



SJSM Science

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Visual fields

Your eyes are not only the windows to your soul - they provide 90% of all sensory information to both sides of your brain. Guess what happens if a part of this pathway is damaged!

Is it important to know where the damage is? Sure it is. Will we open the skull to find out? Of course not. Visual field testing to locate the damage is much more convenient for the patient – but not too much favored by medical students... No wonder: both the definition: "visual field is spatial array of visual sensations available to observation in introspectionist psychological experiments" and the understanding of testing of "the range within which objects are visible to the immobile eyes at a given time" are... well...hmm... just ask medical students how they feel about the interpretation of visual fields tests!

Or, better, see how they are doing it in SJSM and how they present the findings on the Science day:

Damato Multifixation Campimeter Testing of Central Visual Field: A Cohort Study

Assessment of Physiologic and Pathologic Scotoma(s)

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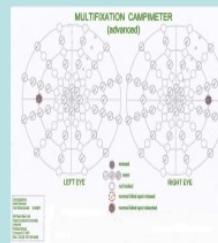
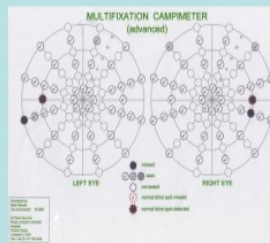
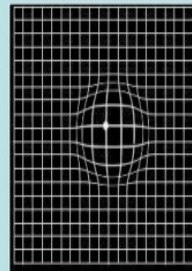
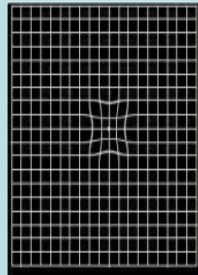
Background and Objective

The purpose of our work was to assess Damato Multifixation Campimeter (DMC) computerized central visual field testing method as:

- a screening tool for early detection and the prevention of further progression of pathological scotoma(s).
- an addition to the standard confrontation test for the assessment for peripheral field defects in primary medical practices.
- whether or not subjects with a history significant for Traumatic Brain Injury (TBI) would require to be tested at with a darker stimuli.

Results

- A Paired T-Test statistical analysis determined that there was not statistical significance of the mean difference for any of the outcome measures. However, a correlation between the 2 variables of the number of missed light and dark stimuli was shown to exist.

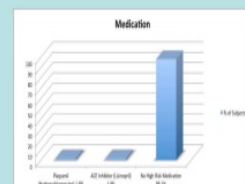
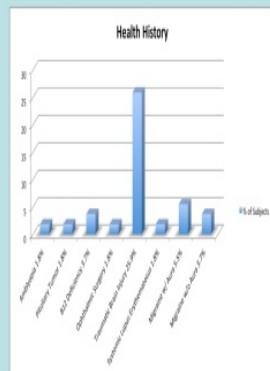


	Mean	Number	Std.dev.	Std err.mean
Subjects with all diagnoses				
Missed Light Stimuli	0.8704	54	0.95258	0.12963
Missed Dark Stimuli	0.7778	54	0.90422	0.12305
Subjects with all diagnoses except TBI				
Missed Light Stimuli	0.95	40	0.9858	0.15587
Missed Dark Stimuli	0.85	40	0.94868	0.15
Subjects with diagnosis of TBI				
Missed Light Stimuli	0.6429	14	0.8419	0.22501
Missed Dark Stimuli	0.5714	14	0.75593	0.20203

Material and methods

- A cohort study was conducted to assess the effectiveness of central visual field testing utilizing the DMC.
- 54 volunteers, age from 20 – 35 years. Health history, current medications, significant pathological ophthalmic disease, and family history of ophthalmic disease was taken for each subject.
- The Amsler Grid was used to screen subjects for early onset macular degeneration.
- Testing of a 30° central visual field.

Stimuli of two varying degrees: light grey and dark grey to assess the sensitivity level at which subjects were able to correctly identify the stimulus in the central field, as well as the test's ability correctly detect the subjects physiologic blind spot.



Conclusion

- Based on the findings of this study, we can conclude that the DCM test is an effective means of screening patients for central visual field defects.
- While statistical findings showed no significance between the number of missed light and dark stimuli, we would suggest that the standard stimuli be that of a darker grey, as a lighter grey is more sensitive, and could add to unnecessary error in testing results.

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