

Sleep apnoea and consequences for drivers

1. Participants at the ITF Road Transport Workers' Section Annual Meeting held in London on 6 - 9 May 2003 identified sleep apnoea as one of the main concerns for causing accidents. Scientific studies and reports confirm the relationship between sleep apnoea and the number of road accidents.

What are the dangers?

2. The European Respiratory Society (ERS) Task Force was one of the first research groups that seriously raised the alarm. In the December 2002 issue of the European Respiratory Journal (ERJ), experts called urgently on the European Union for sleep apnoea to be covered by the driver licensing laws, and for the various national legislations to be harmonised.

"Five million European drivers risk falling asleep at the wheel and causing very serious accidents because of sleep apnoea, a surprisingly common respiratory problem"
ERS Task Force

3. "In the UK", emphasises Professor Walter McNicholas, the Task Force's Chairman, "sleepiness at the wheel is thought to be the cause of 20 to 25% of motorway accidents." The report in the ERJ goes so far as to state that sleep apnoea syndrome increases the risk of a road accident by six to seven times.

"These bouts of sleepiness can cause some drivers, especially when travelling long distances, to fall asleep at the wheel" *Dr Warren Lenney, British Thoracic Institute*

4. Professor Jim Horne, director of the Sleep Research Centre at Loughborough University in Leicester says statistics alone make lorry drivers a point of concern. "Truck drivers are generally among the safest drivers on the road and have fewer accidents per mile than the average driver. But the huge number of miles they cover every year, the amount of time they spend on the road and the fact that they often drive at night obviously increases their chances of being involved in an accident." People with sleep apnoea are twice as likely to have a road accident than other drivers because they are too sleepy during the day.

What is sleep apnoea?

5. *Obstructive sleep apnoea syndrome*, which has been recognised only in the last few decades, is caused by periodic obstruction of the upper airways, leading to frequent blockage of breathing during sleep and lowered blood oxygen concentration. The phenomenon is much more widespread than previously thought, so much so that it is now believed to be second only to asthma as the most common chronic respiratory disease.
6. It is estimated that up to one in four men (24%) and one in ten women (9%) stop breathing at least once every 12 minutes on average during sleep, adding up to five

incidences per hour. In cases of severe sleep apnoea, this can occur up to 600 times per night, meaning that they are also waking up that many times in a night.

7. Sleep apnoea affects more than one in 50 adults, but only 5% of sufferers ever realise they have it. Snoring is the most common symptom of sleep apnoea. The airway becomes blocked and sleep is disrupted to allow the airway to clear - in severe cases this can happen as many as 400 times a night. This severe form of the condition affects up to 8% of men between the ages of 40 and 60 and 2% of women.
8. The condition, which is more frequent in overweight people (a problem for lorry drivers because of their sedentary nature of employment) can cause extreme fatigue because many hours of sleep are lost. It can be identified only through monitoring the way people sleep. The problem, sadly, is that many patients fail to realise that they have sleep apnoea, which may only be diagnosed years later. More tragically, it may be discovered after their first sleep-induced road accident.

Symptoms

9. Sleep apnoea is a serious condition affecting many people. Symptoms include:
 - daytime sleepiness;
 - difficulty in concentration;
 - slight depression;
 - choking or snoring where it sounds like the person has stopped breathing;
 - feeling tired all the time;
 - frequently falling asleep.
10. The syndrome gives rise to a range of problems for the individual and society. In terms of individual health, it seems increasingly likely that sleep apnoea doubles the risk of arterial hypertension and considerably increases cardio-vascular mortality.

Effects of sleep apnoea on driving performance

11. Driver drowsiness is the second most important factor in causing vehicle crashes after alcohol. Studies carried out using driving simulators have shown that sleep apnoea patients are very bad at driving in comparison to control subjects of similar age, gender and driving history. A study in the New England Journal of Medicine has shown that sleep apnoea patients who have greater than 10 apnoeic episodes per hour are 6 times more likely to be involved in a road traffic accident than those who do not.
12. Studies have also been carried out comparing the effect of alcohol and sleep apnoea on performance in a simulated driving test. The results have shown that sleep apnoea patients are as incompetent at driving as individuals who have a blood alcohol level higher than 100 milligram/decilitre.

Sleep apnoea – a union member story

An industrial officer at RMTU, New Zealand started to develop what he later learnt to be sleep apnoea in his early 30s: "As the years went by my snoring became heavier and heavier, until it got to the stage when I would stop breathing when I was snoring. Because of this I

would never wake up feeling refreshed. I was continually tired and would fall asleep for short periods every time I sat down. One time my wife saw me fall asleep while I was driving.”

He discovered he was suffering from sleep apnoea after watching a TV programme. He went to see his doctor and was referred to a specialist, who did a sleep pattern assessment. “During this, in one hour, I stopped breathing 49 times, for periods ranging from 17 to 58 seconds. They decided I had sleep apnoea and tested me on a sleep machine. When I woke up I thought I had only been asleep for five minutes, but was told it was four hours.”

It took a few months to get used to the sleep machine and to the special mask one wears. The machine works by blowing air down the throat to keep the airway open. It's small and fits easily into a suitcase in case of traveling.

Since having had the machine, his life has changed totally: “I have now got my life back, I am now interested in things around me because I am no longer in a constant state of exhaustion. I don't fall asleep all the time and have lost half the weight I put on. I rarely use my asthma inhaler and feel like a new man.”

This is an example showing that sleep apnoea is treatable whilst untreated, sleep apnoea shortens peoples' lives through lack of oxygen and exhaustion.

Experts' research raises concerns over risks for drivers

13. The ERS Task Force has studied the situation in various European countries. Their study was unique in several respects, notably in probing, for the first time, whether and how the driver licensing authorities take the problem into account. The experts proceeded to carry out a major inquiry, both in the European Commission and in the various national licensing authorities. They also questioned colleagues specialising in sleep research.
14. It was quite a shock to find, not only that European legislation on the problem was chaotic, but also that nine of the Member States of the European Union completely ignored the issue of daytime sleepiness. While European regulations ought to cover it, sleep apnoea is not on the list of medical conditions that lead to a driving ban. This is despite the fact that the European instruments specify that "a driving license should not be given or renewed to any candidate or license holder suffering from a disorder likely to compromise safety on the road".
15. However, in some countries, including France, the Netherlands, Spain and the UK, the Task Force reported that the regulations covered sleep apnoea or other sleep disturbances liable to cause sleepiness. Drivers must follow treatment or face losing their licenses.
16. Yet the ERJ article emphasises that somnolence (sleepiness) detection is very patchy and tends to rely on a driver declaration rather than a medical report or psychological test. And the methods used to monitor treatment compliance vary widely among countries (some require attendance at a specialist sleep centre, others a medical certificate confirming the treatment) and some countries do not monitor at all.

17. It is widely accepted that both fatigue and sleep deprivation are major contributors to truck accidents. According to the "Sleep, work schedules and accident risk in South African long-haul truck drivers" report by Maldonado and her colleagues, published in the South African Journal of Science in 2002, police records for two major roads in South Africa show that falling asleep at the wheel contributed to a quarter or more road accidents involving heavy vehicles.
18. For those drivers who do manage to get some sleep in their truck, Maldonado and her team reported that their sleep was interrupted mostly by noise as well as light, outside activity and extremes of heat or cold. Almost eight out of ten of the drivers surveyed complained of interrupted sleep; in this case poor sleep is associated with up to 62% of incidents where drivers nodded off at the wheel, increasing the risk of causing a road accident.
19. The research team showed that the problem is compounded by sleep disorders such as apnoea and snoring, which show an unusually high prevalence in long-haul truck drivers. These disorders have been shown to increase sleepiness and reduce attention. Drivers who admit to snoring or experience signs indicative of sleep apnoea, or other sleep complaints, show a two-fold increase in sleep-related road accidents compared with drivers without sleep disorders.
20. Drivers who snore or show signs indicative of sleep apnoea are also more likely to be overweight. Obese drivers who snore or experience excessive daytime sleepiness fall asleep at the wheel more often and are twice as likely to have an accident compared to those who do not snore. There also appears to be a correlation between severe sleep apnoea and heart failure and the likelihood of getting strokes or hypertension.
21. According to Maldonado and her team, South African truck drivers are at risk of causing sleep-related accidents as much as other truck drivers in more affluent countries, except that truck drivers in South Africa also have to contend with unsafe social circumstances and poor conditions at truck stops.

Legislation on fitness to drive

22. The Driver & Vehicle Licencing Agency (DVLA) in the UK has guidelines for medical practitioners regarding individuals with sleep apnoea syndrome. Those diagnosed with sleep apnoea and who drive motorcycles or motorcars must cease driving until satisfactory control of the symptoms is achieved. Those diagnosed with sleep apnoea and who drive heavy goods vehicles or passenger-carrying vehicles are recommended to cease driving. When it is confirmed by specialist assessment that the condition is adequately controlled for at least 12 months, driving may be resumed subject to annual review.
23. The above legislations are useful only when individuals come forward complaining of sleepiness and impaired ability to drive however there is an under-reporting of sleepiness and driving impairment. Patients know that if they admit to impairment they may not be allowed to drive and for many this may result in the loss of work or restriction in their social life.
24. If a road traffic accident can be proven to be caused by sleepiness the driver can be charged with dangerous driving or causing death by dangerous driving. Sleepiness

is regarded as not paying competent and careful attention to driving or others using the road. Individuals can also be charged if it is thought that they were aware that their ability to drive was impaired by their fatigue.

Sensitive ethical questions

25. It is true that it is still difficult to assess the driving ability of a sleep apnoea sufferer following treatment, as the experts' reports admit. There are studies underway all over the world to develop standardised somnolence (sleepiness) tests. In a few years' time, these tests should be able to provide a better assessment of the risks attached to sleep apnoea.
26. The solution does, however, raise important ethical, medical and legal questions. For example, can doctors report to the authorities on what their patients tell them? And would that not lead patients to avoid using health services, thus achieving the opposite of the desired effect?

Possible solutions

27. Doctors on the ERS Task Force have found that treatment for patients varies across Europe. They have also found that while some countries restrict people with the condition from driving, others do not.
28. Patrick Levy, of the University Hospital Centre of Grenoble in France and Joint Chairman of the ERS Task Force, said providing treatment to patients could enable many to continue driving without being a risk to themselves or others.
29. There is certainly a need to protect the public from road accidents caused by sleepiness at the wheel. The ERS Task Force experts prefer, in their report, to underline the need for better information on the syndrome, targeted both at road safety experts and at politicians.
30. The public report published in the ERJ also recalls the need to assess the impact of the regulations on sleep apnoea introduced in certain European countries, for it is still not clear whether they have really cut the number of road accidents. In addition, it vigorously emphasises that Europe should develop practical recommendations to ensure that at-risk drivers with sleep apnoea do not drive until they have received adequate treatment.
31. The study conducted in South Africa recommends shortening driving time and working hours, increasing time for sleep and relaxation, rescheduling driving trips towards regular work hours, improving sleep conditions for truck drivers, and also treating sleep disorders and obesity where they occur.

What can drivers do to avoid fatigue-related crashes?

Sensible planning

- Get a good night's sleep before a long trip.

- Limit driving between 00h00 and 06h00.
- Schedule regular rest stops.
- Abstain from alcohol (it worsens the effect of sleepiness).
- Plan to share the driving.

Warning signs to identify sleepiness while driving

- Drifting across the lane
- Sore eyes, heavy eyelids
- Excessive yawning
- Cannot recall the last few miles driven

What to do if you feel sleepy while driving

- Stop driving as soon as it is safe.
- Change driver.
- Stop and have a short nap (less than 40 minutes)*
- Combine this nap with a cup of coffee*

** A nap and upping caffeine levels are only temporary solutions. Stopping overnight or changing drivers are the best solutions.*

If you think you are experiencing symptoms that might be of sleep apnoea, then go and see your doctor and ask for a referral to a sleep specialist.

Union takes on sleep apnoea

32. Researchers at the University of Edinburgh's Faculty of Medicine are collaborating with the Transport and General Workers Union in an effort to solve the problem, which they believe has overtaken drink driving as a major factor in UK road injuries and deaths.
33. In 2002, more than 3,000 Scottish bus drivers were asked to participate in a 3-year study focusing on the growing evidence of a link between sleepiness and road accidents. The project is being led by Professor Neil Douglas, one of the country's leading experts in sleep apnoea, who believes there may be some 40,000 people in Scotland alone suffering from the condition that is potentially dangerous, yet easily treated.
34. It is believed that the research results will have a major impact in future road safety and could determine whether professional drivers should have some form of screening for their own safety as well as that of their passengers. Transport and General Workers Union officials share the researchers' concern over the link between sleep apnoea and serious accidents.
35. The University of Edinburgh team believes that 2% of Scotland's middle-aged population may have some form of sleep apnoea and has found that men are far more likely to suffer from the condition than women. The problem is also more prevalent among those who are overweight and do not take regular exercise.

36. More than 2,500 people in Scotland are already receiving treatment for sleep and Professor Douglas believes the University's three-year project will see the numbers being treated increase significantly. "Sleep apnoea can be effectively treated – almost overnight – and the results of this project could go a long way to making our roads safer," he added.
37. The participants are invited to:
- (a) Elaborate the recent experiences of their members on sleep apnoea and how the union has been working on this issue;
 - (b) Elaborate on good legal practices;
 - (c) Discuss inclusion of this issue in the annual Fatigue Kills Campaign and promotion of raising awareness for membership, public and media.

References

1. BBC News, 2001-2002: <http://news.bbc.co.uk/1/hi/health/>
2. European Respiratory Society (European Respiratory Journal, Vol. 20, Number 6, December 2002): <http://www.ersnet.org/>
3. Land Transport Safety Authority, New Zealand, August 2000: http://www.ltsa.govt.nz/publications/rsnz/2000/2000_aug_04.html
4. *Sleep, work schedules and accident risk in South African long-haul truck drivers*
C.C. Maldonado, D. Mitchell, S.R. Taylor and H.S. Driver (South African Journal of Science, 98, July/August 2002):
<http://www.sciencein africa.co.za/2002/november/truck.htm>
5. Sleepiness causes accidents:
<http://www.portfolio.mvm.ed.ac.uk/studentwebs/session4/23/index.htm>
6. University of Edinburgh News, February 2002