

OCULAR SURGERY NEWS



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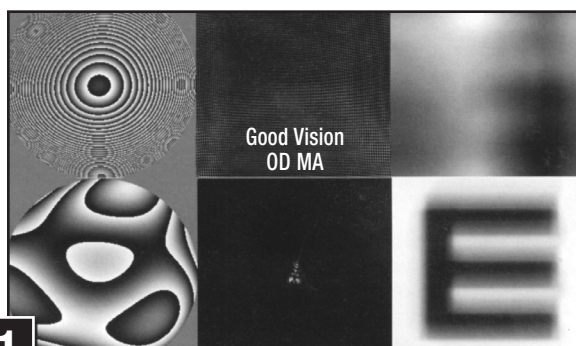
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Predicting visual outcomes using wavefront diagnostics

Arun C. Gulani, MD, supplied the following fast Fourier transform images showing some of the diagnostic potential of wavefront technology.

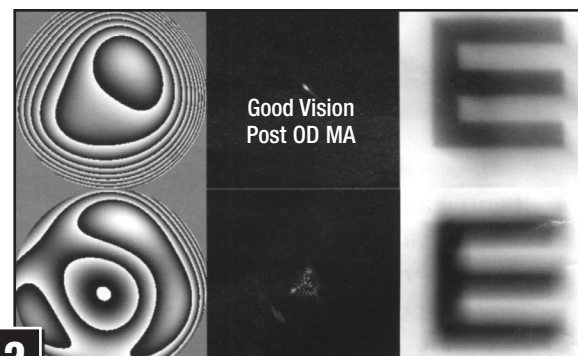
“Wavefront has extensive potential for application in the whole range of refractive surgery, including phakic IOLs.” said Dr. Gulani, who has experience with three types of phakic IOL. He said the future of refractive surgery may lie in custom designing of phakic IOLs based on wavefront analysis of each patient.

Dr. Gulani said researchers in his department are currently studying the wavefront patterns of all their 20/10 patients, hoping that this may help to predict which patients might benefit most from wavefront-guided LASIK.



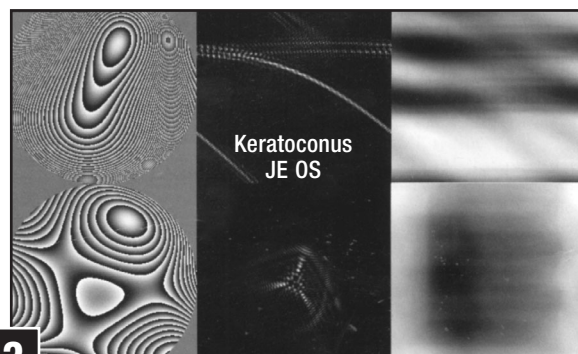
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In each set of images, the left is a wavefront map, the center is the point spread function and the right shows how the patient would see an eye chart E with the wavefront error depicted. **TOP:** Eye of patient with high myopia. **BOTTOM:** With errors compensated, high coma and trefoil still cause vertical shadowing in the E.



2

Same eye postoperatively: Top row shows some spherical aberration and coma. Bottom shows spherical aberration, trefoil and coma. The point spread image shows the effect of the spherical aberration, also causing the E to lose clarity.



3

Keratoconus eye: Images show high amount of coma, also evident in skewed point spread function. High amounts of third-order aberrations are indicative of keratoconus. Visual acuity chart is blurred. In bottom row, with errors compensated, there is still increased spherical aberration and increased coma.

Innovators' Lecture Series



Arun C. Gulani, MD
Wavefront Analysis in 20/20
LASIK Patients: Real World Applications

