Sleepiness and fatigue

- Sleepiness (sometimes termed tiredness, drowsiness or fatigue) is one of the leading factors contributing to road crashes.
- Fall-asleep crashes are usually severe, resulting in serious injury and death, as the driver often makes no attempt to avoid or prevent the crash.
- Yet, falling asleep is not the only way sleepiness can affect safe driving – sleepiness impairs attention, thinking and reasoning, as well as driving skills.

State of the Road A Fact Sheet of the Centre for Accident Research & Road Safety - Queensland (CARRS-Q)

THE FACTS

- Driving when becoming sleepy is a high risk behavior which can affect anyone - no individual is immune to the effects from sleepiness, no matter how experienced a driver they might be.
- A driver who has been awake for 17 hours has a driving ability similar to that of a driver with a blood alcohol concentration (BAC) of 0.05, and after 21 hours, similar to a BAC of 0.15[1,2].
- Real world data tell us when we feel sleepy, but it takes no effort to stay awake, the risk of having a sleep-related crash increases by 360%. However, when it starts to take some effort to stay awake, the risk increases to 560%[3].
- Sleepiness contributes to 20-30% of all deaths and severe injuries on the road, similar to speeding and drink driving[2].
- In Australia, the cost to the community of sleepiness-related road crashes is estimated to be $2 billion every year[4].
- The role of sleepiness in crashes is likely underestimated due to several factors (i.e. lack of an objective measure of sleepiness (akin to BAC level for drink driving), differences in reporting criteria, crashes attributed to other, more well-known causes).
- There are currently no well-validated technologies that can reliably[5] detect sleepiness and so drivers are responsible to assess their own sleepiness.

When are sleep-related crashes most likely to occur?

- Sleepiness can affect your driving ability at any time of the day, however, there are specific times and circumstances when sleepiness becomes a factor.
- Driving during normal sleep times, or at any time the driver has previously been deprived of sleep increases the risk of a sleep-related crash occurring.
- Consistent with natural dips in alertness associated with the human circadian rhythm, sleep-related crashes are more common between 2-6am and 2-4pm[2,6].

Ensure you are getting enough quality sleep, especially before a long drive. 7-9 hours sleep per night is recommended for adults.

Where are sleepiness-related crashes most likely to occur?

- Sleep-related crashes can occur on any road environment.
- Long distance driving, particularly on monotonous or long straight stretches of road are particularly dangerous for sleep-related crashes.
- Many sleep-related crashes also occur on low speed roads in urban areas and these crashes can be severe[7].

Who is most at-risk of a sleep-related crash?

Driver sleepiness affects everyone, however those at higher risk of a sleep-related crash are:

- Young drivers and riders. Almost two thirds of sleep-related crashes involve young adults[6,8];
- Male drivers and riders - research indicates that 75% of sleepy drivers and riders involved in single vehicle crashes were male[8];
- Rural drivers and riders;
- Shift workers and commercial drivers including heavy vehicle drivers whose work demands can cause chronic sleep deprivation; and
- People with medical conditions, especially a sleep disorder or individuals on medications that can cause sleepiness.

How does sleepiness affect driving?

The effects of sleepiness:

- Impaired driving performance;
- Loss of attention and an inability to concentrate on driving;
- Poorer thinking and reasoning and slower reaction times;
- Impaired judgement and increased risk taking; and
- Increased distractibility.

Warning signs of sleepiness

- Increased yawning.
- Slow eye blinks and more frequent blinking.
- Shifting in your seat more frequently.
- Poor concentration/boredom/restlessness.
- Wandering in the lane or over lane lines.
- Changes in speed, especially slowing down without reason.
- If you experience an increasing number of the signs of sleepiness when driving, you should stop driving and use a sleepiness

Experiencing head nodding, heavy eyelids, difficulty keeping eyes open and microsleeps means **you are too sleepy to drive safely**.

WHAT CAN BE DONE TO REDUCE THE RISK OF HAVING A SLEEP-RELATED CRASH?

- Practicing **good sleep habits and getting enough sleep** each night is an important first step to reduce the risk of having a sleep-related crash.
- **Avoid driving at the high-risk times** (during your normal sleep times).
- While driving, checking with yourself as to how sleepy you are feeling is important.
- Consider also **what signs of sleepiness you are experiencing** – yawning and shifting in your seat are early signs of sleepiness and indicate you should think about taking a break, experiencing heavy eyelids and or head nodding means you are far too sleepy to drive safely.
- Sleepiness countermeasures such as napping (for 15-20 minutes), **consuming caffeine, swapping drivers, using rest breaks** can reduce your risk of having a sleep-related crash[9-11].
- Share driving on long trips – it makes the trip more enjoyable for everyone.
- At a minimum, **take a break** every two hours on longer trips, but it is important to stop driving once you start to feel sleepy.

Common strategies drivers adopt when feeling sleepy such as turning the music up, opening the windows, or turning on the air conditioning have been proven not to work.

CARRS-Q'S WORK IN THIS AREA

- Analysis of statistical trends in sleep-related crashes.
- Examining the impact of sleepiness in urban driving environments.
- Performing simulator-based studies to explore drivers' awareness and experiences with the signs of sleepiness.
- Evaluation of the most effective driver sleepiness countermeasures such as nap breaks, rest breaks, swapping drivers, etc.
- Understanding and developing effective public information campaigns and education resources about sleepiness for all road users, with a particular focus on educating novice drivers.
- Surveys of driver exposure to sleepiness and their on-road compensation strategies.
- Investigation of the effects of lifestyle factors (being a new parent) and social factors on driver sleepiness.
- Evaluating the efficacy of an evidence-based information program for perinatal women to convey pertinent information about postpartum sleepiness, sleep and sleepy driving.

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