

**Prof.dr. Aart C. Kooijman**, P.O.Box 30 001, 9700 RB Groningen, The Netherlands, tel. +31 (0)50 3612165, fax +31 (0)50 3611636, email [a.c.kooijman@ohk.azg.nl](mailto:a.c.kooijman@ohk.azg.nl)

**AFFILIATION OF PRIMARY AUTHOR:**

Laboratory of Experimental Ophthalmology, School of Behavioral and Cognitive Neurosciences (BCN), University of Groningen;  
Department of Ophthalmology, University Hospital Groningen;  
Visio Loo Erf, National Vision Rehabilitation Foundation, Huizen,  
The Netherlands

**SECONDARY AUTHORS:**

Wiebo W. Brouwer<sup>2)</sup>, Ruud A. Bredewoud<sup>3)</sup>, Tanja R.M. Coeckelbergh<sup>1,4)</sup>,  
Frans W. Cornelissen<sup>1)</sup>, Mark L.M. Tant<sup>2,5)</sup>

<sup>1)</sup> Laboratory of Experimental Ophthalmology, School of Behavioral and Cognitive Neurosciences (BCN), University of Groningen, Groningen,

<sup>2)</sup> Department of Neuropsychology and Gerontology, School of Behavioral and Cognitive Neurosciences (BCN), University of Groningen, Groningen,

<sup>3)</sup> Netherlands Bureau of Driving Skills Certificates (CBR),

<sup>4)</sup> Visio Loo Erf, National Vision Rehabilitation Foundation, The Netherlands.

**TITLE OF PRESENTATION:**

"Impaired vision does not exclude practical fitness to drive"

**ABSTRACT OF PRESENTATION:**

Visual requirements for a private driving license (group 1) are rather strict in Europe. Visual Acuity at least 20/40 and horizontal Visual Field diameter at least 120 degree. For subjects whose vision does not comply with the Visual Field requirement the opportunity exists to demonstrate in a driving test on the road a safe and sufficient level of practical fitness to drive.

Many specialists are convinced that an appreciable portion of subjects with visual function below these requirements are able to drive safely, but controlled studies which support or contradict this conviction are scarce.

We performed two parallel studies to assess the practical fitness to drive of people with visual field defects and the effects of various training programs.

"Practical fitness to drive" differs from "driving performance" or "driving skills" in a way that it tests the ability to drive safely, avoiding dangerous conditions by anticipation and recognition.

Study A concerns 28 subjects with homonymous hemianopia and study B 100 subjects with visual field defects due to dysfunction of the retina.

Pre- and post-training the subjects performed various clinical and laboratory tests, driving simulator tests and on-the-road driving tests. Before training 4/28 subjects in study A passed the practical fitness to drive test and 44/100

subjects passed in study B. Subjects who failed the on-the-road driving test were invited for a training program of 12-18 sessions. After the (time-limited) training 2/17 subjects passed the on-the-road driving test in study A. Additionally, we measured that various driving tasks improved from an insufficient level to sufficient. Continuation of the training might have increased the number of passing subjects, but could not be effectuated in the project. In study B passed 23/51 subjects the post-training on-the-road driving test. In this study the subjects were randomly assigned to one of three training programs: a laboratory training (mainly computer-based tasks on a monitor), a mobility training (walking, cycling in the street by a professional mobility trainer), and a driving training (on the road by a professional driving instructor). Some aspects of driving were weakly related to the nature of the training.

Both studies showed that a substantial part of our subjects, who are excluded from driving because their vision, demonstrated before training a safe and adequate level of practical fitness to drive. Specific training of driving and viewing improved driving tasks in subjects who performed insufficiently before.

Both studies resulted in a PhD thesis, which can be downloaded from:  
<<http://www.ub.rug.nl/eldoc/dis/ppsw/m.l.m.tant/>>  
<<http://www.ub.rug.nl/eldoc/dis/medicine/t.r.m.coeckelbergh/>>