

ABSTRACT SUBMISSION FORM
INTERNATIONAL BIOPTIC DRIVING CONFERENCE

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TITLE OF PRESENTATION:

The influence of monocular peripheral sector prisms on driving in people with homonymous hemianopia.

ABSTRACT OF PRESENTATION:

Homonymous hemianopia results in blind field in either the right or left visual hemi field in both eyes. Driving difficulties are expected since it may be harder to detect traffic on the blind side. Therefore, in many countries people with homonymous hemianopia are not allowed to drive. Fitting monocular peripheral sector prisms (MPSP's) on a pair of glasses extends the visual field of one eye into the blind hemi field by about 20 degrees, which might enable quicker detection of (moving) objects in the periphery on the blind

side, which may be especially advantageous in mobility and driving situations. Our study aims to evaluate the effects of MPSP's in driving a motor vehicle and to determine whether the gain in visual field results in a safer driving behaviour.

Methods: We recruited 22 subjects with homonymous hemianopia. Following screening for neuro-psychological disorders and Goldmann perimetry driving performance was assessed with standardized test-rides. These include traffic conditions that are presumed to be difficult for people with hemianopia. Performance was assessed on a global level by an expert of the Dutch Central Driving Test Organisation and, on a more detailed situation-related level, by an observer sitting in the back seat.

After fitting with two peripheral sector prism strips (Fresnel press-on 40 prism dioptres) and following 4 weeks of adaptation to the prism device, driving performance of all patients is tested again: one test with the real prism device and another with a mock prism, with the observers in the car being blind to the condition.

Results: Seventeen of the recruited subjects passed all inclusion criteria, 15 men and 2 women with a mean age of 56 years (range 28 – 74). Ten subjects were blind in the right hemi field, the other 7 patients were blind on the left side. Ten of the included subjects underperformed on the first driving test.

Each of the 9 subjects that completed all testing so far shows the expected field expansion on perimetry. Two subjects fully benefit from the MPSP's, since they failed the driving test with the mock prism but passed the test with the real prism device. Two subjects passed and three subjects failed each of these final driving tests, while two subjects performed better without the prism device.

Final results on visual shift, subject acceptance and adaptation to the MPSP's as well as the effect on driving performance will be presented and discussed.