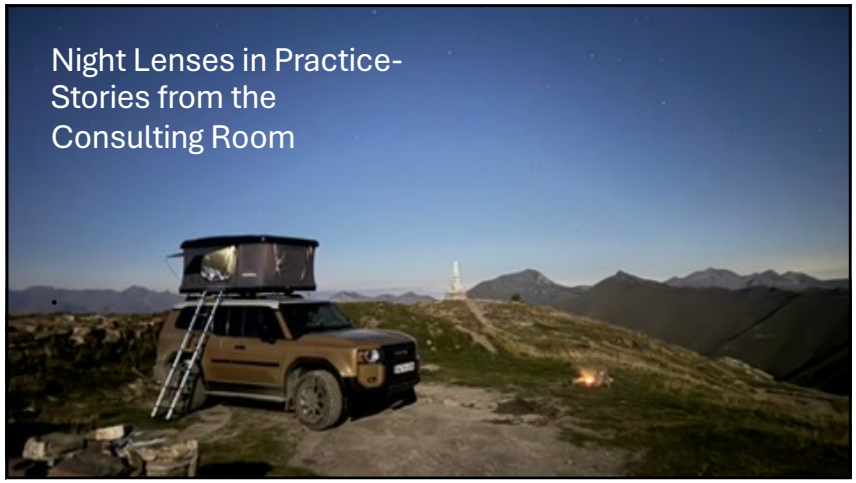


6

Domains and Learning Outcomes

Target professional groups	Optometrist, Dispensing optician, Contact lens optician

Domains and learning outcomes

Communication

The practitioner will be able to list the benefits to the patient of wearing this particular type of lens, highlighting benefits and any limitations to help them decide whether the modality is right for them

Clinical practice

The practitioner will be able to describe the fitting process and use baseline topography maps to select a suitable patient. They will also be able to successfully interpret post treatment maps to manage any unexpected outcomes.

Specialty CPD - contact lens optician

The practitioner will be able to describe why it is necessary to examine comparison maps to calculate any adjustments required for the best possible outcome in each case.

Learning outcomes

Night Lenses in Practice-Stories from the Consulting Room

7

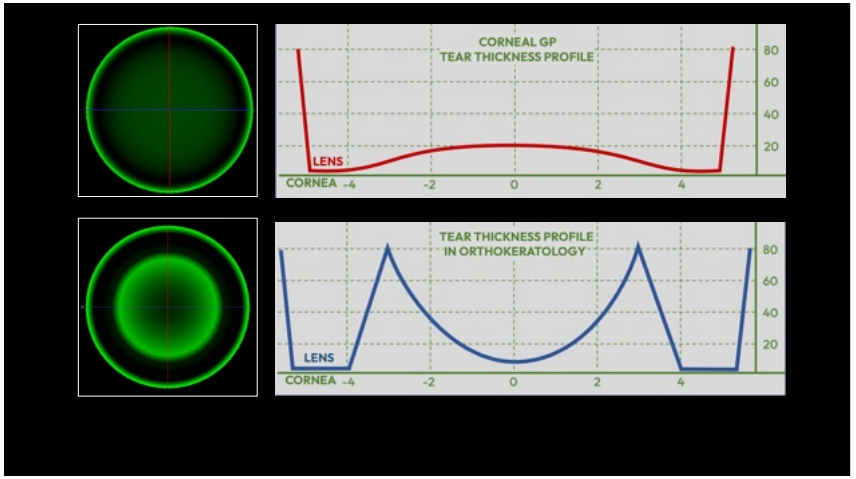
Case History – Stabilized Myopia

24 year old male (2025)
OH: Ortho-k since age 11 in 2012
FH: Mo myope
Baseline Spec Rx: R-2.25 L:-1.75 (2012)
Progression from 2011 R&L -0.50

Right
OZ: 8.41 : 6.50 / -2.75
RZ: 6.90 AZ: 8.37 DIAMETER
11.00 POWER: +0.50

Left
OZ: 8.43 : 6.50 / -2.25
RZ: 7.26 AZ: 8.38 DIAMETER
11.00 POWER: +0.50

16



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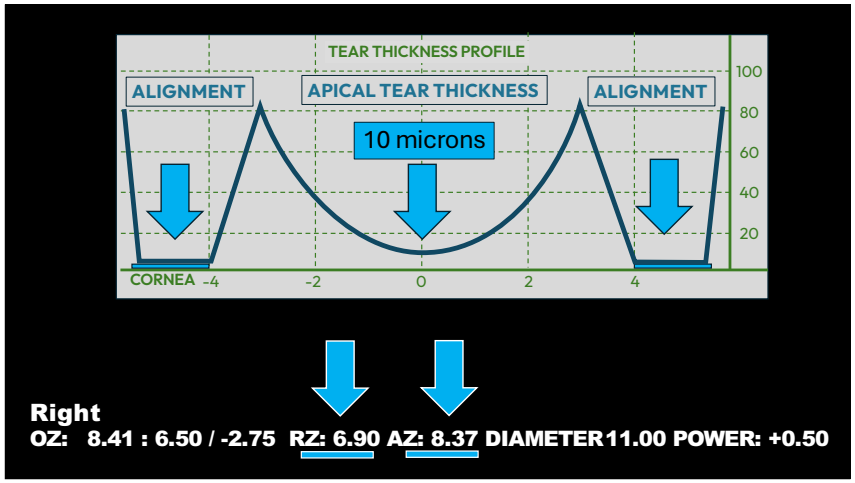
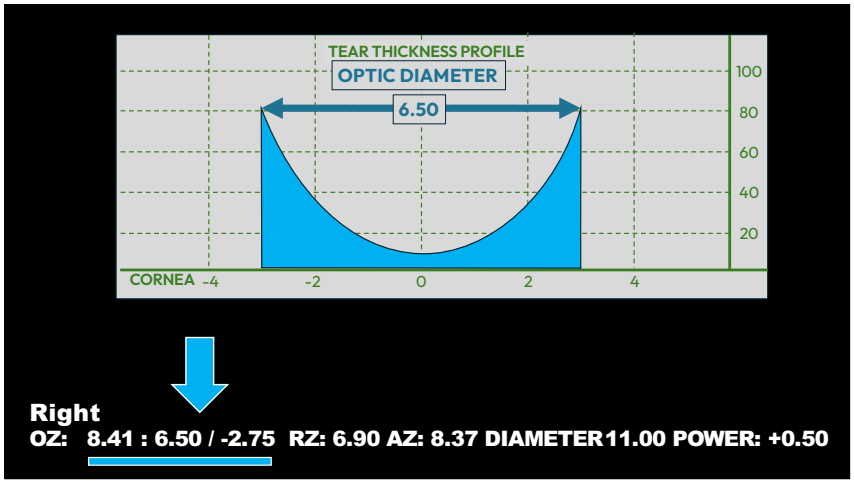
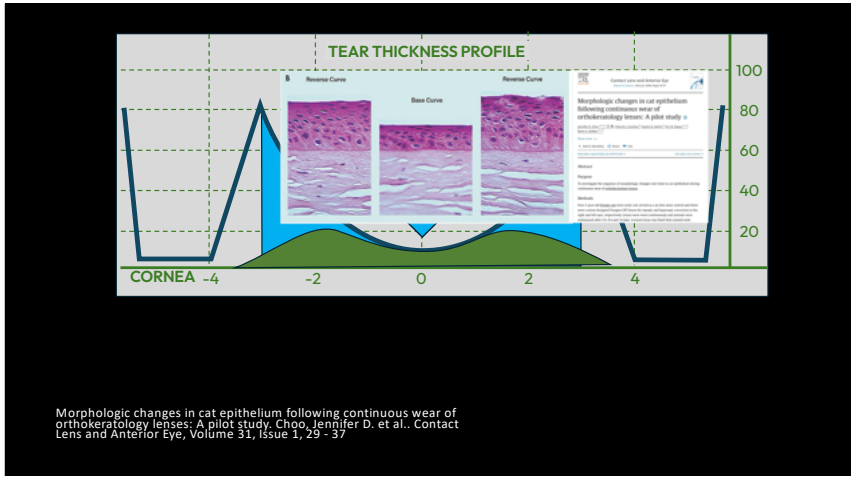

TEAR THICKNESS PROFILE
ALIGNMENT
APICAL TEAR THICKNESS
ALIGNMENT
10 microns
100
80
60
40
20
CORNEA -4 -2 0 2 4
Right
OZ: 8.41 : 6.50 / -2.75 RZ: 6.90 AZ: 8.37 DIAMETER 11.00 POWER: +0.50

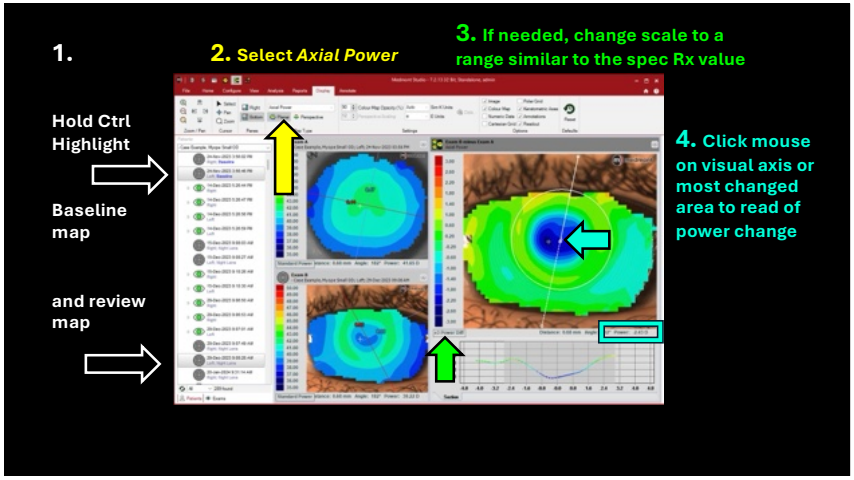
20


TEAR THICKNESS PROFILE
OPTIC DIAMETER
6.50
100
80
60
40
20
CORNEA -4 -2 0 2 4
Right
OZ: 8.41 : 6.50 / -2.75 RZ: 6.90 AZ: 8.37 DIAMETER 11.00 POWER: +0.50

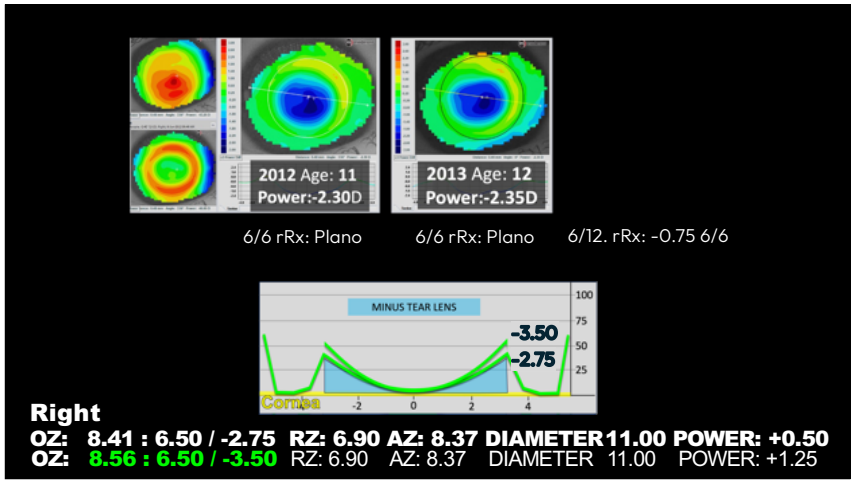
23


TEAR THICKNESS PROFILE
100
80
60
40
20
CORNEA -4 -2 0 2 4
Morphologic changes in cat epithelium following continuous wear of orthokeratology lenses: A pilot study. Choo, Jennifer D. et al.. Contact Lens and Anterior Eye, Volume 31, Issue 1, 29 - 37

25


1.
2. Select Axial Power
3. If needed, change scale to a range similar to the spec Rx value
Hold Ctrl Highlight
Baseline map
and review map
4. Click mouse on visual axis or most changed area to read of power change

28



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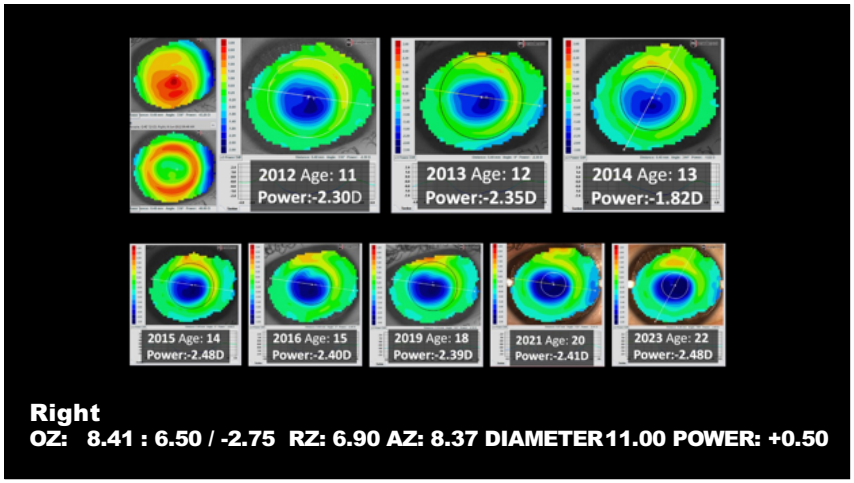

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Case History – Stabilized Myopia Summary

Subtractive topography show TZ Power

TZ Power is effect caused by ortho-k

TZ Power should not change with time

Any TZ power change should correlate with refraction change found

IF change consider:

- One off or long-term?
- Lens not worn?
- Dimple veil?
- Allergy?

34

Case History – Progressed Myopia

20 year old male

FH: Both parents -10 myopes

OH: Ortho-k since age 8 in 2011

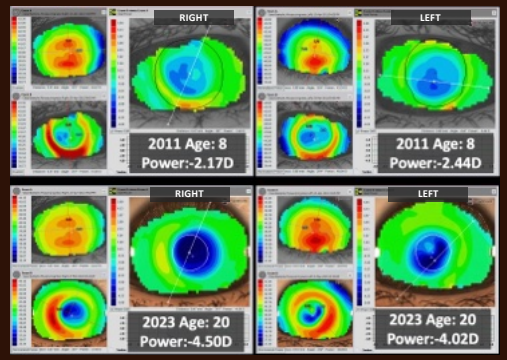
Baseline Spec Rx: R:-2.50 L:-3.25 (8 yo 2011)

35

Case History – Progressed Myopia

2011

2023



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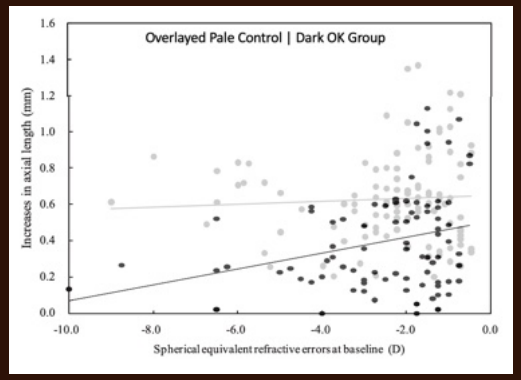

Tetsuhiko Kakita, Takahiro Hiraoka, Tetsuro Oshika; Influence of Overnight Orthokeratology on Axial Elongation in Childhood Myopia. *Invest. Ophthalmol. Vis. Sci.* 2011;52(5):2170-2174. https://doi.org/10.1167/iovs.10-5485

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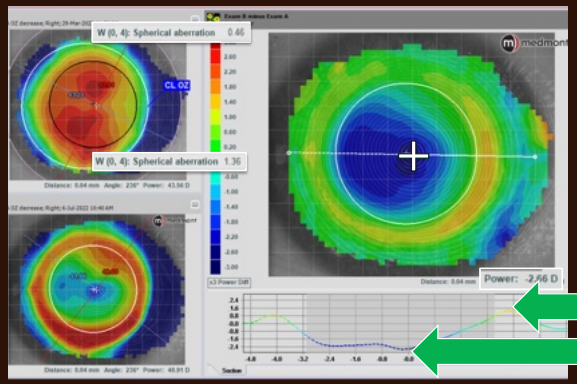
MYOPIC DEFOCUS DOSE



Myopic Defocus Dose(MDD) 3.40D

Peripheral Power +0.74D
TZ Power-2.66D

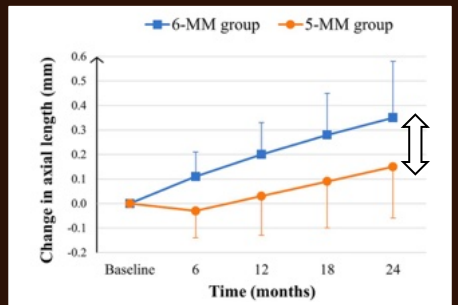
41

Asked: Which is more effective, ortho-k or multifocal soft contact lenses?

Answer: "If we are talking about MiSight…ortho-k wins it by a nose."

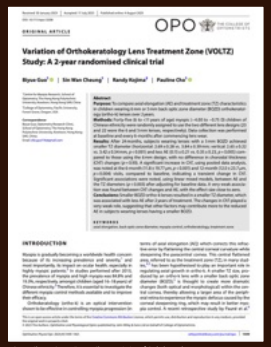
Mark Bullimore 2022 : Myopia Update Seeing Beyond 2020.

45



Largest change in axial length shown in first six months of wear.

https://doi.org/10.1111/opo.13208



OPO

Variation of Orthokeratology Lens Treatment Zone (VOLTZ) Study: A 2-year randomised clinical trial

Guo B, Cheung SW, Kojima R, Cho P. Variation of Orthokeratology Lens Treatment Zone (VOLTZ) Study: A 2-year randomised clinical trial. *Ophthalmic Physiol Opt*. 2023;43:1449–1461. https://doi.org/10.1111/opo.13208

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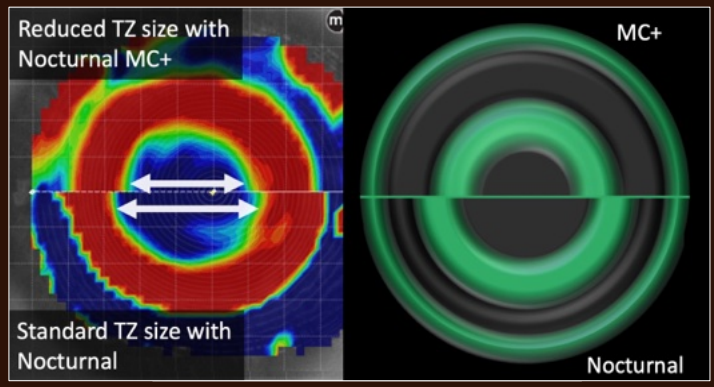

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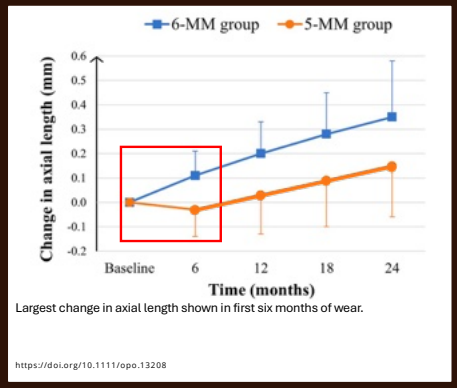
Optic Zone (OZ)

MAXIMUM ACUITY ACHIEVED
(SNELLEN FRACTION)

SUBJECT NUMBER	5.0 OD	5.0 OS	6.0 OD	6.0 OS	7.0 OD	7.0 OS
1	6/12	6/12	6/7.5	6/7.5	6/18	6/18
2	6/5	6/5	6/5	6/5	6/5	6/5
3	6/21	6/15	6/6	6/6	6/6	6/6
4	6/6	6/6	6/6	6/5	6/6	6/6
5	6/5	6/5	6/5	6/5	6/7.5	6/9
6	6/6	6/6	6/5	6/5	6/5	6/5
7	6/5	6/5	6/5	6/6	6/5	6/5

Vuong, Connie Chi Linh; Mullinax, Constance; and Bui, Cang, "The effects of optic zone diameter in orthokeratology" (2001). College of Optometry. 1384.

50



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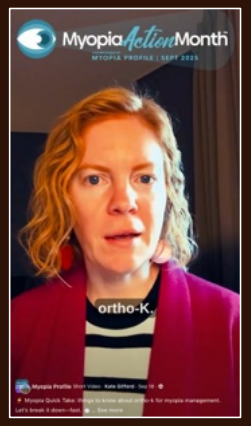


"Any design gives us a robust myopia control effect."

"Standard ortho-k is going to give us a great myopia control effect."

"Smaller treatment zones, adding atropine or increased compression factor show a small boost to efficacy…the boost is not maintained."

Kate Gifford 2025 : Myopia Profile 2025.

52

Case History – Progressed Myopia Summary

There is individual variation on the efficacy of myopia control.

Some Px need more tear lens correction for their cornea to change power than others.

Standard ortho-k designs provide effective myopia control

Smaller optic design lenses may reduce VA and may give a short term boost to myopia control effect

53

Case History – Myopia Control

8 year old male
FH: Mo myope (Laser)
Wearing MC Specs for 12 months
Spec Rx: R:-2.50 6/7.5-2 L:-3.25 6/6 (2022)

54

Case History – Myopia Control Summary

"Standard" ortho-k designs optimized for VA and are effective myopia control.

Smaller optic diameters may reduce VA

Evidence does not show clear advantage for myopia control. Potential short term boost.

My clinical preference-
First fit standard Nocturnal
TZ size, power, decentration more predictable
If VA / glare excellent then consider MC+

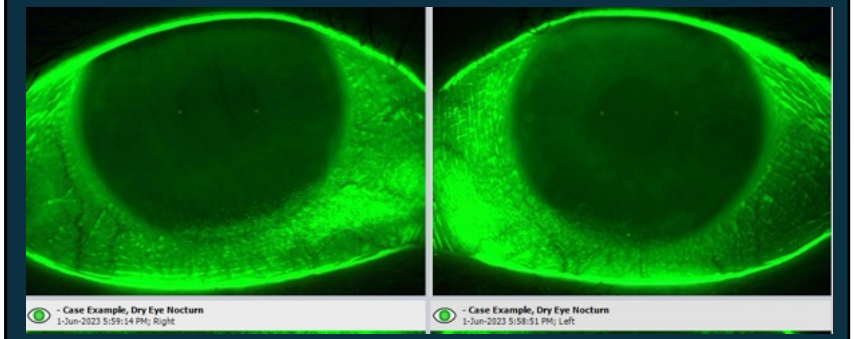
59

Case History – Soft CL related discomfort

30 year old female
Motives: Interested in sclerals as read good in dry eye
CL discomfort. DD max wear time 40 mins.
Lifestyle: Outdoor enthusiast.
Rx: R:-3.50 L:-3.00

60

Case History – Soft CL related discomfort



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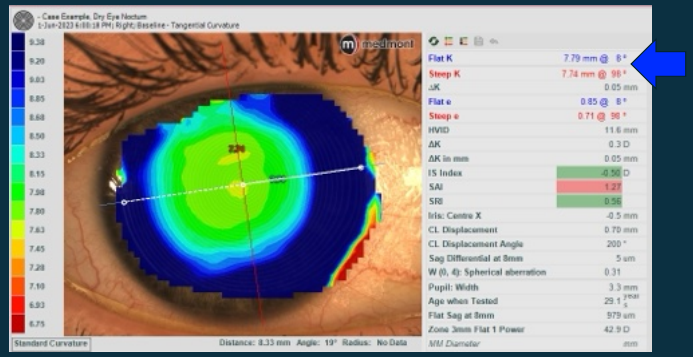
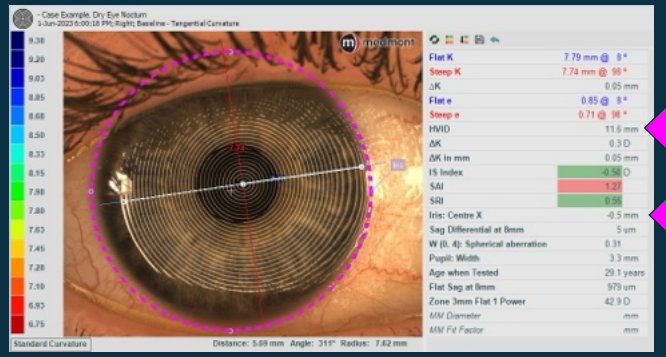
Case History – Soft CL related discomfort



63

Case History – Soft CL related discomfort



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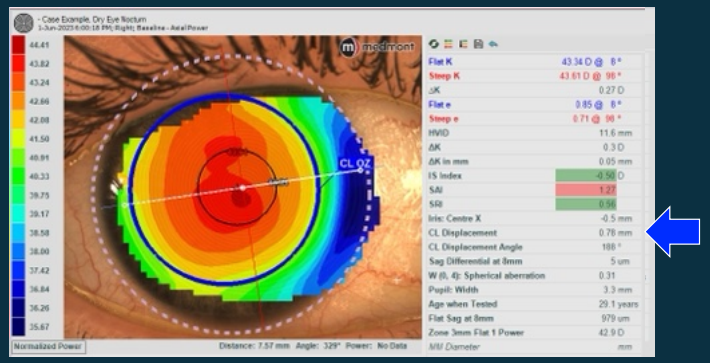
Case History – Soft CL related discomfort



66

Case History – Soft CL related discomfort

REVIEW 2/52

Getting on well, some variability. Glare an issue indoors.

B VIS: 6/6

VA DIST:6/6- NEAR:N5 R&L

OR(DV):+0.50 VA:6/6 R&L

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Case History – Soft CL related discomfort

REVIEW 2/52

B VIS: 6/6

VA DIST:6/6- NEAR:N5 R&L

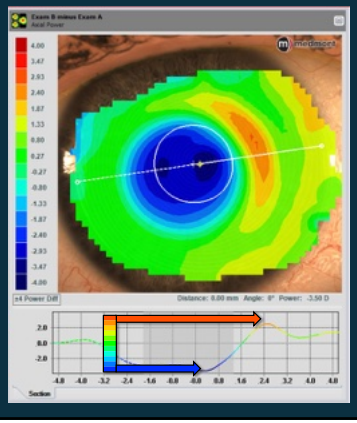
OR(DV):+0.50 VA:6/6 R&L

Over correction may be tolerated

More correction

= more multifocal 'Add'

=more subjective glare



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Case History – Soft CL related discomfort

B Vis 6/5 N5, VA DIST:6/6 NEAR:N5 R&L, OR(DV):Plano R&L

REVIEWS

1 Month	Getting on OK, new lenses better, still a bit of glare indoors. 10/10 outdoors, 8/10 indoors, 5/10 night time.
2 Months	Getting on OK, still a bit of glare indoors. benefit still outweighs glare. 10/10 outdoors, 8/10 indoors, **5/10** night time.
1 Year	**Glare seems much better. 7/10** at night. Eyes still dry, not worsened by lenses.

73

Case History – Soft CL related discomfort Summary

Infection risk is 5/10,000 Px years wear
Contact lens related dry eye Pxs can be suitable
Maintain dry eye Tx during the day
Use PF solutions – *Avizor EverClean*

Decentred TZ can be expected and can cause glare.
Glare improves with long-term wear
Optimise BVS correction to minimize glare

76

Case History – Post-Laser Fitting

40F
Laser (PRK) >10 years ago.
Pre-L Rx: Unknown
Rx: R:-0.75 6/5 L: -1.25 6/5
CCT: 480um

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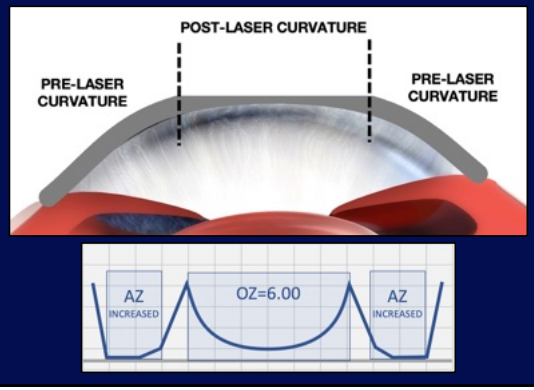
POST-LASER FITTING

Typical Dimensions

Diameter of ablation is 6.0mm

15um / D removed from stroma



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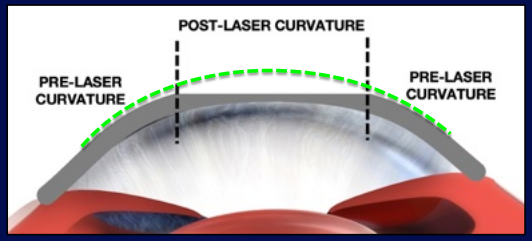
POST-LASER FITTING

Pre-Laser Ks indicate the peripheral corneal curves.

Pre-Laser contact lens Rx can help calculate Pre-Laser K.

Old CL
-5.00 = 1.0mm

New K: 8.50
Pre-L K: approx. 7.50



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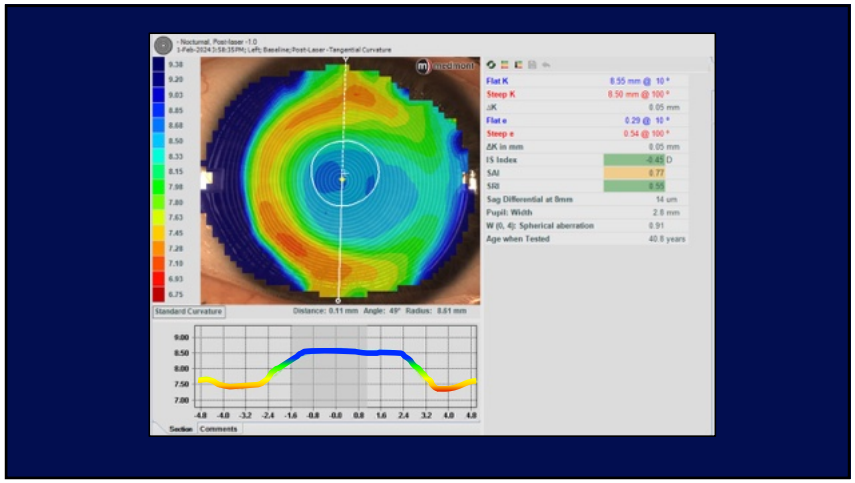

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Case History – Post-Laser Fitting

Considerations:

Ortho-k only changes epithelium. Post-L corneas have normal epithelium

Flat Ks limit the correction limit. Max ? -2.00DS

Topo / K will be less accurate. Fit, review, adjustment expected. Assess NaF lens fit with more attention.

TZ position alignment zone changes will not have 'normal' impact

86

Case History – Post-Laser Fitting Summary

Get as much pre-laser information as possible

Limit the target correction limit to low myopia

Topography will be less reliable and results may be less accurate

NaF staining shown no epithelial trauma

Under-promise, over deliver

89