

Clinical applications of a visual field perimeter with binocular video imaging

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Introduction

The MonCvONE perimeter combines a binocular video sensor with video recording capability to an interactive control of the examinations similar to the Goldmann perimeter. This presentation will focus on the different clinical applications of this new technology.

Methods

MonCvONE is a full field projection perimeter with an automated static /kinetic control mode as well as a manual interactive mode similar to the Goldmann perimeter. One of its specific features is a large viewing field bi-ocular video sensor with video recording capability. The entire exam procedure can be recorded and replayed showing the stimulus presentation in synchrony with the video.



MonCvONE perimeter



Image from video sensor



Goldmann interface

Results

The evaluations of the functional visual field and attention field are useful for the assessment of low vision handicap and of the ability to drive. In both cases binocular testing is important as the extrapolation from monocular tests is inaccurate as phenomenon such as integration, suppression, ocular deviation, cyclotorsion affect differently monocular and binocular vision. The availability of a large field video sensor is essential for the monitoring of fixation in both eyes. It is also important for testing young children as their responses involve frequently large head movements.

Synchronized video recording is useful for the reviewing all these results as well as for their documentation and quantification.

Conclusion

The majority of visual field testing equipment is designed for monocular tests only: most instruments do not have the capability to visualize both eyes simultaneously and many do not even have a head rest position suitable for binocular testing. Thanks to the use of a large field binocular video sensor and of video recording, the MonCvONE perimeter offers clinically useful applications.

Author disclosure block

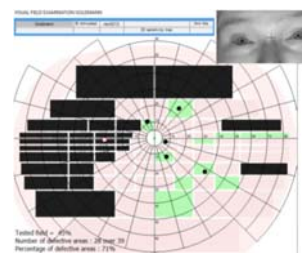
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Functional visual field test

- Under binocular conditions
- Automated or manual mode
- Automated scoring

Applications:

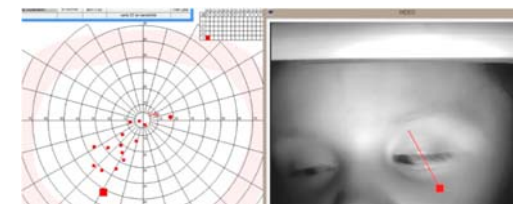
- Low vision handicap (with Esterman grid)
- Driver tests Group I and II (with European grids)



Attention field

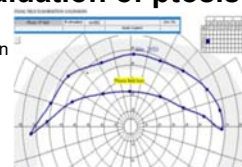
The area of usable visual space is determined with the "Goldmann" manual mode.

Example of 7 years old patient with optic glioma and eccentric fixation.



Evaluation of ptosis

- Quantification of the gain in visual field area
- Measurement of the opening of the eye lids

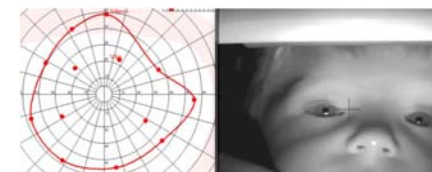


Attraction perimetry

Uses the oculomotor response toward a test presented in the peripheral field.

Applications:

- Visual field testing for children down to 2-3 years of age
- Subjects with a cognitive handicap

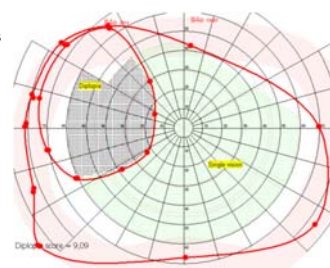


Field of single vision

- Under binocular conditions
- Automated scoring

Application:

- Patients with diplopia



Cardinal positions of gaze

- Extract from the video for different positions of gaze

