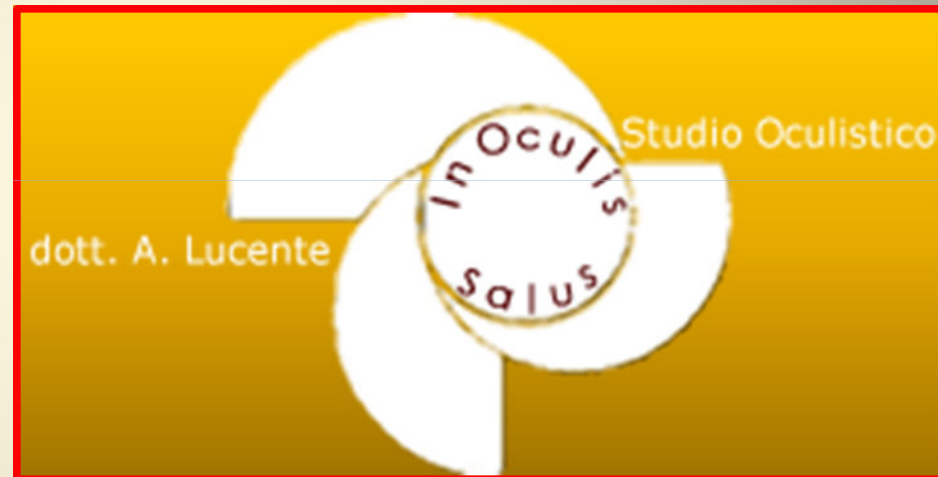
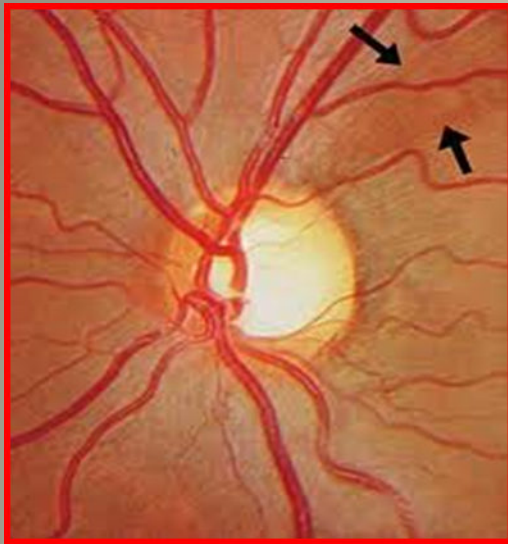


# ***OCT & Glaucoma: vantaggi e limiti***



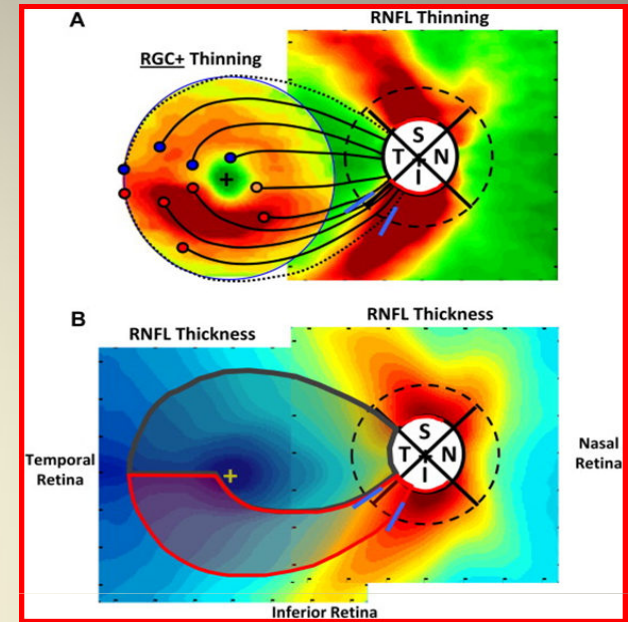
***No financial interest***

# HD-OCT & Glaucoma: Why?

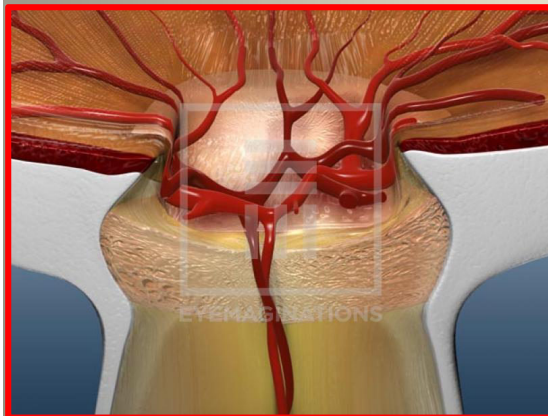


**RNFL**

- RNFL
- ONH
- GCC
- AS-OCT
- **Combo Report**



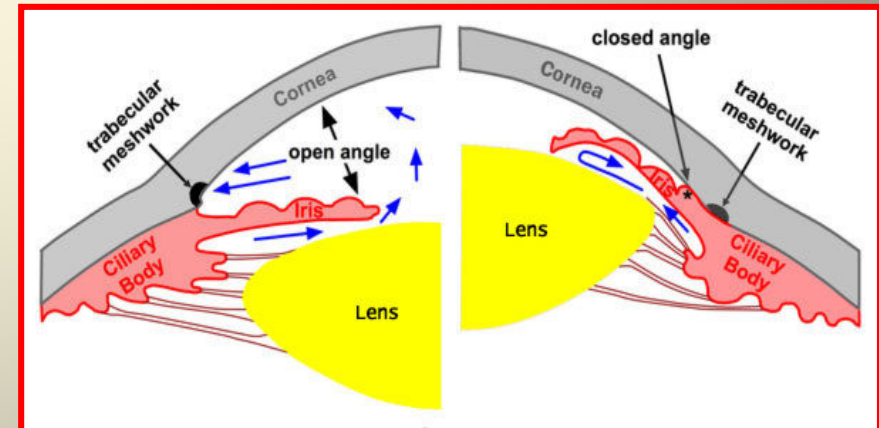
**GCC**



**ONH**

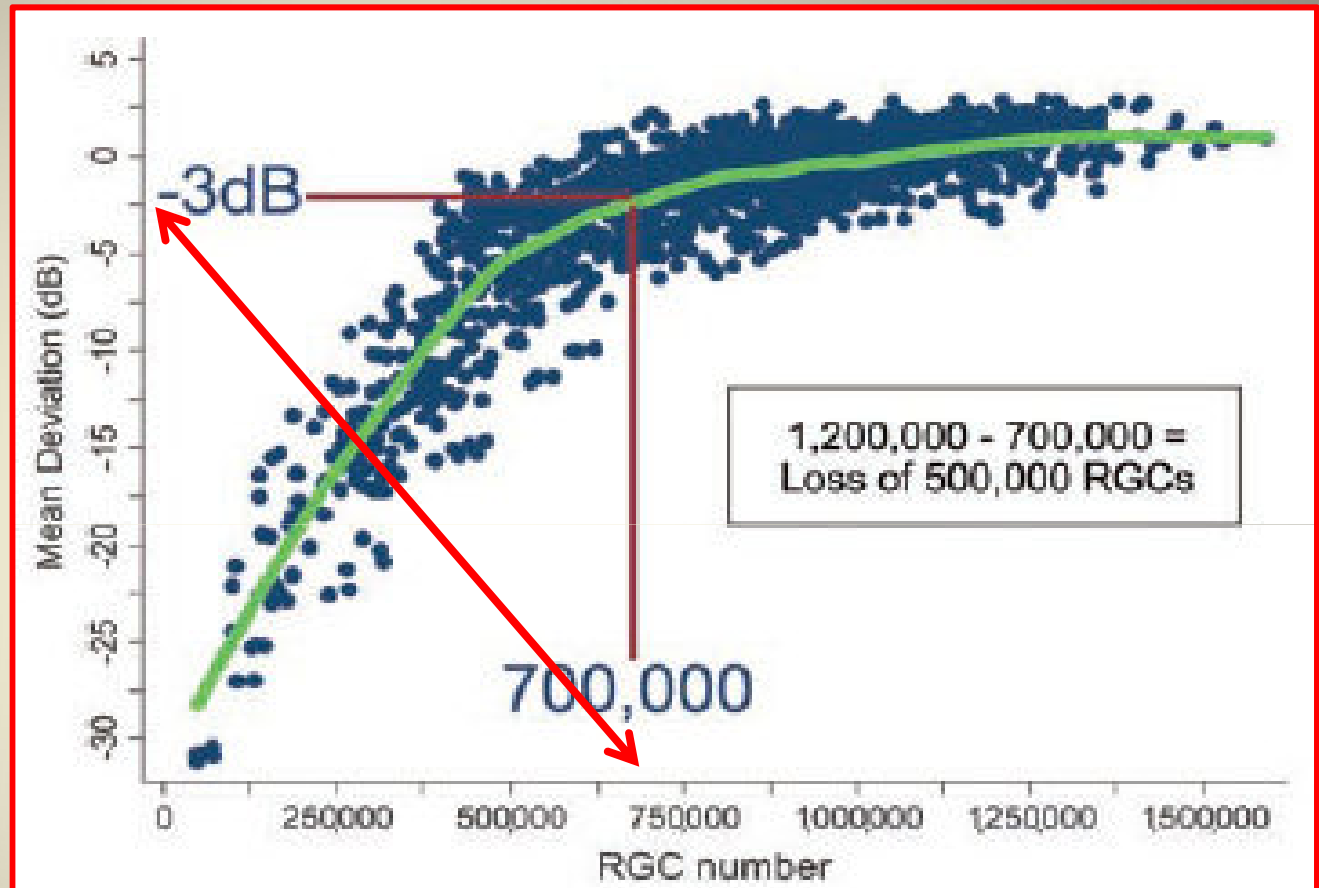
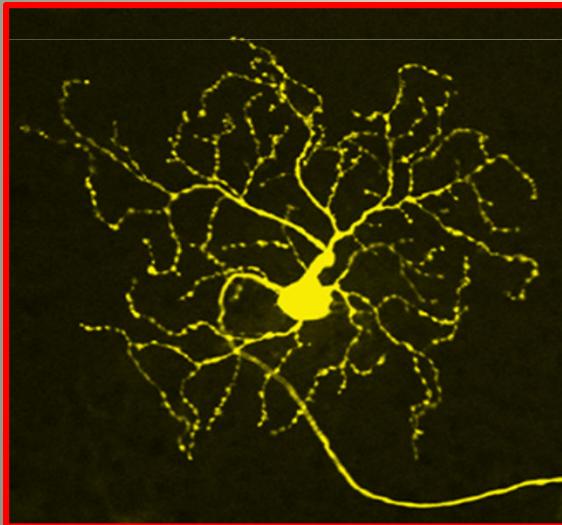
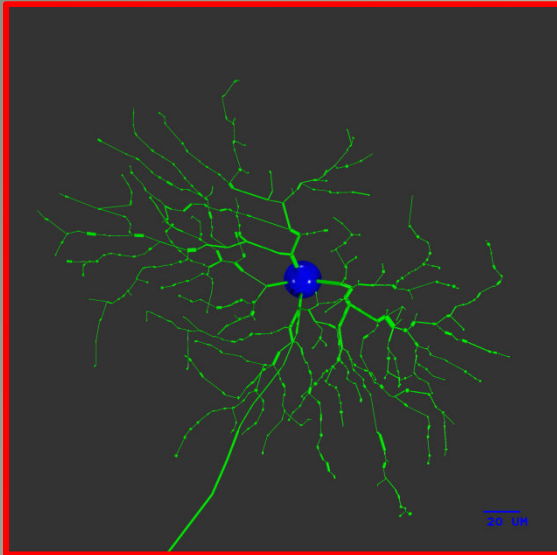


**Combo Report**



**AS-OCT**

# *RGC & Mean Deviation*



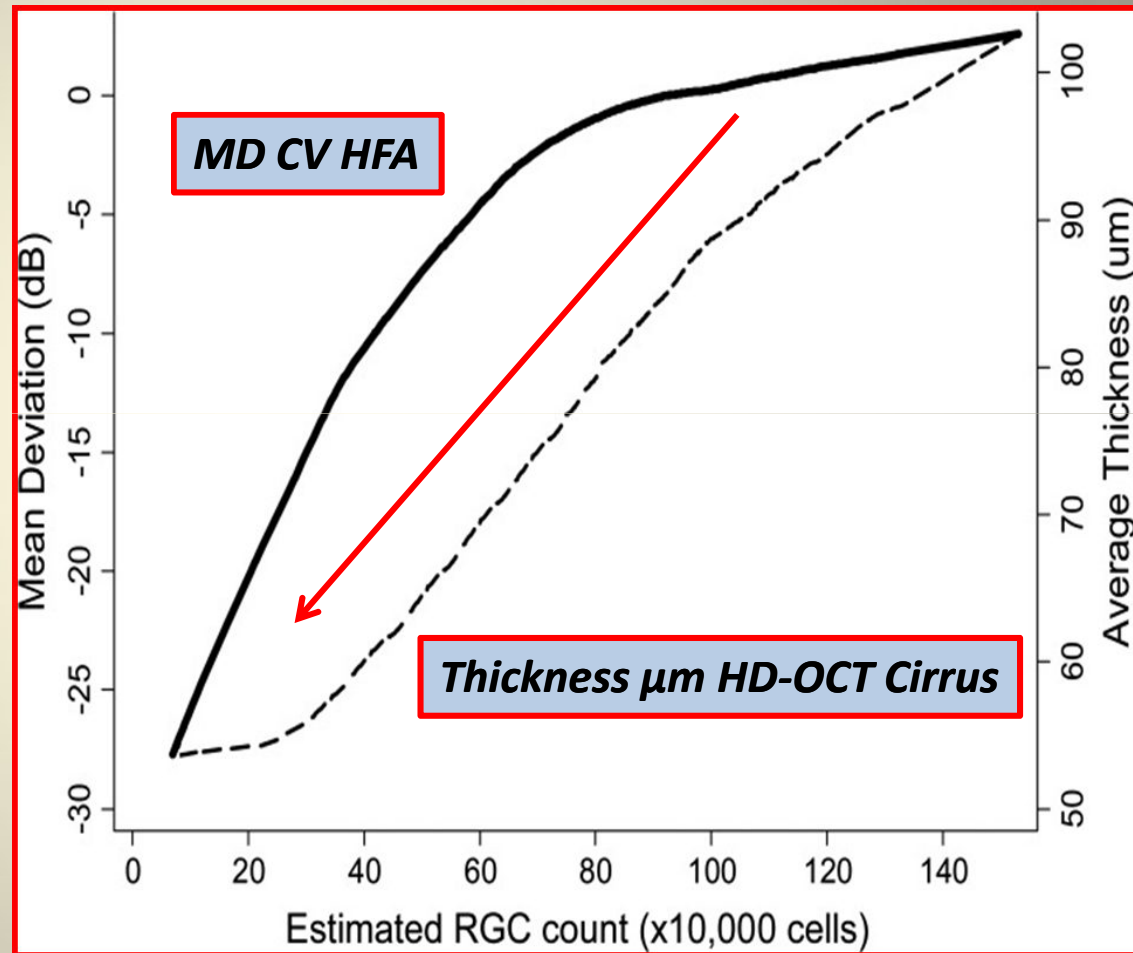
***5000/9000 Retinal Ganglion Cells/Year***

Adapted from Medeiros FA, Lisboa R, Weinreb RN, et al. A combined index of structure and function for staging glaucomatous damage. Arch Ophthalmol. 2012; 130 (5)

- At **early stages** of damage (**high RGC counts**), changes in estimated **RGC** counts correspond to relatively **smaller changes in MD** (continuous line) and relatively **larger changes in average RNFL** thickness (dashed line).

- At **advanced stages** of damage (**low RGC counts**), changes in estimated **RGC** counts correspond to relatively **large changes in MD**, but only **small changes in average RNFL** thickness.

## Mean Deviation MD (dB) Average Thickness ( $\mu\text{m}$ ) Estimated RGC count (x10.000 cells)

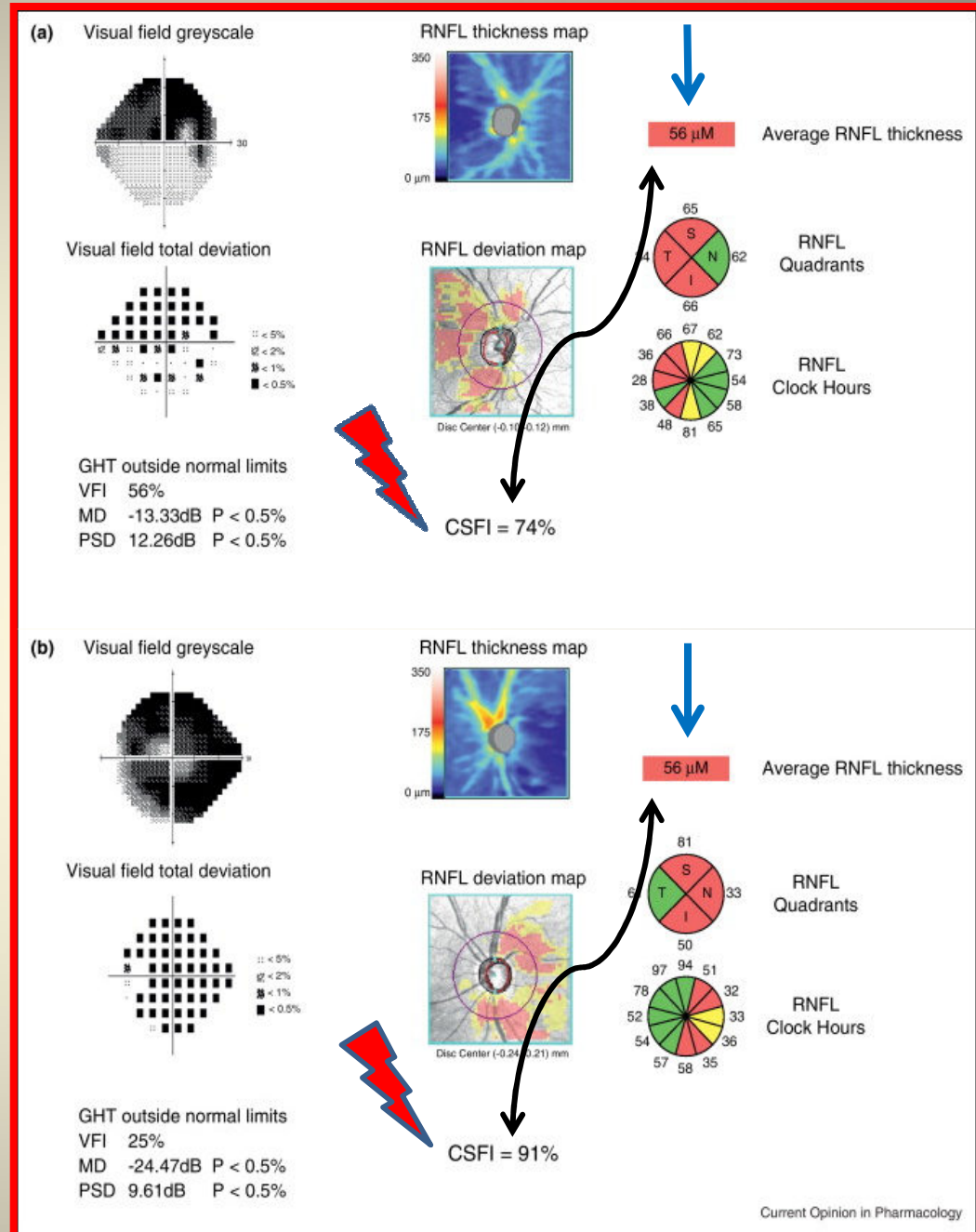


# CSFI

## Combined Structure Function Index

Felipe A. Medeiros, Renato Lisboa,  
Robert N. Weinreb, Christopher A.  
Girkin, Jeffrey M. Liebmann, Linda M.  
Zangwill. *Arch Ophthalmol.* 2012

Douglas GR, Drance SM, Schulzer M.  
A correlation of fields and discs in  
open angle glaucoma. *Can J. O.* 1974



# AS HD-OCT

Nome: \_\_\_\_\_

ID: 875950848

Data esame: 21/10/2013

dr Amedeo Lucente



Data di nascita: 24/07/1959

Ora dell'esame: 17:04

Sesso: Uomo

Numero di serie: 600-1083222

Medico: \_\_\_\_\_

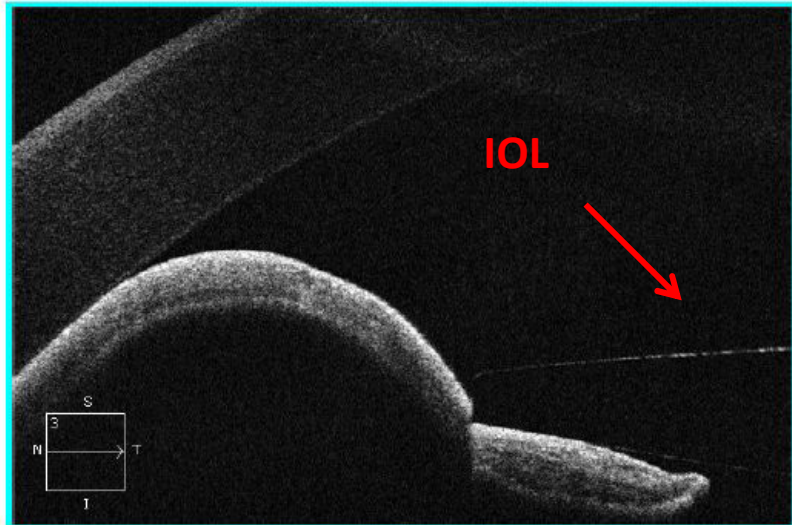
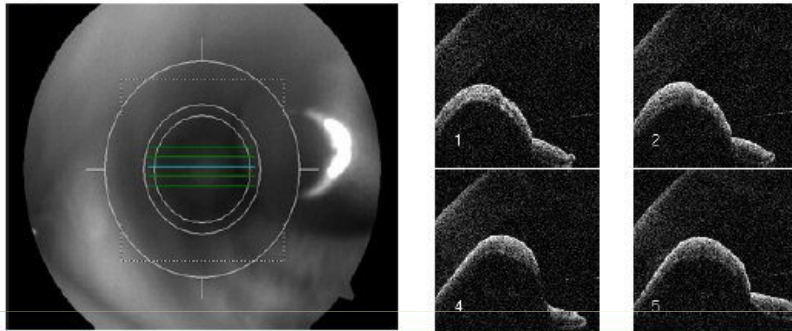
Intensità segnale: N/A

Immagini ad alta definizione: Anterior Segment 5 Line Raster  OD  OS

Angolo di scansione: 0°

Spaziatura: 0.25 mm

Lunghezza: 3 mm



Commenti

Firma del medico

X3bz  
SW Ver: 1.5.2.1377  
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Carl Zeiss Meditec, Inc  
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Pagina 1 di 1

Nome: \_\_\_\_\_

ID: 875950848

Data esame: 21/10/2013

dr Amedeo Lucente



Data di nascita: 24/07/1959

Ora dell'esame: 17:02

Sesso: Uomo

Numero di serie: 600-1083222

Medico: \_\_\_\_\_

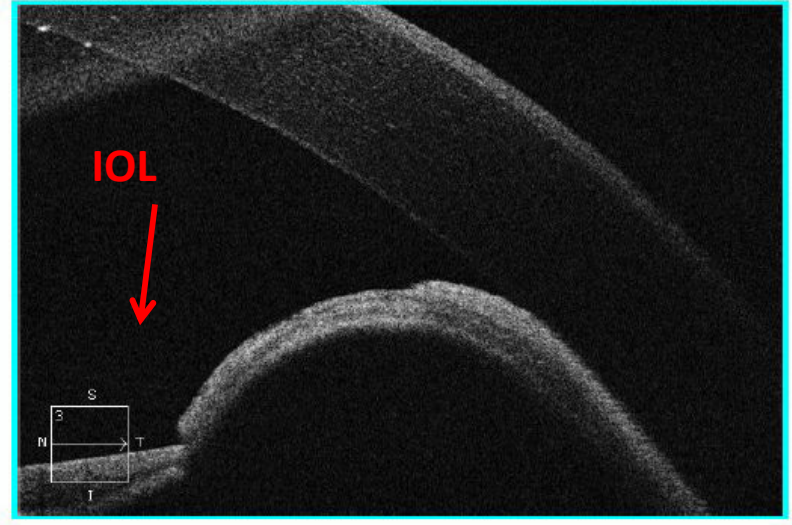
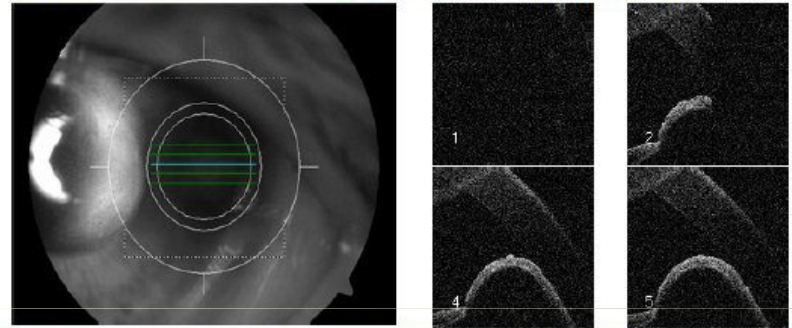
Intensità segnale: N/A

Immagini ad alta definizione: Anterior Segment 5 Line Raster  OD  OS

Angolo di scansione: 0°

Spaziatura: 0.25 mm

Lunghezza: 3 mm




Commenti

Firma del medico

X3bz  
SW Ver: 1.5.2.1377  
Copyright 2012  
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All Rights Reserved  
Pagina 1 di 1

# AS HD-OCT

Nome: \_\_\_\_\_

ID: 875050848      Data esame: 21/10/2013      dr. Amedeo Lucente      

Data di nascita: 24/07/1959      Ora dell'esame: 17:05

Sesso: Uomo      Numero di serie: 600-1083222

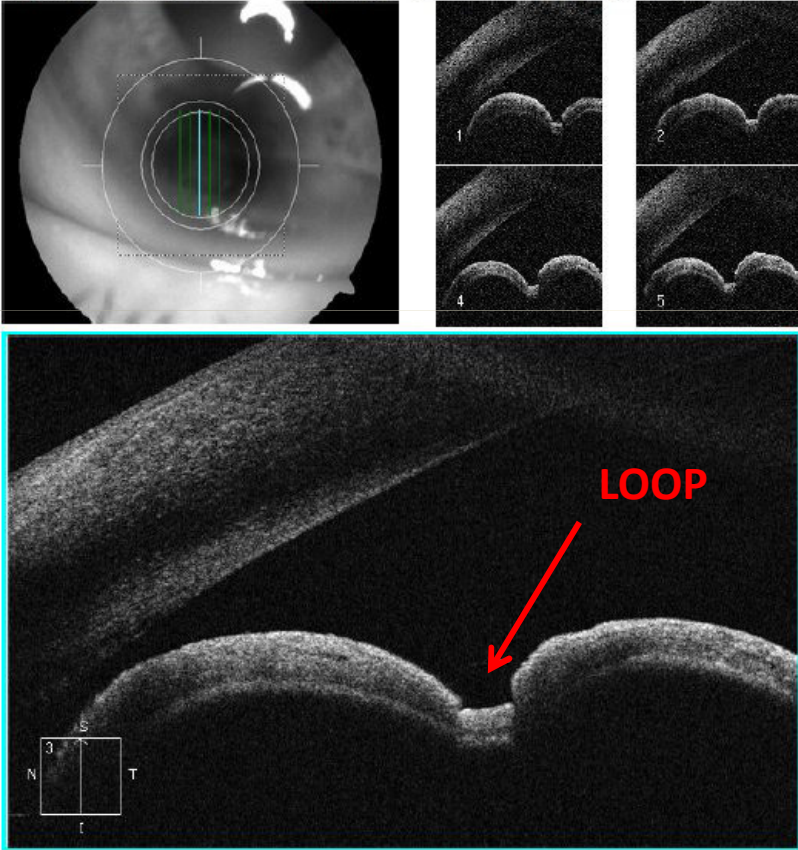
Medico: \_\_\_\_\_      Intensità segnale: N/A

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**Immagini ad alta definizione: Anterior Segment 5 Line Raster**      OD        OS

---

Angolo di scansione: 90°      Spaziatura: 0.25 mm      Lunghezza: 3 mm




**LOOP**

---

Commenti \_\_\_\_\_      Firma del medico \_\_\_\_\_

X3bz  
SW Ver: 1.5.2.1377  
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All Rights Reserved  
Pagina 1 di 1

Nome: \_\_\_\_\_

ID: 1786419212      Data esame: 07/11/2013      dr. Amedeo Lucente      

Data di nascita: 14/01/1945      Ora dell'esame: 15:42

Sesso: Uomo      Numero di serie: 600-1083222

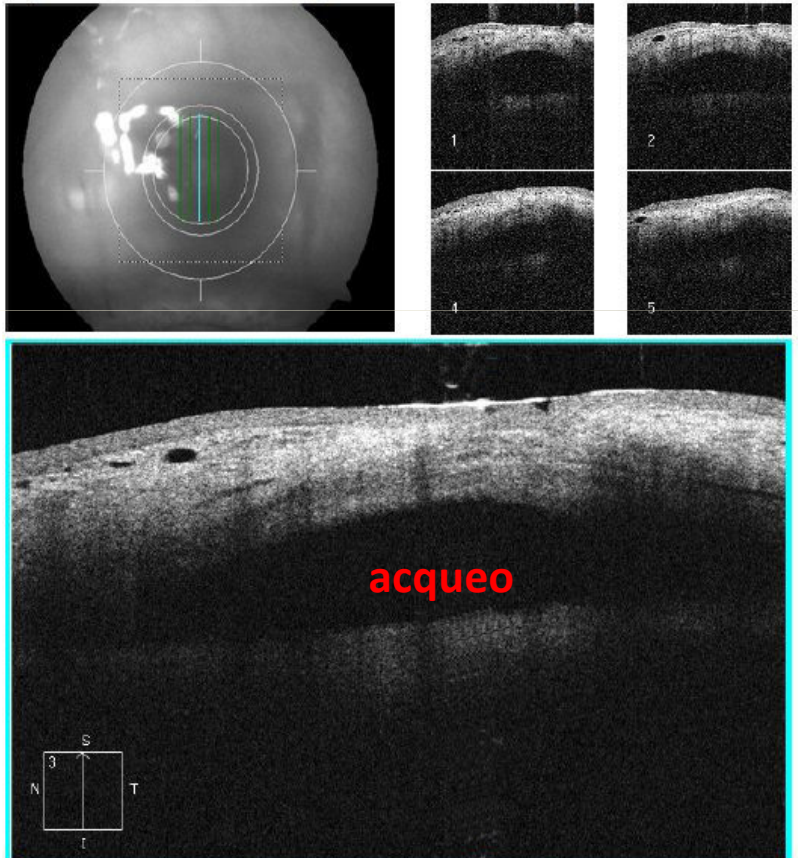
Medico: \_\_\_\_\_      Intensità segnale: N/A

---

**Immagini ad alta definizione: Anterior Segment 5 Line Raster**      OD        OS

---

Angolo di scansione: 90°      Spaziatura: 0.25 mm      Lunghezza: 3 mm



**acqueo**

---

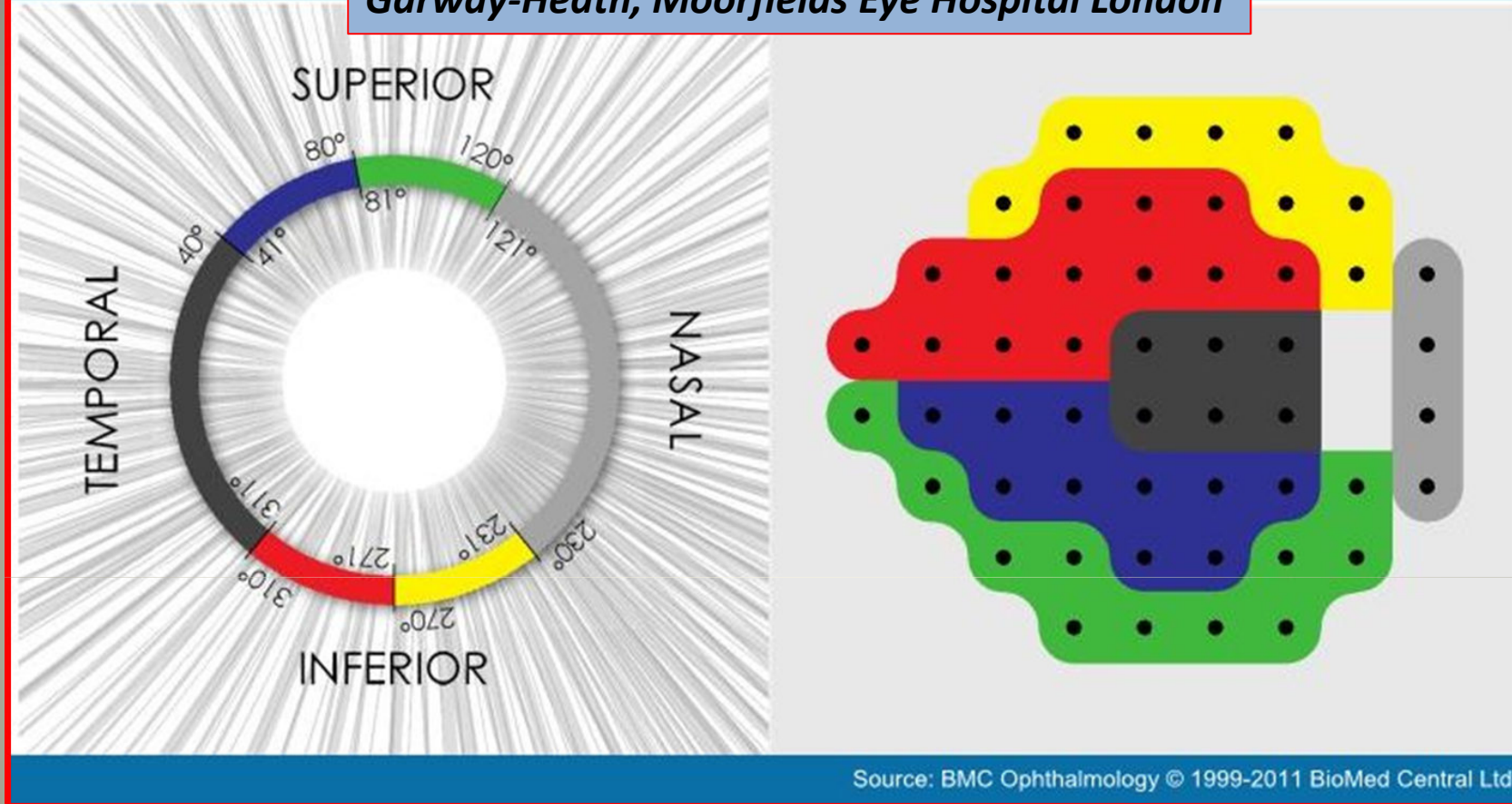
Commenti \_\_\_\_\_      Firma del medico \_\_\_\_\_

X3bz  
SW Ver: 1.5.2.1377  
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Carl Zeiss Meditec, Inc  
All Rights Reserved  
Pagina 1 di 1

# ***Piattaforme Multimediali & Combo Report***

- ***Zeiss Cirrus & Humphrey con **FORUM*****
- ***Heidelberg Spectralis & HEP con **HEYEX*****
- ***Optovue & Octopus **Bundle Haag-Streit \******





Source: BMC Ophthalmology © 1999-2011 BioMed Central Ltd

Map representing the **relationship between Standard Automated Perimetry** visual field sectors and sections of the **peripapillary OCT scan circle**. This map is based on the **work of Garway-Heath et al** and shows the correspondence **between areas of the visual field and peripapillary retinal nerve fiber layer** due to the anatomical configuration of the retinal nerve fiber bundles.

First Release : Presented in part at the Glaucoma Society (UK & Eire) Annual Meeting, London, England, November **1998**

Six corresponding *regions* of *neuroretinal rim area (A)*, *peripapillary retinal nerve fiber layer (B)*, and *visual field (C)*, used to measure the structure–function relationship (based on structure–function map introduced by *Garway-Heath* et al.)

Nilforushan N et al. Invest Ophthalmol Vis Sci. 2012 May

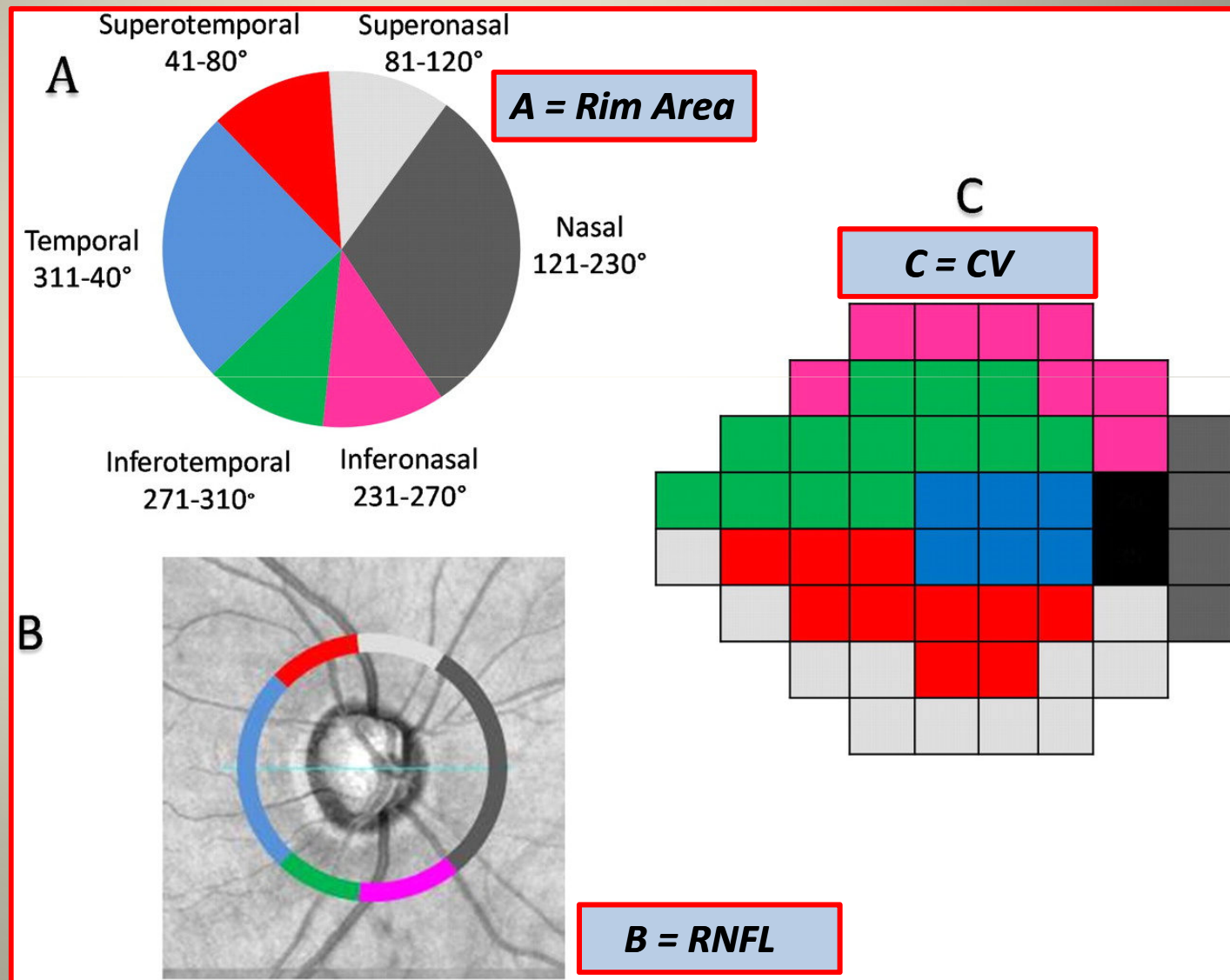
**ST + SN : 80°+**

**IN + IT : 80° +**

**Nasal : 110° +**

**Temporal : 90° =**

**Rim / RNFL: 360°**

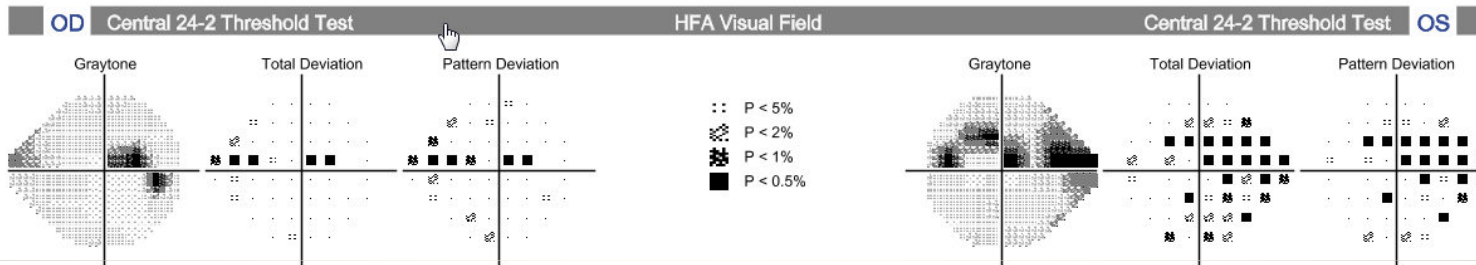


# Forum Glaucoma Workplace

## Combined structure and function reports

A. Lucente

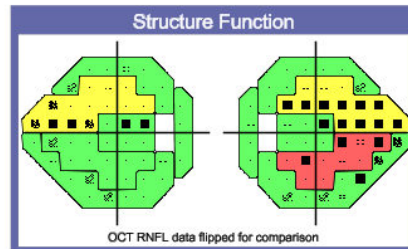
Patient: DEMO FGW, 01  
 Date of Birth: Aug 17, 1934  
 Gender: Male  
 Patient ID: 64854



Feb 27, 2013 SITA-Standard

FP: 11%  
 FN: 9%  
 VFI: 90%

MD: -2.09 dB P < 5%  
 PSD: 6.76 dB P < 0.5%  
 GHT: Outside Normal Limits

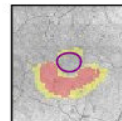
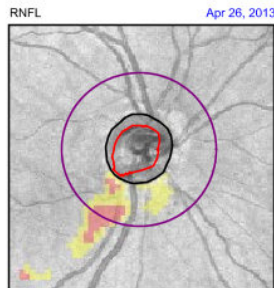


Feb 27, 2013 SITA-Standard

FP: 2%  
 FN: 6%  
 VFI: 77%

MD: -7.58 dB P < 0.5%  
 PSD: 9.81 dB P < 0.5%  
 GHT: Outside Normal Limits

### OD CIRRUS HD-OCT

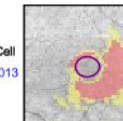
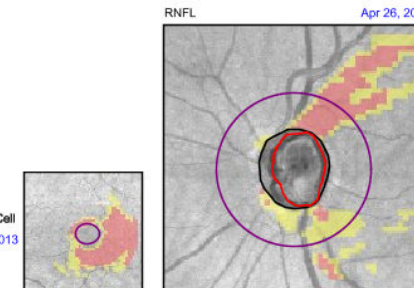


Ganglion Cell  
Apr 26, 2013

OD		OS
88µm	Average RNFL Thickness	80µm
0.72	Average C/D Ratio	0.83
0.88mm <sup>2</sup>	Rim Area	0.75mm <sup>2</sup>
0.66	Vertical C/D Ratio	0.92
0.400mm <sup>3</sup>	Cup Volume	1.021mm <sup>3</sup>
1.81mm <sup>2</sup>	Disc Area	2.26mm <sup>2</sup>

Distribution of Normals N/A 95% 5% 1%

### OS CIRRUS HD-OCT



Ganglion Cell  
Apr 26, 2013

Signature

Comments

Database HFA : 422 ≥ 18aa età ≤ 89aa + 5D ≥ Range ≤ + 5D



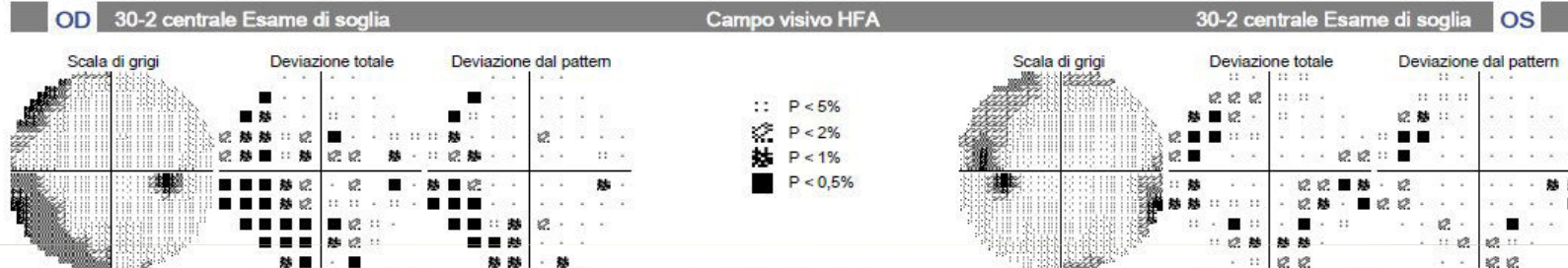
# Forum Glaucoma Workplace

## Combined structure and function reports

Paziente:  
 DDN: 14-feb-1972  
 Sesso: Altro  
 ID: 1972.0214.AFF7.0869.5824.4FE9



A. Lucente



15-ott-2013 SITA-Standard

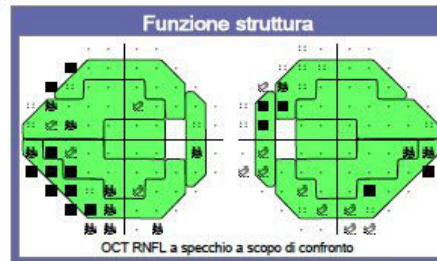
15-ott-2013 SITA-Standard

FP: 3%  
 FN: 13%  
 VFI: 91%

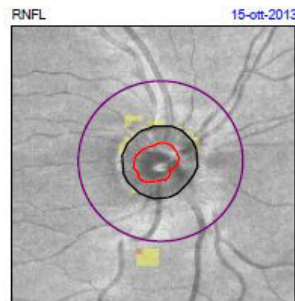
MD: -6,43 dB P < 0,5%  
 PSD: 6,79 dB P < 0,5%  
 GHT: Fuori limiti normali

FP: 5%  
 FN: 6%  
 VFI: 93%

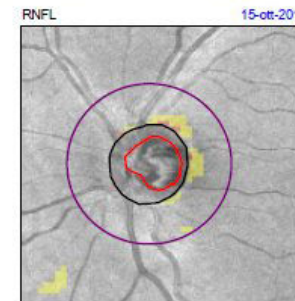
MD: -4,76 dB P < 0,5%  
 PSD: 4,92 dB P < 0,5%  
 GHT: Fuori limiti normali



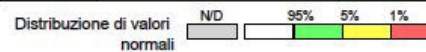
**OD CIRRUS photo**



**OS CIRRUS photo**



OD		OS
94µm	Spessore RNFL medio	93µm
1,31mm²	Area della rima	1,27mm²
1,94mm²	Area del disco	2,24mm²
0,56	Rapporto C/D medio	0,66
0,51	Rapporto C/D verticale	0,68
0,213mm²	Volume di escavazione	0,433mm²



Commenti

Empty text box for comments.

Firma

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# *Limits HD-OCT*

- Opacity
- Range
- Tilting retina
- Resolution
- Deep Resolution
- Agreement
- Database
- High Costs
- In the later stages of glaucoma OCT measurements appear to reach a plateau

**Grazie**

XVII CONVEGNO  
**OPTALMO-CHIRURGIA**  
IN DIRETTA

---


 *Live Surgery*

**CHIRURGIA DEL SEGMENTO ANTERIORE  
E DEL SEGMENTO POSTERIORE**

*In focus*

- ▶ CORNEA
- ▶ GLAUCOMA
- ▶ RETINA
- ▶ CATARATTA

*Organizzatori: R. Di Lauro, L. Zeppa*



**NAPOLI, 6 - 7 Dicembre 2013**  
Centro Congressi Ferminio - Napoli

**zione**