphate dibasic and magnesium chloride hexahydrate in purified water
- CONTROL PRODUCT 1:
 - 0.9% sodium chloride
- CONTROL PRODUCT 2:
 - Boric acid, sodium borate, and sodium chloride in purified water

Evaluation of Contact Lens Saline Solutions with Scleral GP Contact Lens Wearers Experiencing Fogging

- Age range (21 to 77 years old)
- Comfort scores were equal among the test and control products
- Number of hours worn (Test product 12.5 hrs, control 12.7 hrs; no difference)
- Number of hours of perceived comfort (test product 11.1 hrs, control product 11.3 hrs; no difference)
- Number of times contact lens was removed during day (no difference)
- Measured Visual Acuity (no difference)

	Test Product		Control #1		Control #2	
	N	Mean	N	Mean	N	Mean
Fogging	36	50%	16	50%	18	61%
MidDay_Cleaning	36	39%	17	41%	18	50%
Lens_Awareness	36	53%	17	71%	18	39%
Wetability	36	19%	18	28%	18	22%
SurfaceDeposit	36	22%	18	17%	18	11%
Centration	36	6%	18	0%	18	6%
Movement	36	8%	18	0%	18	11%

Evaluation of Contact Lens Saline Solutions with Scleral GP Contact Lens Wearers Experiencing Fogging

- Further questions:
- What is the objective hyperemic scores?
- What is the objective fogging of the post lens tear film reservoir?
- What is the effects on epithelial thickness after exposure to various formulations?

Scleral Lens Insertion



Scleral Lens Insertion



<https://www.seegreenlight.com/>

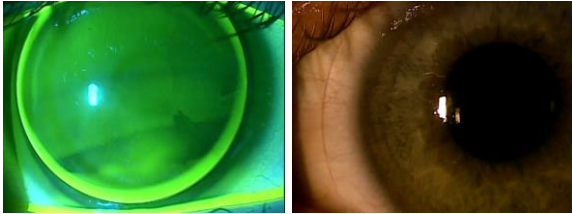
Scleral Lens Insertion



<https://augmentedvisionlabs.com/>



GP Lenses

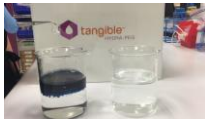


Tangible Hydra-PEG

- Polymer encapsulates lens
- Improves wettability
- Increases surface water retention
- Increases lubricity
- Reduces deposits

Tangible Hydra-PEG

Without Tangible Hydra-PEG



With Tangible Hydra-PEG



Lens Cleaning Regimen

Compatible Multi-Purpose Solutions

Compatible Peroxide Solutions



Tangible Hydra-PEG

- Cannot use abrasive cleaners
- Cannot use water to rinse lenses
- Tangible Boost
 - Will re-build the tangible coating on the lens

OPTIMUM
INFINITE

New high oxygen permeable material
Tisifilcon A
180 Dk

