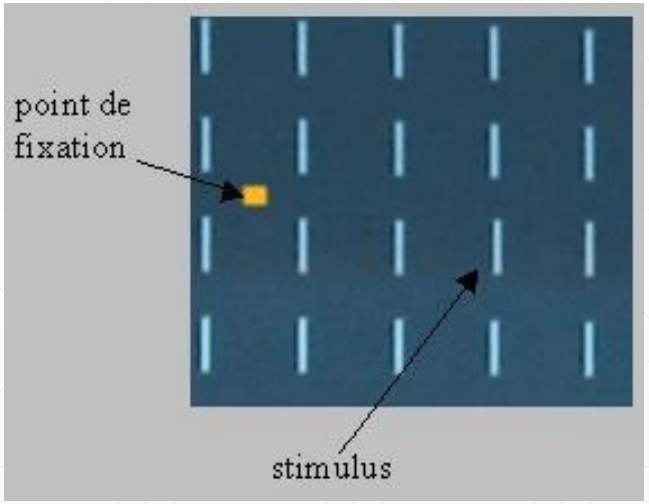
Visual fields

-IV-
Motion perimetry

Motion perimetry

- The stimulus is the displacement of a small bar
- Threshold is the minimum displacement perceived by the subject



Motion perimetry

a more sensitive test

disorder of magnocellular pathway

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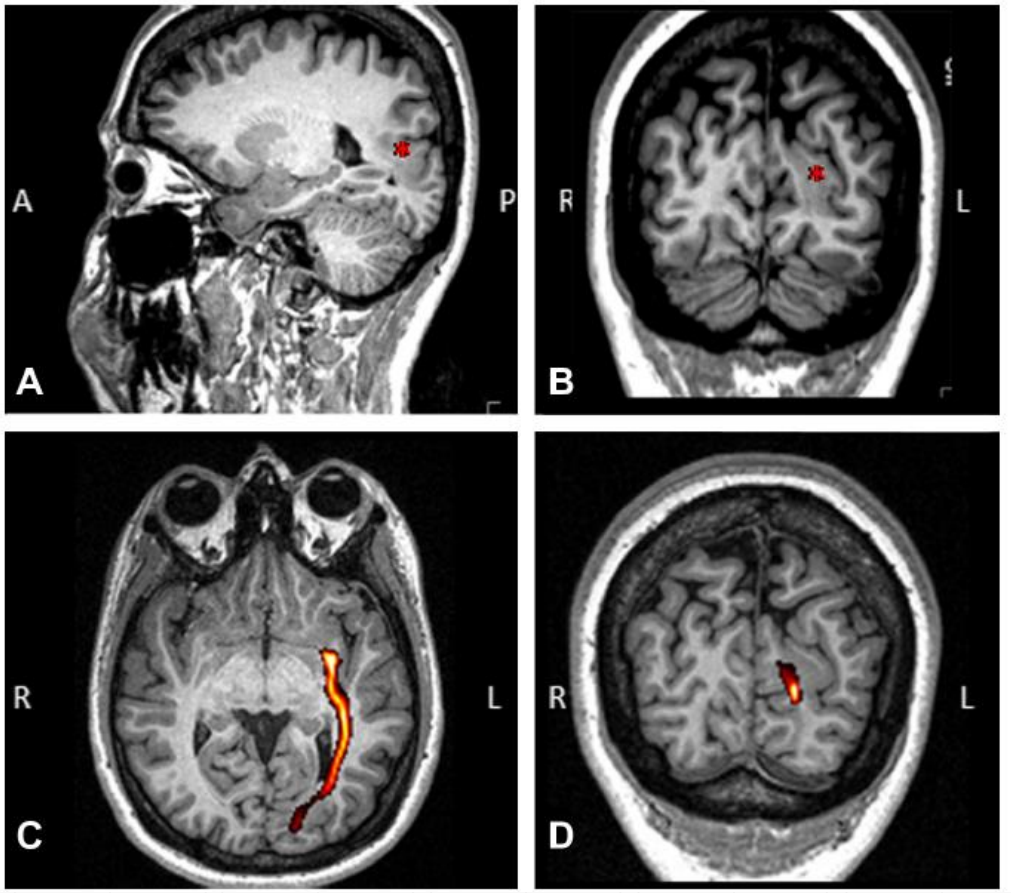
Case History Study

Developmental dissociation of visual dorsal stream parvo and magnocellular representations and the functional impact of negative retinotopic BOLD responses

Isabel Catarina Duarte [a,b], Gil Cunha [a,b,c], João Castelhano [b], Francisco Sales [c], Aldina Reis [b], João Paulo Silva Cunha [d,a], Miguel Castelo-Branco [a,b,*]



Structural imaging.

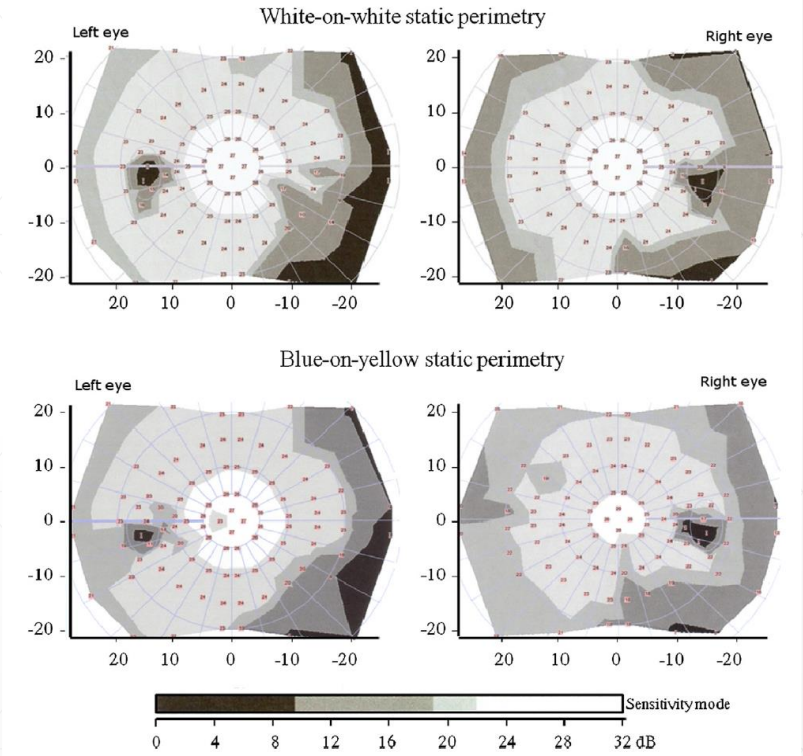
(A and B)
T1- weighted MPRAGE. MRI revealed a cortical dysplasia, an abnormal thickening of the grey-white matter boundary, in the left cuneus and precuneus occipital region (*).

(C and D)
Left optical radiation tractography (transversal and coronal).

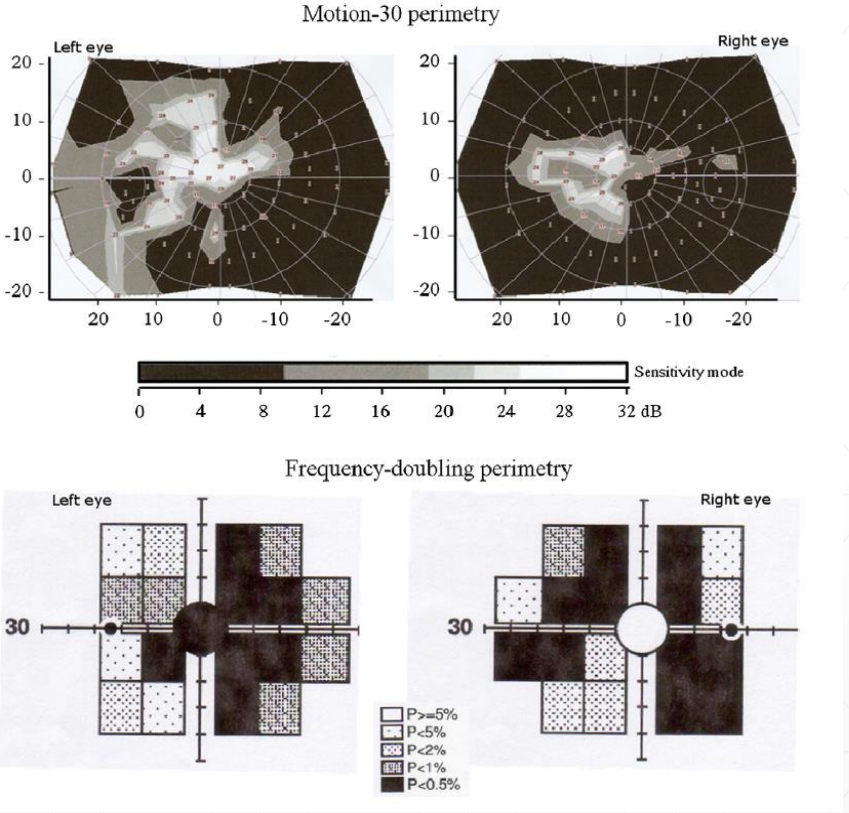
Motion perimetry

a more sensitive test

disorder of magnocellular pathway



erimetries. Upper: White-on-white static perimetry (non tuned to particular pathways) revealed a peripheral defe
on-yellow (parvo/koniocellular pathway) also showed a defect in the right inferior quadrant. Note that black ellipt
d not preclude the interpretation of homonymous impairment. (For interpretation of the references to color in th



Motion perimetry

a more sensitive test

glaucoma

- deficit of the magnocellular system at the early stage of glaucoma

References:

- Wu, British J Ophthalmol (1998)
- Westcott, Vision Res (1999)
- Brusini (2009)
- Duarte & al (2013)

Motion perimetry

a more sensitive test

glaucoma

MOTION PERIMETRY IN GLAUCOMA

P. Brusini, M. Zeppieri, M.L. Salvetat, C. Tosoni, L. Parisi, G. Guarrera*

S.O.C. di Oculistica - Azienda Universitario-Ospedaliera S. Maria della Misericordia, Udine, Italy
*Direzione Sanitaria - Azienda Universitario-Ospedaliera S. Maria della Misericordia, Udine, Italy

- 21 patients with OHT
- 19 patients with OAG
- 10 normal subjects

Results

		controlli	OHT	POAG	p*
MD	media ± DS	0,6 ± 0,2	1,4 ± 1,1	4,1 ± 3,4	0,001
	range	0,2 - 1,0	0,5 - 4,6	0,5 - 11,1	
Def Var	media ± DS	11,9 ± 5,5	20,8 ± 13,4	42,6 ± 26,4	0,005
	range	1 - 20	9 - 56	9 - 82	

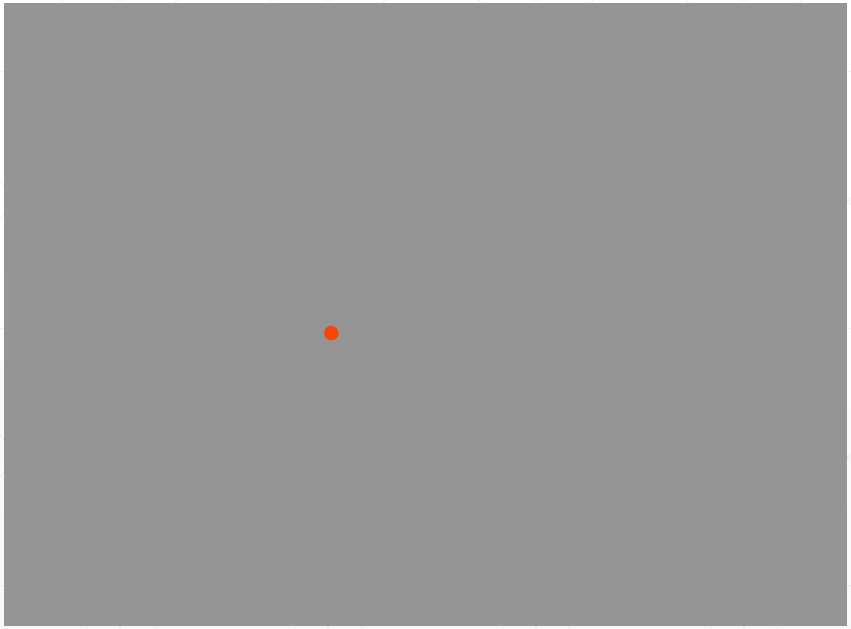
* = Kruskal-Wallis test

Duncan test:
- statisticaly significant difference between controls, OHT and OAG ($p<0.01$);
- no significant difference between OHT and OAG

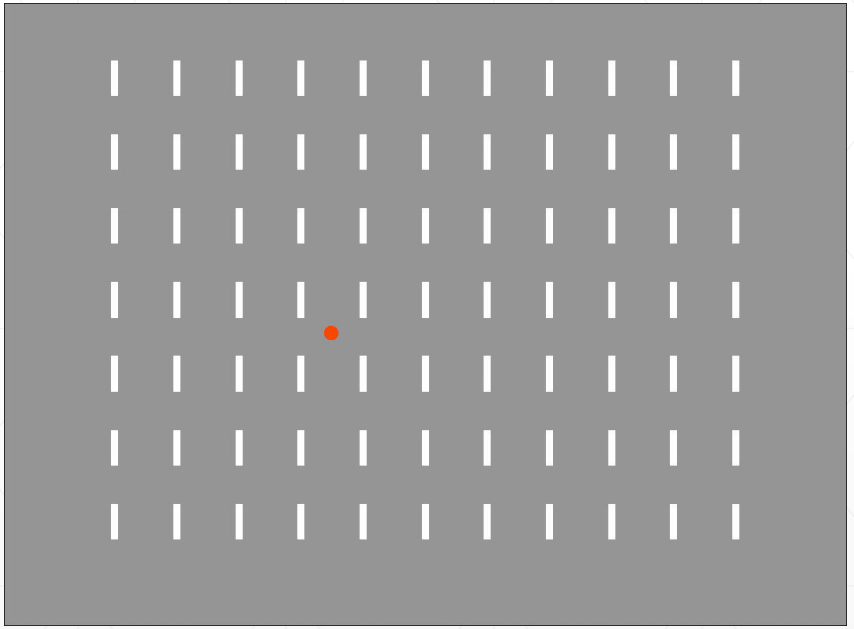
Motion perimetry

a more specific test

- stimulation is less affected by optical problems (cataract, cornea, refractive errors, …) than conventional white/white perimetry:



Conventional perimetry



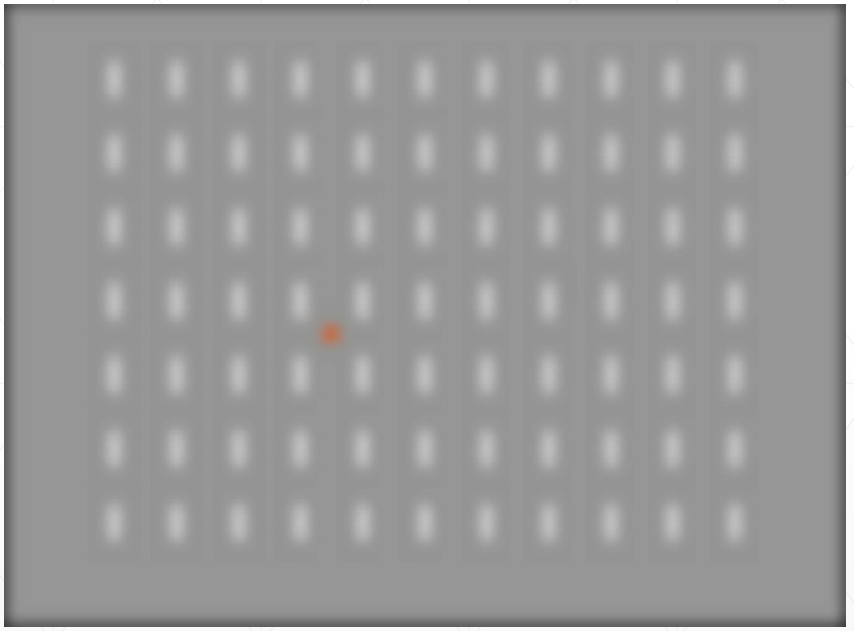
Motion perimetry

Motion perimetry

a more specific test

- simulation of the effect of a refractive error:

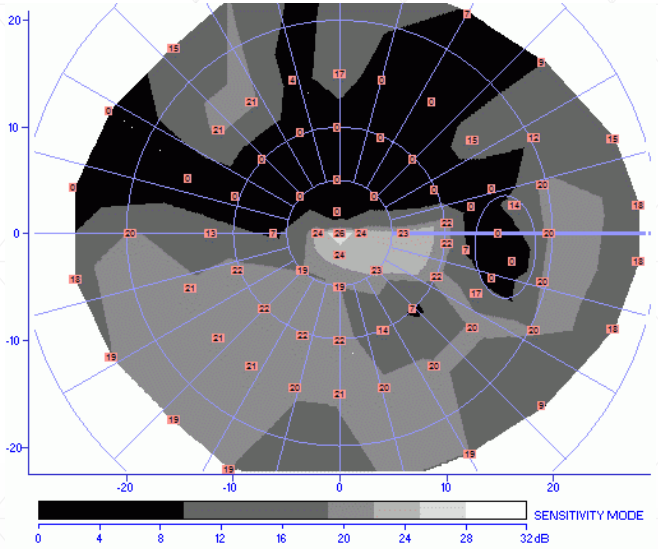
Conventional perimetry:
the stimulus is not seen



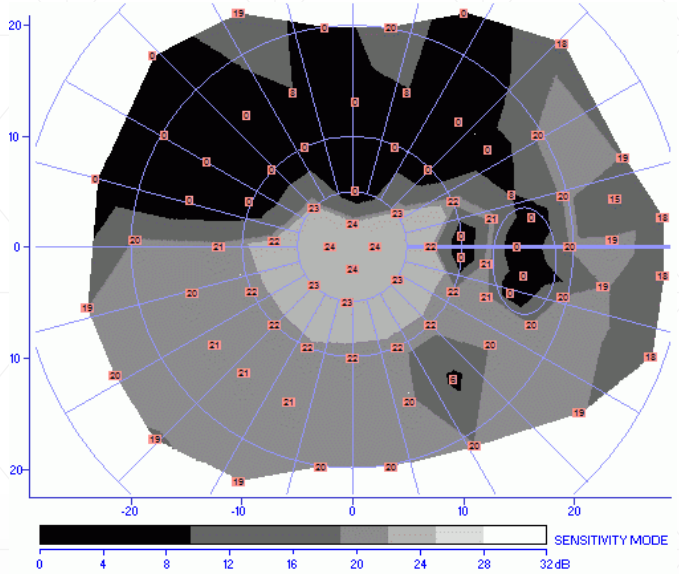
Motion perimetry:
the stimulus is still visible

Example of glaucoma

(Dr. Zanlonghi, Nantes)



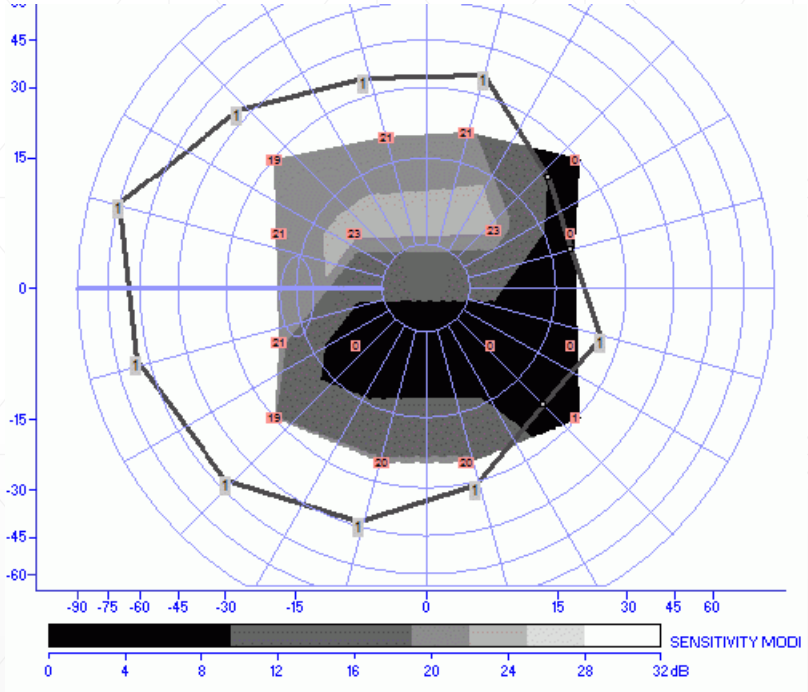
Conventional perimetry



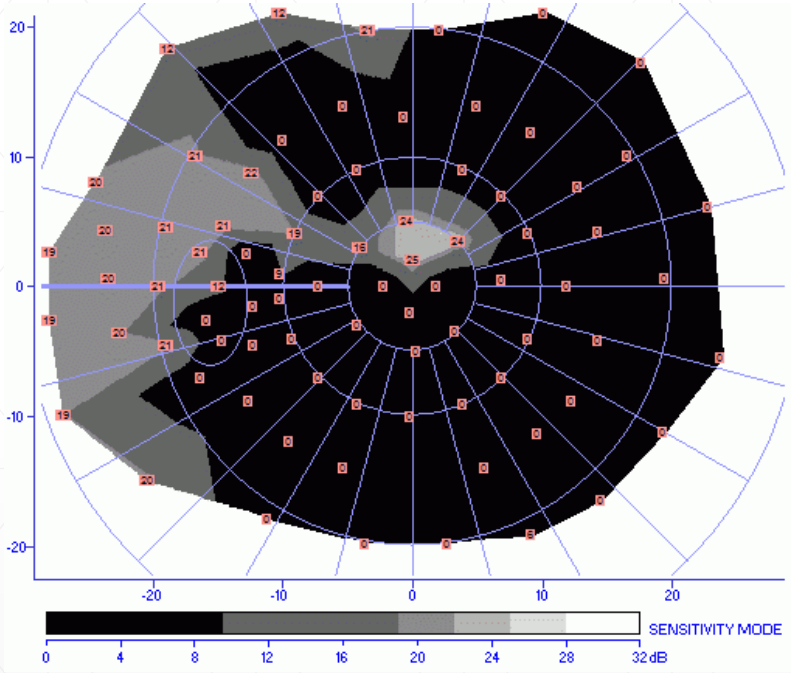
Motion perimetry

Example of glaucoma with cataract and large astigmatism

(Dr. Zanlonghi, Nantes)

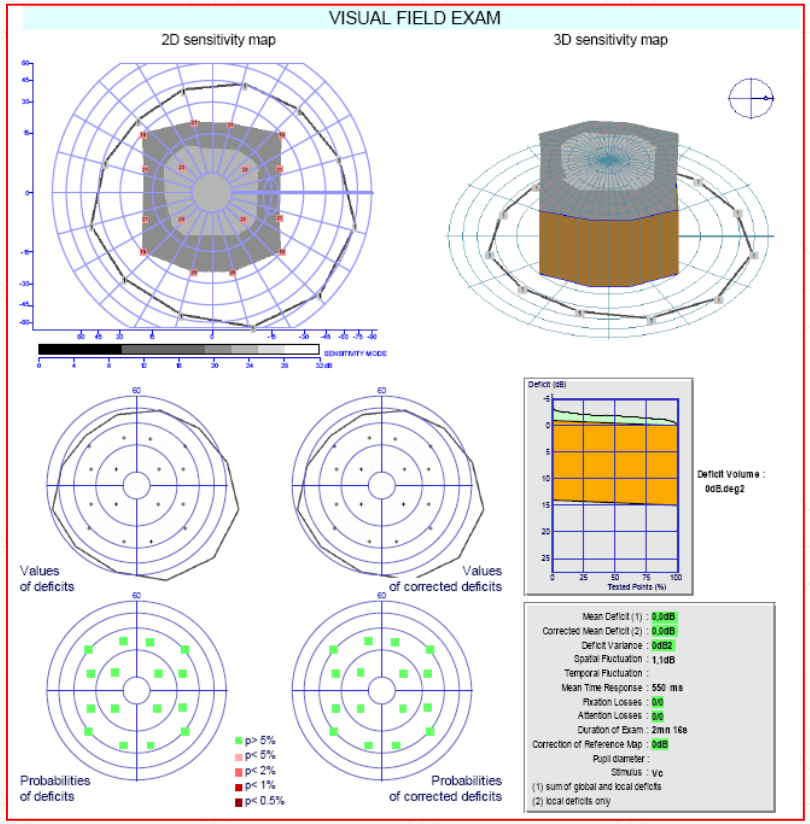


Conventional perimetry:
exam could only be realized with size V,
resulting in poor resolution

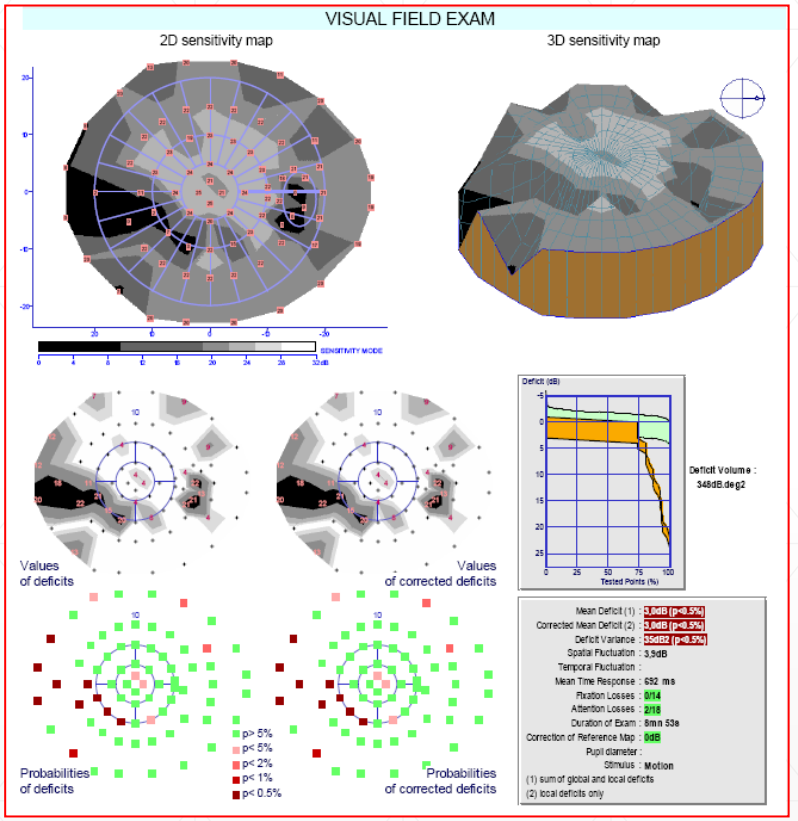


Motion perimetry:
much better definition of the visual field

Example of patient with keratoconus and glaucoma

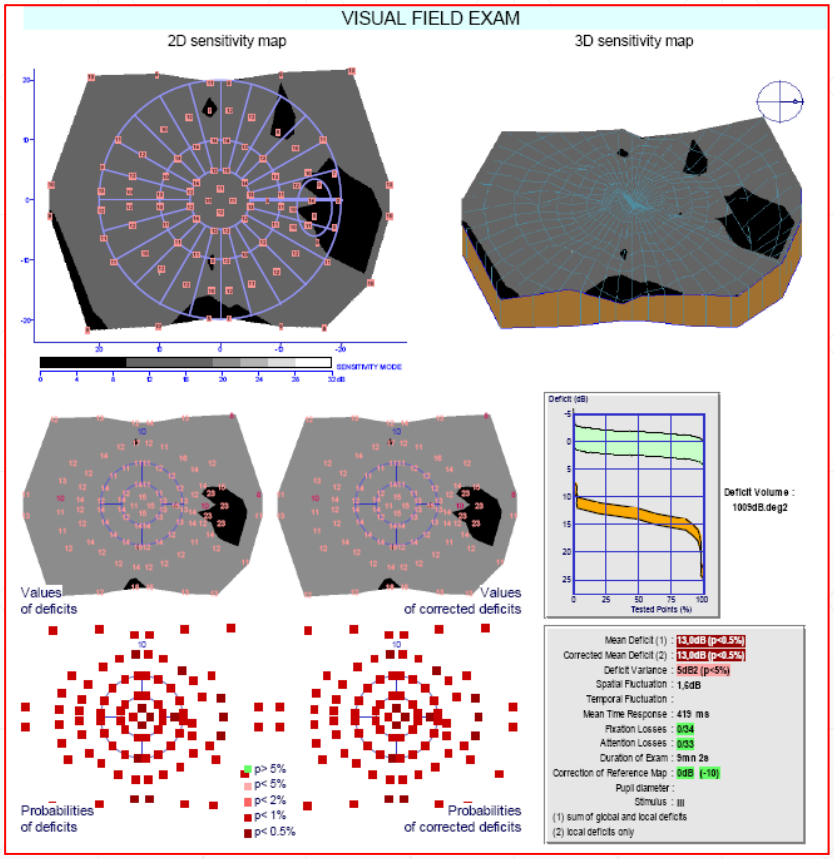


W/W contrast perimetry

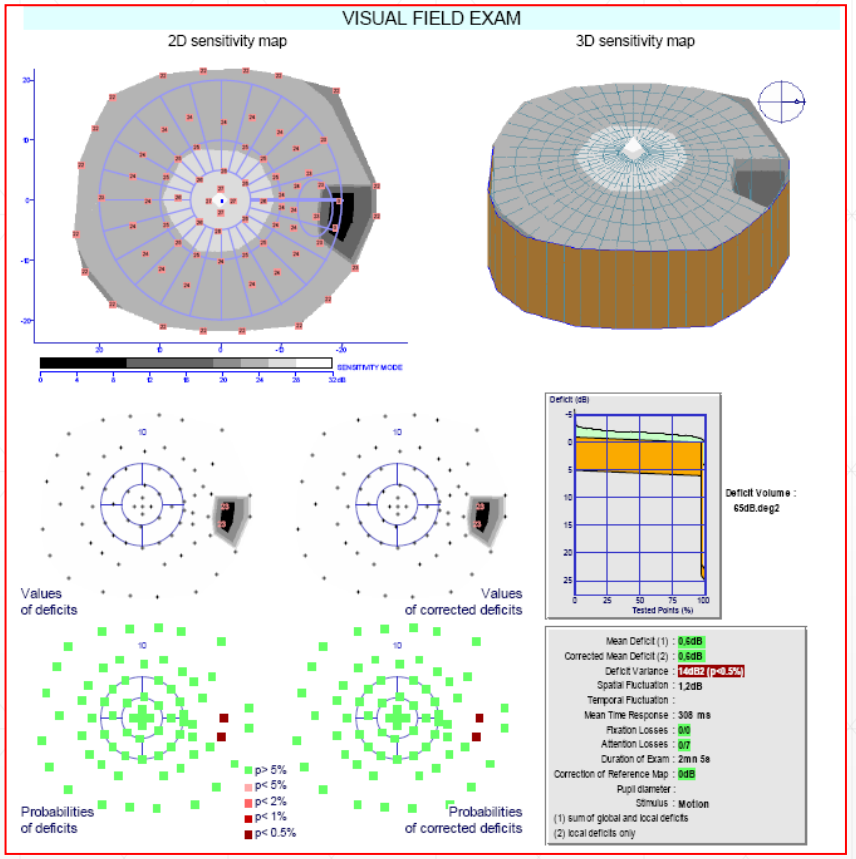


Motion perimetry

Example of cataract



W/W contrast perimetry



Motion perimetry

Motion perimetry
Summary of clinical applications

- screening of glaucoma

  - specific response from magnocellular system
  - less influence of refractive errors / cataract / corneal edema

- cataract and refractive surgery

  - detection of possible retinal or optic nerve problems