

Corneal Topography and Ortho-K for the Primary Care Clinician

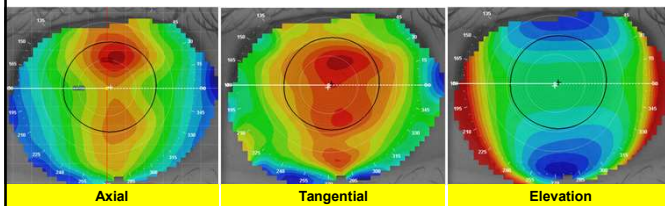
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Disclosures:

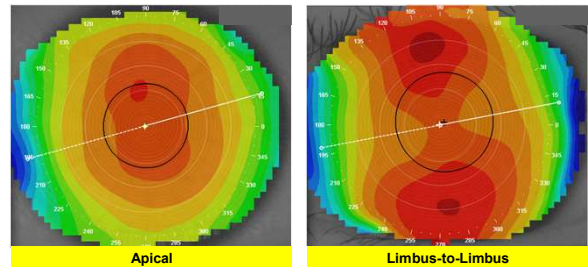
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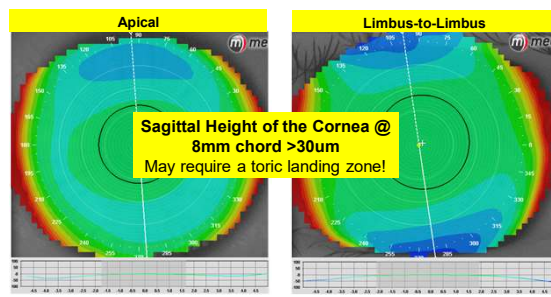
Assessing Corneal Topography



Astigmatism and Corneal GP Fitting



Astigmatism and the Elevation Map



Orthokeratology for the Astigmatic Cornea

Toric landing zones offer increased stability!

SPHERICAL LANDING ZONE

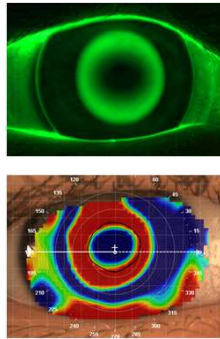


TORIC LANDING ZONE



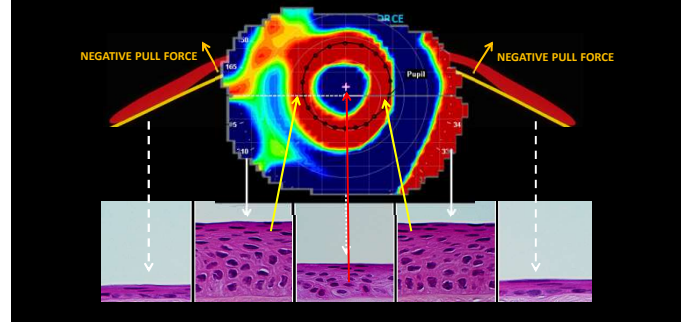
Orthokeratology

- Overnight GP lens wear reshapes the corneal epithelium to provide optimal foveal correction and a ring of midperipheral add
- CRT is FDA-approved for use in myopia up to 6.00D and WTR astigmatism up to 1.75D
- VST is FDA-approved for use in myopia up to -5.00D and WTR astigmatism up to 1.50D



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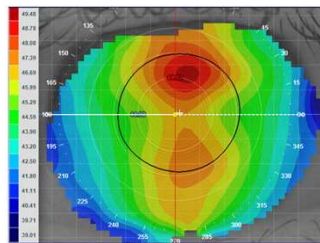
How does Ortho-K Work?



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Initial Fitting and Clinical Assessment for Orthokeratology

1. Accurate manifest refraction
2. Consider the patient's age, refractive error, daily activities
3. Collect high quality topography scans



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Case 1

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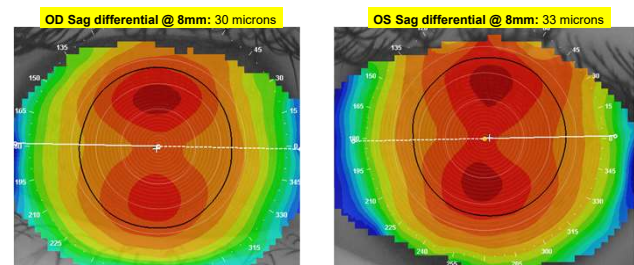
16 YO Male Football Player

- CC: "I have glasses, but I cannot wear them in my helmet. A lot of our games are around 5PM and it gets a little tough to see the football."

Right Eye		Left Eye
20/100-2 PH 20/20	sc VA	20/100 PH 20/20-
-1.50-0.50x180 20/20	Refraction	-1.50-0.25x005 20/20
42.60 / 44.50 @ 089	K's	42.89 / 44.69 @ 091

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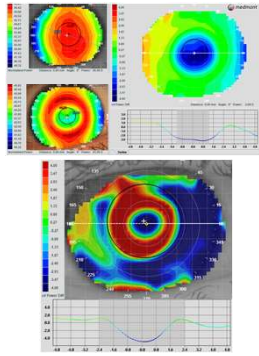
Composite Axial Maps OD/OS



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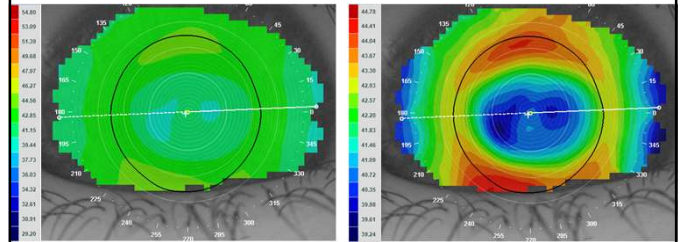
Ortho-K follow-up

- 1-day follow-up
 - Ensure centered treatment zone and corneal health
- 1-week follow-up
- 1-month follow-up
- 3-month follow-up
- 6-month follow-up
 - Check vision, corneal health, and compare topography to baseline



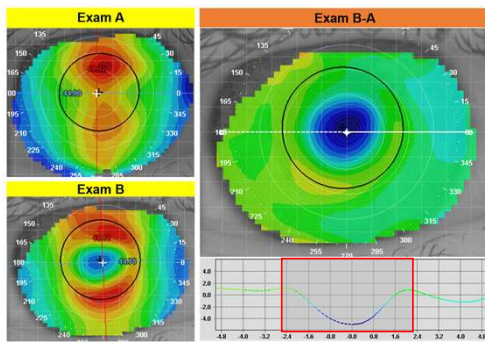
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Assessing Topography: The Scale



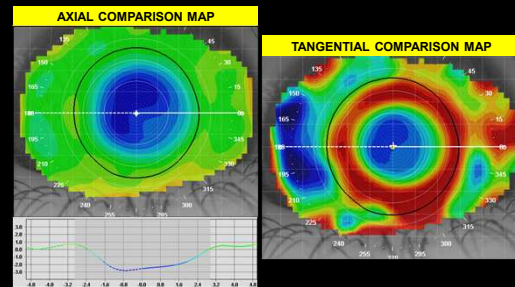
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Using the Comparison Map



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Right Eye 1-Week F/U



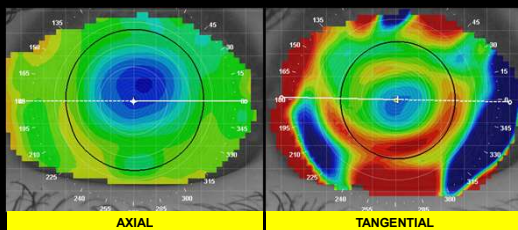
Patient notices that sometimes he has difficulty focusing at near. He also reports mild glare at nighttime.
VA: 20/20-
ORx: +1.00

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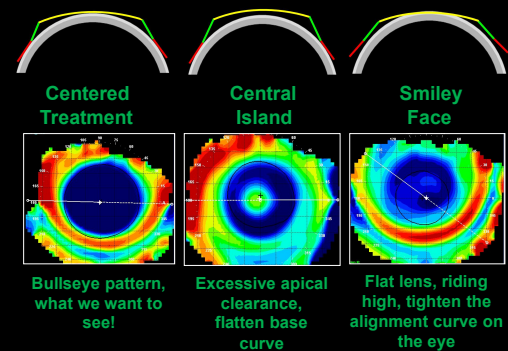
Left Eye 1-Week F/U

What do these maps tell us about the fitting properties of the lens?

VA: 20/25-
ORx: +1.25

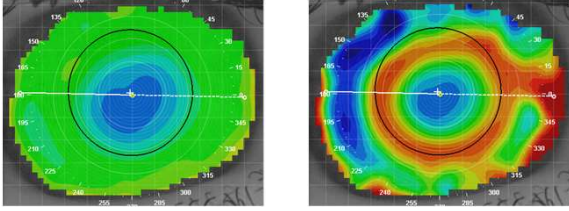


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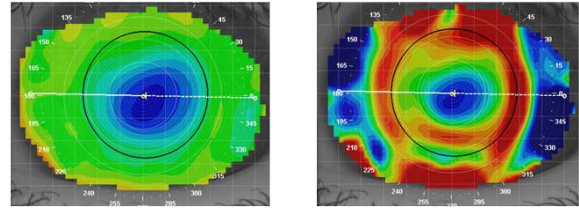
Right Eye 3-month F/U



The patient reports that the correction lasts throughout the day and vision is comfortable!
VA: 20/15-
ORx: +0.50D

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Left Eye 3-month F/U



He is excited and ready for football season!
VA: 20/15-
ORx: +0.75D

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Case 2

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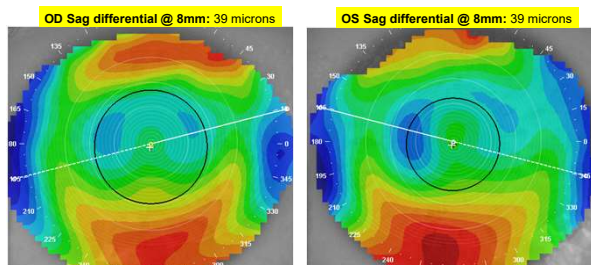
34 YO Male Post-LASIK

- "My vision is not as sharp as I would like it and I am interested in other options besides glasses."
- **Ocular Hx:** LASIK 7 years prior to examination

Right Eye		Left Eye
20/25-	sc VA	20/30-2 PH 20/20
-0.50-0.25x032 VA: 20/20	Habitual Spectacle Rx	-0.75-1.25x165 VA: 20/20
40.09 / 41.06 @ 104	K's	40.11 / 41.27 @ 076

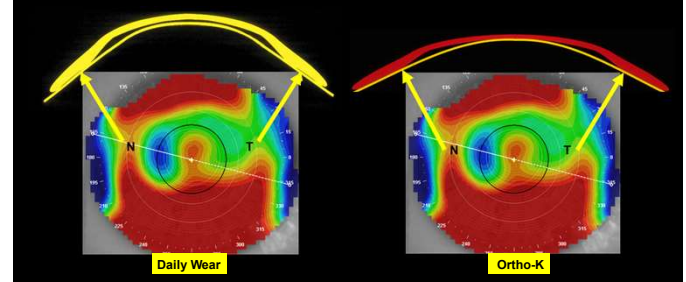
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Composite Axial Maps OD/OS



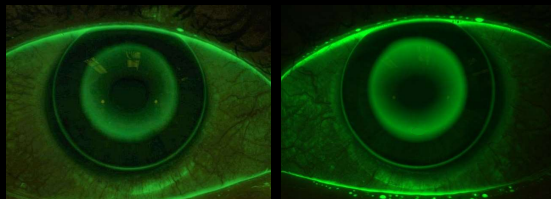
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Reverse-Geometry Corneal GP Lens Fitting



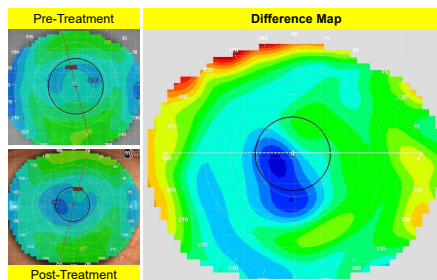
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Lens Dispense OD and OS



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OD 10-Day Axial Display

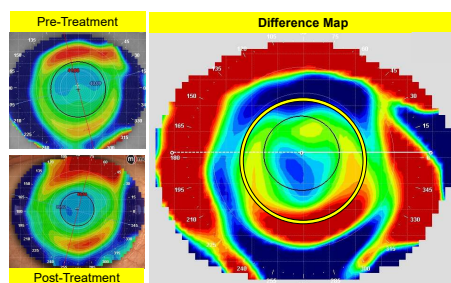


Patient reports glare and halos that he notices in his right eye and a little bit of imbalance when he is reading.

VA: 20/20-
ORx: +0.75

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OD 10-Day Tangential Display

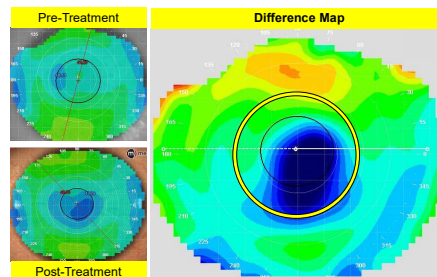


Decentration of the flattening effect and inferior midperipheral plus power greater than superior.

Consider the pupil size!

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OS 10-Day Axial Display



The patient reported good and comfortable vision in his left eye, with the effect lasting all throughout the day.

VA: 20/20¹²
ORx: +0.75D

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Final Thoughts

- The corneal topography can reveal valuable information!
 - Axial = Power
 - Tangential = Shape / overnight lens position
 - Elevation
- Understanding the parameters the lab can adjust on your ortho-k lens designs may allow for more effective treatment
- Reverse geometry lenses may allow a more optimal fit on an oblate cornea

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Sources

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- Kojima R, Caroline P, et al. Should all orthokeratology lenses be toric? *Poster presented at the 2016 GSLS*, Jan. 2016, Las Vegas.
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