Fatigue test trial for drowsy drivers

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Credit: Monash University

Monash University researchers have found drivers with only three hours sleep are 10 times more likely to be involved in a crash.

The Minister for Roads and Road Safety, Ben Carroll, announced the trial of pupil scanning technology had successfully determined the threshold to detect excessively fatigued drivers.

Road trauma remains the most significant cause of death through injury in Australia and worldwide, with alcohol, speed and fatigue listed as major contributing factors. Current figures show fatigued drivers are involved in up to 20 percent of crashes and 11 percent of fatalities on Victorian roads, but unlike alcohol and speed, there is no objective roadside test for fatigue.

The focus of the Monash University trial, developed in conjunction with the Victorian Government, Road Safety Victoria and Victorian Police, was to accurately predict the level of sleep loss associated with driving impairment, and to also ensure that the technology could identify those who were well rested and those who were fatigued.

Led by Associate Professor Clare Anderson from Monash University's Turner Institute for Brain and Mental Health, the study examined the impact of prior sleep on all driving outcomes. The 43 trial participants, with an average age of 25, were kept awake for up to 32 hours before conducting a two-hour drive on a controlled track, while supervised by a qualified instructor in a dual controlled vehicle.

Participants also undertook three additional drive tests—with 3 hours sleep and 5 hours sleep in a 24-hour period, and again when they were well-rested after 8 hours sleep.

Drivers were tested before and after their drive with technology developed by AmTech, that measures involuntary movement of their pupils—which has shown strong links with increased levels of sleep deprivation.

A range of behavioral, physiological and driver performance data was also collected including brain electrical activity, lane deviations, speed variations and changes in reaction time.

"Every day, an Australian is killed on our roads because of fatigue. Developing technology to identify drivers who are unsafe to drive because of fatigue is a significant step forward in road safety," Associate Professor Anderson said.

The full results of the study will be released later in 2021.

Provided by Monash University

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