

To the Minister of Infrastructure and Water Management

Date: July 3, 2018 Your ref: IENM/BSK-2016/62263 E-mail: info@gr.nl
Encl: - Our ref: 1371940/ZD/dva/006-GG Phone: 070 340 75 20

Subject: Advisory report *Fitness to drive in driving license group 2 in case of vision in only one eye* Publication no. 2018/13e

Dear Minister,

On 16 April 2016, you asked me to advise on the fitness to drive of drivers in driving license group 2 who have lost sight in one eye. The reason for your request for advice was the finding of a discrepancy between the Dutch Fitness Criteria Regulations 2000 (REG2000) and the requirements in Annex III of EU Directive 2006/126/EC on driving licenses (the European Driving License Directive). The REG2000 states that drivers with a group 2 driving licence who lose sight in one eye can, under certain conditions, be declared suitable for a geographically restricted driving licence. The European Driving Licensing Directive does not provide for such an exception. Your question is whether, in the interest of road safety, it is desirable to bring the REG2000 in line with the stricter EU rules and, if not, whether it is desirable to relax the regulation and, for example, to give people born with one eye access to group 2 driving licences. This advice has been drawn up by the permanent [Committee on Fitness to Drive](#). The expertise centre for visually impaired and blind people, VISIO, and the Ergophthalmology Working Group of the Netherlands Ophthalmological Society provided comments on a draft version of the advice.

Explanation of the current regulations

Requirements in the REG2000

According to the REG2000, drivers in driving license group 2 (bus, truck) are considered 'one-eyed' in case of visual acuity of less than 0.1 in the worst affected eye. This also requires that the good eye has a visual acuity of at least 0.8 and that the horizontal field of view is at least 160°. In case of acute loss of vision in one eye, such as after a (fireworks) injury or retinal detachment, the REG2000 imposes a minimum adjustment period of three months during which the driver is not allowed to drive. The loss of vision in an eye can also be more gradual, for example, in the case of glaucoma (increased eye pressure), corneal damage, macular degeneration or retinal disorders caused by diabetes.

The REG2000 states that, after the adjustment period, drivers who already hold a group 2 driving licence in the event of a loss of sight in one eye may, in exceptional cases, be granted the possibility of being reapproved for a geographically restricted category C/CE or D/DE driving licence. This driving license is limited to, at the most, the territory of the Netherlands. The conditions for this are:

- a positive ophthalmologist report;
- a statement from the employer in accordance with a model drawn up by the Dutch Driving Test Organisation (CBR);
- a positive, and therefore favourable, driving test.

The driving test required by the REG2000 is carried out by the CBR and is a one-time test. However, every professional driver must undergo a medical examination every five years, and if the result of the examination gives cause to do so, the driving test can be repeated.

Discrepancies with the European Driving Licence Directive

According to the European Driving Licensing Directive, drivers in licence group 2 are no longer suitable for this category of driving licence after the loss of sight in one eye. The current Dutch exception conflicts with European legislation, which stipulates that member states may impose more stringent requirements on driving licences, but not less stringent. The exceptional situation was established in 1994 on the advice of the Health Council of the Netherlands.¹

Number of one-eyed drivers in driving license group 2

Figures from the CBR show that there are currently around 800 to 900 professional drivers who have lost the sight in one eye.

Data from scientific research

Eyesight

In a US study from 1991, 40 professional drivers with one functioning eye compared to 40 professional drivers with two functioning eyes had a statistically significantly smaller horizontal field of view (with an average of 145° and 173° respectively) and statistically significantly less perception of depth (the average error in distance estimation at a distance of 6m was 3.5 and 1.7cm respectively).² This finding was supported by a contemplative literature review.³

Driving ability

As a European working group concluded in 2017, hardly any research has been published about the influence of impaired vision on driving ability.⁴ The requirements for fitness to drive are mainly determined on the basis of consensus.

The above mentioned US study from 1991 is the only one available that specifically compared the driving ability of professional drivers with two functioning eyes to professional drivers with one functioning eye. In a test set-up the drivers with one functioning eye were statistically significantly less likely to recognize traffic signs than the drivers with two functioning eyes (in daylight from a distance of 41.8 and 47.4m respectively, at night from a distance of 25.5 and 28.5m respectively). There were large differences within the groups. In a road test, both groups performed equally well when actually responding to traffic signs. There were also no differences in the driving test with regard to other skills.² The Committee considers the quality of this evidence to be low, due to the small numbers, the large differences between the traffic situation in the Netherlands now and that in the United States in 1991, and the lack of further details about the visual acuity of the drivers. In the United States, a professional driver is already regarded as one-eyed with a visual acuity of 0.5 or less in the worst eye, which is considerably higher than the minimum visual acuity of 0.1 in the Netherlands.²

Epidemiological research

In addition to this comparative study, three studies were published in which the involvement of one-eyed professional drivers in road accidents has been investigated.⁵⁻⁷ Two studies found that one-eyed drivers were more often involved in accidents than drivers with two functioning eyes. No difference was found in the third study. There are serious doubts about the validity of

the findings from the studies, because of unrepresentative research groups and unequal regulations, which will have made one group more inclined to report an accident than the other group. In addition, all these studies have been conducted in the United States, where the minimum requirements for visual acuity, as mentioned in the previous paragraph, are stricter than in the Netherlands.^{2,3} It is therefore not possible to draw valid conclusions on the basis of these studies.

The committee's interpretation

The relevance of the limitations observed in the visual acuity of one-eyed drivers in practice seems limited. It turns out that it is quite possible to increase a smaller field of view by compensating eye movements.⁸ In addition, it is unlikely that the small difference in depth perception will result in practical limitations for drivers. If this is the case, the driver can compensate for this by learning to use other sources of information, such as the size of familiar objects.⁹ It is therefore particularly relevant to assess in practice, during a driving test, whether the driver is able to compensate for his limitations by means of these strategies.¹⁰ The Committee feels supported in these considerations because even in the aforementioned American research, the professional drivers in the test set-up had limitations, but this did not, in practice, lead to differences in driving skills. Figures from the CBR also show that all 31 professional drivers who completed a driving test in 2017 due to loss of vision in one eye, passed the test. There are no signs at the CBR that the current exceptional situation is causing problems with regard to road safety in practice. Finally, the Committee also takes into consideration the fact that the professional drivers to whom the exception applies are experienced drivers.

Recommendation

The Committee sees no reason to withdraw the driving licence of drivers in driving licence group 2 if they have lost sight in one eye. The Committee therefore advises the minister to argue for more favourable EU-rules for these drivers. However, the Committee recommends that the exceptional situation is not extended to drivers who did not have a group 2 driving licence prior to the loss of sight in one eye.

I support the Committee's findings and advice.

Best regards,

Prof. W.A. van Gool,
President

References

- 1 Gezondheidsraad. *Medische rijgeschiktheid*. Den Haag: Gezondheidsraad, 1994; publicatienr. 1994/04.
- 2 McKnight AJ, Shinar D, Hilburn B. *The visual and driving performance of monocular and binocular heavy-duty truck drivers*. *Accid Anal Prev* 1991; 23(4): 225-37.
- 3 Owsley C, McGwin G Jr. *Vision and driving*. *Vision Res* 2010; 50(23): 2348-61.
- 4 European Council of Optometry and Optics. *Visual standards for driving in Europe*. 2017.
- 5 Federal Highway Administration *Manual on uniform traffic control devices (2003 edition, Revision 1)*. Washington, DC: US Department of Transportation, 2003.
- 6 Roger PM, Ratz M, Janke MK. *Accident and conviction rates of visually impaired heavy-vehicle operators*. Sacramento, CA: State of California Department of Motor Vehicles, Research and Development Office, 1987.
- 7 Keeney AH, Garvey J. *The Dilemma of the Monocular Driver*. *American Journal of Ophthalmology* 1981; 91(6): 801-3.
- 8 Haan GA de, Melis-Dankers BJM, Brouwer WH, Tucha O, Heutink J. *The Effects of Compensatory Scanning Training on Mobility in Patients with Homonymous Visual Field Defects: A Randomized Controlled Trial*. *PLOS ONE* 2015; 10(8): e0134459.
- 9 SWOV. *Visuele beperkingen en hun invloed op de verkeersveiligheid*. 2014:
- 10 Haan GA de, Melis-Dankers BJ, Brouwer WH, Bredewoud RA, Tucha O, Heutink J. *Car driving performance in hemianopia: an on-road driving study*. *Invest Ophthalmol Vis Sci* 2014; 55(10): 6482-9.