

Hindsight is 20/20

the optometric year in review

Jacob Lang, OD FAAO

Mark Buboltz, OD FAAO

Jaclyn Garlich, OD FAAO

Roya Habibi, OD FAAO FSLs

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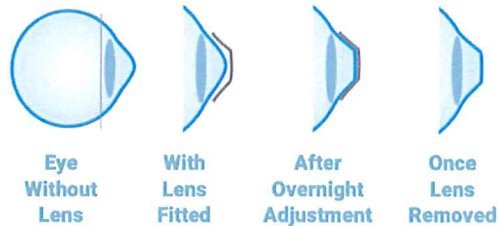
DISCLOSURE STATEMENT

Jacob Lang, OD FAAO -- Associated Eye Care, Stillwater, MN

- Speaker/Advisor for; Novartis, Sun Pharma, Allergan, Ocular Therapeutix, Orasis, AOS, and Horizon

CONTACT LENSES PREVENTING MYOPIA

Control with Orthokeratology



- Axial elongation 50% LESS



TIME: 90 seconds

MYOPIA CONTROL

MYOPIA DROPS

PRESBYOPIA DROPS

PRESBYOPIA INLAYS

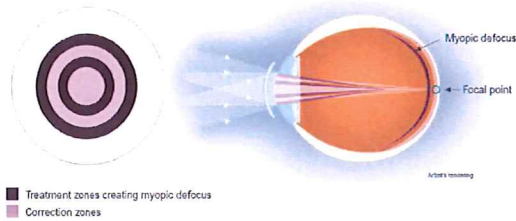
UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

CONTACT LENSES PREVENTING MYOPIA

Control with soft multifocal lenses



- Axial length change 52% LESS
- Spherical equivalent change 59% LESS

Chamberlain, et al *Optometry and Vis Sci* Aug 2019



TIME: 70 seconds

MYOPIA CONTROL

MYOPIA DROPS

PRESBYOPIA DROPS

PRESBYOPIA INLAYS

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

OR CAN DROPS PREVENT MYOPIA?

Micropine: Low dose atropine

- FDA accepted IND in February 2019
- Clinical trials?
 - Testing lower doses of atropine



TIME: 90 seconds

MYOPIA DROPS

PRESBYOPIA DROPS

PRESBYOPIA INLAYS

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

BYE BYE BIFOCALS

Presbyopia Treatment Drops

Miotic options:

- Orasis Pharmaceuticals - CSF-1
- Presbyopia Therapies - Liquid Vision
- Allergan - Presbysol

Restoring lens flexibility:

- Novartis - UNR844(EV06)



TIME: 90 seconds

PRESBYOPIA DROPS

PRESBYOPIA INLAYS

UPGRADED IOLs

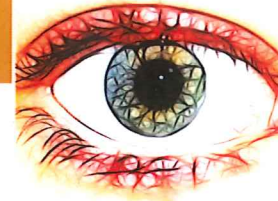
BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

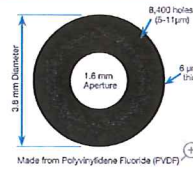
LOTE...MAX!

LAYING INTO PRESBYOPIA



Where are we with these?

Kamra



- Provides increased depth of focus in non-dominant eye by decreasing "pupil" size → modified monovision

RainDrop

- Provides asphericity to corneal shape centrally → multifocal inlay
- **RECALLED BY FDA 2019: Risk of corneal haze**

TIME: 90 seconds

PRESBYOPIA INLAYS

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

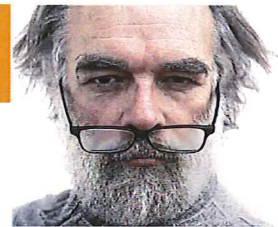
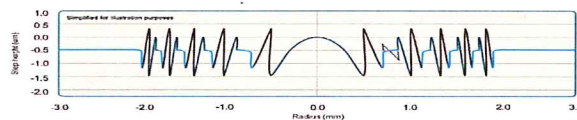
N.O. VYZULTA

ARE TRIFOCALS COOL AGAIN?

Upgraded Trifocal IOL: PanOptix, Alcon

- 88% "total light utilization"
- Less pupil size dependence
- Targets a "closer" intermediate range
- Increased depth of focus
- 99% would have the same lens implanted again!

50% distance, 25% intermediate (24"), 25% near (16")



TIME: 90 seconds

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

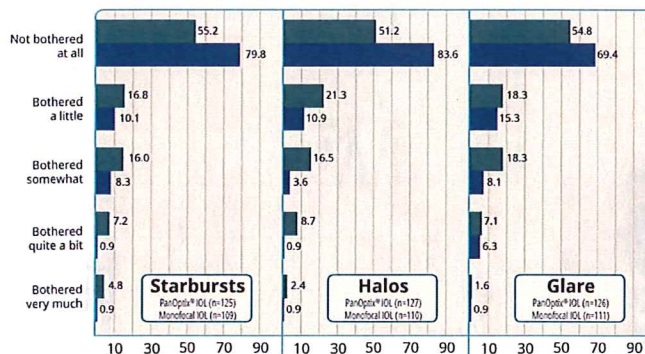
LOTE...MAX!

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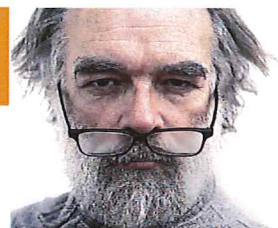
RHO-K FOR GLC

ARE TRIFOCALS COOL AGAIN?

PanOptix IOL v. Monofocal IOL



Carson D, et al. Optical bench performance of 3 trifocal intraocular lenses. J Cataract Refract Surg. 2016;42:1361-1367.
 Kohonen T, et al. Visual performance of a quadrifocal (trifocal) intraocular lens following removal of the crystalline lens. Am J Ophthalmol. 2017;184:52-62.
 Alcon Data on File.



TIME: 60 seconds

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

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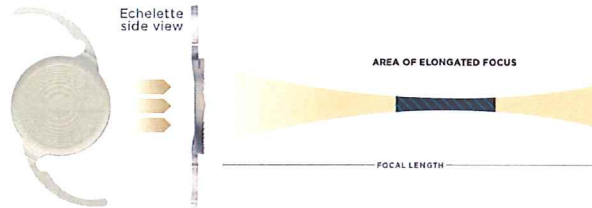
RHO-K FOR GLC

BITTER SWEET SYMFONY



Extended Range of Vision: Symfony, J&J

- Extended Depth of Focus (EDOF)
 - not splitting into distinct focal points, but extension
- 85% wear glasses “none or a little bit of the time”
- Continuous vision with high image contrast



TIME: 50 seconds

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

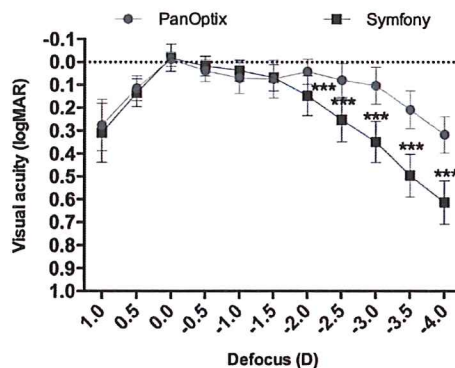
PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

FOCUS ON THE DEFOCUS



AcrySof IQ PanOptix Intraocular Lens Versus Extended Depth of Focus Intraocular Lens and Trifocal Intraocular Lens: A Clinical Overview. Ruchapalle Reddi, MD, MPH¹, Anindam Dey, MD, MBA, Shovan Bhattacharya, MBBS, MBA, and Amit Bahulayan, PhD. Asia Pac J Ophthalmol (Phila) 2018;8:335-349

A Comparative Evaluation of a New Generation of Diffractive Trifocal and Extended Depth of Focus Intraocular Lenses. Beatrice Cochener, MD, PhD, Guillaume Boullier, MD, Mathieu Lamard, PhD, Claire Aubergier-Zagnoli, MD. Journal of Refractive Surgery - Vol. 34, No. 8, 2018

Visual performance after bilateral implantation of 2 new presbyopia-correcting intraocular lenses: Trifocal versus extended range of vision. Gaspare Monaco, MD, Maniagela Gari, MD, Fabio Di Censo, MD, Andrea Poscia, MD, Giada Ruggi, Antonio Solalonde, MD. J Cataract Refract Surg 2017; 43:737-747. © 2017 ASCRS and ESCRS



TIME: 35 seconds

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

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RHO-K FOR GLC

ADJUSTING WITH THE SPEED OF LIGHT

Light Adjusting IOL Powers: RxLAL, RxSight

Photoreactive UV-absorbing silicone

- Allows for post-operative adjustments of IOL power with UV light
- Adjustments are made 3-5 days apart up to 3 times
- Finalized power “Locked In” 3-5 days after final adjustment

Limitations:

- FDA permits range of -2.00D to +2.00D under 2.00DC
- UV Protection



TIME: 25 seconds

UPGRADED IOLs

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

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RHO-K FOR GLC

WHICH IS THE BEST: MONO, MF, EDOF?

Monovision

Light Adjusting IOLs

PanOptix v. Symfony

- Best Near Vision Outcomes: PanOptix >> Symfony
- Contemplating Change Post-Op: Symfony fewest patients
- Distance Vision Outcomes: SAME
- Glare and Halos: SIMILAR



TIME: 90 seconds

BEST IOL REC

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

TAME THE FLAME

Dexamethasone 9% intraocular suspension

Dexycu, EyePoint

- Treatment of post-operative inflammation
- "Delayed release" injected steroid placed at end of surgery



TIME: 90 seconds

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

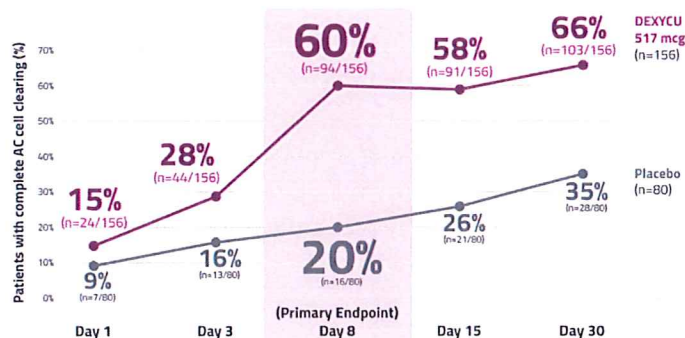
RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

TAME THE FLAME

Targeted anti-inflammatory: AC clearing



TIME: 70 seconds

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

TAME THE FLAME

	Placebo (n=80)	DEXYCU 517 mcg (n=339)
IOP increased	7 (8.8%)	39 (11.5%)
Corneal edema	8 (10.0%)	24 (7.1%)
Iritis	11 (13.8%)	17 (5.0%)
Anterior chamber inflammation	10 (12.5%)	9 (2.7%)
Eye pain	7 (8.8%)	7 (2.1%)

IOP=intraocular pressure.



TIME: 50 seconds

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

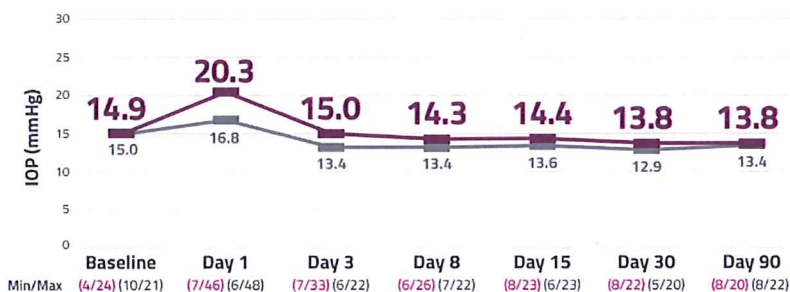
RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

TAME THE FLAME

Mean IOP from baseline to day 90



TIME: 20 seconds

DEXY-WHO IMPLANT

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

CAN PLUGS HELP COMPLIANCE?

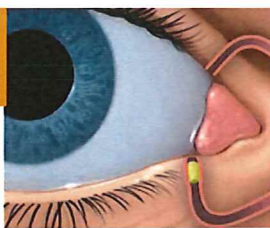
DEXTENZA: Put a plug in it!

What is it?

- Dexamethasone (0.4mg) insert that delivers medication to the ocular surface for up to 30 days

What does it do?

- Treatment of post-op pain and inflammation following ocular surgery



TIME: 90 seconds

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

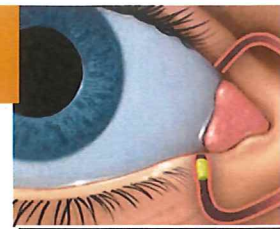
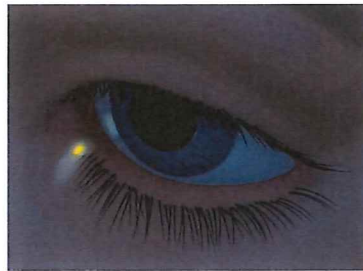
GOIN' TUBIN'

CAN PLUGS HELP COMPLIANCE?

DEXTENZA: Put a plug in it!

One size fits all?

- Swells to fit the canaliculus



TIME: 40 seconds

PLUGS ON STEROIDS

LOTE...MAX!

N.O. VYZULTA

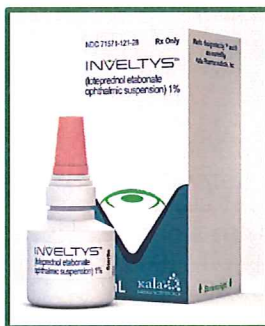
RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

DUELING LOTEPREDNOL



TIME: 90 seconds

LOTE...MAX!

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

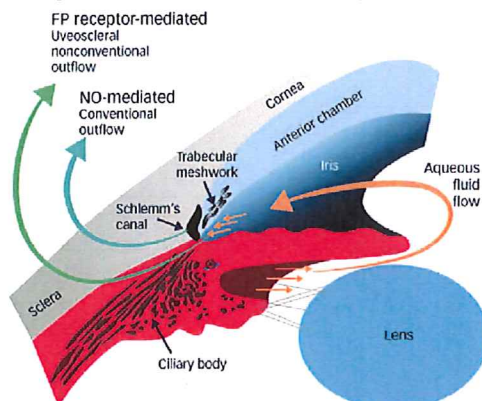
MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

DO YOU KNOW N.O.?

Vyzulta (latanoprostene bunod 0.024%)



TIME: 90 seconds

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

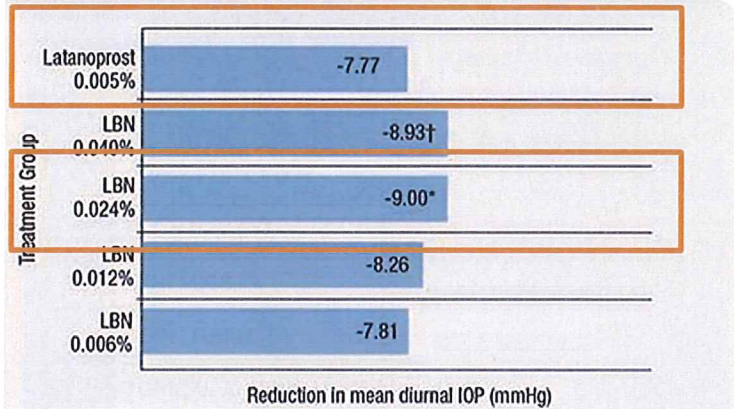
GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

DO YOU KNOW N.O.?

Efficacy: Latanoprostene Bunod vs. Latanoprost



TIME: 30 seconds

N.O. VYZULTA

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

LET IT RHO-K

Rho-Kinase Inhibitors:

Netarsudil 0.02%, Rhopressa, Aerie

- FDA approved 12/2017

Netarsudil 0.02% + **Latanoprost** 0.005%, Rocklatan, Aerie

- FDA Approved 3/2019



TIME: 90 seconds

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

RHO-K: NEW KID ON THE BLOCK

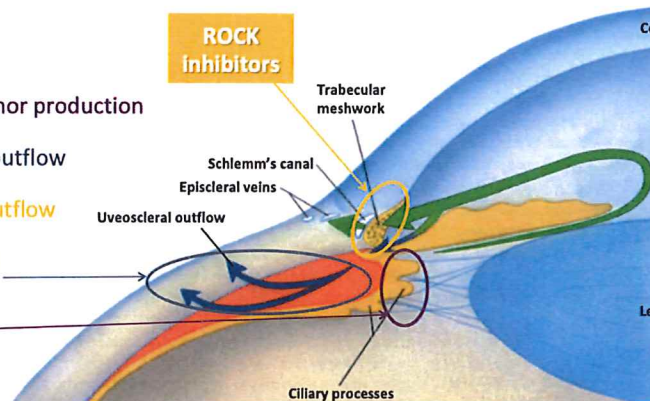
MOAs

↓ aqueous humor production

↑ uveoscleral outflow

↑ trabecular outflow

Prostaglandin analogs
Alpha agonists
Beta blockers
Alpha agonists
CAIs



TIME: 65 seconds

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

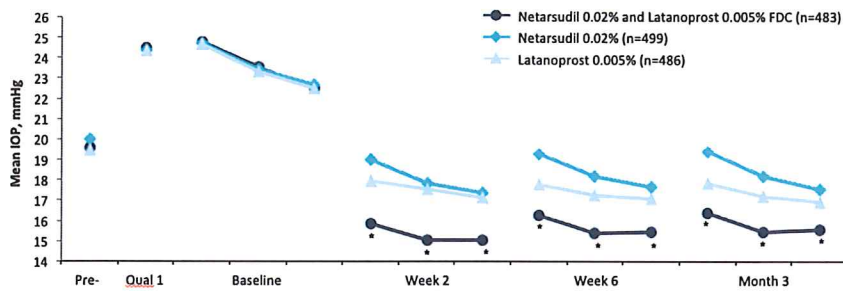
TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

ROCK IS GREATER THAN RHO

QD ROCKLATAN > QD RHOPRESSA or QD LATANOPROST



TIME: 50 seconds

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

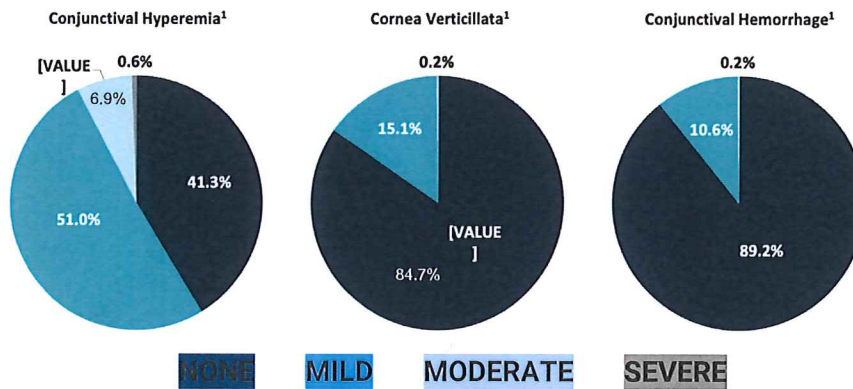
TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

CAN ANYTHING BE PERFECT?

Severity of Most Frequent Ocular Adverse Events



TIME: 25 seconds

RHO-K FOR GLC

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

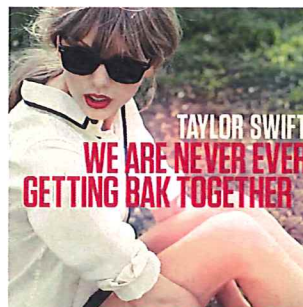
CYCLOSPORINE 2.0

GLC + DRY EYE: BACK OFF BAK!

Xelpros (latanoprost ophthalmic emulsion) 0.005%

Only BAK-free latanoprost (potassium sorbate as preservative)

Xelpros[™]
(latanoprost ophthalmic emulsion) 0.005%



TIME: 90 seconds

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

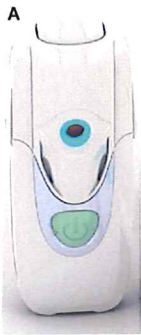
MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

GLC + DRY EYE: LET'S MICRODOSE!

Let's use tiny drops that shoot out of the bottle really fast!



Microdosing of **0.4 µg** of 0.005% latanoprost

- Achieve IOP reduction same as normal drop
- **75% reduced exposure** to drugs and preservatives
- Delivers drugs in less than **80 ms**
 - Faster than 100ms eye reflex



TIME: 60 seconds

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

GLC + DRY EYE: LET'S INJECT IT!

Bimatoprost SR (Sustained Release)

- 30% IOP ↓ over 12 weeks
- 80% of patients on no additional drops over 9 month study
- Phase 3 Complete: awaiting FDA approval



2 weeks

9 months



TIME: 30 seconds

GLC v DRY EYE

MINI MIGS

GOIN' TUBIN'

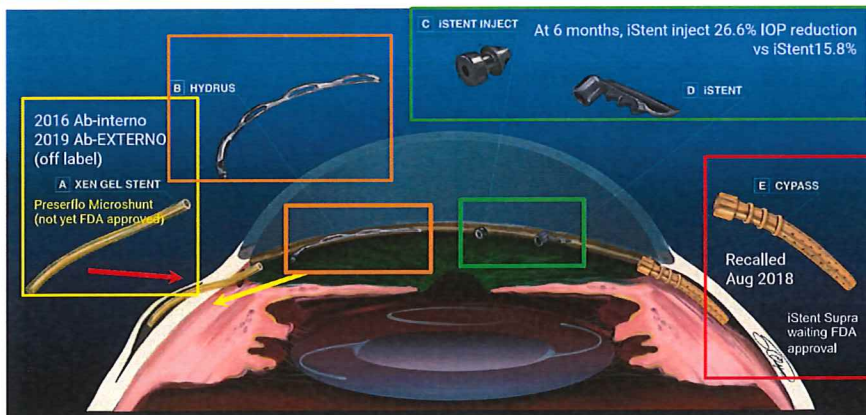
TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

EVEN MORE MI-MIGS



MINI MIGS

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

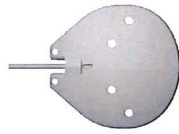
CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

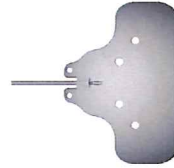
TED TREATMENT

A NEW VALVELESS TUBE SHUNT

Ahmed
ClearPath

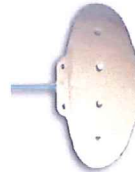


250mm



350mm

Baerveldt
Glaucoma
Implant



TIME: 90 seconds

GOIN' TUBIN'

TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

TED TREATMENT

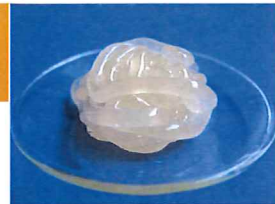
GENERIC ASEDS

A NEW TOPICAL ANTIVIRAL

Acyclovir Ophthalmic Ointment 3% (Avaclyr, Fera)

- FDA approved April 2019
- Increases option for herpetic eye disease
- *Still not commercially available*

Zirgan v. Avaclyr v. Viroptic?



TIME: 90 seconds

TOPICAL ANTIVIRAL

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

TED TREATMENT

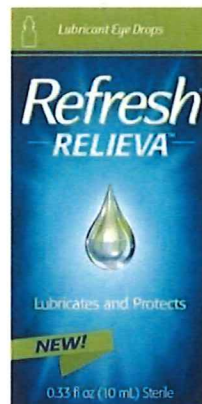
GENERIC ASEDS

EYE SPRAY

ADDING MORE CONFUSION TO THE TEAR AISLE...

Refresh Relieva by Allergan

- Works on hyperosmotic tears
 - Contains osmoprotectants
- What is tear osmolarity?



TIME: 90 seconds

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

TED TREATMENT

GENERIC ASEDS

EYE SPRAY

THE PULSE

ADDING MORE CONFUSION TO THE TEAR AISLE...

Systane Complete by Alcon

Systane Complete= Ultra + Balance

- Works on all layers of the tear film
- Nano droplets to minimize blur



TIME: 35 seconds

MORE TEARS

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

TED TREATMENT

GENERIC ASEds

EYE SPRAY

THE PULSE

MORE CYCLOSPORINE = MORE BETTER?

Is more cyclosporine better?

Restasis = 0.05%

Cequa = 0.09%

Klarity C = 0.1%



TIME: 90 seconds

CYCLOSPORINE 2.0

NGF ULTIMATE HEALER

TED TREATMENT

GENERIC ASEds

EYE SPRAY

THE PULSE

MGD DEVICES

WE'VE BOTTLED "NERVE GROWTH FACTOR"

Oxervate (cenegermin), Dompé Pharmaceuticals

- FDA approved for Neurotrophic keratitis
 - Stimulate nerve healing and growth
- Future Implications?
 - Current trials for treating dry eye disease, retinitis pigmentosa + glaucoma



TIME: 90 seconds

NGF ULTIMATE HEALER

TED TREATMENT

GENERIC ASEds

EYE SPRAY

THE PULSE

MGD DEVICES

NEW CONTACTS

"TED" TALKS

Teprotumumab: Treatment for *active* TED

- Fully human monoclonal antibody inhibitor of IGF-1R
- *Mechanism of Action*
 - Blocks IGF-1R and turns off signaling complex at the source of disease
- *Treatment Outcomes*
 - Reduces **inflammation, proptosis and diplopia**
 - Improves **QOL** related to visual functioning and psychosocial as a consequence of **appearance**
- Currently at FDA review, decision expected by March 2020



TIME: 90 seconds

TED TREATMENT

GENERIC ASEDS

EYE SPRAY

THE PULSE

MGD DEVICES

NEW CONTACTS

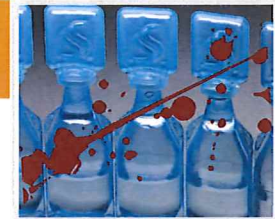
PSA: DAILIES WIN

COMING SOON: SERUM DROPS TO CVS

Generic Autologous (err... ALLOGENIC) Serum Eye Drops

Elate Ocular: Phase 2 for allogenic serum drops

- Shelf-stable; no refrigeration needed
- Sourcing serum from healthy young donors
 - Avoid elevated proinflammatory cytokine levels from active autoimmune diseases
- Removal of fibrinogen (platelets clotting agent)



TIME: 90 seconds

GENERIC ASEDS

EYE SPRAY

THE PULSE

MGD DEVICES

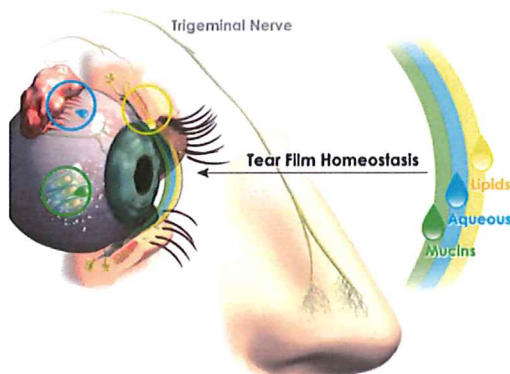
NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

NASAL SPRAY TO TREAT DRY EYE DISEASE

Oyster Point Pharmaceuticals Creating OC-01



TIME: 90 seconds

EYE SPRAY

THE PULSE

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

NASAL SPRAY TO TREAT DRY EYE DISEASE

OC-01 as Treatment for Dry Eye

- Mechanism of Action:
 - Selective nicotinic acetylcholine receptor agonist
 - Activates the trigeminal parasympathetic pathway to promote natural tear film production
- Preservative-free nasal spray
- Current status:
 - STAY TUNED



TIME: 45 seconds

EYE SPRAY

THE PULSE

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

IPL GAINING STREET CRED

Statistically significant improvement in *refractory* dry eye:

- SPEED score
- NITBUT + TBUT
- Lid margin abnormalities
- Meibum grade
- Fluorescein staining

Arita, R, et al *Cornea* 2018



TIME: 90 seconds

THE PULSE

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

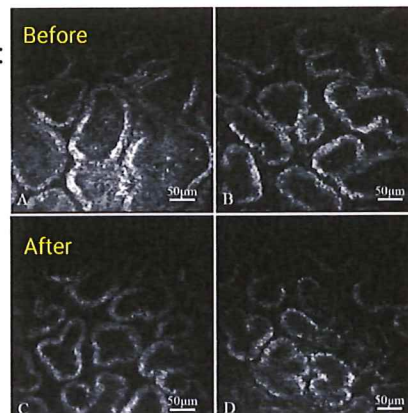
LONG LASHES: GOOD?

TECH FOR AMD

IPL GAINING STREET CRED

IPL improves Meibomian Gland:

- Function
- Macrostructure
- Microstructure
- Inflammatory mediators



TIME: 45 seconds

THE PULSE

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

Yin, et al *Current Eye Research* 2018

TOPLINE HAMMERS FOR MGD



TIME: 90 seconds

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

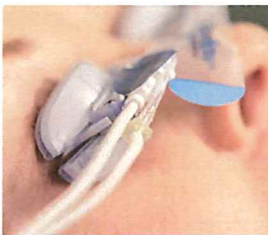
LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

TOPLINE HAMMERS FOR MGD

LipiFlow



- FDA approved
- Protect cornea/globe from heat/pressure
- Improve mean MG secretions
- Reduce mean SPEED scores to half pre-procedure levels



TIME: 85 seconds

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

TOPLINE HAMMERS FOR MGD

iLux



- 2019 Medical Design Excellence Award Gold Winner
- Direct visualization of meibomian gland orifices and expressed meibum
- DEEP Program



TIME: 60 seconds

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

TOPLINE HAMMERS FOR MGD

TearCare



- Open-eyed procedure that allows blinking and natural meibum expression
- Closed-loop thermal monitoring system
- TEaM Program



TIME: 30 seconds

MGD DEVICES

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

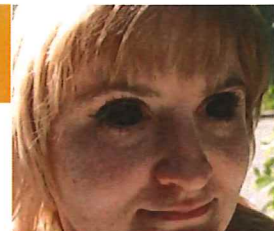
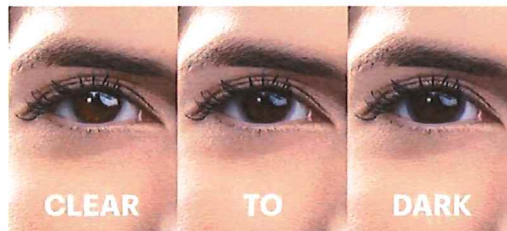
TECH FOR AMD

FAZ ON OCT-A

LET'S TALK NEW CONTACTS

Oasys with Transitions by J&J

- Time Magazine innovation of the year in 2018
- 30 second activation, 90 second deactivation
- Filters 15% of indoor light, 70% of outdoor light



TIME: 90 seconds

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

LET'S TALK NEW CONTACTS

Precision1 by Alcon

- SMARTSURFACE technology
- Microthin layer of moisture on the surface
- Over 80% water
- Class 1 UV blocker



TIME: 45 seconds

NEW CONTACTS

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

AGE OLD QUESTION: WHO'S THE BEST?

Daily disposable v Reusable

Hydrogel v Silicone Hydrogel

Study Findings

- Tear function tests Shirmers, tear break up time
- Inflammatory cytokines IL-6, IL-8, IL-17A
- Matrix metalloproteinase levels MMP-9
- Impression cytology

Ersin, et al *Cornea* May 2019



TIME: 90 seconds

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

EYEBOX

PSA: DAILY DISPOSABLES ARE THE BEST

Conclusion

DAILY DISPOSABLE CTLs cause

LESS DAMAGE to the ocular surface and

LESS INCREASE in proinflammatory levels



TIME: 20 seconds

PSA: DAILIES WIN

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

EYEBOX

IS YOUR MAKEUP FDA APPROVED?

June 25, 1938

	STANDARDS	NO STANDARDS
FOOD	X	
DRUGS	X	
DRINKING WATER	X	
PESTICIDES	X	
CARS	X	
TOYS	X	
ELECTRONICS	X	
TOBACCO	X	
COSMETICS		X



TIME: 90 seconds

EYE MAKEUP SAFETY

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

EYEBOX

VR IS REAL

MUST HAVE LENGTHY LASHES

Are lash serums good or evil for eyes?

Active ingredient = prostaglandin analog

- Side effects: redness, irritation, puffy eyes, ocular inflammation, foreign body sensation, ocular pruritus

Swedish Medical Product Agency 2012



TIME: 90 seconds

LONG LASHES: GOOD?

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

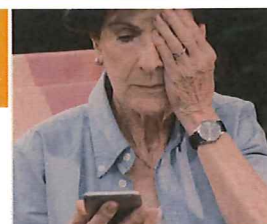
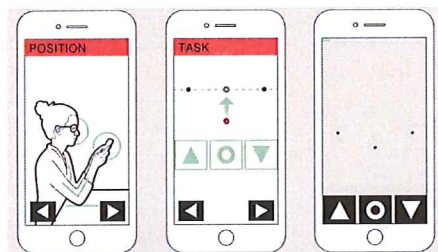
EYEBOX

VR IS REAL

CAN YOUR PHONE SAVE YOUR VISION?

Alley: Application to Monitor your AMD

- FDA approved in 2018
- Tests central vision using vernier acuity
- Doctor becomes an "authorized reseller"



TIME: 90 seconds

TECH FOR AMD

FAZ ON OCT-A

AI FOR DR

EYEBOX

VR IS REAL

OCT-A DIAGNOSING EARLY ALZHEIMER'S



Biomarker-positive
Alzheimer's patients vs
control

Foveal avascular zone \uparrow

Inner foveal thickness \downarrow



TIME: 90 seconds

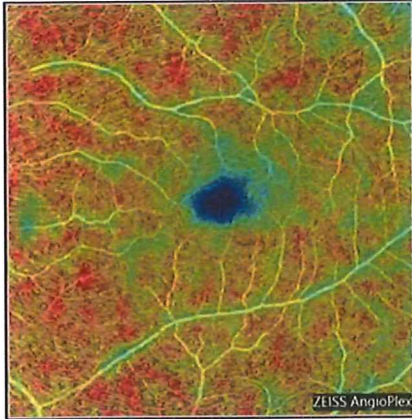
FAZ ON OCT-A

AI FOR DR

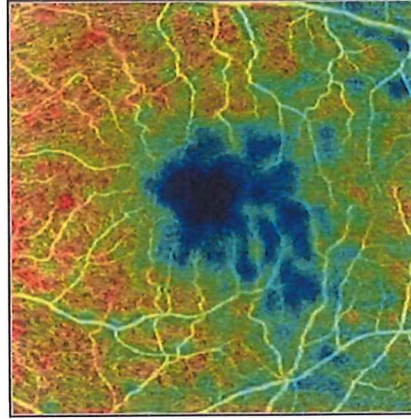
EYEBOX

VR IS REAL

DON'T FORGET OCT-A



cognitively healthy adult



adult with Alzheimer's disease



TIME: 45 seconds

FAZ ON OCT-A

AI FOR DR

EYEBOX

VR IS REAL

CAN COMPUTERS DIAGNOSE DIABETES?

IDx-DR: Artificial Intelligence for Diabetic Retinopathy

- FDA approved in 2018
 - AI analyzes fundus photos to determine if diabetic retinopathy is present
- Is it accurate?
 - More than mild retinopathy = 87%
 - Less than mild retinopathy = 89.5%
- Prerequisites for use
 - Must be over 22 and not previously diagnosed with retinopathy



TIME: 90 seconds

AI FOR DR

EYEBOX

VR IS REAL

CAN WE DIAGNOSE CONCUSSIONS?

EyeBOX can!



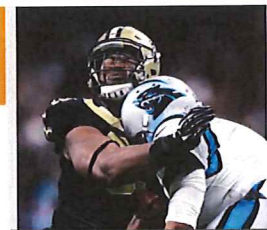
FDA approved for diagnosis

Patient watches 4 minute video

- Software analyzes their eye tracking

Provides scored report

- Used to monitor improvement over time



TIME: 90 seconds

EyeBOX

VR IS REAL

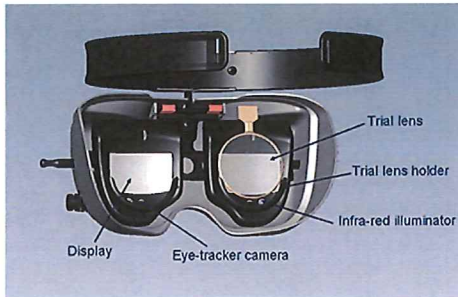
VIRTUAL REALITY IS THE REAL DEAL



TIME: 90 seconds

VR IS REAL

5+ software platforms available or in development



Vivid Vision

BioFormatrix's VirtualEye
Perimeter (pictured)

MicroMedical Devices'
PalmScan VF2000

Elisar's eCloud Perimeter

nGoggle

THANK YOU FOR YOUR ATTENTION

Jacob Lang, OD FAAO: drjakelang@gmail.com

Mark Buboltz, OD FAAO: mark.buboltz@gmail.com

Jaclyn Garlich, OD FAAO: jaclyngarlich@gmail.com

Roya Habibi, OD FAAO FSLs: rnhabibi@gmail.com