

Night-time driving over long periods increases risk of accidents

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(PhysOrg.com) -- Does driving at night affect the risk of accidents? Drowsiness resulting from a lack of sleep is a recognized risk factor which causes traffic accidents. But what happens if drivers combine extended driving and sleep deprivation? A study carried out by researchers from CNRS, Inrets, the University of Bordeaux and the University of Stockholm has shown that fatigue connected to the duration of driving very significantly increases the risk of accidents at night.

The study, led by Pierre Philip from the Laboratory for motion, adaptation and cognition (CNRS/Université Bordeaux 1 and Bordeaux 2), was able to determine whether 2, 4 and 8 hours of nocturnal driving affected driving performance differently. In order to evaluate the fatigue caused by accumulated driving time, the researchers had fourteen young volunteers drive on an open highway during three nocturnal driving sessions: from 3-5 am, 1-5 am and 9 pm-5 am.

Driving durations were therefore different, but sleep pressure at the end of the driving session, due to the late hours (2-5 am) was identical. The scientists then counted the number of times the drivers veered off course and crossed the lateral lines inappropriately during the last hour of driving in each session. They thus calculated that in comparison with the reference session (9-10 pm), the risk of inappropriate line crossing was:

- 6 times greater during the 3-5am driving session;
- 15 times greater during the 1-5am driving session;

- and 24 times greater during the 9 pm-5am driving session.

In addition, in comparison with the shortest driving session, from 3-5 am, the risk of inappropriate crossing of the lateral lines increased 2.6 times during the 1-5 am driving session and increased fourfold during the 9 pm-5 am driving session.

Extended nocturnal driving therefore has a very large impact on driving performance: currently, safety messages and regulations on time at the wheel do not differentiate between day-time and night-time driving. This study raises the question of whether maximum durations for driving at night should be reconsidered.

Reference: Extended driving impairs nocturnal driving performances, Patricia Sagaspe ; Jacques Taillard ; Torbjorn Åkerstedt ; Virginie Bayon ; Stéphane Espié ; Guillaume Chaumet ; Bernard Bioulac ; Pierre Philip, PloS One, 23 October 2008

Provided by CNRS

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