

# #137 Small Aperture Intra-Corneal Inlay and Its Effects on the Extent of Peripheral Kinetic Visual Fields

Eric T. Brooker O.D.  
Advanced Vision Institute, Las Vegas, NV

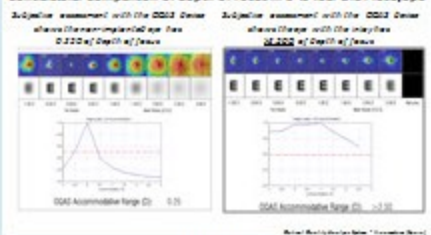


## INTRODUCTION

To assess and compare the total area and extent of the visual field between inlay implanted and non-implanted eyes utilizing automated Goldmann perimetry.



## Contralateral Comparison of Depth of Focus in a 49 Year Old Presbyope



## METHODS

Four subjects were implanted monocularly with the KAMRA™ Inlay (AcuFocus, Inc.) in their non-dominant eye. Automated Goldmann kinetic visual field tests were performed using the Octopus 900 Pro on both the implanted and non-implanted eyes. Subjects varied in their post-op time points from 10 to 55 months (avg 37.5 months). Standard clinical examination including distance and near vision measurements was conducted prior to enrolling each subject. Extent of the visual field was evaluated in the four major quadrants, as well as total area of visual field and compared using student's t-test between implanted and fellow eyes. All data are presented as mean ± s.d. Average monocular pupil size between the two groups was the same: it avg 5.5, N avg 5.55

### Octopus 900 Pro



- Goldmann size IIIe target measuring 2° visual angle 10 seconds spanning the full visual field
- Area measured:
  - Superior
  - Inferior
  - Nasal
  - Temporal
  - Total
- All statistical comparisons were performed using Student's t-test

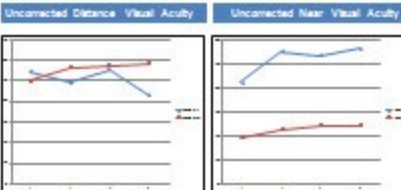
## RESULTS

- No statistically significant difference in extent and total area of the visual field was found between implanted and non-implanted eyes (Fig. 1)
- UCNVIA is statistically significantly better in the implanted versus non-implanted eye (paired t-test, p=0.003)
- UCDOVA shows no significant difference between implanted versus non-implanted eye (paired t-test, p=0.892) (Fig. 2)

Figure 1. Visual Field

Parameter (mean)	Implant eye	Non-implant eye
Superior	47.5 ± 12.5 deg	45 ± 11 deg
Inferior	52.5 ± 1.2 deg	54.5 ± 0.8 deg
Nasal	55.5 ± 7.4 deg	55.5 ± 3.3 deg
Temporal	52.3 ± 4 deg	52.5 ± 4 deg
Total Area of the Visual Field*	12625 ± 2089 deg <sup>2</sup>	12221 ± 1383 deg <sup>2</sup>

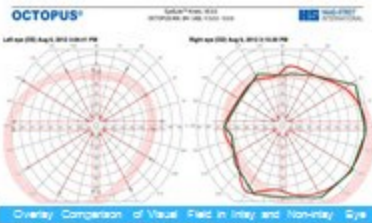
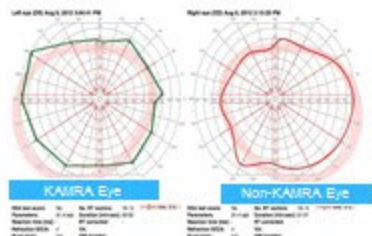
Figure 2. Visual Acuity



## DISCUSSION

1. The Octopus 900 Pro is the only computer-assisted perimeter that retains the capabilities and specifications of the original Goldmann Kinetic Perimeter.<sup>1</sup>
2. Prior threshold visual field study comparing an eye implanted with a KAMRA inlay to a non-implanted eye followed over 36 months post-operatively did not show any acyclopias in the inlay eye.
3. One limitation of this study is the small sample size, but the results were very consistent.
4. All patients underwent one practice visual field test to help eliminate an learning deficit in the results.

## Case Example



## SUMMARY

1. The inlay does not cause any constrictions in the extent of the visual field when comparing the implanted and non-implanted eyes.
2. The total area of the visual field of the implanted and non-implanted eyes was not statistically significantly different.
3. Implantation of a small aperture intra-corneal inlay improves UCNVIA and maintains UCDOVA.

### References

1. Chaffee, J, Moore, J, Zhou, B, et al. Comparison of Goldmann Kinetic Visual Field Area. Invest Ophthalmol Vis Sci. 2002;43:1663-1668.
2. Brooker ET. A Unique and Innovative Field of Vision: The Octopus versus Goldmann Field. Opt Vis Sci. 2008;85:1229-1233.
3. Brooker ET. A Unique and Innovative Field of Vision: The Octopus versus Goldmann Field. Opt Vis Sci. 2008;85:1229-1233.

©2013 OCTOPUS OPTICS. All rights reserved. For more information, contact us at info@octopusoptics.com