

SACCADIC SUPPRESSION EVALUATED WITH THE PUPILLARY LIGHT REFLEX : METHODS AND PRELIMINARY EVALUATION ON NORMALS AND PATIENTS.

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Introduction

Our objective was to develop means for measuring saccadic suppression in the clinic. For many years it has been known that sensitivity to visual stimuli is reduced during saccades. A number of neurological and psychiatric diseases may be thought to alter mechanisms of suppression. However there are no techniques at the present time suitable for the evaluation of saccadic suppression in patients.

Materials and Methods

The pupillary light reflex (PLR) was selected as a suitable measure of saccadic suppression which was relatively objective and rapid. Pupillary diameter was measured using an infrared pupillometer manufactured by Metrovision. The PLR was elicited by diffuse flashes against a 30x30deg uniform background. Two fixation spots were provided, one 6 deg to the left and one 6 deg to the right of center. The patients` task was to fixate one of the two spots and to make a saccade to the other spot when they heard a sound. Flashes were presented during the 12 deg saccades and when the eyes were at rest. PLR s were measured in normals and patients.

Results

The PLR could be measured in all subjects tested.

1) The magnitude of saccadic suppression measured by PLR varies with stimulus conditions, being maximal when elicited by dim flashes on mesopic backgrounds.

2) Under these optimal conditions, the PLR was suppressed during saccades in normals, on average by 78% ($p = 0.0007$).

3) At high flash intensities, suppression was minimal or absent. 4) The suppression present in normal adolescents was not statistically different ($p > 0.10$).

Conclusion

These results

1) extend previous reports of saccadic suppression of the PLR by indicating the range of conditions under which it may be observed using a larger sample,

2) demonstrate similarities in the saccadic suppression measured psychophysically and with the PLR and

3) indicate that saccadic suppression may be measured in the clinic using the PLR.

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