

Centre for Excellence in Outdoor and Environmental Education

Driver fatigue prevention.

Note: fatigue can affect safety in any situation where alertness and judgment are required. Trips should be timed to help ensure staff and students begin activities rested and free from sleep debt.

Introduction

Driver fatigue is known to be a substantial contributor to road accidents, although quantifying the role of fatigue in actual accidents is difficult because the presence of fatigue must often be inferred from indirect evidence after an accident. Increasing fatigue leads to an increase in the risk of inattention, lapses of judgement, and other errors; the problem of fatigue is not confined to recognisable sleepiness or falling asleep while driving.

Fatigue must also be considered in wider health and safety contexts. No Centre staff are employed primarily as drivers; none are professional drivers. We must consider driver fatigue to be one part of a more general consideration of workplace fatigue, and its potential to affect safety and performance in all aspects of Centre practical work.

Contributing factors to fatigue

Fatigue may be associated with sleep disorders or other health problems. Those aside, the contributing factors, in order of importance are:

1. sleep debt,
2. time of day, and
3. time on task (ie driving hours).

Sleep debt is cumulative. The only cure is deep sleep. Apart from obvious disruptions to sleep or obvious lack of sleep, sleep debt may build up simply by waking with an alarm clock every morning half an hour before the body would naturally wake. Work factors may contribute to sleep debt, inappropriate work requirements may cause sleep debt (for example long hours or irregular hours); however sleep debt may also be present due to factors known only to the individual and not work-related. Some of these may be to do with health or other problems, and with individual variation.

The early hours of the morning and the period after lunch are peak times for road accidents. The times are related to circadian rhythms (the daily cycle of sleep and wakefulness).

The evidence for the role of time-on-task, the traditional focus of driver hour regulation, is less certain. Time-on-task correlates with increasing fatigue, but there is some doubt as to whether time-on-task is a cause of fatigue or correlates with other factors which are the actual cause.

Fatigue management for commercial heavy vehicle drivers.

Although there have been some attempts to develop research and consultation-based fatigue management approaches, the central strategy adopted around the world for many years has been driving hours regulation.

The problems with driving hours regulation are well-known. (1) They attempt to control only the third and least significant of the factors known to cause fatigue. (2) They don't work well in practice. Compliance is a chronic problem. (3) They introduce anomalies which may actually cause fatigue (for example through forcing drivers into shift work, or through inflexibility which may result in drivers having to take poor quality rest breaks at the expense of good quality sleep).

Fatigue management for private heavy vehicle drivers.

Very little research has compared commercial bus driving with non commercial bus driving with respect to differences in work practices, supervision and professional responsibility, different production pressures and the likely effectiveness of education in workplaces such as schools, community groups, and universities where buses are driven non-commercially as an adjunct to the main functions of the institutions.

This policy is therefore based on the specific circumstances which exist in this Centre, namely:

- Driving is mainly associated with practical trips to venues within 600 km of the University, usually much less. Driving hours will overwhelmingly be below, or just on the threshold of the considerations which pertain to commercial driving hours regulation.
- Although much of the driving uses 12 seater vehicles that are registered as cars, not buses, the same safety considerations apply from a Centre perspective
- Production pressures relevant to commercial driving do not apply, but there may be other, distinctive production pressures arising from the dual roles of driver and teacher.
- Non-driving work pressures may be more significant than in the case of professional drivers.
- There may be error-inducing circumstances resulting from the combination of teaching, supervision, and driving duties. For example, departure times and rest stops are periods when lecturers may be temporarily overwhelmed by requests or queries from individual students, logistical arrangements, and transport related issues. In areas such as emergency medicine it is well known that temporary peaks in workload are error inducing. This is relevant to any administrative arrangements which add, even in a seemingly trivial way, to the tasks which staff must perform at these critical times.
- Although driving is only an ancillary function of the Centre, teaching and researching safety management and supervisory responsibilities is a *central* role of the Centre in relation to outdoor teaching and guiding. Thus the context of professional responsibility is dramatically different to the commercial driving situation. Responsibility for fatigue management should be largely delegated to staff in these circumstances; this is consistent with safety management approaches in other organizations involving high levels of professional training and a central focus on safety (Sagan, 1993).
- Multiple drivers are often available on a vehicle, due to staff-student ratios and the numbers of adult students having bus licences. This is almost never the case in commercial driving.
- Driving logistics tend to be determined by either individual staff, when planning practical excursions, or by subject coordinators, in a broad context of timetabling considerations and course requirements. This is the level at which crucial decisions

regarding driving times are made, and where some of the direct responsibility for reviewing driving time issues for particular trips must be located.

Fatigue in a broader context of road safety

Although accident rates for buses are lower than for other vehicles, death and injury rates are increased simply because of the number of passengers involved in any one incident. Of fatal accidents involving school or youth group camps and excursions over the last 30 years, a high proportion (around half) involved vehicle roll-overs. Here the important issues are probably: the design of vehicles to resist roll-over; seat belts and their proper use; not using side-ways seats.

Mechanical failure has been a cause of some accidents.

Fatigue management in the Centre

These points are intended to provide an initial framework for a policy, given the limited research and lack of models for fatigue management in similar circumstances.

Centre responsibilities

Develop a fatigue management education process. Because safety management is part of the Centre's broader function in teaching and research in outdoor education, this may extend beyond the limited programs identified in the literature for other industries or for the general public

Make the issue of fatigue management in outdoor education and nature tourism (in all areas, not just driving) a priority area for research and publication.

Ensure that staff decisions based on avoiding fatigue are supported. This includes rescheduling practical work if need be, ensuring non-driving duties do not combine with driving duties on a particular day to produce excessive work hours, and recognising that practical trips in distant locations may have to finish early in the day to allow sufficient time for driving to be finished prior to normal sleeping times.

Actively work to reduce administrative requirements on staff at key times when distractions or fatigue may be an issue (ie at the beginning of a trip, and at the end of a trip). This may include providing assistance with returning buses, and simplifying paperwork.

Require staff to take a half-day in lieu on days on the morning of days where driving is to extend into the evening.

Require subject coordinators to review practical timetabling to:

1. eliminate trips which entail driving in normal sleeping times (ie no driving late at night or very early in the morning)
2. avoid driving in the early afternoon, wherever possible
3. rationalise trips to reduce overall distances travelled, wherever possible (for example by choosing closer locations, or combining trips (for example making two two day trips one four day trip).
4. avoid teaching commitments on driving days which entail either a long working day, or which risk staff being overloaded with too many things to do on the day

a trip is leaving.

Encourage staff to:

1. Monitor their own level of fatigue. This includes consciousness of accumulated sleep debt, and overt signs of fatigue.
2. Take a short nap if sleepiness is evident.
3. Share the driving, and nap for up to 30 minutes while the other driver drives.
4. Stop and camp if required.

Monitor the performance of this policy including an annual review. Monitoring should include provision for staff to comment in confidence to the OHS officer, and sampling of travel diaries throughout the year.

Staff responsibility

Monitor their own health, and disqualify themselves from driving buses if they are suffering from health problems or sleep disorders which are producing fatigue.

Ensure that they are well rested on driving days. Take time in lieu as soon as possible after a trip. Use the time in lieu on driving days to sleep in (darkened room, ear plugs, no alarm clock) to eliminate sleep debt.

Manage trips to ensure that the combination of teaching or leading and driving does not result in excessive time on task.

Manage trips to ensure that sleep times are adequate while on prac.

Use time in lieu strategically to ensure sleep debt does not accumulate between practical trips.

Ensure that there is reasonable evidence available of overall work and driving times. Evidence includes:

- Fuel docketts
- Trip forms, subject handouts with leaving times and places travelled.
- The availability of student witnesses

Maintain a diary of working hours during practical trips, using the format of the university's business travel diary.

Long drives

Where driving hours exceed 5 hours ensure:

There is a break of at least 30 minutes every 5 hours. Ensure that this is diarised.

Where driving in a 48 hour period is to exceed 10 hours, comply with all Centre requirements, and in addition with the hours defined in: Transport Regional Policy Section W.A. (1998). *Fatigue management for commercial vehicle drivers*. Perth: Minister for Labour Relations.

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- Sagan, S. D. (1993). *The limits of safety: organizations, accidents, and nuclear weapons*. Princeton: Princeton University Press.
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