

iTrace in refractive screening

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What is the
itrace?

Wavefront Aberrometer(Ray-Tracing) •

Corneal Topographer(Placido)

- AutoRefractor
- AutoKeratometer
- Pupillometer



Correct Graph

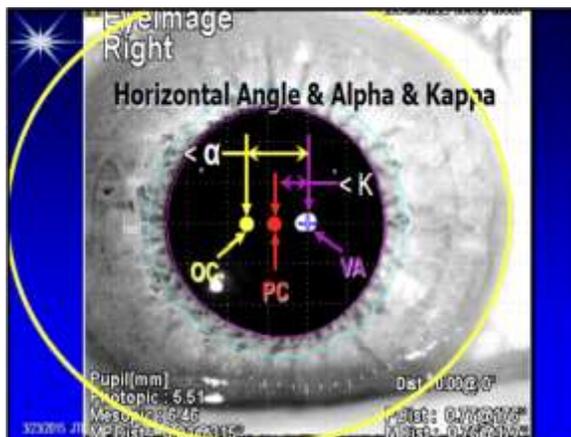
- . Refractive power range: ± 15 D sphere, ± 10 D cylinder
- Pupil diameter: 2.5–8 mm
- Topographic cone 24 rings
- Measured and analyzed points: 8640
- Corneal coverage: 8 mm
- Dioptric range: 33.75–61.36D

What is "Ray tracing"

- Sends 256 rapid sequential laser beam into the eye in $\frac{1}{4}$ of second.
- Detects each beam lands on the macula and reviews retinal spot pattern point by point
- Unlike hartmann-shack or dynamic skiascopy

Ocular Alignment

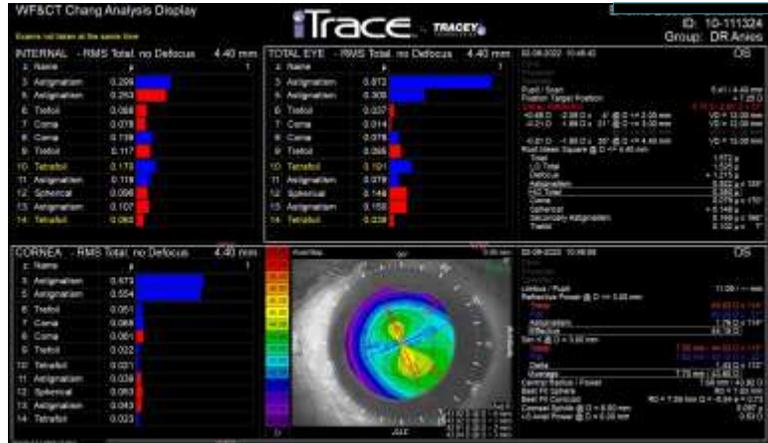
- **Angle Alpha** is the distance from the VA to optical center of cornea
- **Angle Kappa** is the distance from the VA to the center of the pupil



Angle Alpha and kappa

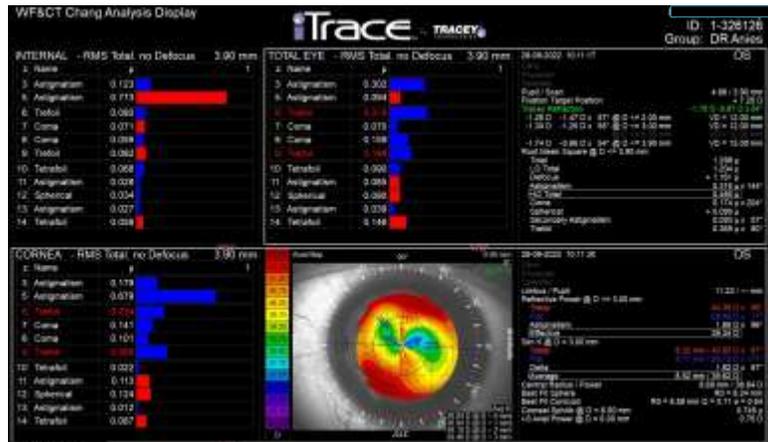


WF and CHANG analysis



Blur and Double Vision - Caused by COMA
 Glare and Halo - Caused by SPHERICAL ABERRATION
 Starburst and Comet Tails by TREFOIL

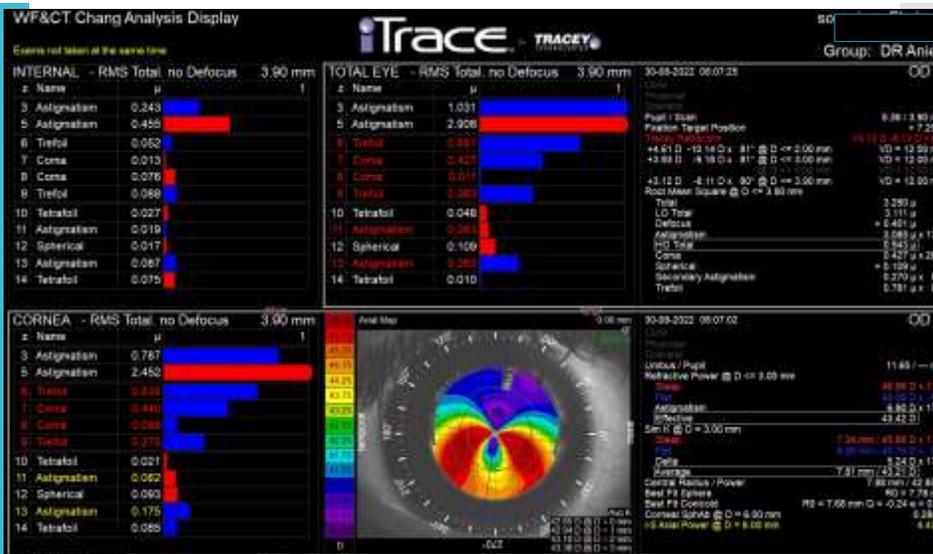
WF and CHANG postlaskik



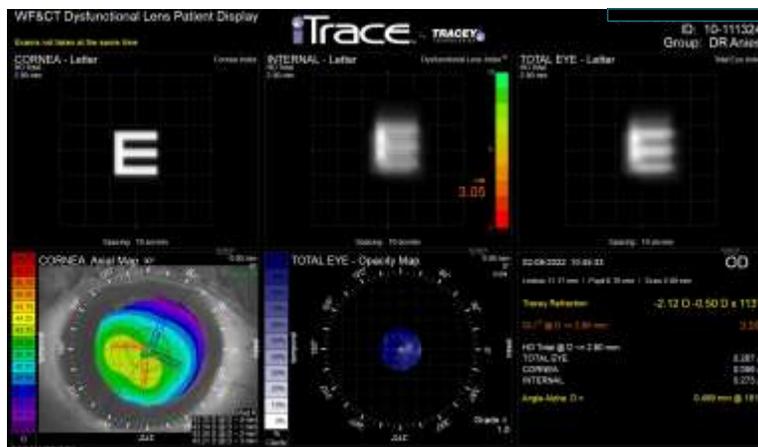
WF and CHANG analysis in KC COMA BCVA RT 0.5 LT 0.8



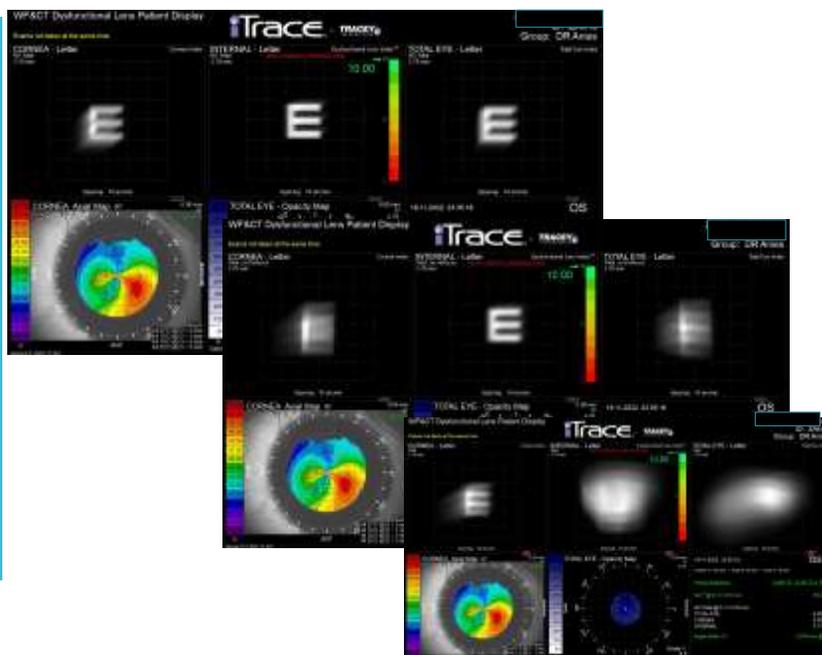
WF and CHANG analysis in PMD



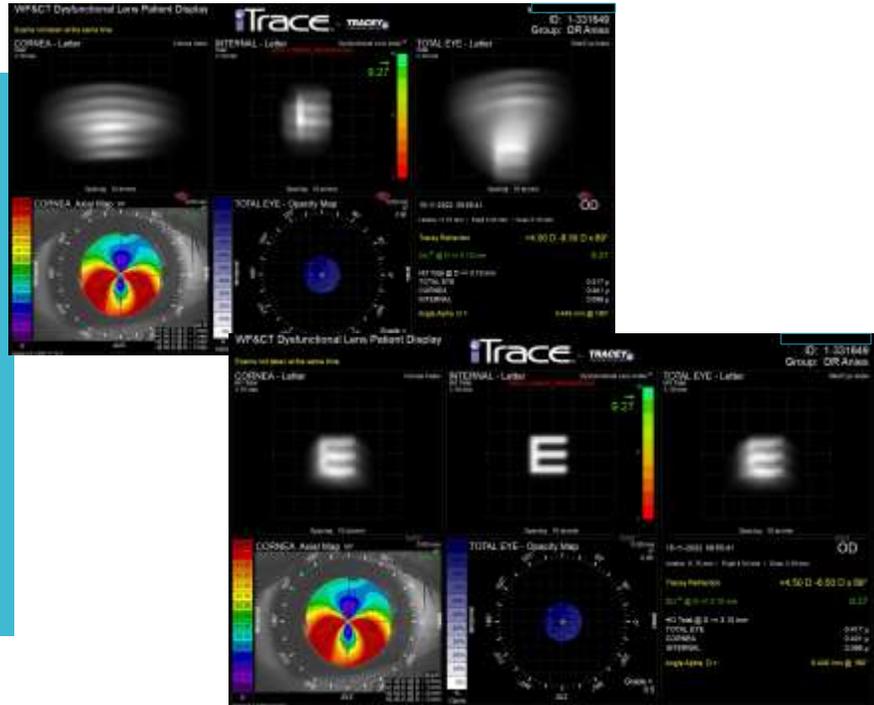
Dysfunctional lens index(DLI)



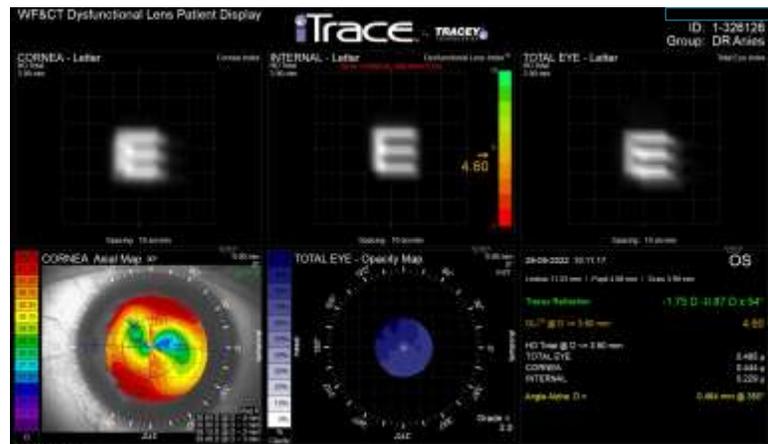
Dysfunctional index (DLI) KC



Dysfunctional lens index(DLI) in PMD



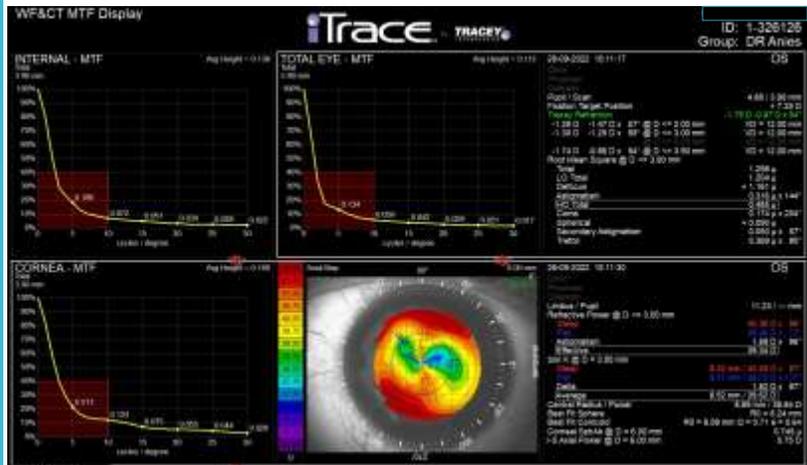
DLI post Lasik did my lasik “wear off”



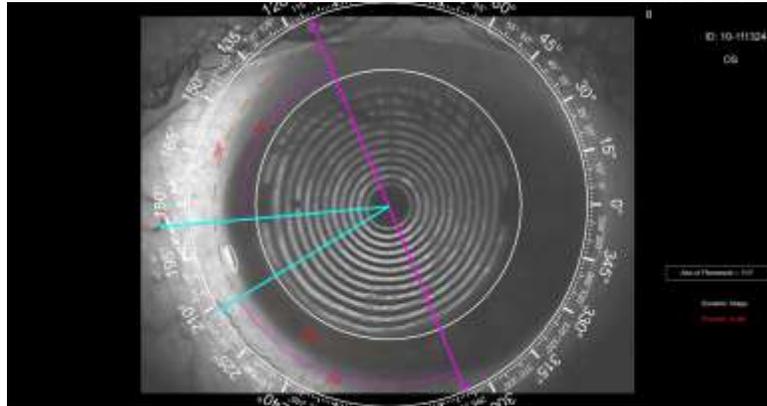
Modulation transfer function(MTF)



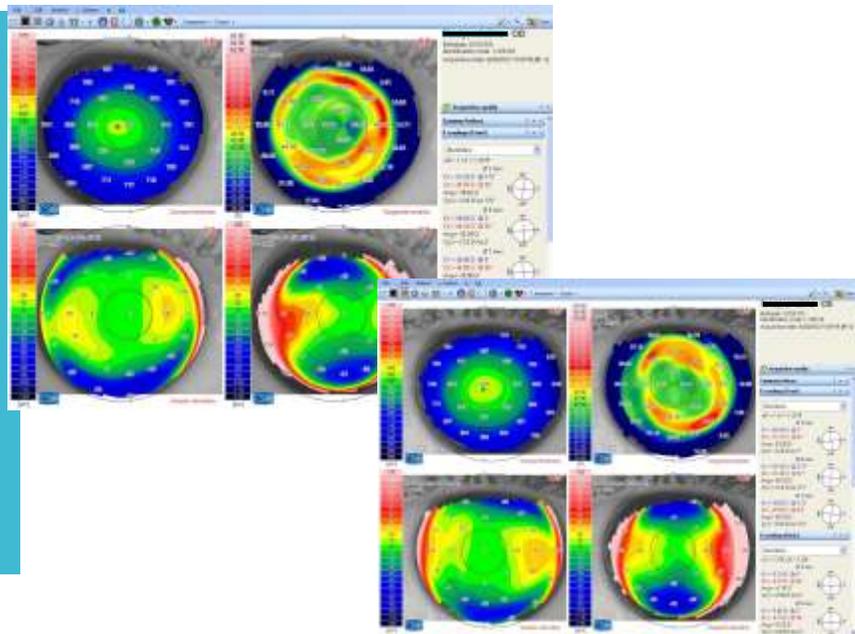
MTF PostLasik



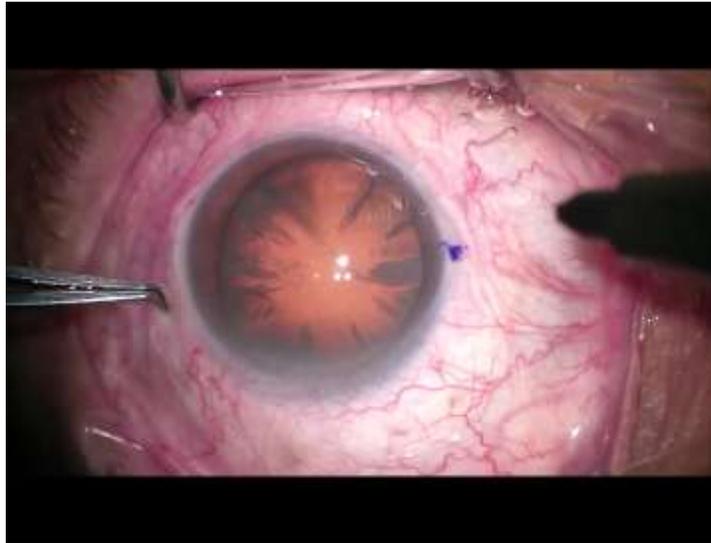
Toric Alignment Osher's Ring



Tomography $\Delta k 3.32$ OD $\Delta K 2.24$ OS

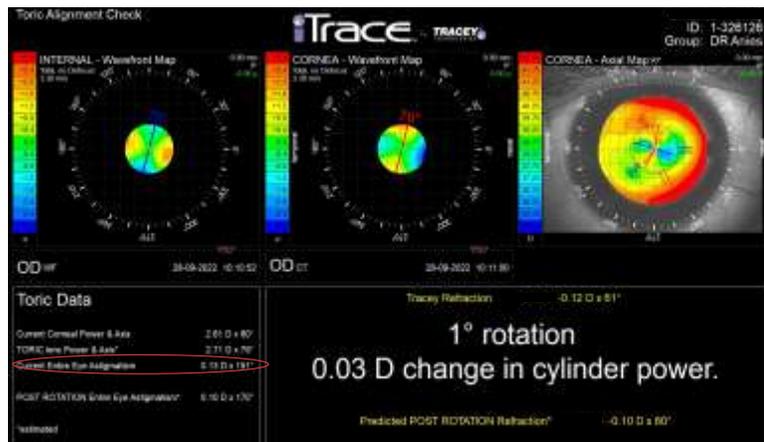


SURGERY

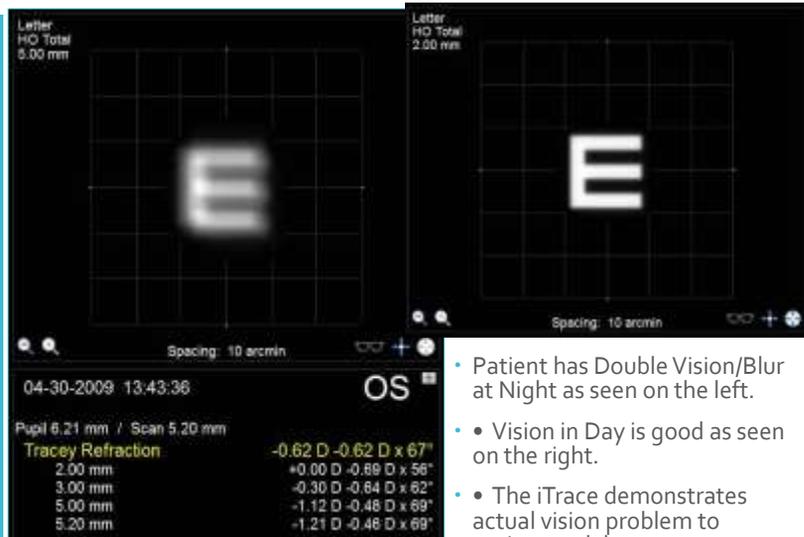


TORIC CHECK

Astigmatism 0.13D



Night /Day vision problems



- Patient has Double Vision/Blur at Night as seen on the left.
- Vision in Day is good as seen on the right.
- The iTrace demonstrates actual vision problem to patient and doctor

Conclusion

- iTrace better understanding of patients complaints .
- Help to demonstrate to patient his refractive problem.
- Impacts our decision to solve complex problems
- Educational tool for both patients and ophthalmologist.