inSight JANUARY 2013

A PUBLICATION OF THE KENTUCKY LIONS EYE CENTER AT THE UNIVERSITY OF LOUISVILLE

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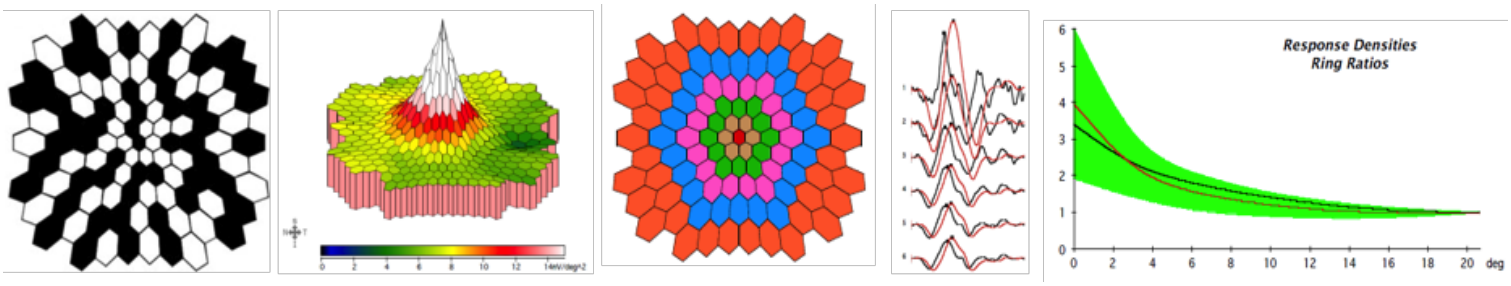
The Multifocal Electroretinogram

The full-field electroretinogram, or ffERG, has long remained the clinical standard as a noninvasive assessment of retinal function. One limitation of the ffERG is that >20% of the retina must be compromised to alter the ERG signal and it does not allow examination of regional areas of functional deficit. The multifocal electroretinogram, or ffERG, was developed so that the electrical activity of the central 50 degrees of retina could be studied, in particular, the macula. With the ffERG, hundreds of focal signals are extracted from a single global response to light stimulation. Thus, while the traditional ERG response provides information regarding the global electrical integrity of the retina, the ffERG response provides similar information for discrete areas of the central retina.

The series of figures below illustrate the stimulus-response relationship captured by the ffERG. During the procedure, the patient fixates on the center of a black and white hexagonal stimulus array (the left-most panel). The ffERG response amplitudes are then transformed into color-coded 3D maps representing the pattern of visually-evoked activity within the central 50 degrees of retina (the next two panels). The Veris system software then performs an analysis of responses within predetermined rings. The ring-ratio analysis (in the two right-most panels) displays both foveal and perimacular electrical responses compared to the normal range.



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