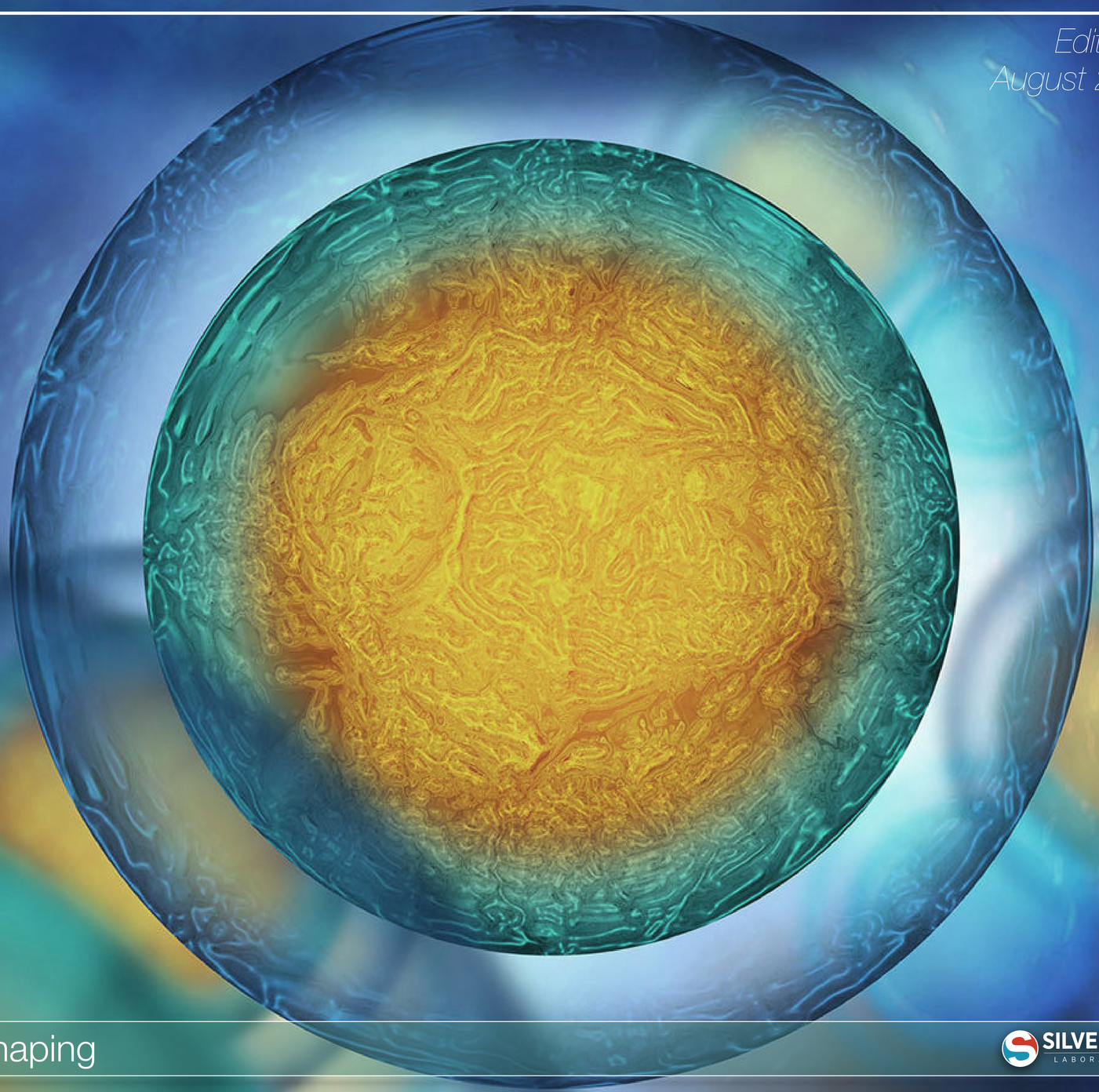
McAsfeer*
KeratoGenius
Custom Medical Device
ORTHOKERATOLOGY

Edition 1
August 2025



ORTHOKERATOLOGY

Understanding the Art & Science of Corneal Reshaping

SILVER LINE
LABORATORIES

McAsfeer*

KeratoGenius Custom Medical Device

ORTHOKERATOLOGY



Safe and reversible myopia correction while you sleep.

- ## WHAT IS ORTHO K LENS ?

  “Corneal Refractive Therapy is the modern, non-surgical, therapeutic process of wearing a specially designed contact lens to reshape the cornea”. Swarbrick et al., 2006

- ## ABOUT KERATOGENIUS ORTHO-K CONTACT LENS

  KeratoGenius Ortho-K lenses are specially designed advanced multi-curve reverse geometry rigid gas permeable (RGP) lenses that temporarily reshape the corneal epithelial layer to correct myopia and astigmatism upto -4.00 Cyl. Ideal for overnight wear, these lenses offer a safe, effective, and non-surgical solution for myopia control (reduce myopia progression), particularly for children and adolescents.

PARAMETER INCLUDES	
MYOPIA ≤ -10.00D	ASTIGMATISM ≤ -4.00D

- ## ORTHOKERATOLOGY

  "Ortho" is Latin for Straight and "Keratology" is the science of altering the shape of the cornea.

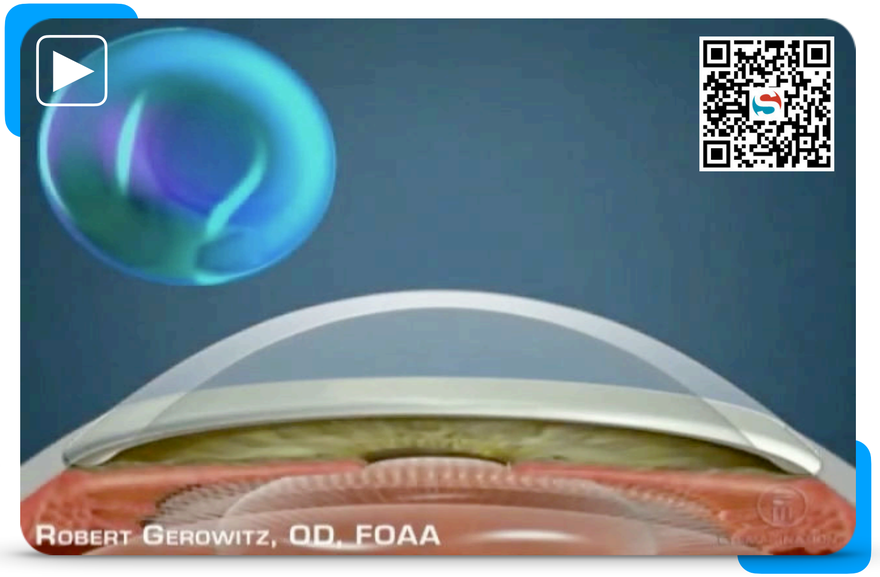
- ## HOW DOES ORTHO K LENS CONTROLS MYOPIA ?

  By adjusting a patients's corneal curvature, we can temporarily correct their refractive error and eliminate the need of glasses and daytime contact lenses also control / slow down myopia progression.

- ## HOW DOES ORTHO K LENS WORKS ?

  Positive (Push) Force applied from flat Base Curve relative to corneal Curvature

  Negative (Pull) Force from the areas of relief in the Reverse Zone.



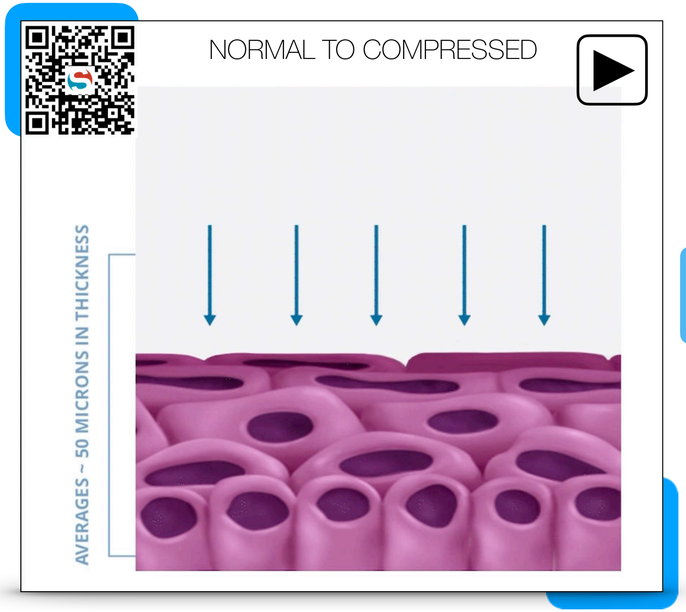
- ## ORTHO K LENS IMPACT ON CORNEAL ANATOMY !!

  - Overnight orthokeratology treatment affects the epithelial layer of the cornea.
  - The central epithelial cells are compressed, causing fluid to move from central areas of compression to surrounding areas of relief at the mid-periphery.

Video Credit: Dr.Robert Gerowitz, OD, FOAA

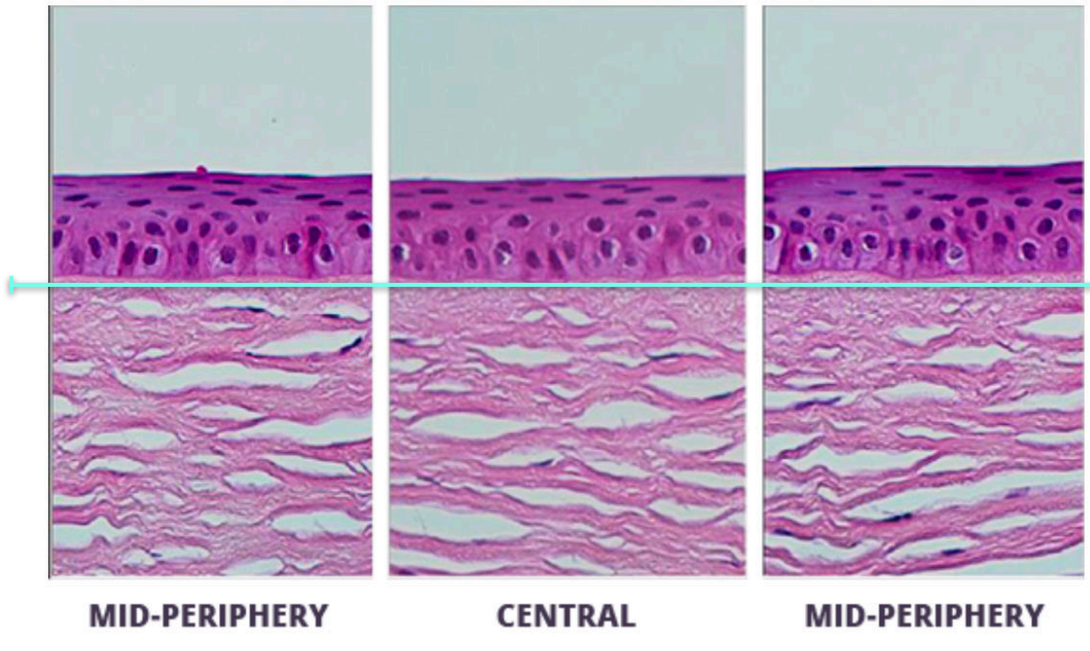
Epithelial cells themselves are not redistributed and there is no change in the number of cells.

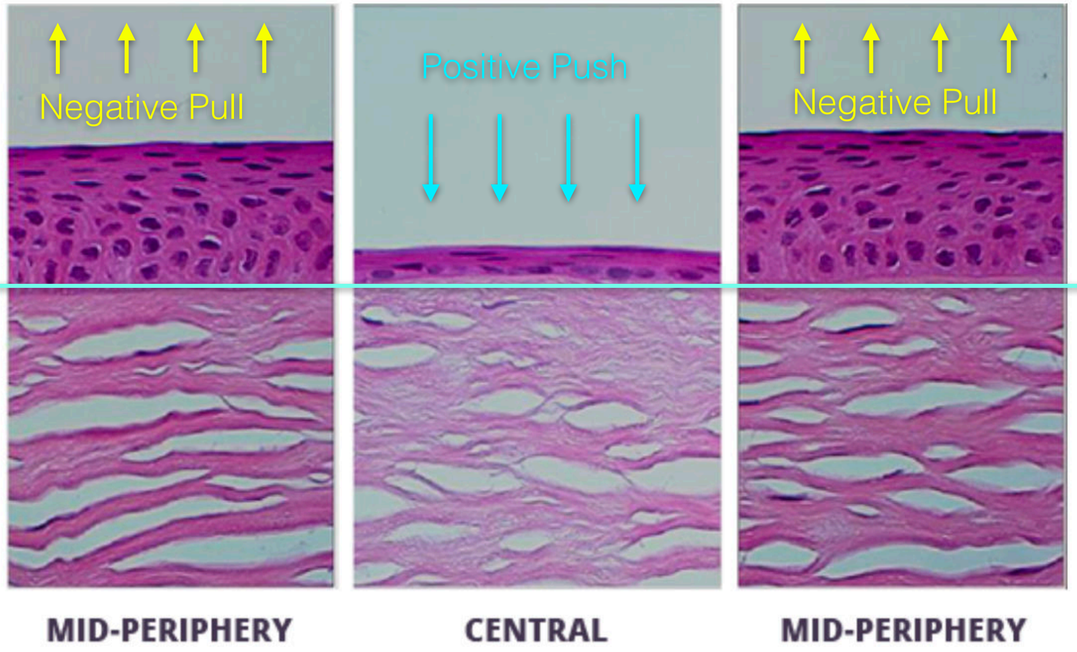
Alharbi. Swarbrick. et al. 2003



✶ REDISTRIBUTION OF CELLULAR FLUID

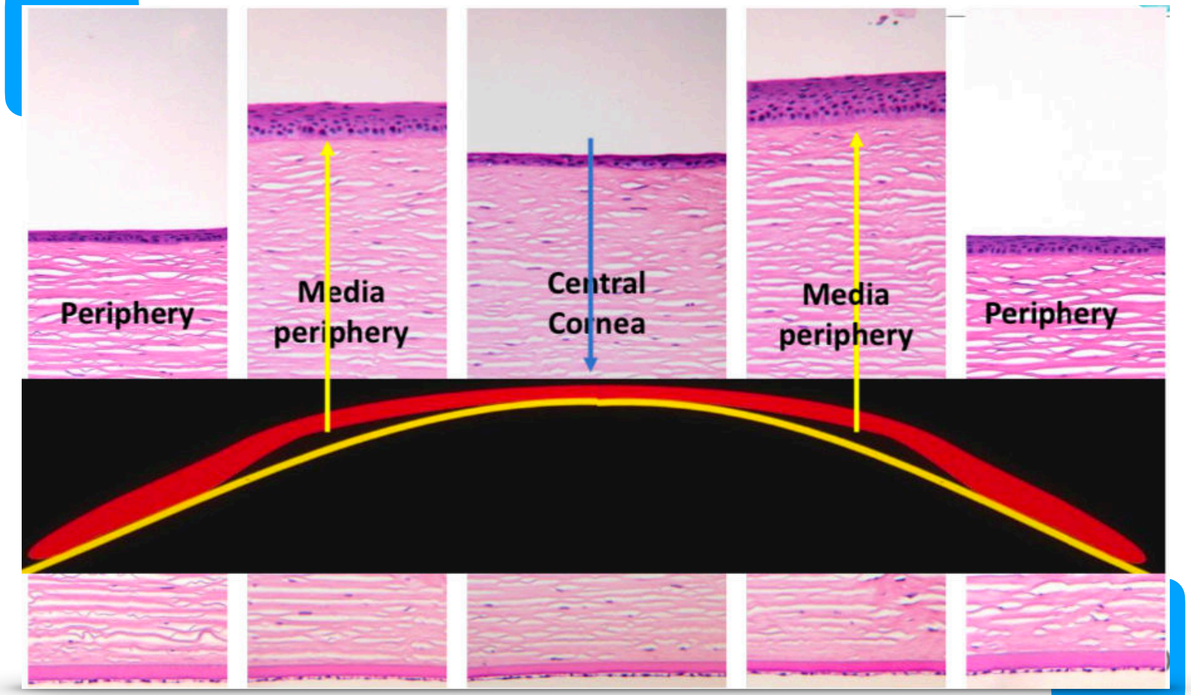
When the lenses are fit correctly, fluid is transferred from the central areas of compression to the surrounding areas of relief due to the unequal tear volume under the lens. This reduces the curvature of the cornea in the areas of compression and increases the corneal curvature in the mid-periphery.





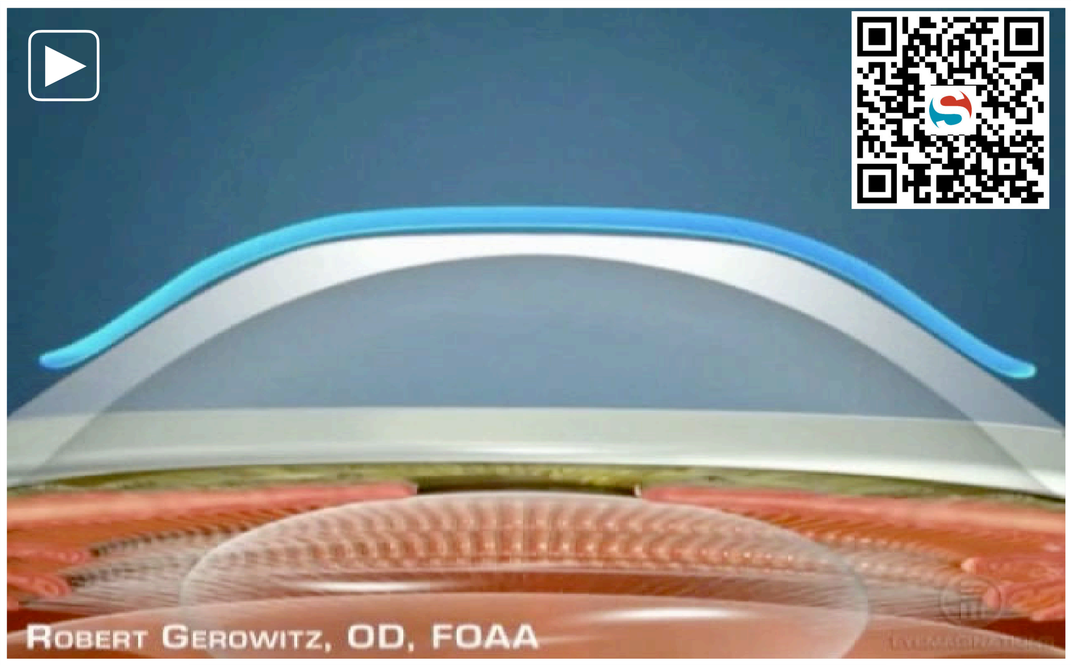
Choo, Caroline, et., 2008

REDISTRIBUTION OF CELLULAR FLUID



If Ortho K Contact Lenses are discontinued.

ORTHO K LENS THERAPY IS TEMPORARY AND REVERSIBLE



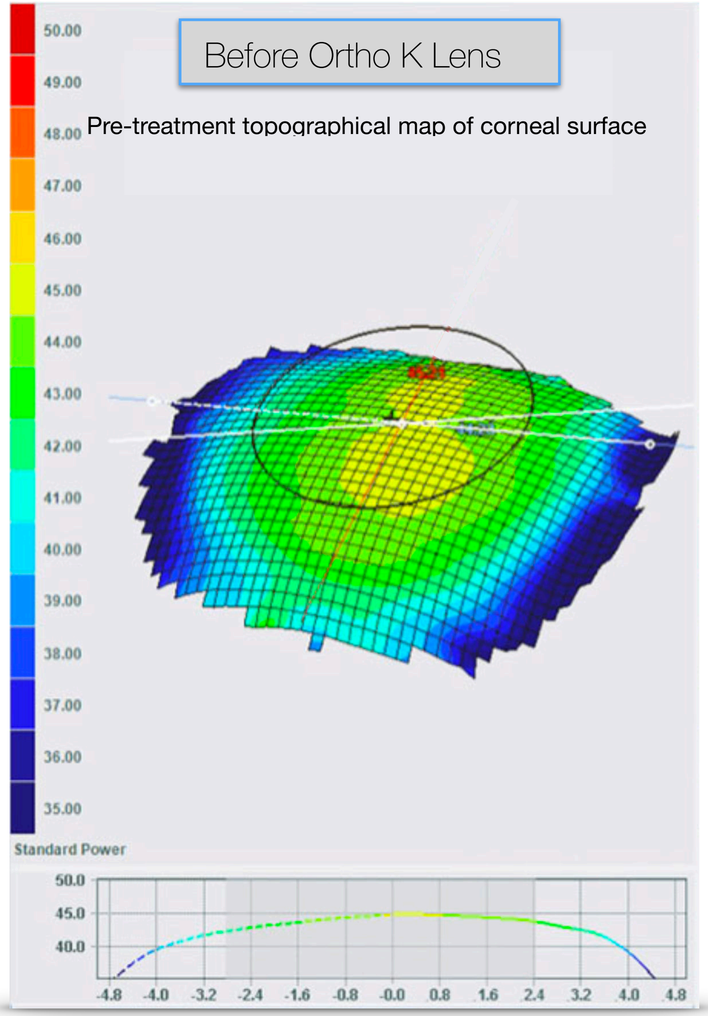
The fluids reverse their course and the epithelium reverts to its original uniform shape and thickness.

Cho P et al. Contact Lens and Anterior Eye. Volume 31, Number 1, Feb 2008

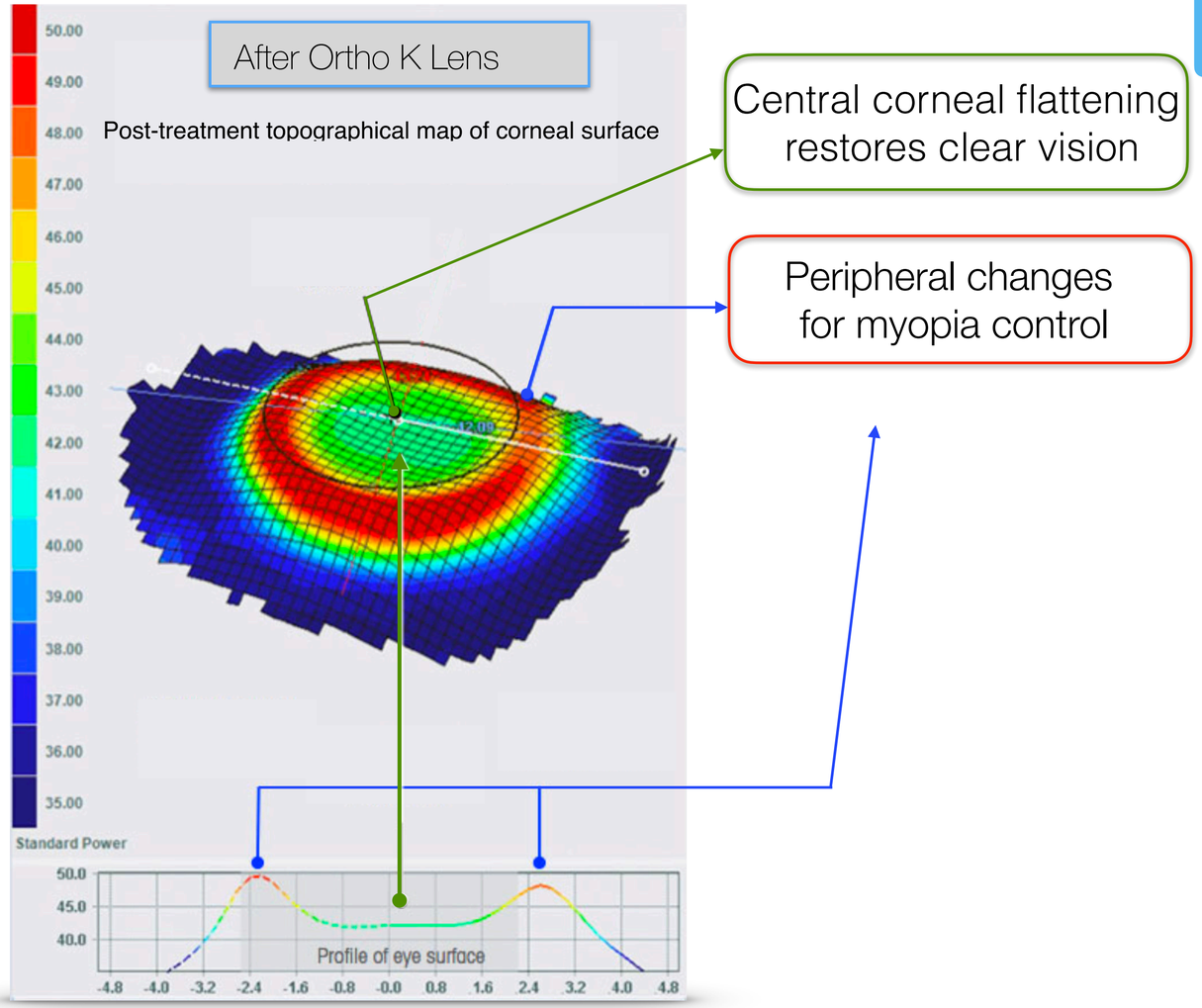
Video Credit: Robert Gerowitz, OD, FOAA

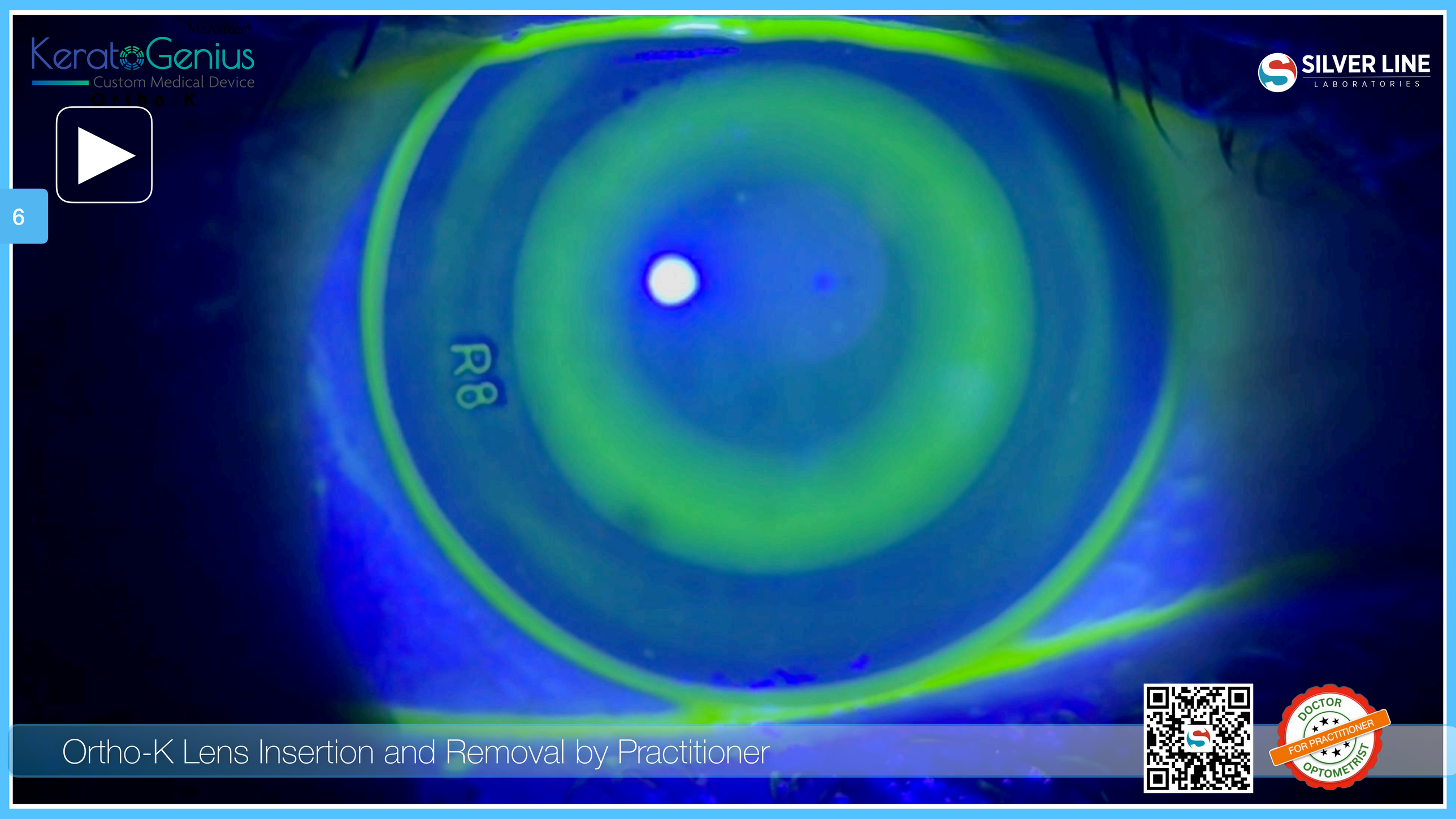
● HOW WOULD BE CORNEAL TOPOGRAPHY MAP POST THERAPY ?

✶ CORNEL EPITHELIUM PRIOR TO ORTHOKERATOLOGY LENS WEAR



✶ CORNEL EPITHELIUM DURING ORTHOKERATOLOGY LENS WEAR





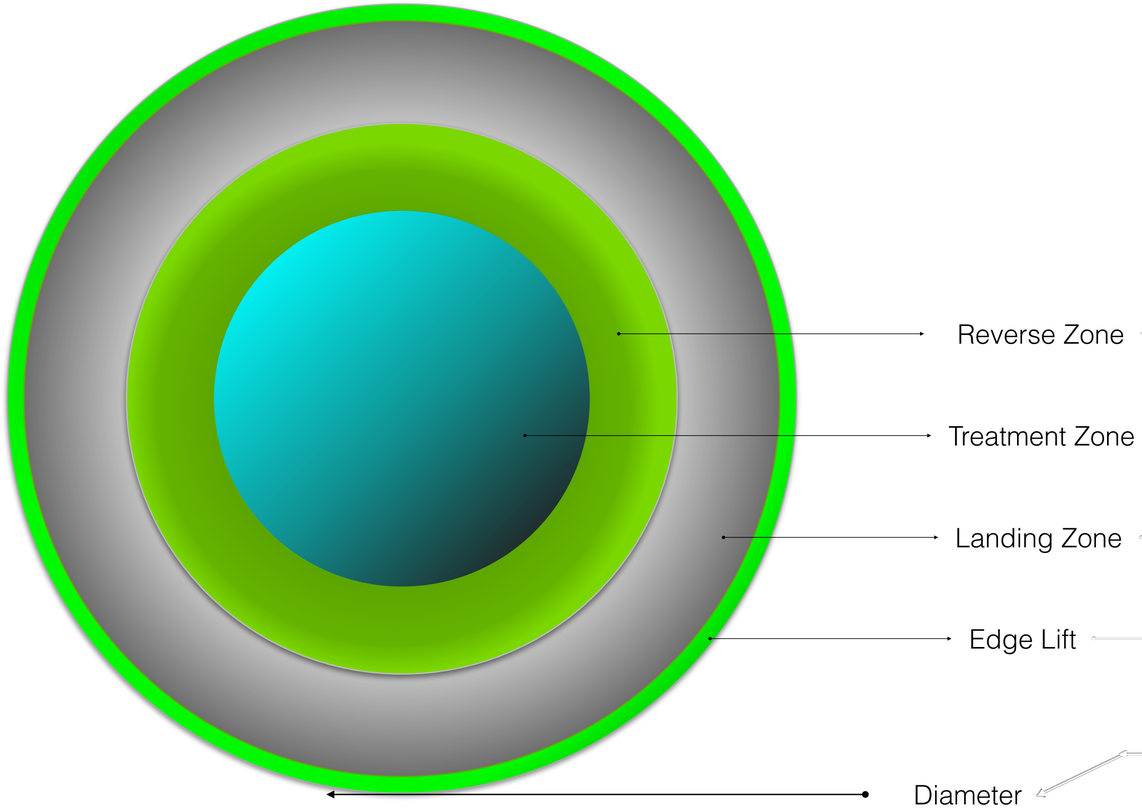
Ortho-K Lens Insertion and Removal by Practitioner

Fitting Flow Chart
For Practitioners

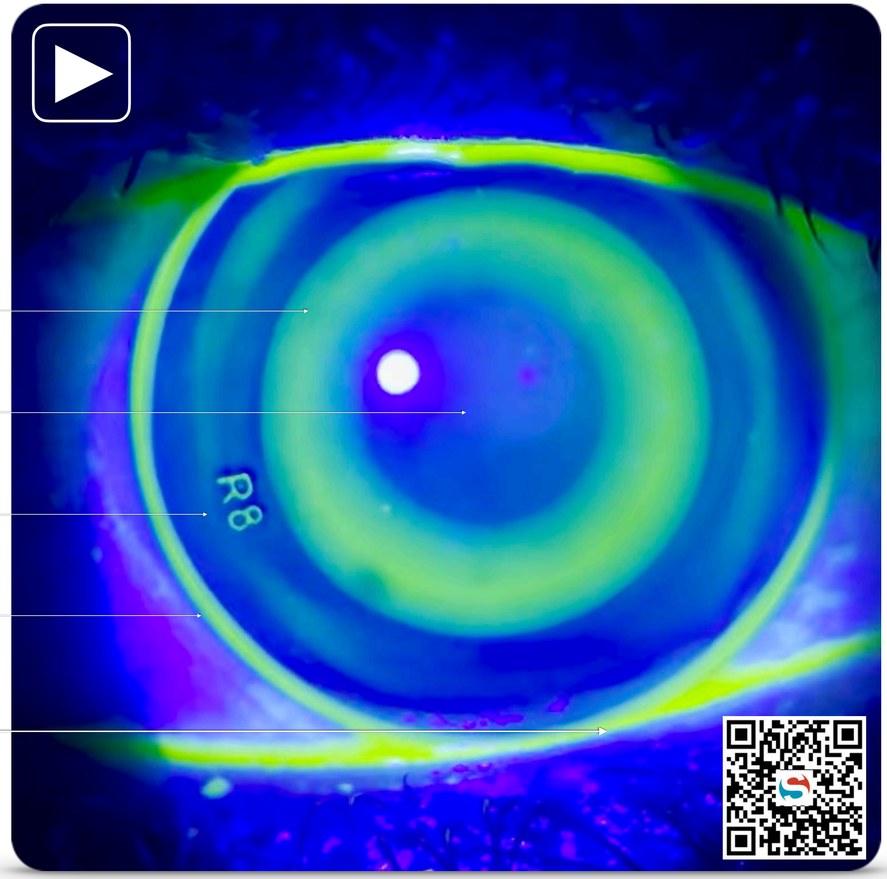
ORTHO K
RIGID LENS

Different Zone Description
Animated & Static View

Animated diagram stating different zones



Fluo. Pattern of Ortho K lens on the eye



Fitting Flow Chart
For Practitioners

ORTHO K
RIGID LENS

Step 1 Lens Placement

- Apply a drop of paracain (topical anaesthetic).
- Place the clean lens on the eye, filled with a drop of saline.



Step 2 Dynamic Fitting Assessment

- Check for lens centeration and there should not be any trapped air bubble underneath the lens.
- Check for lens surface wetting, there should not be any dry spots on the lens surface.
- Check over the lens acceptance. Change the lens to achieve target refraction - Plano (00.00)

RIGHT EYE	Plano
LEFT EYE	Plano

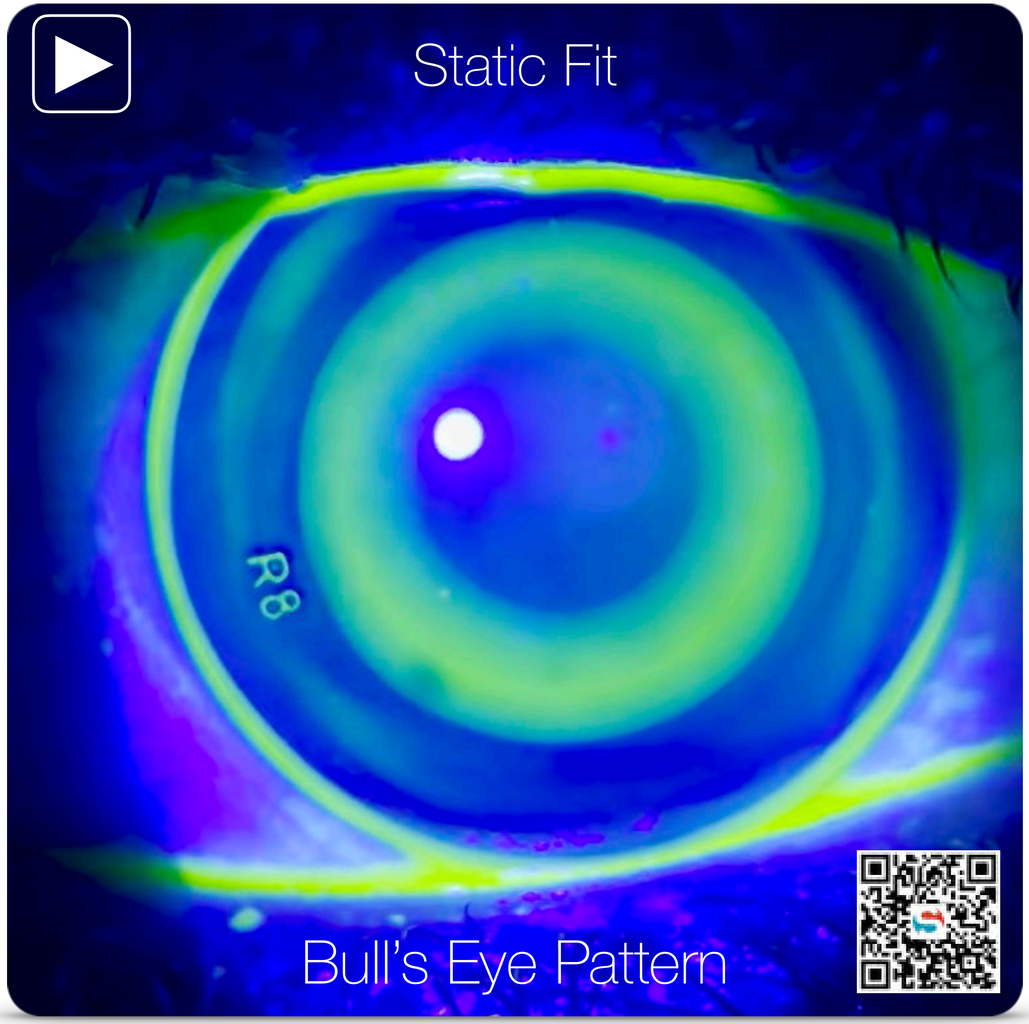
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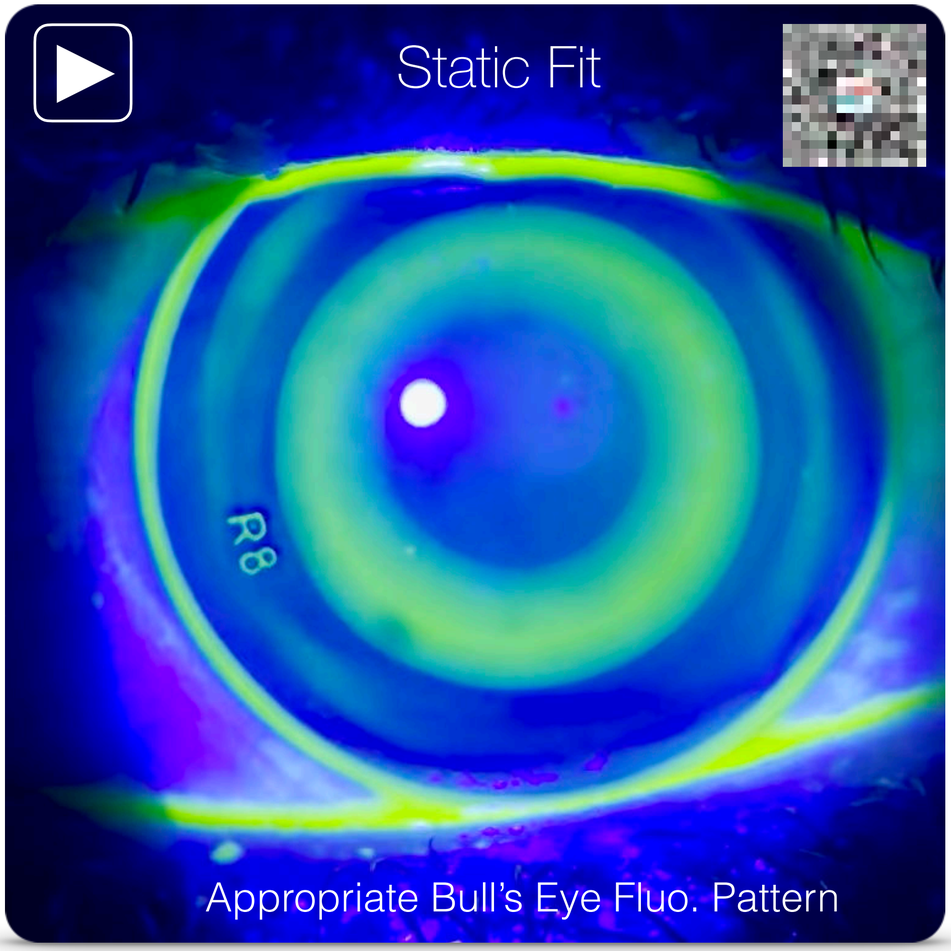
Step 3 Static Fitting Assessment

- Apply fluorescein approx. 20 micron, just a dot at superior fornix. (do not use any lubricant to moist the fluo. Strip).
- Asses the fitting under defused blue cobalt light on the slit lamp.
- Check or change the lens until achieve appropriate bull's eye fluo. pattern.

Treatment Zone (Approx.)	5.00 mm
Return Zone (Approx.)	1.00 mm
Edge Lift (Approx.)	0.5 mm




Dynamic Fit
Well Centered Lens with Adequate Movement


Static Fit
R8
Appropriate Bull's Eye Fluo. Pattern

Step 4 Refraction Post Lens Removal

- Check the cornea for any epithelial defect or spk's Under blue cobalt light with fluo.
- Remove the lens and apply a drop of lubricant.
- Check uni-ocular vision for distance and near.

RIGHT EYE	Plano
LEFT EYE	+0.25DS/ -0.25DC * 180°

Step 5 Lens Dispensing

- Provide several practice sessions for lens insertion and removal.
- Share and teach all the important aspects for lens cleaning, maintains and lens storage.
- Share all the important tips and tricks to maintain the lens and lens case hygiene.

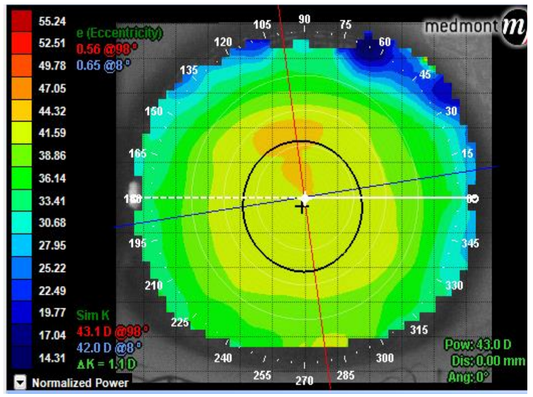
Step 5 Followup First Morning

- Check the cornea for any epithelial defect or spk's Under blue cobalt light with fluo.
- Check uni-ocular vision for distance and near.
- Change the fitting / lens incase of not acceptable vision or corneal health.

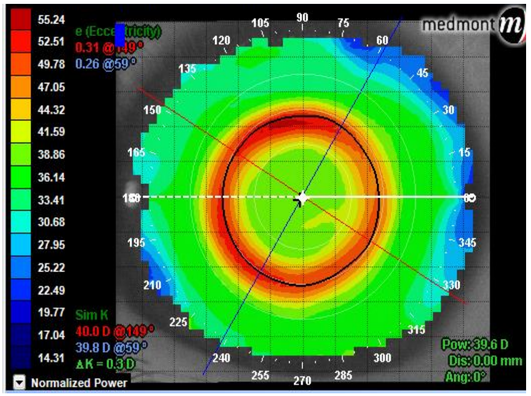
Step 6 Followup First Week

- Check for Topography after visual and ocular assessment.

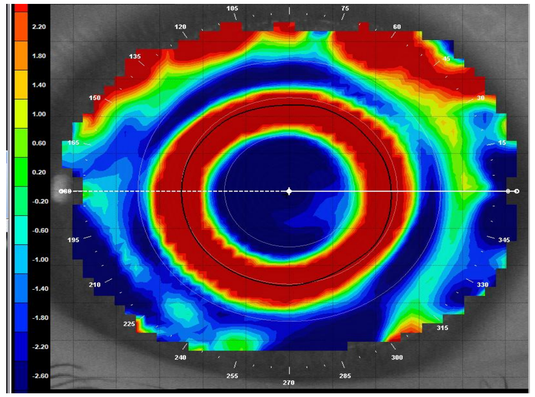
Initial Map (1st visit)



Post treatment Map (1week)



Differential Map



This map shows the amount of Power correction

Selection Of First Trial Lens

Spherical Lens

Empirical Fitting

Selection Of First Trial Lens
Spherical Lens

Empirical Fitting

Using a patient's manifest refraction and keratometry values, a Final Lens can be calculated Empirically.

Trial Lens Base Curve	Mean K Values	(KH -7.71 & KV -7.55) 7.63mm	BC : 7.63mm
Trial Lens Power	Manifest Refraction - Calculate for Spherical Equivalent	(-4.50/-1.00x30*) -5.00D Sph.	Power : -5.00
Trial Lens Diameter	HVID - 1. Trial Lens Dia. 1mm smaller than HVID	(HVID -12.20 - 1 =) 11.20mm	Dia : 11.20mm

Calculate these parameters according to base curve and power calculation Table no. 01, on Page No.16.

Final Lens Parameters - R 8

BC :8.82mm

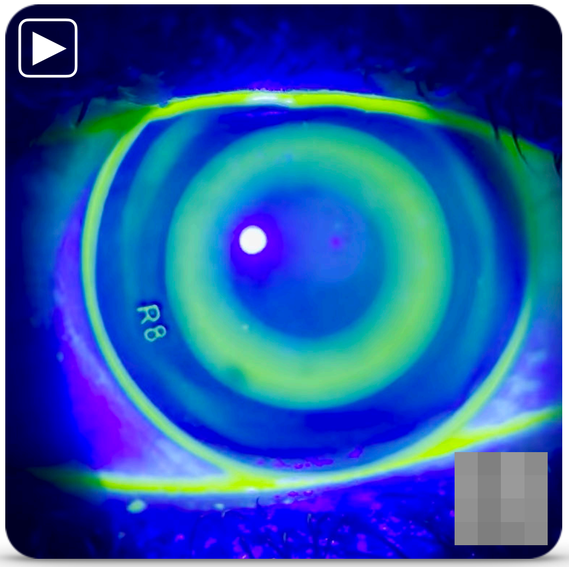
Power : +1.25

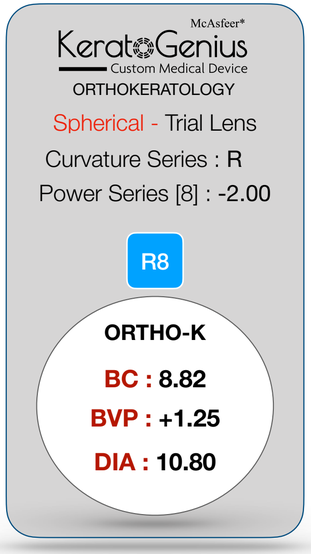
Dia : 10.80mm

Final lens parameters according to base curve and power calculation table.

Marking On The Lens - R 8

- Alphabets (K Value)
- Series (Power)





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Base Curve And Power Calculations Table For Spherical

Table N0. 01					Power Series																
CURVATURE					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
					-1.00	-1.50	-2.00	-2.50	-3.00	-3.50	-4.00	-4.50	-5.00	-5.50	-6.00	-6.50	-7.00	-7.50	-8.00	-8.50	-9.00	-9.50	-10.00
A	11.20mm	39.87~40.11	8.44	40.00	8.94	9.05	9.17	9.29	9.41	9.54	9.66	9.79	9.92	10.28	10.42	10.56	10.70	10.85	10.99	11.14	11.30	11.45	11.61
B		40.12~40.36	8.39	40.25	8.88	8.99	9.11	9.23	9.35	9.47	9.59	9.72	9.85	10.20	10.34	10.47	10.62	10.76	10.90	11.05	11.20	11.36	11.51
C		40.37~40.66	8.33	40.50	8.82	8.93	9.05	9.17	9.28	9.40	9.53	9.65	9.77	10.12	10.26	10.39	10.53	10.67	10.82	10.96	11.11	11.26	11.41
D		40.67~40.86	8.28	40.75	8.76	8.87	8.99	9.10	9.22	9.34	9.46	9.58	9.70	10.05	10.18	10.31	10.45	10.59	10.73	10.87	11.02	11.17	11.32
E		40.87~41.11	8.23	41.00	8.71	8.82	8.93	9.04	9.16	9.27	9.39	9.51	9.63	9.97	10.10	10.24	10.37	10.51	10.65	10.79	10.93	11.08	11.22
F		41.12~41.36	8.18	41.25	8.65	8.76	8.87	8.98	9.10	9.21	9.33	9.45	9.57	9.90	10.03	10.16	10.29	10.43	10.56	10.70	10.84	10.99	11.13
G		41.37~41.66	8.13	41.50	8.60	8.70	8.81	8.92	9.04	9.15	9.26	9.38	9.50	9.83	9.96	10.08	10.21	10.35	10.48	10.62	10.76	10.90	11.04
H		41.67~41.86	8.08	41.75	8.54	8.65	8.75	8.87	8.98	9.09	9.20	9.32	9.43	9.76	9.88	10.01	10.14	10.27	10.40	10.53	10.67	10.81	10.95
I		41.87~42.11	8.04	42.00	8.49	8.59	8.70	8.81	8.92	9.03	9.14	9.25	9.37	9.69	9.81	9.94	10.06	10.19	10.32	10.45	10.59	10.72	10.86
J		42.12~42.36	7.99	42.25	8.44	8.54	8.64	8.75	8.86	8.97	9.08	9.19	9.30	9.62	9.74	9.86	9.99	10.11	10.24	10.37	10.50	10.64	10.78
K	11.00mm	42.37~42.66	7.94	42.50	8.38	8.48	8.59	8.69	8.80	8.91	9.02	9.13	9.24	9.55	9.67	9.79	9.91	10.04	10.17	10.29	10.42	10.56	10.69
L		42.67~42.86	7.89	42.75	8.33	8.43	8.53	8.64	8.74	8.85	8.96	9.07	9.18	9.48	9.60	9.72	9.84	9.96	10.09	10.21	10.34	10.47	10.61
M		42.87~43.11	7.85	43.00	8.28	8.38	8.48	8.58	8.69	8.79	8.90	9.00	9.11	9.42	9.53	9.65	9.77	9.89	10.01	10.14	10.26	10.39	10.52
N		43.12~43.36	7.80	43.25	8.23	8.33	8.43	8.53	8.63	8.73	8.84	8.95	9.05	9.35	9.47	9.58	9.70	9.82	9.94	10.06	10.19	10.31	10.44
O		43.37~43.66	7.76	43.50	8.18	8.28	8.37	8.48	8.58	8.68	8.78	8.89	8.99	9.29	9.40	9.52	9.63	9.75	9.87	9.99	10.11	10.24	10.36
P		43.67~43.86	7.71	43.75	8.13	8.23	8.32	8.42	8.52	8.62	8.73	8.83	8.93	9.22	9.34	9.45	9.56	9.68	9.80	9.91	10.04	10.16	10.28
Q	10.80mm	43.87~44.11	7.67	44.00	8.08	8.18	8.27	8.37	8.47	8.57	8.67	8.77	8.87	9.16	9.27	9.38	9.50	9.61	9.73	9.84	9.96	10.08	10.21
R		44.12~44.36	7.63	44.25	8.03	8.13	8.22	8.32	8.42	8.51	8.61	8.71	8.82	9.10	9.21	9.32	9.43	9.54	9.66	9.77	9.89	10.01	10.13
S		44.37~44.66	7.58	44.50	7.99	8.08	8.17	8.27	8.36	8.46	8.56	8.66	8.76	9.04	9.15	9.25	9.36	9.48	9.59	9.70	9.82	9.94	10.05
T		44.67~44.86	7.54	44.75	7.94	8.03	8.12	8.22	8.31	8.41	8.51	8.60	8.70	8.98	9.08	9.19	9.30	9.41	9.52	9.63	9.75	9.86	9.98
U		44.87~45.11	7.50	45.00	7.89	7.98	8.07	8.17	8.26	8.36	8.45	8.55	8.65	8.92	9.02	9.13	9.24	9.34	9.45	9.56	9.68	9.79	9.91
V		45.12~45.36	7.46	45.25	7.85	7.94	8.03	8.12	8.21	8.30	8.40	8.49	8.59	8.86	8.96	9.07	9.17	9.28	9.39	9.50	9.61	9.72	9.83
W		45.37~45.66	7.42	45.50	7.80	7.89	7.98	8.07	8.16	8.25	8.35	8.44	8.54	8.80	8.91	9.01	9.11	9.22	9.32	9.43	9.54	9.65	9.76
X		45.67~45.86	7.38	45.75	7.76	7.84	7.93	8.02	8.11	8.20	8.30	8.39	8.48	8.75	8.85	8.95	9.05	9.15	9.26		9.36	9.58	9.69
Y		45.87~46.11	7.34	46.00	7.71	7.80	7.89	7.97	8.06	8.15	8.25	8.34	8.43	8.69	8.79	8.89	8.99	9.09	9.20	9.30	9.41	9.52	9.62
Z		46.12~46.36	7.30	46.25	7.67	7.75	7.84	7.93	8.02	8.11	8.20	8.29	8.38	8.63	8.73	8.83	8.93	9.03	9.13	9.24	9.34	9.45	9.56
ZA		46.37~46.66	7.26	46.50	7.63	7.71	7.79	7.88	7.97	8.06	8.15	8.24	8.33	8.58	8.68	8.77	8.87	8.97	9.07	9.17	9.28	9.38	9.49
ZB		46.67~46.86	7.22	46.75	7.58	7.67	7.75	7.84	7.92	8.01	8.10	8.19	8.28	8.52	8.62	8.72	8.81	8.91	9.01	9.11	9.21	9.32	9.42
ZC		46.87~47.11	7.18	47.00	7.54	7.62	7.71	7.79	7.88	7.96	8.05	8.14	8.23	8.47	8.57	8.66	8.76	8.85	8.95	9.05	9.15	9.25	9.36
ZD		47.12~47.36	7.14	47.25	7.50	7.58	7.66	7.75	7.83	7.92	8.00	8.09	8.18	8.42	8.51	8.61	8.70	8.80	8.89	8.99	9.09	9.19	9.29
ZE		47.37~47.66	7.11	47.50	7.46	7.54	7.62	7.70	7.79	7.87	7.95	8.04	8.13	8.37	8.46	8.55	8.64	8.74	8.84	8.93	9.03	9.13	9.23

Selection Of First Trial Lens
Astigmatism [Toric] Lens

Empirical Fitting

Using a patient's manifest refraction and keratometry values, a Final Lens can be calculated Empirically.

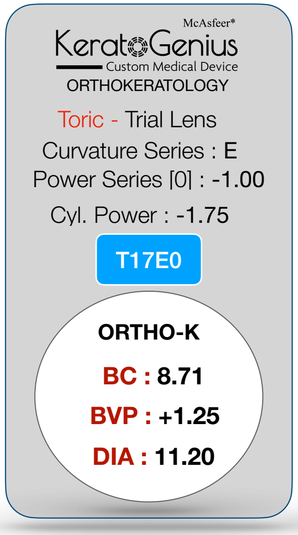
Trial Lens Base Curve	Flat K Values	(41.00 D) - 8.23mm	BC : 8.71mm
Trial Lens Power	Manifest Refraction	-1.00 / -1.75 x 180*	Power : -1.00
Trial Lens Diameter	HVID - 1. Trial Lens Dia. 1mm smaller than HVID	HVID -12.20 - 1 = 11.20mm	Dia : 11.20mm

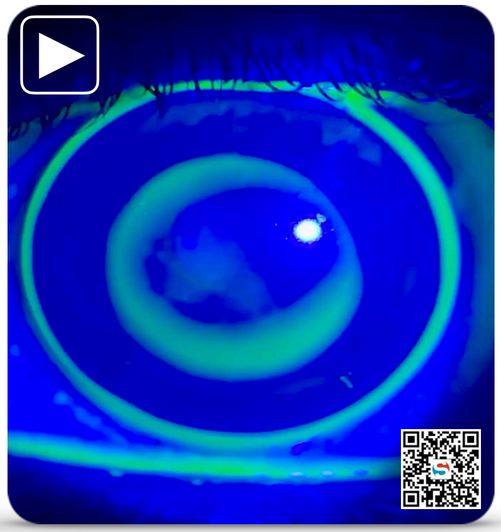
Calculate these parameters according to base curve and power calculation Table no. 02, on Page No.18.

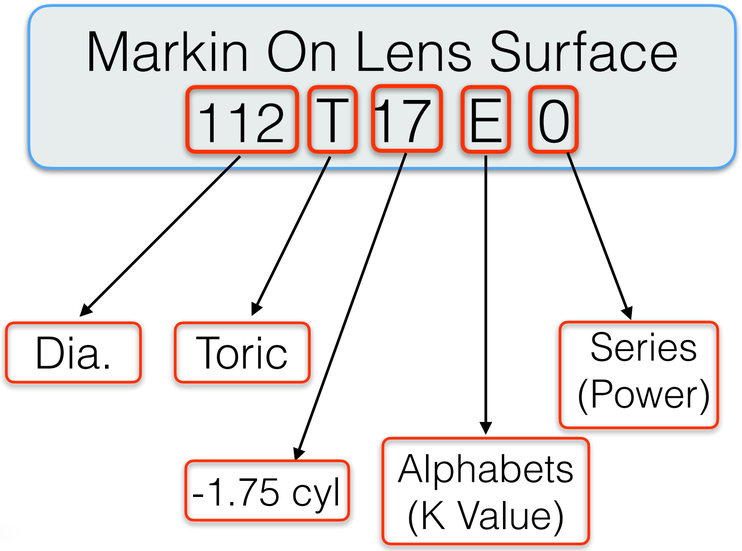
Final Lens Parameters - T17 E0

TORIC : -1.75

Final lens parameters according to base curve and power calculation table.







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SILVER LINE LABORATORIES

TORIC : -1.75 | TORIC : -2.50 | TORIC : -3.25

Base Curve And Power Calculations Table For Toric

Table N0. 02					Power Series																
CURVATURE					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
					-1.00	-1.50	-2.00	-2.50	-3.00	-3.50	-4.00	-4.50	-5.00	-5.50	-6.00	-6.50	-7.00	-7.50	-8.00	-8.50	-9.00	-9.50	-10.00
A	11.20mm	39.87~40.11	8.44	40.00	8.94	9.05	9.17	9.29	9.41	9.54	9.66	9.79	9.92	10.28	10.42	10.56	10.70	10.85	10.99	11.14	11.30	11.45	11.61
C		40.37~40.66	8.33	40.50	8.82	8.93	9.05	9.17	9.28	9.40	9.53	9.65	9.77	10.12	10.26	10.39	10.53	10.67	10.82	10.96	11.11	11.26	11.41
E		40.87~41.11	8.23	41.00	8.71	8.82	8.93	9.04	9.16	9.27	9.39	9.51	9.63	9.97	10.10	10.24	10.37	10.51	10.65	10.79	10.93	11.08	11.22
G		41.37~41.66	8.13	41.50	8.60	8.70	8.81	8.92	9.04	9.15	9.26	9.38	9.50	9.83	9.96	10.08	10.21	10.35	10.48	10.62	10.76	10.90	11.04
I		41.87~42.11	8.04	42.00	8.49	8.59	8.70	8.81	8.92	9.03	9.14	9.25	9.37	9.69	9.81	9.94	10.06	10.19	10.32	10.45	10.59	10.72	10.86
K	11.00mm	42.37~42.66	7.94	42.50	8.38	8.48	8.59	8.69	8.80	8.91	9.02	9.13	9.24	9.55	9.67	9.79	9.91	10.04	10.17	10.29	10.42	10.56	10.69
M		42.87~43.11	7.85	43.00	8.28	8.38	8.48	8.58	8.69	8.79	8.90	9.00	9.11	9.42	9.53	9.65	9.77	9.89	10.01	10.14	10.26	10.39	10.52
O		43.37~43.66	7.76	43.50	8.18	8.28	8.37	8.48	8.58	8.68	8.78	8.89	8.99	9.29	9.40	9.52	9.63	9.75	9.87	9.99	10.11	10.24	10.36
Q	10.80mm	43.87~44.11	7.67	44.00	8.08	8.18	8.27	8.37	8.47	8.57	8.67	8.77	8.87	9.16	9.27	9.38	9.50	9.61	9.73	9.84	9.96	10.08	10.21
S		44.37~44.66	7.58	44.50	7.99	8.08	8.17	8.27	8.36	8.46	8.56	8.66	8.76	9.04	9.15	9.25	9.36	9.48	9.59	9.70	9.82	9.94	10.05
U		44.87~45.11	7.50	45.00	7.89	7.98	8.07	8.17	8.26	8.36	8.45	8.55	8.65	8.92	9.02	9.13	9.24	9.34	9.45	9.56	9.68	9.79	9.91
W		45.37~45.66	7.42	45.50	7.80	7.89	7.98	8.07	8.16	8.25	8.35	8.44	8.54	8.80	8.91	9.01	9.11	9.22	9.32	9.43	9.54	9.65	9.76
Y		45.87~46.11	7.34	46.00	7.71	7.80	7.89	7.97	8.06	8.15	8.25	8.34	8.43	8.69	8.79	8.89	8.99	9.09	9.20	9.30	9.41	9.52	9.62
ZA		46.37~46.66	7.26	46.50	7.63	7.71	7.79	7.88	7.97	8.06	8.15	8.24	8.33	8.58	8.68	8.77	8.87	8.97	9.07	9.17	9.28	9.38	9.49

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SILVER LINE LABORATORIES

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PERFORMANCE OF SPHERICAL ORTHO K LENS VERSUS TORIC ORTHO K LENS

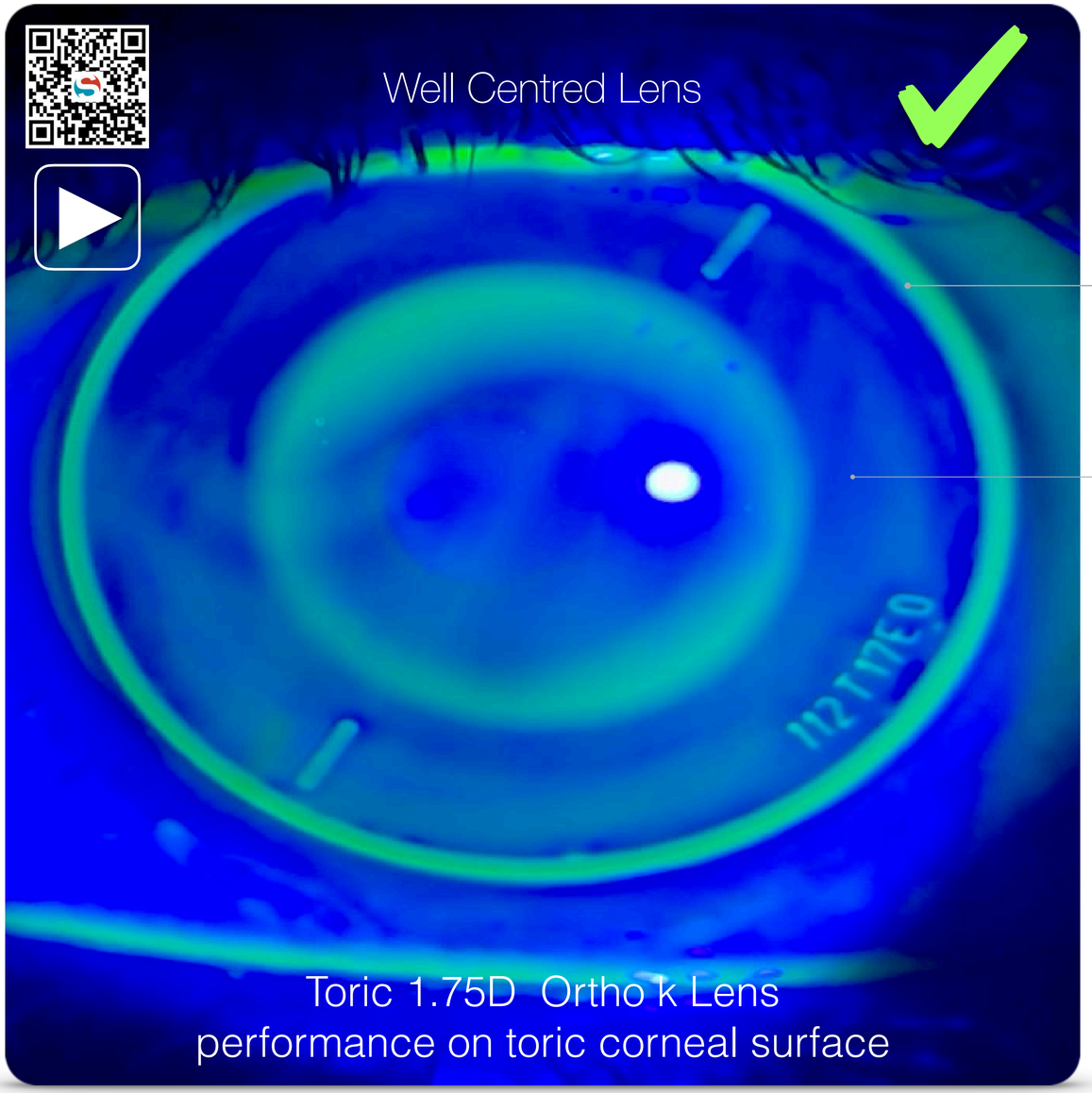
SILVER LINE LABORATORIES



Spherical Ortho k Lens
performance on toric corneal surface



Steep Spherical Ortho k Lens
performance on toric corneal surface



Toric 1.75D Ortho k Lens
performance on toric corneal surface

Appropriate Edge Clearance

Appropriate Landing Zone



Toric 2.50D Ortho k Lens
performance on toric corneal surface

Ortho K Lens Fitting Using Spherical Lens Trial Set

Case Example -1
Age 31

Using a patient's manifest refraction and keratometry values, a First Trial Lens can be calculated.

Trial Lens Base Curve	Mean K Values	(KH -7.73 & KV -7.56) 7.65mm	BC : 7.65mm
Trial Lens Power	Manifest Refraction - Calculate for Spherical Equivalent	(-1.00/-1.00x100*) -1.50D Sph.	Power : -1.50
Trial Lens Diameter	HVID - 1. Trial Lens Dia. 1mm smaller than HVID	(HVID -11.70 - 1 =) 10.70mm	Dia : 10.70mm

Calculate these parameters according to base curve and power calculation Table no. 03, on Page No.21.

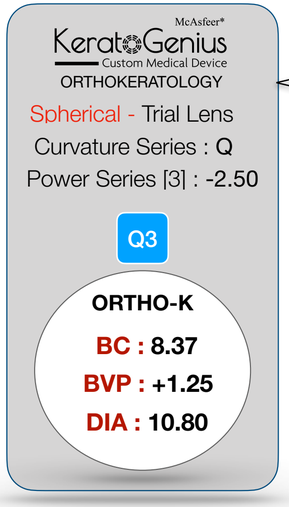
Final Trial Lens Parameters - Q 3

BC :8.37mm

Power : +1.25

Dia : 10.80mm

Final Trial lens parameters according to base curve and power calculation table.



Ortho k lens trial set -spherical - page no. 22.

Refraction

Refraction Over The Trial Lens : +0.50 (6/6)



Change The Power Series

Final required power is -2.00 D

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Base Curve And Power Calculations Table For Toric

Table N0. 03					Power Series																
CURVATURE					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
					-1.00	-1.50	-2.00	-2.50	-3.00	-3.50	-4.00	-4.50	-5.00	-5.50	-6.00	-6.50	-7.00	-7.50	-8.00	-8.50	-9.00	-9.50	-10.00
A	11.20mm	39.87~40.11	8.44	40.00	8.94	9.05	9.17	9.29	9.41	9.54	9.66	9.79	9.92	10.28	10.42	10.56	10.70	10.85	10.99	11.14	11.30	11.45	11.61
C		40.37~40.66	8.33	40.50	8.82	8.93	9.05	9.17	9.28	9.40	9.53	9.65	9.77	10.12	10.26	10.39	10.53	10.67	10.82	10.96	11.11	11.26	11.41
E		40.87~41.11	8.23	41.00	8.71	8.82	8.93	9.04	9.16	9.27	9.39	9.51	9.63	9.97	10.10	10.24	10.37	10.51	10.65	10.79	10.93	11.08	11.22
G		41.37~41.66	8.13	41.50	8.60	8.70	8.81	8.92	9.04	9.15	9.26	9.38	9.50	9.83	9.96	10.08	10.21	10.35	10.48	10.62	10.76	10.90	11.04
I		41.87~42.11	8.04	42.00	8.49	8.59	8.70	8.81	8.92	9.03	9.14	9.25	9.37	9.69	9.81	9.94	10.06	10.19	10.32	10.45	10.59	10.72	10.86
K	11.00mm	42.37~42.66	7.94	42.50	8.38	8.48	8.59	8.69	8.80	8.91	9.02	9.13	9.24	9.55	9.67	9.79	9.91	10.04	10.17	10.29	10.42	10.56	10.69
M		42.87~43.11	7.85	43.00	8.28	8.38	8.48	8.58	8.69	8.79	8.90	9.00	9.11	9.42	9.53	9.65	9.77	9.89	10.01	10.14	10.26	10.39	10.52
O		43.37~43.66	7.76	43.50	8.18	8.28	8.37	8.48	8.58	8.68	8.78	8.89	8.99	9.29	9.40	9.52	9.63	9.75	9.87	9.99	10.11	10.24	10.36
Q	10.80mm	43.87~44.11	7.67	44.00	8.08	8.18	8.27	8.37	8.47	8.57	8.67	8.77	8.87	9.16	9.27	9.38	9.50	9.61	9.73	9.84	9.96	10.08	10.21
S		44.37~44.66	7.58	44.50	7.99	8.08	8.17	8.27	8.36	8.46	8.56	8.66	8.76	9.04	9.15	9.25	9.36	9.48	9.59	9.70	9.82	9.94	10.05
U		44.87~45.11	7.50	45.00	7.89	7.98	8.07	8.17	8.26	8.36	8.45	8.55	8.65	8.92	9.02	9.13	9.24	9.34	9.45	9.56	9.68	9.79	9.91
W		45.37~45.66	7.42	45.50	7.80	7.89	7.98	8.07	8.16	8.25	8.35	8.44	8.54	8.80	8.91	9.01	9.11	9.22	9.32	9.43	9.54	9.65	9.76
Y		45.87~46.11	7.34	46.00	7.71	7.80	7.89	7.97	8.06	8.15	8.25	8.34	8.43	8.69	8.79	8.89	8.99	9.09	9.20	9.30	9.41	9.52	9.62
ZA		46.37~46.66	7.26	46.50	7.63	7.71	7.79	7.88	7.97	8.06	8.15	8.24	8.33	8.58	8.68	8.77	8.87	8.97	9.07	9.17	9.28	9.38	9.49

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Ortho k Lens Trial Set - Spherical

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Spherical - Trial Lens

Curvature Series : A

Power Series [3] : -2.50

A3

ORTHO-K

BC : 9.29

BVP : +1.25

DIA : 11.20

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : C

Power Series [3] : -2.50

C3

ORTHO-K

BC : 9.17

BVP : +1.25

DIA : 11.20

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : E

Power Series [3] : -2.50

E3

ORTHO-K

BC : 9.04

BVP : +1.25

DIA : 11.20

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : G

Power Series [3] : -2.50

G3

ORTHO-K

BC : 8.92

BVP : +1.25

DIA : 11.20

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : I

Power Series [3] : -2.50

I3

ORTHO-K

BC : 8.81

BVP : +1.25

DIA : 11.20

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : K

Power Series [3] : -2.50

K3

ORTHO-K

BC : 8.69

BVP : +1.25

DIA : 11.00

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : M

Power Series [3] : -2.50

M3

ORTHO-K

BC : 8.58

BVP : +1.25

DIA : 11.00

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : O

Power Series [3] : -2.50

O3

ORTHO-K

BC : 8.48

BVP : +1.25

DIA : 11.00

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : Q

Power Series [3] : -2.50

Q3

ORTHO-K

BC : 8.37

BVP : +1.25

DIA : 10.80

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : S

Power Series [3] : -2.50

S3

ORTHO-K

BC : 8.27

BVP : +1.25

DIA : 10.80

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : U

Power Series [3] : -2.50

U3

ORTHO-K

BC : 8.17

BVP : +1.25

DIA : 10.80

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : W

Power Series [3] : -2.50

W3

ORTHO-K

BC : 8.07

BVP : +1.25

DIA : 10.80

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : Y

Power Series [3] : -2.50

Y3

ORTHO-K

BC : 7.97

BVP : +1.25

DIA : 10.80

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : ZA

Power Series [3] : -2.50

ZA3

ORTHO-K

BC : 7.88

BVP : +1.25

DIA : 10.80

KeratoGenius McAsfeer Custom Medical Device

ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series : ZC

Power Series [3] : -2.50

ZC3

ORTHO-K

BC : 7.79

BVP : +1.25

DIA : 10.80

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ORTHOKERATOLOGY

Spherical - Trial Lens

Curvature Series :ZD

Power Series [3] : -2.50

ZD3

ORTHO-K

BC : 7.70

BVP : +1.25

DIA : 10.80

Curvature Series

A3 C3 E3 G3 I3 K3 M3 O3

Q3 S3 U3 W3 Y3 ZA3 ZC3 ZD3

Power Series

[3] -2.50 D Sph.

Total 16 Lenses

Base Curve And Power Calculations Table For Toric

Table N0. 04					Power Series																
CURVATURE					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
					-1.00	-1.50	-2.00	-2.50	-3.00	-3.50	-4.00	-4.50	-5.00	-5.50	-6.00	-6.50	-7.00	-7.50	-8.00	-8.50	-9.00	-9.50	-10.00
A	11.20mm	39.87~40.11	8.44	40.00	8.94	9.05	9.17	9.29	9.41	9.54	9.66	9.79	9.92	10.28	10.42	10.56	10.70	10.85	10.99	11.14	11.30	11.45	11.61
C		40.37~40.66	8.33	40.50	8.82	8.93	9.05	9.17	9.28	9.40	9.53	9.65	9.77	10.12	10.26	10.39	10.53	10.67	10.82	10.96	11.11	11.26	11.41
E		40.87~41.11	8.23	41.00	8.71	8.82	8.93	9.04	9.16	9.27	9.39	9.51	9.63	9.97	10.10	10.24	10.37	10.51	10.65	10.79	10.93	11.08	11.22
G		41.37~41.66	8.13	41.50	8.60	8.70	8.81	8.92	9.04	9.15	9.26	9.38	9.50	9.83	9.96	10.08	10.21	10.35	10.48	10.62	10.76	10.90	11.04
I		41.87~42.11	8.04	42.00	8.49	8.59	8.70	8.81	8.92	9.03	9.14	9.25	9.37	9.69	9.81	9.94	10.06	10.19	10.32	10.45	10.59	10.72	10.86
K	11.00mm	42.37~42.66	7.94	42.50	8.38	8.48	8.59	8.69	8.80	8.91	9.02	9.13	9.24	9.55	9.67	9.79	9.91	10.04	10.17	10.29	10.42	10.56	10.69
M		42.87~43.11	7.85	43.00	8.28	8.38	8.48	8.58	8.69	8.79	8.90	9.00	9.11	9.42	9.53	9.65	9.77	9.89	10.01	10.14	10.26	10.39	10.52
O		43.37~43.66	7.76	43.50	8.18	8.28	8.37	8.48	8.58	8.68	8.78	8.89	8.99	9.29	9.40	9.52	9.63	9.75	9.87	9.99	10.11	10.24	10.36
Q	10.80mm	43.87~44.11	7.67	44.00	8.08	8.18	8.27	837	8.47	8.57	8.67	8.77	8.87	9.16	9.27	9.38	9.50	9.61	9.73	9.84	9.96	10.08	10.21
S		44.37~44.66	7.58	44.50	7.99	8.08	8.17	8.27	8.36	8.46	8.56	8.66	8.76	9.04	9.15	9.25	9.36	9.48	9.59	9.70	9.82	9.94	10.05
U		44.87~45.11	7.50	45.00	7.89	7.98	8.07	8.17	8.26	8.36	8.45	8.55	8.65	8.92	9.02	9.13	9.24	9.34	9.45	9.56	9.68	9.79	9.91
W		45.37~45.66	7.42	45.50	7.80	7.89	7.98	8.07	8.16	8.25	8.35	8.44	8.54	8.80	8.91	9.01	9.11	9.22	9.32	9.43	9.54	9.65	9.76
Y		45.87~46.11	7.34	46.00	7.71	7.80	7.89	7.97	8.06	8.15	8.25	8.34	8.43	8.69	8.79	8.89	8.99	9.09	9.20	9.30	9.41	9.52	9.62
ZA		46.37~46.66	7.26	46.50	7.63	7.71	7.79	7.88	7.97	8.06	8.15	8.24	8.33	8.58	8.68	8.77	8.87	8.97	9.07	9.17	9.28	9.38	9.49

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LABORATORIES

Ortho K Lens Fitting Using
Spherical Lens Trial Set

Case Example -1
Age 31

Final Trial Lens Parameters - Q 2

BC :8.27mm

Power : +1.25

Dia : 10.80mm

Final Dispensing lens parameters after the calculation according to over the lens refraction

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Q2

Curvature Series : Q

Power Series : -2.00

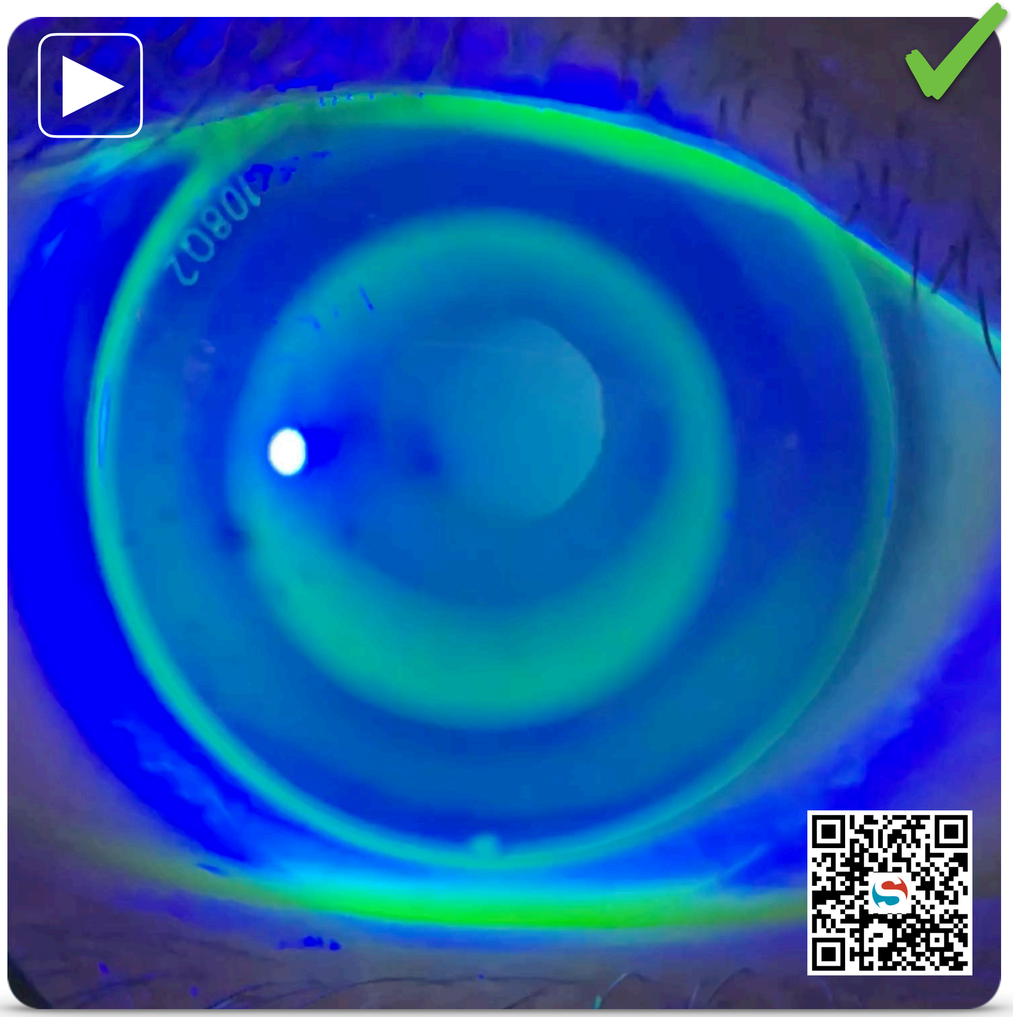
BC : 8.27mm

BVP : +1.25

Dia : 10.80mm

Refraction

Refraction
Over The Trial Lens : +00.00 (6/6)

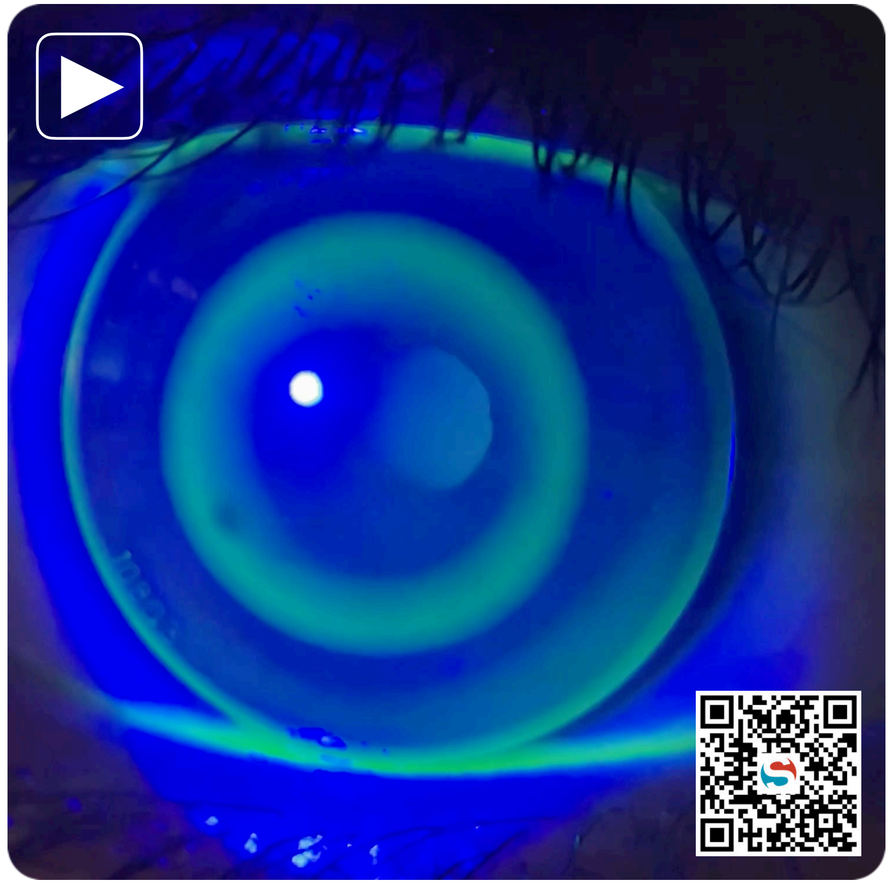


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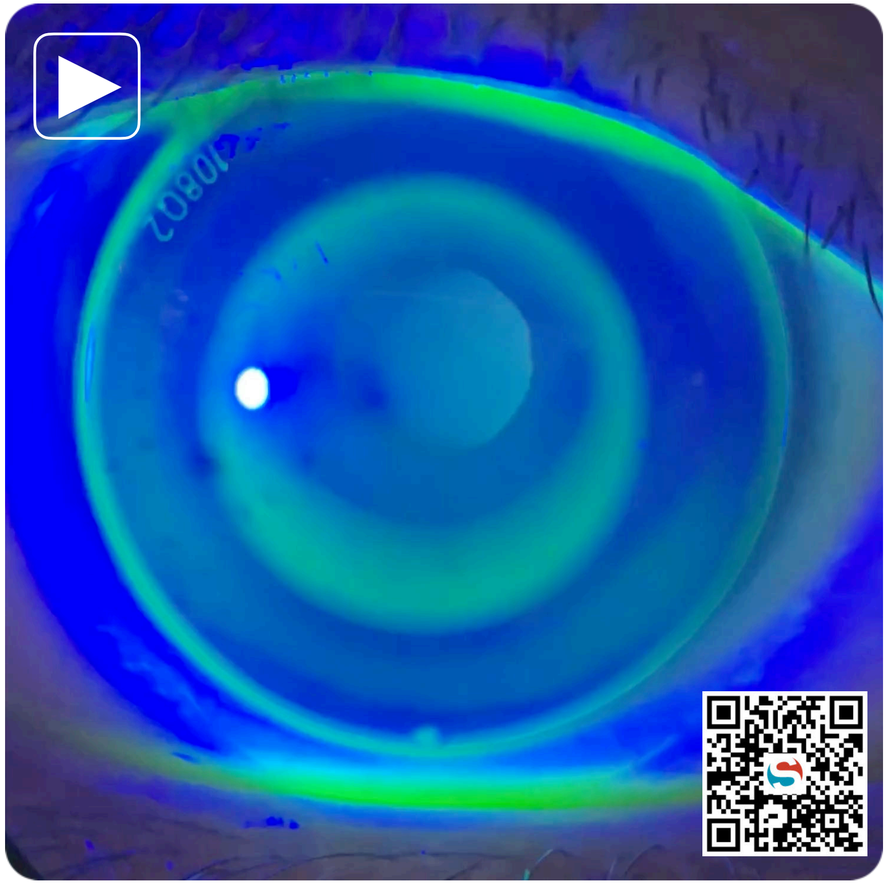
Ortho K Lens Fitting Using
Spherical Lens Trial Set

Case Example -1
Age 31



Trial Lens : Q3/8.37/10.80

Over Refraction: +0.50 (6/6)



Trial Lens : Q2/8.27/10.80

Over Refraction: Plano (6/6)

Ortho k Lens Trial Set - Toric

Power Series [4] : -3.00

Total 40 Lenses

KeratoGenius™ Custom Medical Device — ORTHOKERATOLOGY — Toric - Trial Lens

Curvature Series	Power Series [4]	Cyl. Power	Label	ORTHO-K
A	-3.00	-1.75	T17A4	BC : 9.41 / BVP : +1.25 / DIA : 11.20
C	-3.00	-1.75	T17C4	BC : 9.28 / BVP : +1.25 / DIA : 11.20
E	-3.00	-1.75	T17E4	BC : 9.16 / BVP : +1.25 / DIA : 11.20
G	-3.00	-1.75	T17G4	BC : 9.04 / BVP : +1.25 / DIA : 11.20
I	-3.00	-1.75	T17I4	BC : 8.92 / BVP : +1.25 / DIA : 11.20
K	-3.00	-1.75	T17K4	BC : 8.80 / BVP : +1.25 / DIA : 11.00
M	-3.00	-1.75	T17M4	BC : 8.69 / BVP : +1.25 / DIA : 11.00
O	-3.00	-1.75	T17O4	BC : 8.58 / BVP : +1.25 / DIA : 11.00
Q	-3.00	-1.75	T17Q4	BC : 8.47 / BVP : +1.25 / DIA : 10.80
S	-3.00	-1.75	T17S4	BC : 8.36 / BVP : +1.25 / DIA : 10.80
U	-3.00	-1.75	T17U4	BC : 8.26 / BVP : +1.25 / DIA : 10.80
W	-3.00	-1.75	T17U4	BC : 8.16 / BVP : +1.25 / DIA : 10.80
Y	-3.00	-1.75	T17Y4	BC : 8.06 / BVP : +1.25 / DIA : 10.80
ZA	-3.00	-1.75	T17ZA4	BC : 7.97 / BVP : +1.25 / DIA : 10.80

SERIES: 4 (-3.00DS)

TORIC: -1.75 D CYL

KeratoGenius™ Custom Medical Device — ORTHOKERATOLOGY — Toric - Trial Lens

Curvature Series	Power Series [4]	Cyl. Power	Label	ORTHO-K
A	-3.00	-2.50	T25A4	BC : 9.41 / BVP : +1.25 / DIA : 11.20
C	-3.00	-2.50	T25C4	BC : 9.28 / BVP : +1.25 / DIA : 11.20
E	-3.00	-2.50	T25E4	BC : 9.16 / BVP : +1.25 / DIA : 11.20
G	-3.00	-2.50	T25G4	BC : 9.04 / BVP : +1.25 / DIA : 11.20
I	-3.00	-2.50	T25I4	BC : 8.92 / BVP : +1.25 / DIA : 11.20
K	-3.00	-2.50	T25K4	BC : 8.80 / BVP : +1.25 / DIA : 11.00
M	-3.00	-2.50	T25M4	BC : 8.69 / BVP : +1.25 / DIA : 11.00
O	-3.00	-2.50	T25O4	BC : 8.58 / BVP : +1.25 / DIA : 11.00
Q	-3.00	-2.50	T25Q4	BC : 8.47 / BVP : +1.25 / DIA : 10.80
S	-3.00	-2.50	T25S4	BC : 8.36 / BVP : +1.25 / DIA : 10.80
U	-3.00	-2.50	T25U4	BC : 8.26 / BVP : +1.25 / DIA : 10.80
W	-3.00	-2.50	T25U4	BC : 8.16 / BVP : +1.25 / DIA : 10.80
Y	-3.00	-2.50	T25Y4	BC : 8.06 / BVP : +1.25 / DIA : 10.80

SERIES: 4 (-3.00DS)

TORIC: -2.50 D CYL

KeratoGenius™ Custom Medical Device — ORTHOKERATOLOGY — Toric - Trial Lens

Curvature Series	Power Series [4]	Cyl. Power	Label	ORTHO-K
A	-3.00	-3.25	T32A4	BC : 9.41 / BVP : +1.25 / DIA : 11.20
C	-3.00	-3.25	T32C4	BC : 9.28 / BVP : +1.25 / DIA : 11.20
E	-3.00	-3.25	T32E4	BC : 9.16 / BVP : +1.25 / DIA : 11.20
G	-3.00	-3.25	T32G4	BC : 9.04 / BVP : +1.25 / DIA : 11.20
I	-3.00	-3.25	T32I4	BC : 8.92 / BVP : +1.25 / DIA : 11.20
K	-3.00	-3.25	T32K4	BC : 8.80 / BVP : +1.25 / DIA : 11.00
M	-3.00	-3.25	T32M4	BC : 8.69 / BVP : +1.25 / DIA : 11.00
O	-3.00	-3.25	T32O4	BC : 8.58 / BVP : +1.25 / DIA : 11.00
Q	-3.00	-3.25	T32Q4	BC : 8.47 / BVP : +1.25 / DIA : 10.80
S	-3.00	-3.25	T32S4	BC : 8.36 / BVP : +1.25 / DIA : 10.80
U	-3.00	-3.25	T32U4	BC : 8.26 / BVP : +1.25 / DIA : 10.80
W	-3.00	-2.50	T25U4	BC : 8.16 / BVP : +1.25 / DIA : 10.80
Y	-3.00	-3.25	T32Y4	BC : 8.06 / BVP : +1.25 / DIA : 10.80

SERIES: 4 (-3.00DS)

TORIC: -3.25 D CYL

Fitting Challenges

For Practitioners

Slit-lamp Examination

Fitting Challenges
For Practitioners

Fitting Concern and Solutions

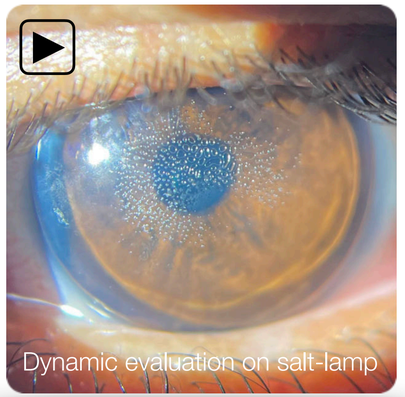
Slit-lamp Examination



Air-Bubble in
Reverse Zone

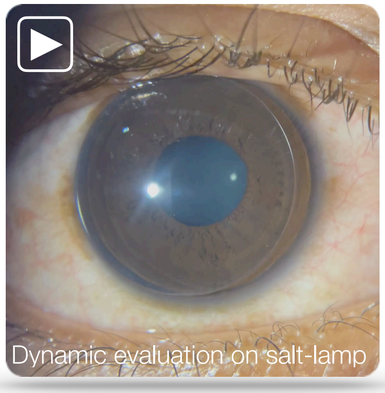


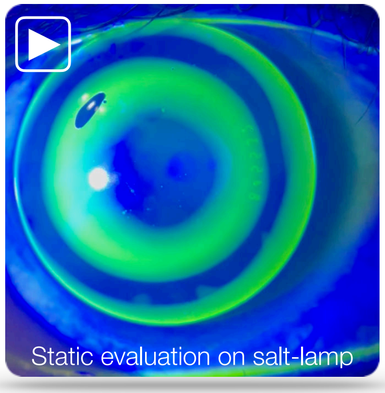
Re-insertion of the same lens
with a drop of a lubricant



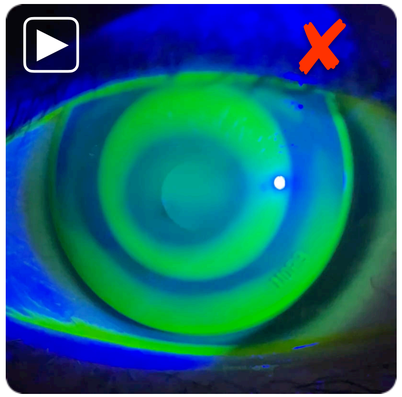


Dimple veiling due to excessive edge-lift



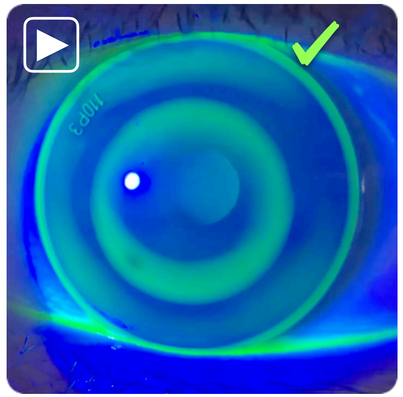


Decentered Lens - Excessive edge clearance



Ortho k lens excessive
or over Fluo. stain

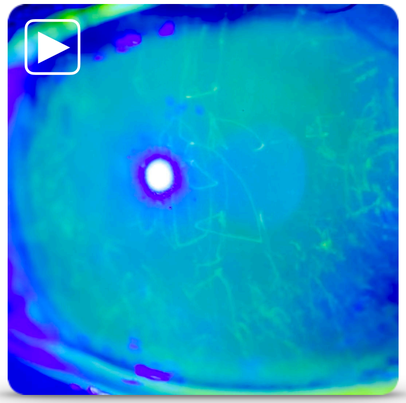
Same lens in same
eye with different fluo
patterns.



Ortho k Lens ideal fluo.
stain (Approx 20 micron)

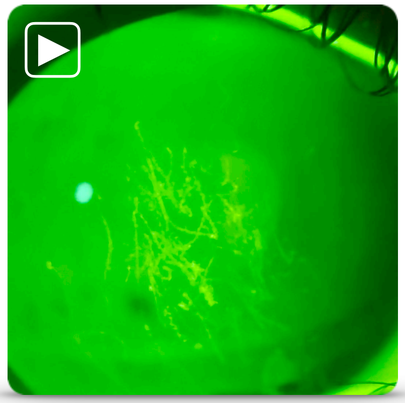
Corneal Epithelial Defects

Slit-lamp Examination

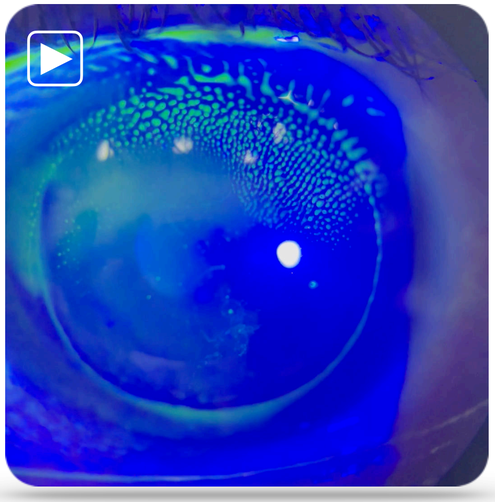


Zig-zag corneal staining due to Foreign Body Under the lens

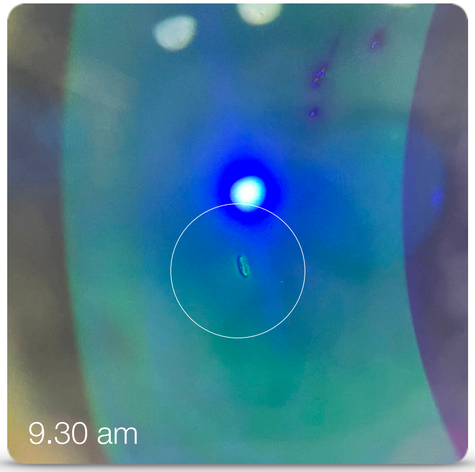
Difference between Static Evaluation under Cobalt blue and Ratan filter

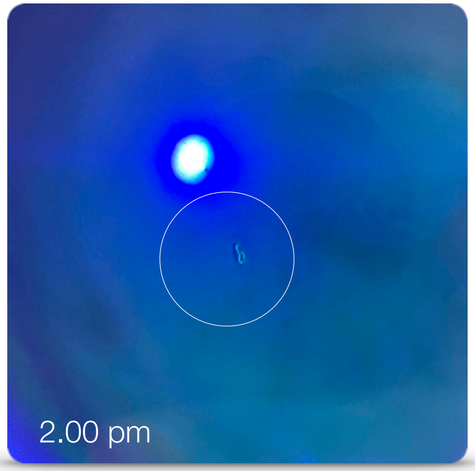


Zig-zag corneal staining due to Foreign Body Under the lens

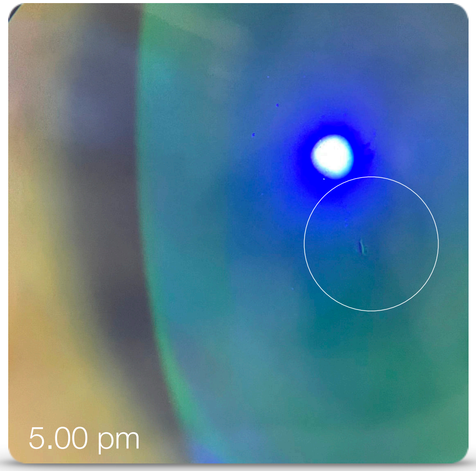


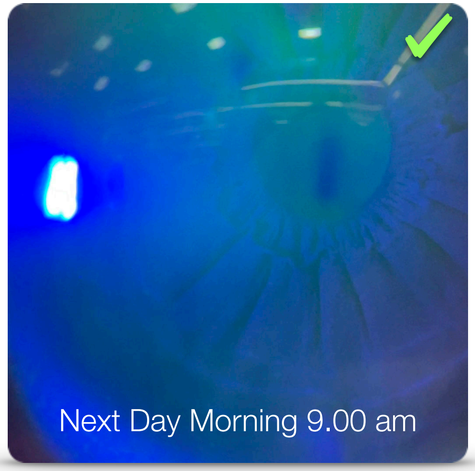
Lens binding due to less edge clearance





Corneal Epithelial Defect due to Improper lens removal
Slit-lamp view under cobalt blue filter with fluorescent.stain.

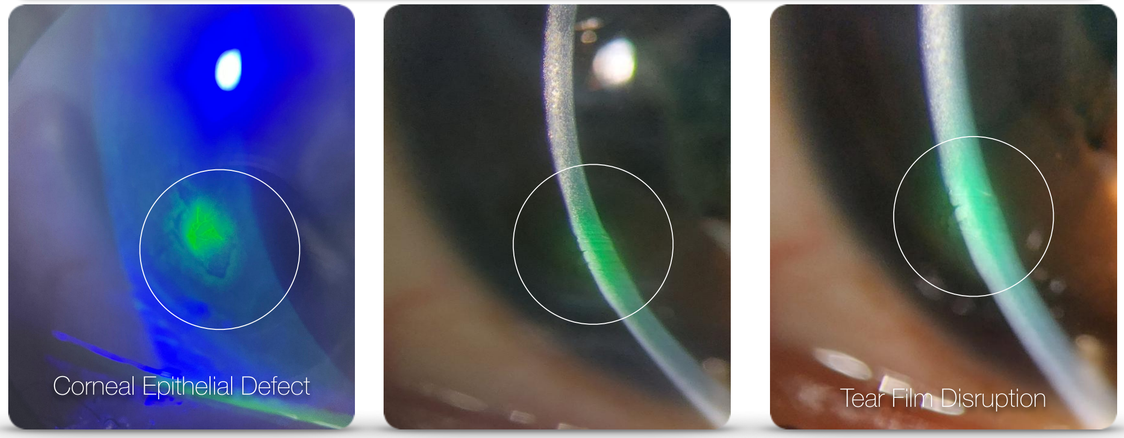




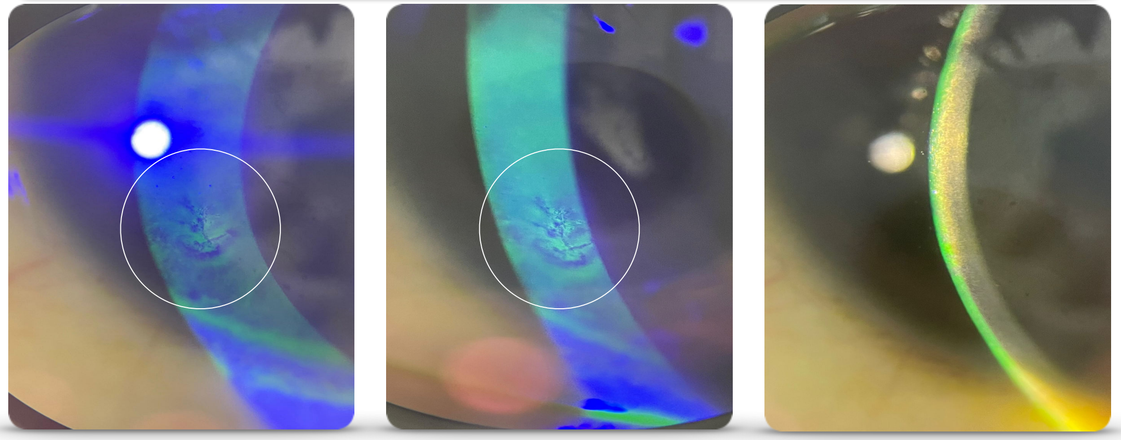
Corneal Epithelial Defects

Slit-lamp Examination

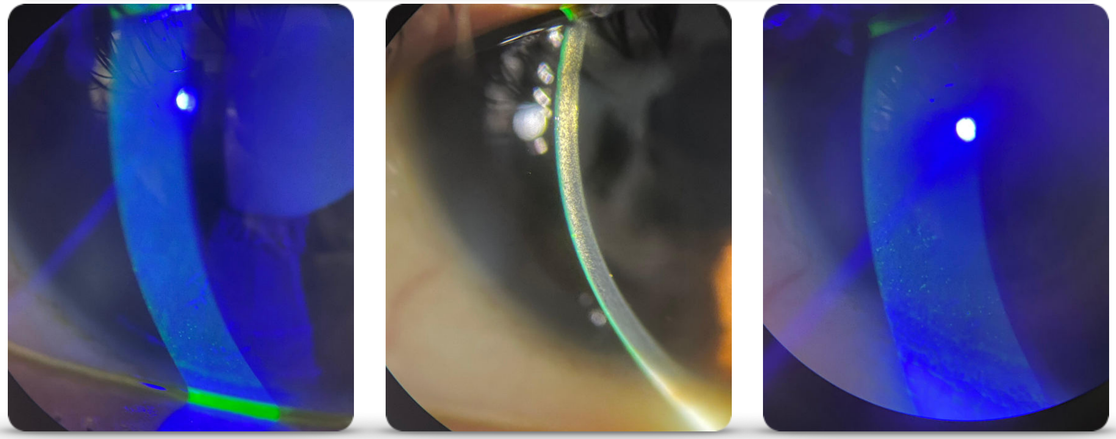
Day 1 Corneal Epithelial Defect- Slit-lamp View



Day 2 Corneal Epithelial Defect- Slit-lamp View



Day 3 Clear Cornea with Mild SPKs - Slit-lamp View



Corneal Epithelial Defect due to Improper lens removal

Slit-lamp view under cobalt blue filter with fluorescent.stain.

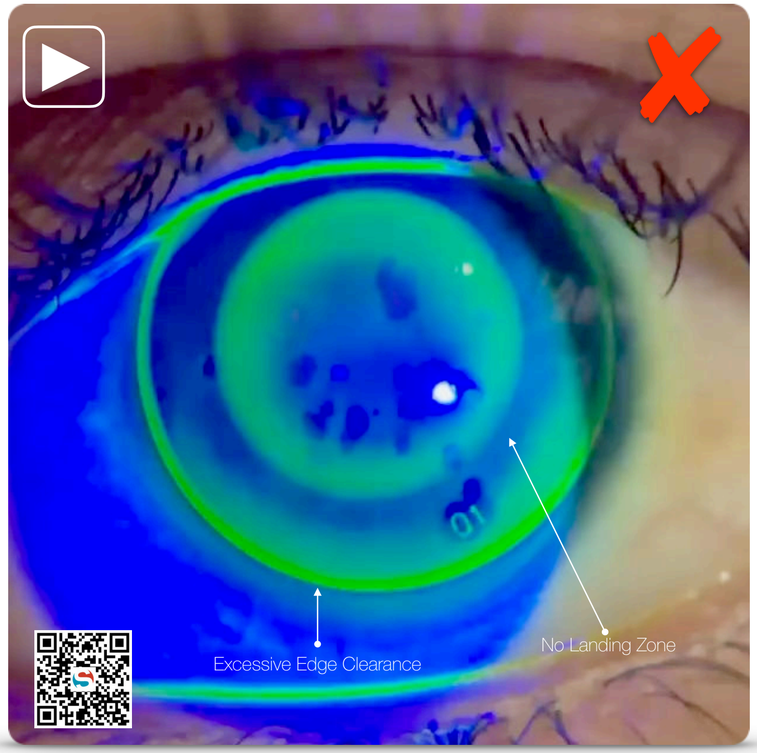
Fitting Challenges
For Practitioners

Spherical vs Toric Ortho-K Lens

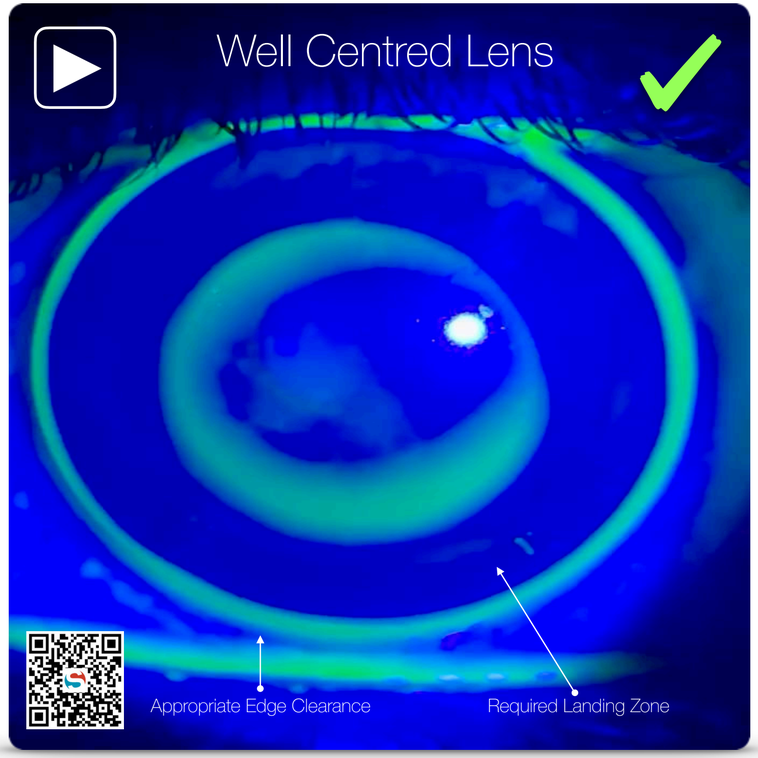
Slit-lamp Examination



Spherical Ortho k Lens
performance on toric corneal surface



Steep Spherical Ortho k Lens
performance on toric corneal surface



Toric 1.75D Ortho k Lens
performance on toric corneal surface

Edition 1
August 2025

McAsfeer*

KeratoGenius
Custom Medical Device

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