



# Fatigue Management Guide

**For Taxi Operators & Drivers**



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# Contents

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	Page
Details	
Overview	2
Understanding Fatigue	3
• Effects of Fatigue	3
• Causes of Fatigue	4
• Warning Signs	9
Ways to Reduce Fatigue	10
• Tips for Managing Fatigue	12
	13
General Workplace Information	16
Further Information	17
Notes	18

Driving is a complex mental and physical task requiring sustained levels of concentration and skill to maintain maximum performance.

No driver can afford to be fatigued nor can anyone else afford a driver to be fatigued.

## DISCLAIMER:

This document does not constitute legal advice. Details are subject to amendment.

Check the legislation or contact the RTA for more information

# Overview

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Fatigue can affect a person's health, reduce performance and productivity, and can increase the chance of a workplace accident or road / vehicle crash. Evidence also suggests that fatigued people are more likely to engage in risk-taking behavior.

Importantly, fatigue may affect a person's judgement of his or her own state of fatigue. This means the effective management of fatigue should not be the responsibility of drivers alone. Operators have a role in ensuring that any risks associated with fatigue are eliminated, minimized or controlled.

Fatigue is thought to be one of the biggest killers on Australian roads, rivalling the effects of speed and alcohol. But the full extent of its role is not really known – unlike alcohol and drugs, fatigue can't be tested for in post-mortems. This is the reason for the big difference between the lowest and highest estimates of the role of fatigue in the Australian road toll.

These guidelines are intended to assist Operators and Drivers to manage driver fatigue under the Work Health and Safety (WHS) laws and although specific fatigue management regulations have not been officially introduced within the taxi industry, the guidelines are based on current heavy vehicle driver fatigue legislation. This guide provides a general explanation of the common factors that lead to fatigue and provides guidance for managing driver fatigue.

The risk of a fatal fatigue crash is highest between 10pm and 6am when your body's circadian rhythms are programming you to sleep - four times greater than for the rest of the day.

Driving while sleep deprived, especially late at night and at dawn increases the risk of having a microsleep and losing control of your vehicle.

# Understanding Fatigue

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Fatigue is an acute or ongoing state of tiredness that affects driver performance, safety and health, and requires rest or sleep for recovery.

## EFFECTS OF FATIGUE

Key risks resulting in fatigue include poor understanding about the factors leading to fatigue. Fatigue is more than falling asleep at the wheel. Fatigue describes the feeling of being tired, drained or exhausted. It causes poor judgment, impaired coordination and slower reactions, and impacts on how well you work. It builds up, leading to a progressive loss of alertness that ultimately ends in sleep and is a major contributing factor in many road crashes. The effects of fatigue include:

- **Loss of Alertness** – when you respond more slowly to things as they arise. Loss of alertness is an early sign of fatigue and may result in less efficient vehicle control (finding it hard to drive inside the lanes, or maintaining a constant speed).
- **Poor Judgment** – before drowsiness sets in, fatigue affects the ability to think clearly, which is vital when making safety-related decisions and judgments. Someone who is very fatigued may not realise how fatigued they really are. As a result, fatigued people are unaware that they are not functioning as well or as safely as they would if they were not fatigued.
- **Drowsy Driving** – drowsiness means feeling sleepy, but not actually being asleep. When drowsy, a driver may actually drift in and out of sleep occasionally without knowing it (micro sleep). Drivers have been studied when drowsy and found to be asleep for 3 to 5 seconds – or as long as 15 seconds. Travelling at 100 kilometres per hour can mean 100-300 metres of travel with no-one in control of the vehicle.
- **Falling Asleep at the Wheel** – this happens in a number of crashes, typically very severe single vehicle crashes where there has been no attempt by the driver to control the vehicle. Often the driver was completely unaware of events before the crash.

- **Poor Memory** – being fatigued will also affect your memory. For example, drivers may have travelled a significant distance without knowing it. This is directly related to loss of alertness.
- **Mood Change** – being fatigued can also make you irritable, agitated, aggressive and poor company. You start to overreact to things including those that wouldn't normally upset you.

## CAUSES OF FATIGUE

### Time of day – body-clock factors

The body has natural rhythms that are repeated approximately every 24 hours – this is called the 'body clock' or the circadian rhythm. The body clock regulates sleeping patterns, body temperature, hormone levels, digestion and many other functions, and helps conserve resources. When the body clock is out of 'synch', effects such as jet lag result.

The body clock programs a person to sleep at night and stay awake during the day. Body temperature drops during the night resulting in sleepiness and rises during the day to assist in feeling alert. At night the digestive system slows (because individuals are less likely to be eating) and hormone production rises to repair the body.

The body clock is controlled partly by light and dark and partly by what activities are undertaken. When working normally from 9 am to 5 pm, things that happen as a result of your body clock include:

- morning light tells the body clock to be more alert;
- after lunch (siesta time) the body clock will turn alertness down for a couple of hours;
- alertness is heightened in the late afternoon and early evening;
- darkness at night tells the body clock to turn alertness down again to get ready to sleep; and
- after midnight, body temperature and alertness decrease to their lowest level.

### Sleep factors

The optimum amount of required sleep varies. The average daily sleep required for an adult generally varies between 6 to 8 hours. People who have less sleep than necessary will incur a sleep debt. This 'sleep debt' builds up for each day you don't have enough sleep.

The best time for good quality sleep is in the early morning hours (midnight to 6 am). Unless a driver is on night shift, it is best to try to sleep during this period. It is important that all parties recognise that drivers working irregular hours or shift work are routinely exposed to conditions that reduce the amount and quality of their sleep.

It is not necessary to repay every hour of sleep debt immediately. However, if a sleep debt is not properly managed, driving performance could be as poor as if the legal alcohol limit was exceeded.

Sleep debt is like a bank loan – you have to pay it back.

Every day that sleep is insufficient, a driver is more fatigued and therefore more dangerous. Fatigue will also build if sleep is lost over consecutive days as the effects of fatigue are cumulative.

It is not possible to just sleep and drive, and drive and sleep. Sleep time should not be shortened to fit in daily living activities such as washing, eating and domestic tasks. Drivers and operators must take this into account and include adequate time for sleep as well as other domestic and recreational activities.

Short-term measures such as taking naps can help compensate for lack of sleep but remember that naps are not a substitute for continuous sleep and that after a nap it can take some time to wake-up completely and get over the sleep inertia.

## **Work Factors**

There are a number of work factor issues relating to the cause of fatigue:

- Long driving hours – Long work hours, especially over more than one day can lead to fatigue,
- Night time driving - Driving at night can put extra stress on your body, as this is usually when you are ready to sleep,
- Irregular hours and early starting times – Rosters that make it hard to get enough refreshing quality sleep can lead to fatigue,
- Tight Scheduling – Stressful work with tight schedules contribute to fatigue,
- Insufficient time to recover – Fatigue can also be caused by not having enough time to rest and recover between shifts.
- Doing non-driving physical work – Work such as loading and unloading, as well as heavy lifting can add to the onset of fatigue,
- Poor driving conditions – Some of the following conditions can also affect your concentration and therefore make driving more difficult:
  - Hot weather (hot & stuffy in the cab)

- Wet weather
- Noise
- Monotonous driving
- Driving on familiar roads

## **Health factors**

There are some general health tips and lifestyle choices that will ensure safer driving – with many other benefits. However, the following are a number of health factors that can prevent a driver from getting a good long sleep.

Although most people over 50 years snore at night sometimes, for a few it is a serious problem. Sleep apnoea occurs when the windpipe collapses during sleep so that too little air reaches the lungs, resulting in frequent waking due to oxygen starvation. The condition is treatable.

A further problem is falling asleep during the day with no obvious sleep problem at night. This condition is called narcolepsy, and can be treated.

Some people also suffer from restlessness at night that keeps them awake. They find their legs keep moving or twitching. This too is treatable.

Some illnesses such as diabetes, if not controlled, can also result in fatigue. Again, this can be treated.

Emotional issues can also stress and affect you in many ways, one of which is the body becoming fatigued more quickly.

Being overweight or obese is not usually regarded as an illness. However, obesity can cause sleep problems and strongly contributes to sleep-disordered breathing (apnoea). Also, being overweight does cause other problems including medical sleep problems.

Tiredness and drowsiness after sufficient sleep may indicate a medical problem. It is recommended you seek medical advice.

Ongoing fatigue and stress can also contribute to serious long term health effects such as cardiovascular disease. It makes sense to have regular health checks so these illnesses and medical problems can be diagnosed before they make drivers unsafe, unable to do their job or worse.

## **Effects of Alcohol, other drugs and stimulants**

The effect of alcohol on people is very similar to fatigue. After consuming alcohol the only way to reduce its effect is to allow time. Large amounts of alcohol before bedtime will reduce the quality and amount of sleep a person can have.

Many drivers smoke cigarettes in the belief that it helps keep them alert, however this increases the risk of many diseases such as heart disease and lung problems.

There is a temptation to take stimulant drugs to manage fatigue but this is not recommended. These drugs have many side effects resulting in increased fatigue and can cause long term effects on health including problems such as high blood pressure and other cardiovascular problems.

Caffeine and other related stimulants can have the effect of perking up an individual for a short amount of time. If you have caffeine all the time your body adapts to it so it has less effect. Whether it is coffee, tea, chocolate, cola drinks or perhaps something stronger, caffeine is a stimulant. But too much can be a problem. Too much caffeine can stop a person from sleeping when they want to, as well as reducing the quality of their sleep. It can also cause digestive, cardiovascular and other problems, including headaches. Caffeine dehydrates the body, which is a serious problem when driving. And, if you are very fatigued, caffeine won't help you – only sleep will.

## **Benefit of diet and exercise**

Good health and fitness will assist in addressing issues associated with fatigue.

Exercise and a good diet will help drivers to be fit for work, assisting in alertness and better sleep. Exercising for 30 minutes a day, even in three 10 minute periods, can significantly improve health and reduce weight. Just walking or jogging instead of using the car for short trips is beneficial.

During a break from driving, walking is good exercise. As a driver, the health of your back is vital to your livelihood, so look after it by stretching, flexing regularly and lifting properly.

Unlike some other types of work, driving requires drivers to be alert and attentive all of the time. This depends on the work being done but also on what drivers have done on the days prior to driving. Drivers need to be ready to drive/work at all times when at work. This is commonly called 'fitness for duty'. Drivers need to be aware of the impact

some types of activities may have on their fitness for duty such as a second job, recreational activities, sport, insufficient sleep and any stress related situation.

A healthy diet and regular exercise will reduce weight and improve your fitness. Nutritionists recommend the following:

- breads and cereals: (4-5 servings daily) such as rice, pasta, bread and cereals;
- vegetables and fruit: (at least 4-5 servings daily) of fresh, frozen or canned fruits and vegetables;
- meat and meat substitutes: (1-2 servings daily) of lean beef, lamb, veal, chicken or pork (grilled rather than fried)
- milk or dairy products: (3-4 servings daily) of milk, cheese or yoghurt;
- fats: butter and margarine: (maximum of 1 tablespoon daily) of butter or table margarine; and
- fish: (preferably 1 serving daily) minimum of 2 servings per week.

The quantity of food consumed can also affect sleep. It is bad practice to eat a heavy meal before going to bed. Plan to eat no less than 3 hours before going to sleep.

Driving in excess of the legal alcohol and drug limits leads to fatigue, however fatigue can still be a problem even within the legal limits, and the risk of long working hours must be properly managed.

Most drivers who have a sleep debt don't realise they are tired, so drowsiness can creep up on them. It is time to pull over for a break if any of the following is experienced:

## Warning Signs

1.	Trouble keeping your head up
2.	Wandering, disconnected thoughts – day dreaming
3.	Eyes close for a moment or go out of focus
4.	Eyelids droop
5.	Inability to stop yawning
6.	Inability to remember driving the last few kilometers
7.	Drifting over the centre line or onto the gravel at the side of the road
8.	Not noticing signs and hazards early enough
9.	Missing your exit
10.	Starting to see things that are not there
11.	Approaching corners, intersections too fast
12.	Poor steering or braking too late

# Ways to Reduce Fatigue

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## **Listen to and plan around the body clock**

No matter whether adequate sleep is achieved or not, there are high points of alertness and low points when one feels drowsy, or wants to sleep. Consider the body clock in scheduling breaks for rest or naps. Also explain to families and friends how important sleep is and avoid parties, etc. if occurring at times when you need sleep.

Drivers should ensure they have enough sleep to cancel the debt and don't drive if feeling drowsy.

The driver must have the flexibility to adjust the driving schedule if circumstances change. The likelihood of falling asleep when the body clock is set to 'sleep' is very much higher than at other times in the day and the associated risks must be considered by Operators and other parties when setting schedules and agreeing to contracts. The risk also increases as sleep debt increases, so schedules need to take this into account.

Develop and maintain a regular routine that provides for sleep, meals, daily living and time off. This will improve sleep quality and alertness when awake.

Learn, plan and use counter-measures to better manage driver fatigue:

- set schedules so that wherever possible, drivers can take a power nap if starting to feel tired;
- take a nap before the start of a shift to help prevent fatigue;
- use rest breaks to maximise the quality of rest;
- combine short rest breaks with exercise;
- drink plenty of water and eat sufficient fresh food including fruit and vegetables; and
- even with adequate sleep, a monotonous trip can make us less alert – mental games and habits can be developed to help keep alert.

If early signs of drowsiness are ignored, micro sleep may be experienced, resulting in loss of control of the vehicle leading to the

vehicle running off the road or into an oncoming vehicle. Once fatigue sets in, the best counter-measure is sleep.

### **Obtaining good sleep and taking naps**

The actual amount of sleep needed by each person varies and this needs to be considered by drivers. Similarly, how to have a good sleep is an important consideration. Avoid stimulants – they are not the answer to fatigue as they only delay sleep and increase the sleep debt.

For night drivers to obtain good quality sleep and manage the risks associated with the quality of sleep...

- at home, - find the best room temperature to fall asleep (it will probably be between 18 & 22°C);
- turn down your phone volume (or turn it off); wear earplugs; ask the family to be quiet;
- hang extra thick block out curtains; wear eye shades; and
- have sufficient sleep before commencing driving/working.

If you are having trouble sleeping seek medical advice and remember regular health checks are important. It is important that drivers are aware of any sleep disorder or other medical condition that could affect their ability to drive safely.

The best time to sleep is when you feel the onset of tiredness.

Short breaks are an important means of addressing driver fatigue and additional breaks should also be taken when necessary. Naps should not be seen as a weakness as it is good fatigue management. Naps can be very effective in providing short term relief, but they are only a temporary measure and not a substitute for continuous sleep. When driving, remember to:

- be prepared to take breaks when most needed;
- avoid extreme temperature and take breaks where relief from temperature is available;

- use short breaks to stretch and walk; and
- try and maintain some simple exercise routines between driving shifts.

If fatigue does occur however, a nap can help decrease fatigue. The effectiveness of naps will depend on the time of day they are taken and how fatigued the driver is. Naps are most effective if taken before a driver is fatigued. However, if experiencing overwhelming sleepiness, stop and obtain adequate sleep as soon as practical. Naps should only be taken as a last resort in these circumstances. Consider the following points when napping;

- a minimum of a 10-minute up to 30-minute nap should be adequate to reduce the effects of fatigue;
- if a longer nap is needed, allow up to 80-90 minutes so that waking should occur during a shallower sleep;
- consider taking a nap before a long drive to help prevent fatigue developing during the drive.

#### **Tips for managing fatigue and to help keep alert at the wheel.**

1.	Plan your driving roster so there is enough time to adjust to a change between day and night shift
2.	Be realistic about how much sleep is needed to be a safe driver and make sure it is acquired.
3.	Start your shift without a sleep debt.
4.	Keep the car at a comfortable temperature, but not too warm.
5.	Get fresh air into the car. Stale air contributes to drowsiness. Do not smoke.
6.	Eat sensibly and exercise regularly
7.	Drink plenty of water, and use minimal caffeine drinks
8.	Learn to recognise the signs of sleepiness.
9.	Do not take drugs to manage fatigue.
10	Listen to music, talkback radio, or engage in conversation with the passenger.
11.	Take regular breaks to stretch, walk and check the vehicle.

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## **Recommended Hours of Work**

Aerial's Work Health and Safety Policy recommends drivers should not exceed 14 hours of being logged onto the system.

Aerial recommends a minimum of 10 hours break between shifts.

# **General Workplace Information**

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## **Vehicle as a Workplace**

The following issues need to be considered for safe work systems on the road:

- Ergonomics: Including seats, steering wheel adjusted to size and needs,
- No smoking policy must be observed within the vehicle
- Storage: all documents, bags, tools etc must be stored appropriately and restrained in case of possible movement during heavy braking.
- Employ appropriate first aid kit, as per legislation,
- Provide accident reporting processes.

## **Basic Vehicle Maintenance**

Operators must ensure that drivers maintain the vehicle appropriately and that before undertaking their shift, drivers check fuel needs, safety equipment (eg. Tyres, jacks, first aid kit, drinking water, wiper fluid etc). In the likelihood of a vehicle breakdown, drivers

must have an effective communication plan, know who to contact for help, who is an authorised repairer, how to secure the vehicle if necessary to abandon, or how to transport for repair. Ensure that a torch is carried for emergencies if travelling at night.

### **Driving Conditions**

Drivers must be aware of weather conditions and forecasts which will affect road conditions, eg. Extreme heat/cold, heavy rain, potential wash-aways, floods, and slippery conditions etc. Drivers must drive according to the conditions.

## **Further Information**

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The following websites have further information on Driver Fatigue:

<http://www.rta.nsw.gov.au/roadsafety/fatigue/campaigns/>

<http://www.science.org.au/nova/074/074key.htm>

[http://www.comcare.gov.au/forms\\_and\\_publications/fact\\_sheets/driver\\_fatigue](http://www.comcare.gov.au/forms_and_publications/fact_sheets/driver_fatigue)

<http://www.ntc.gov.au/ViewPage.aspx?documentid=01409>

## Notes

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