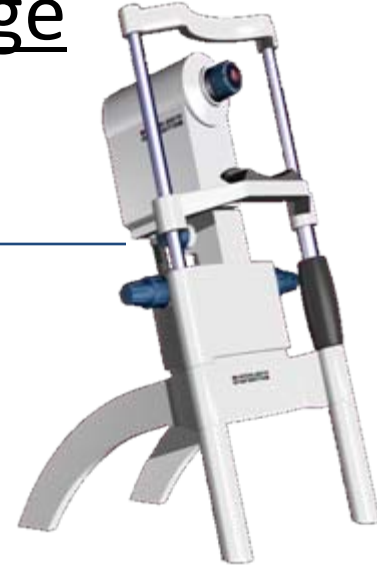


Glaucomatous Structural Diagnostic Technologies:

Detection of Glaucomatous Damage HRT

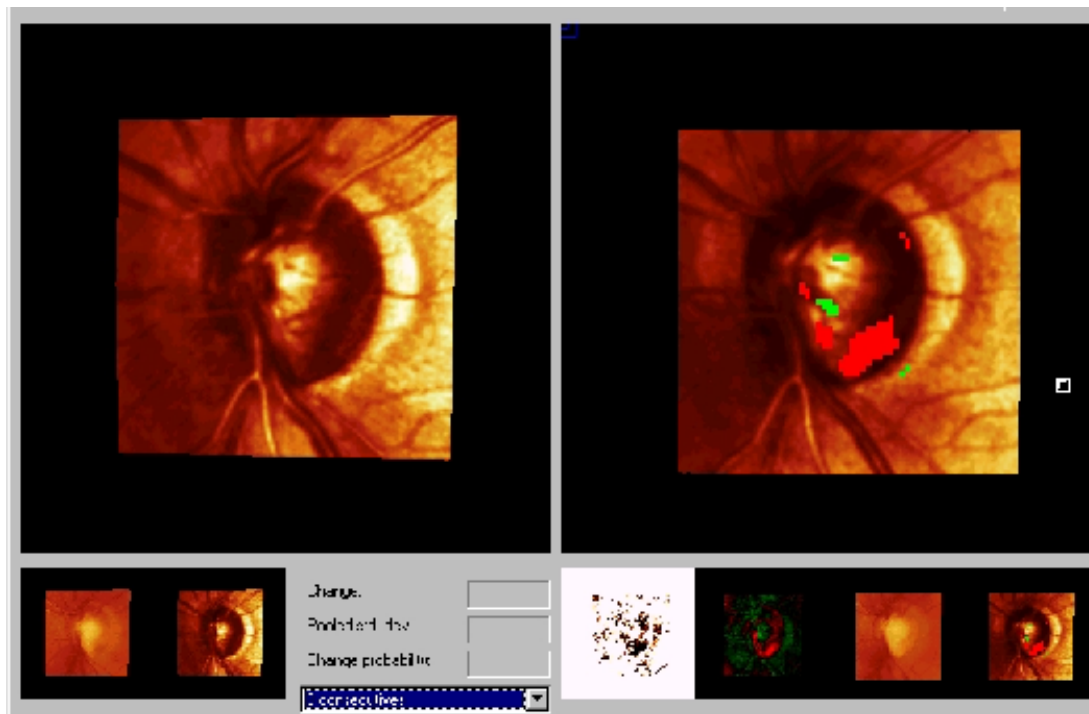
G.A. Cioffi, M.D.

Harkness Eye Institute
Columbia University
New York, New York



HRT II Summary

- Confocal laser scanning microscope
- Quantitative analysis of topography
- Monitoring for the presence or progression of GON
- Advanced Progression Analysis

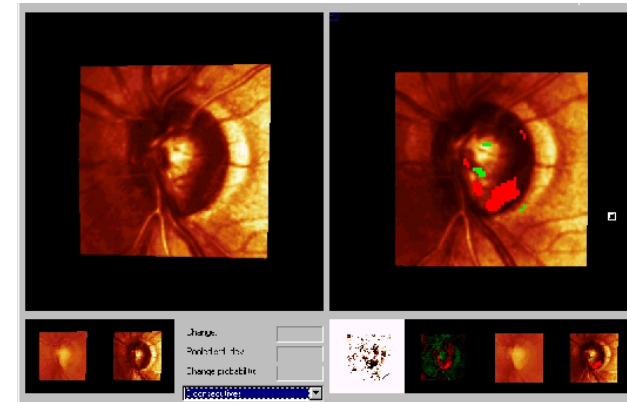
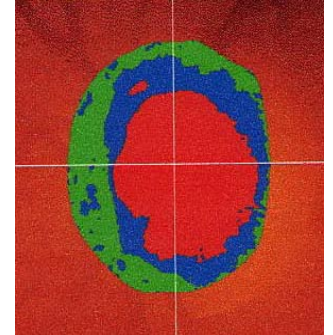




Glaucoma Detection

vs.

Glaucoma Progression



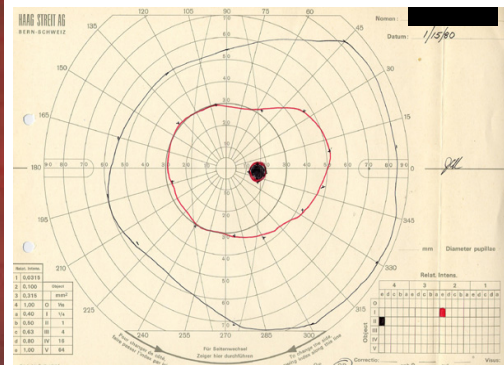
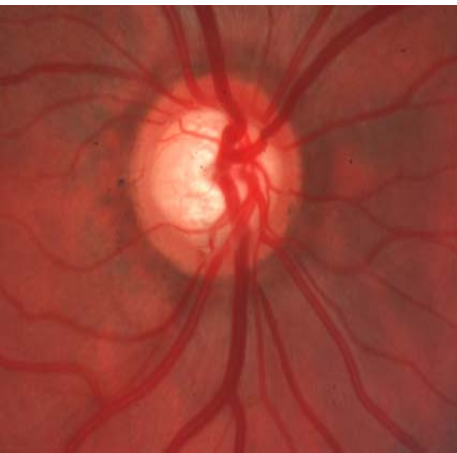
Predictor of Risk

So, why do we keep searching?

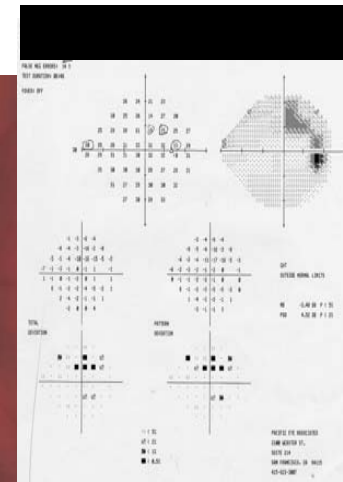
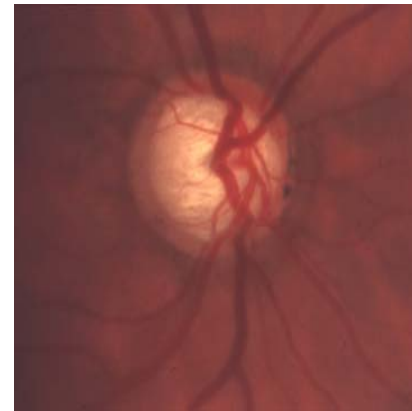
If you only look at Visual Fields, you will miss the majority of patients with glaucoma (Kass et al, Archives 2002)

	Observation	
	N	%
Visual Field	29	32.6
Optic Disc	51	57.3
Concurrent Visual Field and Optic Disc	9	10.1
Total	89	100

1979

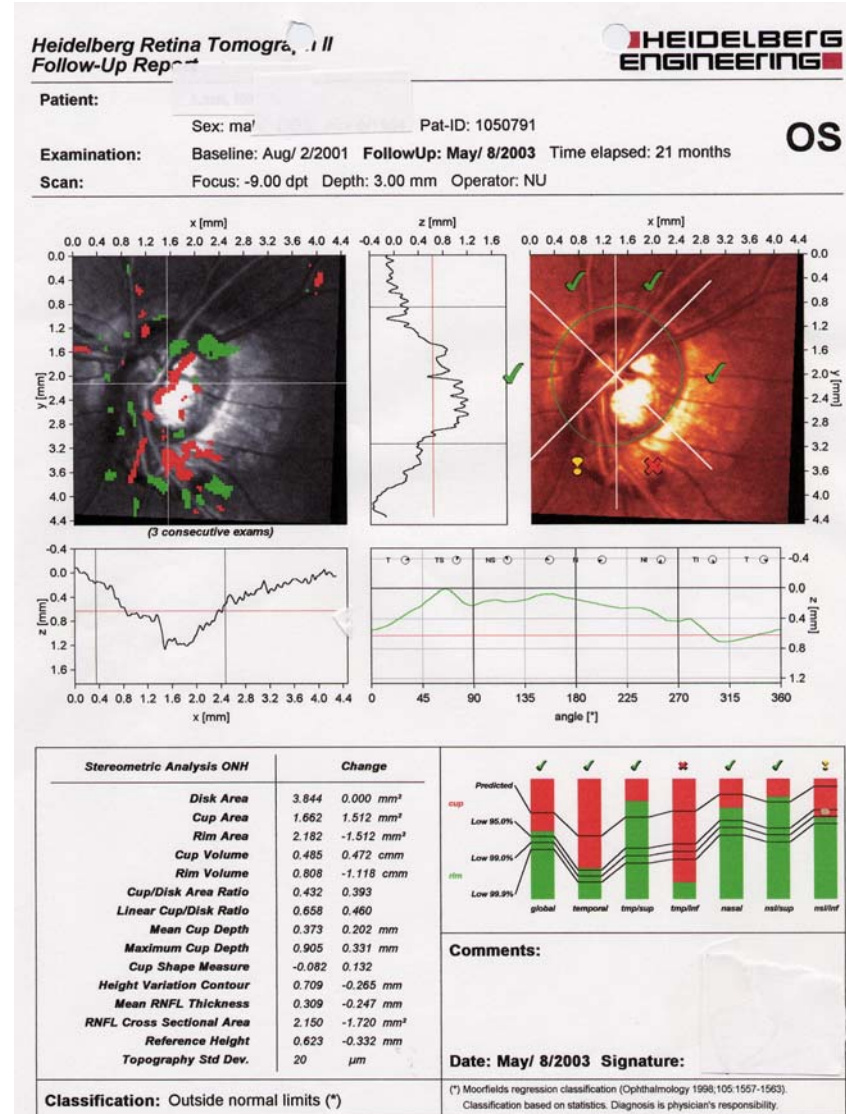
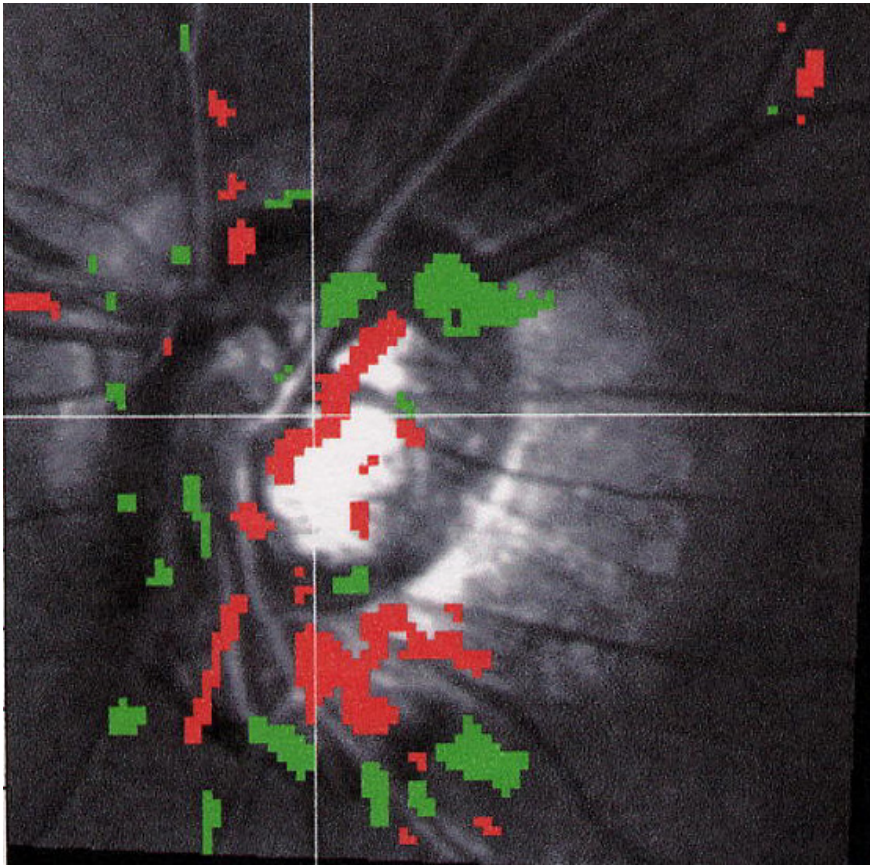


2001



Progression Analysis

Red = Depressed
Green = Elevated
 relative to baseline



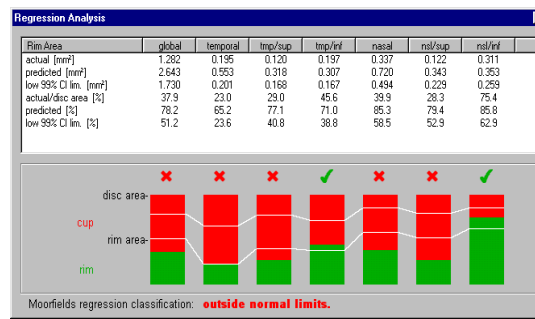
Strides we've made

Baseline Topographic Optic Disc Measurements Are Associated With the Development of Primary Open-Angle Glaucoma

The Confocal Scanning Laser Ophthalmoscopy Ancillary Study to the Ocular Hypertension Treatment Study

Linda M. Zangwill, PhD; Robert N. Weinreb, MD; Julia A. Beiser, MS; Charles C. Berry, PhD; George A. Cioffi, MD; Anne L. Coleman, MD, PhD; Gary Trick, PhD; Jeffrey M. Liebmann, MD; James D. Brandt, MD; Jody R. Piltz-Seymour, MD; Keri A. Dirkes, MPH; Suzanne Vega, MPH; Michael A. Kass, MD; Mae O. Gordon, PhD; for the Confocal Scanning Laser Ophthalmoscopy Ancillary Study to the Ocular Hypertension Treatment Study Group

- Conclusion: Several baseline HRT measurements (inc. C/D, cup depth & volume, hgt. contour, rim area) at baseline are significantly associated with the development of POAG
- Moorfield's regression analysis ("outside normal limits") was also signif associated with development of POAG



Strides we've made

Agreement Between Stereophotographic and Confocal Scanning Laser Ophthalmoscopy Measurements of Cup/Disc Ratio: Effect on a Predictive Model for Glaucoma Development

Felipe A. Medeiros, MD, PhD, Linda M. Zangwill, PhD, Christopher Bowd, PhD, Cristiana Vasile, MD, Pamela A. Sample, PhD, and Robert N. Weinreb, MD

Conclusions: HRT II and stereophotograph estimates of C/D ratio can be used interchangeably when incorporated into a predictive model to estimate the risk of conversion from ocular hypertension to glaucoma.

Glaucomatous Progression in Series of Stereo-Paired Photographs and Heidelberg Retinal Tomography Images

N. O'Leary¹, S.L. Mansberger², M.D. Twa³, B.A. Fortune², M.J. Lloyd², G.A. Cioffi², C.A. Johnson², A. Kotecha¹, D.F. Garway-Heath⁴, D.P. Crabb¹.

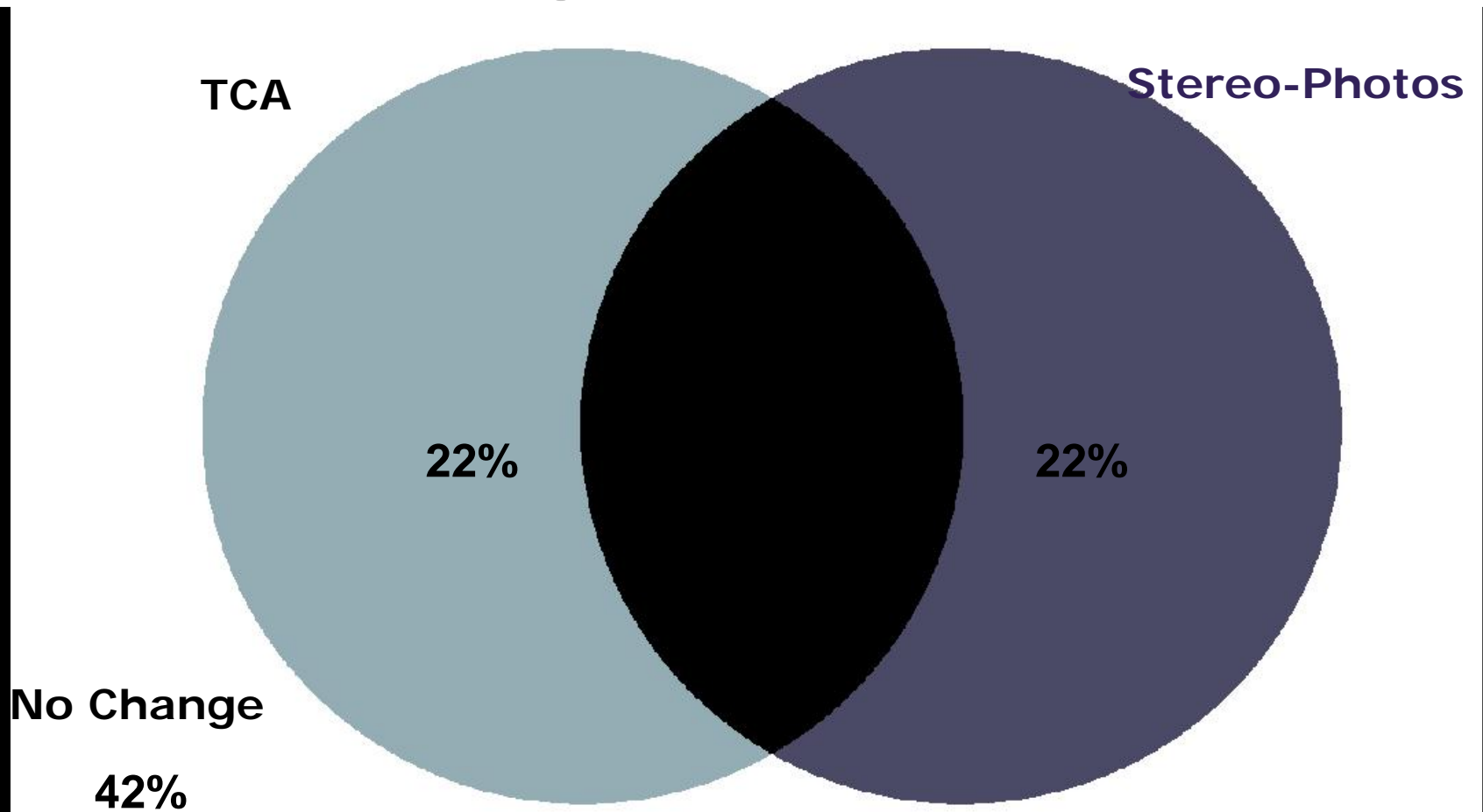
¹Optometry and Visual Science, City University, London, United Kingdom

²Discoveries in Sight, Devers Eye Institute, Portland, OR

³College of Optometry, University of Houston, Houston, TX

⁴Glaucoma Research Unit, Moorfields Eye Hospital, London, United Kingdom.

Confusion remains: **Agreement of Change:** **Stereo-photos & HRT TCA**



N. O'Leary¹, S.L. Mansberger², M.D. Twa³, B.A. Fortune², M.J. Lloyd², G.A. Cioffi², C.A. Johnson², A. Kotecha¹, D.F. Garway-Heath⁴, D.P. Crabb¹. IOVS. E abstract 2008



Game Changer?

Influence of clinically invisible, but optical coherence tomography detected, optic disc margin anatomy on neuroretinal rim evaluation

Reis, O'Leary, Yang, Sharpe, Nicolela, Burgoyne, Chauhan IOVS Apr 2012

BMO-MRW quantifies the neuroretinal rim from a true anatomical outer border and accounts for its variable trajectory at the point of measurement.

