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“Portable” devices for detecting drowsiness at the wheel - Summary

Reactions of drivers to warnings from a “portable” device for detecting drowsiness at the wheel.

Federal Public Service
Mobility and Transport

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Vandemeulenbroek, F. (2017) Détecteurs « portatifs » de somnolence au volant. Réaction des conducteurs face aux avertissements d'un détecteur «portatif » de somnolence. Bruxelles, Belgique: l'institut Vias

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Summary

For some years now, drowsiness at the wheel has been recognised as a significant factor in causing accidents. While it is difficult to estimate the exact proportion of accidents that are attributable to driver fatigue alone, various international surveys estimate that tiredness could be a factor in 20% of accidents. In parallel to this, a study from the IBSR tells us that 4.8% of Belgian motorists say that they have had to deal with episodes of tiredness at the wheel during the course of the previous 24 hours.

This problem is of even greater concern given that while drivers may be able to assess their own level of fatigue accurately, studies show that they have a tendency to underestimate the risks associated with driving while tired. Hence the majority of motorists prefer to use "in car1" solutions to battle fatigue or drowsiness. While some of these solutions help improve the driver's alertness, taking a break or even having a nap remain the only effective solutions for fighting drowsiness at the wheel. Unfortunately, these options, which require the person to stop driving, are very unpopular among Belgian drivers.

Recently, however, a number of methods for detecting drowsiness have begun to appear. Their aim is to assist drivers in assessing their level of tiredness and to persuade them to stop driving in time. While some of the devices built into the vehicle as part of its equipment for this purpose appear to be effective, they are still reserved for people with the means to purchase a new vehicle equipped with these systems. However, numerous more affordable and "portable" systems are now coming on to the market as an alternative to built-in systems.

Despite recommendations and laboratory research, it is difficult to know just how effective and practical these "portable" drowsiness detectors actually are. More important to know is whether drivers will respond to the warnings provided by the devices and what they will do about them.

This study covers the subjective reactions of users when faced with the warnings from three "portable" devices for detecting drowsiness at the wheel, used under actual driving conditions.

The study shows that the "portable" devices tested did not make drivers more aware of their level of tiredness, nor the associated risks:

- The drivers who took part in the study were all of the opinion that they could assess their own level of tiredness accurately. As a result, they seemed to place greater faith in their own ability to detect drowsiness – and when they should stop to take a break – than the capability of the machine. Consequently for the device deemed to be the most reliable, only 14.9% of the warnings were considered to be justified.
- Even when faced with an alarm signal thought by the driver to be correct, the user did not take adequate measures as a result. So drivers continue to prefer "in car" measures against fatigue, rather than solutions known to be effective, such as taking a break or having a nap.
- The effectiveness of some systems also appears low: too many false-positives in some models and no alarm raised, despite an advanced level of tiredness, in others.
- So drowsiness detectors did not prompt drivers to change their driving habits.

[1] We understand "in car solutions" to be solutions that enable the user to keep on driving.


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