



World Sleep Day, Friday 18th March, 2016

High Tech Car Helps Solve Fatigue Crash Puzzle

Tired night shift workers are going under the microscope to help scientists develop smart lighting systems, safer cars and better rosters to make the graveyard shift safer than ever.

Sleep health specialists are teaming up with industry experts on an innovative new research project to find new ways to solve the nation's devastating workplace fatigue problem.

The Cooperative Research Centre (CRC) for Alertness, Safety and Productivity, in conjunction with the Sleep Health Foundation, is conducting a research project in which sleep, fatigue and brain changes will be monitored in a group of shift-working nurses and medical staff.

In partnership with award-winning Australian tech company Seeing Machines, engineers of real-time driver fatigue, distraction and accident prevention technology, twenty shift-workers will be monitored as they drive to and from work in an instrumented car.

The Seeing Machines vehicle employs cutting edge technology to monitor the drivers steering behaviour and eye closures, providing world first insight into behaviours that can predict that a fatigue accident is likely to occur.

The researchers will use the knowledge gained to test out new work schedules and develop alertness-boosting smart lighting systems and improve drowsiness detection technology.

The Foundation, Australia's leading advocate for sleep health, is using **World Sleep Day on March 18** to highlight the work underway with the CRC to tackle the country's dire health and safety statistics.

Poor alertness costs the nation over \$5 billion in lost productivity and healthcare costs and causes 10,000 serious workplace injuries and more than 25,000 serious injuries from road accidents.

About 16 per cent of Australia's workforce are employed as shift workers, which puts them at risk of safety and performance issues. Studies show a third of shift workers fall asleep on the job once a week or more, and night shift workers have a 60 per cent higher on-the-job accident risk. There's danger on the road too, with 20 per cent of Australian road fatalities attributable to fatigue.

Prof David Hillman, Chair of the Sleep Health Foundation says, "With so many ill-effects, it's absolutely imperative that we develop new ways to better understand what happening inside the brains and bodies of our shift workers and use this knowledge to lessen the burden on them," says Prof Hillman.

The Alertness CRC researchers are monitoring alertness in 50 nurses and medical staff at Melbourne's Austin Health by assessing their sleep, light exposure, circadian phase, alertness and performance during work shifts to identify ways to boost alertness and minimizes the risk of accidents both on the road and in the workplace.

As the CRC's Project Leader Dr Tracey Sletten explains, the research is based on growing evidence some people are more vulnerable to the negative effects of shift work than others. "The impact of shift work on the sleep, alertness, productivity and safety of these healthcare workers is likely to be significant but we're also hoping to discover some factors that make it harder on some staff than on others," Dr Sletten says.

"If we were able to recommend specific types of shifts with the aid of tools like specialised 'alerting' lights used at specific times then we could make shift work a whole lot healthier, safer and more productive for many workers."

Results will likely prompt employers to change policies around staff shift scheduling.

Professor Mike Lenné, Chief Scientist, Human Factors, Seeing Machines, says the collaboration with Australian researchers allows the firm to hone its technology while addressing the problem of sleep-related workplace accidents.

"Collecting detailed, real-time and real-world data from tired drivers has not been possible until now," Professor Lenné explains. "By being able to predict what triggers a drowsy event, we'll deepen our understanding of fatigue and develop new ways to combat it."

During the study, the vehicle technology is used to monitor a driver's behaviour with particular focus on fatigue predictors in the two minutes before they leave a lane. "Used in this way, it really is world-first analysis of driver behaviour when drowsy," he says.

March 18 is World Sleep Day, a day to focus on the fundamental importance of sleep for health, mental wellbeing and optimal performance. Besides shift work, sleep can be disrupted by undiagnosed and untreated sleep disorders, poor sleep habits, the stimulating effects of caffeine, alcohol and the bright light from phone, computer and TV screens.

A Seeing Machines instrumented vehicle is available for Melbourne journalists to view and travel in.

For more information and interview requests, contact Lucy Williams on 0403 753 028.

Fatigue in Australia

- More than 18 per cent of adults report sleeping less than six hours a night regularly, with inadequate sleep affecting over 20 per cent of the population on a daily or near daily basis.
- One in five serious car crash injuries are attributed to impaired alertness, making it the largest identifiable and preventable cause of transport accidents
- 16 per cent of the Australian workforce are shift workers, many of whom experience impaired alertness due to inadequate sleep and disruption of the 24-hour body clock
- 45 per cent of the truck drivers have a sleep disorder causing impaired alertness
- Employees with a sleep disorder have a 50 per cent increased risk of occupational injury, absenteeism and error or safety violation attributed to fatigue

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