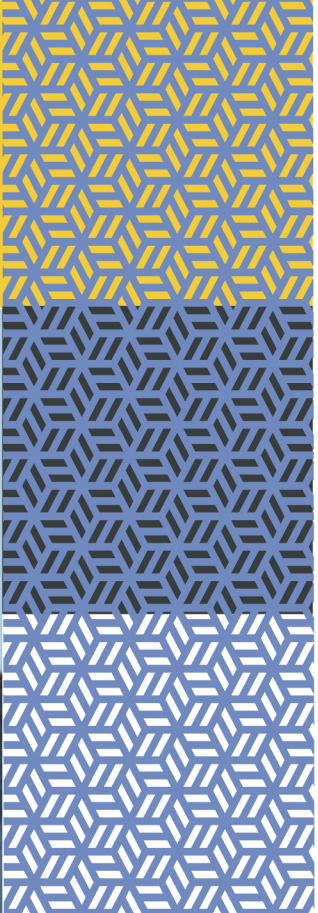
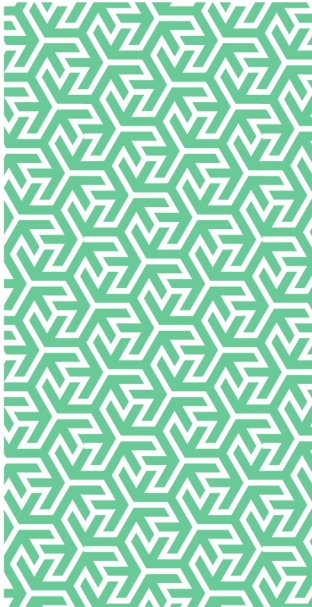


rmp

Risk control
Managing Sleep Debt



In partnership with



Managing Sleep Debt

Introduction

The topic of sleep debt is becoming more of an issue in our society particularly as patterns of work and employment practices change. With the developing gig economy, mobility of the workforce, and a 24/7 society, people are not necessarily considering the issue of sleep debt and its potential impact.

What is Sleep Debt?

Sleep debt is the difference between the amount of sleep needed and the amount actually experienced. For example, if someone needs eight hours of sleep per night but only experiences six, they have accumulated a sleep debt of two hours. They owe their body two hours of sleep. People can recover from sleep debt through healthier sleep practices and lifestyle changes.

According to the 'Need for Sleep' study¹ in 2022 by Direct Line Life Insurance, the UK is a seriously sleep deprived nation. Over 7.5 million people (14%) sleep for less than five hours a night on average, which is seen as a dangerously low level and a threat to mental and physical health by medical professionals.

The study of 4,000 UK adults was conducted in partnership with Dr Holly Milling, Clinical Psychologist and Founder of The Sleep Practice, and found sleep deprivation is affecting the majority of people. The study noted that more than 37 million (71%) of people across the country do not experience the recommended seven to nine hours of sleep each night. While the ideal amount of sleep is somewhere between seven to nine hours a night, the study revealed that the average UK adult sleeps for just six hours and 24 minutes. So what is the impact of this on performance?

The Effects of Sleep Debt

Reaction times increase as a person accumulates sleep debt. This means that the more sleep a person loses, the longer it takes for them to react to a stimulus. In one study by the National Centre for Biotechnology Information², research subjects were allowed to sleep for five hours per night for a week. Over the course of the week, participants' reaction times steadily increased as they accumulated sleep debt and felt increasingly sleepy. It is possible that sleep loss increases reaction time due to the body's simultaneous and competing needs.

When a person is sleep deprived, their body is experiencing a need for sleep, a need to stay awake, and a need to perform tasks. These competing drives interfere with their attention from moment to moment, leading to cognitive impairment and increased reaction times. So anyone

involved in safety critical tasks whose work requires sustained attention and quick reflexes can be severely affected.

Being in a prolonged state of sleep debt on a regular basis also increases the risk of diabetes, hypertension, heart disease, and stroke. It is also linked to reduced immune system function, metabolic dysregulation and weight gain, and a greater risk of falls and accidents. Prolonged sleep deprivation also affects a person's memory and cognitive functions.

Caffeine and Energy Drinks

Caffeine use can exacerbate sleep deprivation, and sleep loss causes sleepiness the next day, which in turn causes an increased need to consume more caffeine in order to cope. Ongoing sleep deprivation can cause a level of daytime sleepiness that even caffeine cannot counteract. Sleepiness can also be a symptom of withdrawal from caffeine, which is why regular caffeine users may feel sleepy in the morning until they consume it. Caffeine can stay in the system for five to six hours, though its presence slowly decreases over time.

Choosing to use caffeine based drinks can create another problem as the person needs something else to relax and may therefore turn to alcohol. Caffeine is a stimulant that can make people feel energetic and alert. Alcohol, on the other hand, is a depressant that can make people feel sleepy or less alert than usual. Once someone gets on this rollercoaster of taking caffeine to wake up, then using alcohol to relax, they can find it difficult to regain control.

When a stimulant is mixed with a depressant, the stimulant can mask the depressant's effects. In other words, combining caffeine and alcohol may mask some of the alcohol's depressant effects. The person might feel more alert and energetic than they normally would while drinking alcohol.

Driving

According to a recent study in 2022, from the American Automobile Association Foundation for Traffic Safety³, roughly one third of all drivers in the U.S. suffer from a lack of sleep, which means that they are not experiencing the proper sleep necessary to safely operate a vehicle. Drivers missing just one to two hours of required sleep in a 24-hour period almost doubled their risk of having a car accident.

Employers must manage health and safety risks to workers who drive a vehicle on the road as part of a work activity. Health and safety law applies to work activities on the road in the same way as it does on a fixed site.

Employers must have a better understanding of the extent that people are driving in connection with work, and this statistic serves to highlight how important it is to have an oversight on work related driving.

The Sleep Foundation¹ also point out that a lack of sleep impacts both physical and mental health. In the workplace, excessive sleepiness can greatly increase the likelihood of a workplace accident, which can result in injury and even death. Sleep deprivation also has a significant impact on other aspects of job performance, including productivity, task management, and meeting goals.

Historical Lessons

This is not a new issue. In the **Herald of Free Enterprise⁴**, a disaster that occurred in 1987 with significant loss of life, the root cause of the disaster was the unrealistic timetable set by the Board of Management of P&O Ferries. They did not provide enough turnaround time in the harbours, and the only time employees could get a rest was when they were in the harbour and finished their duties. The disaster happened because the person who usually shut the bow doors was asleep in his cabin, and did not hear the call to station to prepare for departure.

In the **Texas City oil refinery disaster in 2005⁵** investigators discovered human error was a major contributor to the disaster. Operators worked 12-hr shifts, seven days-a-week. Because of this acute sleep loss and cumulative sleep debt resulted. BP had no corporate or site specific fatigue prevention policy or maximum shift work regulations. There were no fatigue prevention guidelines and a lack of availability of staff due to cost cutting causing leading to the downsizing the teams meant that key personnel were working extra shifts.

In the **2016 Croydon tram crash⁶**, the Rail Accident Investigation Branch investigation found that the driver of the tram had lost awareness before the crash, possibly as a result of microsleep. A former driver suggested to The Times², that a blackout was a possibility, due to the erratic shift patterns that the drivers had to adhere to. He also said that the vending machine at the tram depot was stocked only with energy drinks, and that "Nobody is ever fully awake; I was always in a bit of a daze and that is because the way the shifts work doesn't allow the drivers to get a regular sleep pattern."

Following this, multiple sources reported on a video apparently showing a different driver struggling to stay awake at the controls, the driver concerned was suspended pending an investigation into the matter.

Assessing the Risks

The starting point for any employer is to consider a suitable and sufficient assessment of risk to their employees and other persons affected by their undertaking.

This in practice means also considering how contractors, visitors, members of the public, and unlawful visitors may be put at risk. These other persons are often service users of the organisation.

The Individual

An often overlooked aspect of risk assessment is the employee carrying out the task. Too often risk assessments refer to the operative, some generic idea that someone undefined will undertake the task, rather than focus on what the organisation and managers know about the actual employee who is performing the task.

The person may have underlying health conditions, such as sleep apnoea, or they have other issues occurring outside work which may be having an impact on the physical and mental health.

The Task

The focus of a task-based risk assessment is on what the person will be doing, for instance driving a refuse lorry, cutting grass on a ride-on lawnmower, or giving care in a service user's home.

Some of these tasks have significant risks associated with them such as collisions with members of the public; losing control of equipment or making errors when administering medications.

¹ <https://www.sleepfoundation.org/>

² The Times, Monday 14th November 2016

Consider the range of safety critical tasks that are carried out and review these in light of how the employee's lack of sleep and awareness may significantly influence how the task is carried out.

The Environment

Where the person is working may also influence the risks to themselves and others. If they are operating a refuse lorry in a busy urban area they risk colliding with other vehicles or pedestrians.

Alternatively the person may be driving a vehicle in a remote area and fall asleep at the wheel.

Use of Equipment and Materials

Errors when using equipment or materials, missing out steps in a defined work method or incorrect use of equipment may put themselves and other at risk of personal injury.

Safe Systems of Work

In both criminal and civil litigation cases there is a significant emphasis on the need to have safe systems of work. An essential output from the risk assessment will be a method or procedure for carrying out safety critical tasks in a way that ensures the health and safety of everyone.

For instance, an employee may be required to undertake a complicated task but is distracted or unable to concentrate. Alternatively the system of work may not allow time to rest before critical steps are undertaken.

Safe systems of work require checks and balances to make sure that they are carried out effectively and consistently. Where an employee is impaired by sleep debt they may not be able to carry out the task according the system of work.

Preventing Sleep Debt

Encouraging employees to improve personal sleep hygiene will help them to feel more rested and improving their reaction time. Sleep hygiene means incorporating practices that promote better sleep, while reducing practices that are making sleep more challenging. The following guidance should be provided to employees:

Get outside and be active: Getting enough daylight and physical activity are two vital steps in improving sleep hygiene. Both sunlight and exercise help to sync the sleep-wake cycle, an important circadian rhythm.

Be consistent: Establishing a night time routine and keeping it consistent. Creating an order for the evening and following the same routine each night can help the mind and body wind down and know that it is time to sleep.

Improve the sleep environment: Around 30 to 90 minutes before bed, making sure to turn off or silence all distractions, especially electronics like the TV and smartphone. Choosing to do a calming activity, like stretching, reading, or relaxation exercises will signal to the body it is time for sleep.

Understand the role of diet: Drinking coffee or eating a large meal too late in the evening can disrupt sleep. Alcohol may make it easier to fall asleep initially, but it can disrupt sleep later in the night. Trying to limit alcohol and caffeine, especially in the evening, is a good idea.

Talk to a doctor: If someone has persistent difficulties getting enough sleep, it's important for them to talk to a medical professional. Doctors, sleep specialists, and mental health counsellors are trained to help find and treat issues that affect a person's sleep.

Managing the Threat

- Take the time to consider the risk assessments that relate to higher risk activities.
- Review those risk assessments and consider if the hazards could be missed or overlooked by a person suffering from sleep debt.
- Take time to understand the people who are carrying out the tasks.
- Discuss with and observe the behaviours of staff, such as excessive consumption of energy drinks or caffeine.
- Also consider how the organisation of the work could create the conditions for sleep debt to develop, such as complicated shift arrangements or constant swapping of shifts.

Educating managers about how their decisions can impact on the sleep of a worker and their health is important.

While it can help to encourage employees to become more aware of the signs and symptoms of sleep debt, the way the work is organised can have a significant impact on the accumulation of sleep debt.

References

1. [Sleeping dangerously: 7.5 million Brits have under five hours' a night](#)
2. [Sleeping dangerously Omnibus research commissioned 13th and 18th October 2021](#)
3. [Prevalence of Drowsy Driving Crashes: American Automobile Foundation/](#)
4. [The Herald of Free Enterprise Disaster](#)
5. [U.S. Chemical Safety and Hazard Investigation Board: Texas City](#)
6. [Report 18/2017: Overturning of a tram at Sandilands junction, Croydon](#)

Further information

For access to further RMP Resources you may find helpful in reducing your organisation's cost of risk, please access the RMP Resources or RMP Articles pages on our website. To join the debate follow us on our LinkedIn page.

Get in touch

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