

Fatigue

The Working Time Regulations, eventually brought into UK law in 1998, are the main serious attempt to regulate working hours in the UK and address the issues arising from fatigue at work and other issues stemming from long hours. The fact that these Regulations only came about as a result of an EU Directive (opposed by the UK) indicates the previous lack of attention to this in the UK as a health and safety issue.

The Working Time Directive 2003/88/EC is a Directive of the European Union. It gives EU workers:

- the right to at least 4 weeks (28 days) in paid holidays each year;
- rest breaks at work;
- rest of at least 11 hours in any 24 hours;
- restricts excessive night work;
- a day off after a week's work; and
- the right to work no more than 48 hours per week.

It was issued as an update on earlier versions from 22 June 2000 and 23 November 1993. The stated purpose of the Directive is to protect people's health and safety, since excessive working time is cited as a major cause of stress, depression and illness.

What is fatigue?

Fatigue is usually defined as the decline in mental and/or physical performance that results from prolonged exertion, sleep loss or disruption of the internal clock. The word "fatigue" is usually used to refer to a more chronic (long-term) condition than just sleepiness or acute fatigue (also called somnolence) which is generally caused by not enough proper, restful sleep, or a lack of stimulation.

People who suffer from fatigue feel they lack motivation and energy. Even though fatigue and drowsiness are not the same, drowsiness, or the desire to sleep, is a common effect that people with fatigue experience. Apathy may also accompany fatigue. Much of the discussion about fatigue at work is related to shift work and shift systems. However it should be recognised that fatigue is not just associated with shift working, and can be a product of long working hours in general.

There are additional factors when driving such the extreme concentration required, as mistakes can be very costly and are life threatening.

Lorry drivers

The lives of lorry drivers are being placed in danger due to long hours according to new research undertaken by Unite, the UK's largest union, which warns the true scale of deaths is not being properly investigated due to legal loopholes.

A highly confidential survey of over 3,200 HGV drivers found that 29 per cent have fallen asleep at the wheel and that tiredness and fatigue at work was in 64.4 per cent of cases blamed on disturbed sleep or blamed on a series of long days (62.9 per cent).

Drivers also reported that they were most likely to be feeling either still drowsy, tired, sleepy or exhausted if they had slept in their vehicles at the side of the road (65 per cent of cases), in a layby (67 per cent) or in a service station car park (62 per cent).

Drivers report that employers are increasingly seeking to maximise their work and minimise their rest. Legally drivers can work a 15 hour day, including 10 hours of driving and have just nine hours of rest, before starting work again. This can occur for two consecutive days and Unite's HGV drivers report they are left exhausted after such excessive shifts.

In a further development following a freedom of information request Unite has learned that in the last five years 109 drivers or passengers of HGVs' have been killed in road traffic accidents (an average of 22 a year). However these are not recorded as workplace deaths and therefore the underlying and longer-term factors which could have contributed to the fatal accident are unlikely to be properly investigated by the Health and Safety Executive, as they do not have the responsibility to deal with these fatalities.

Consider the risks of shift work and the benefits of effective management.	<ul style="list-style-type: none">■ What are the undesirable effects of shift work?■ Consider the costs and benefits of effective management of shift-working arrangements.
Establish systems to manage the risks of shift work.	<ul style="list-style-type: none">■ Seek management commitment to control the risks of shift work.■ Identify individuals responsible for shift-working arrangements.■ Involve safety representatives and workers.
Assess the risks associated with shift work in your workplace.	<ul style="list-style-type: none">■ Consider the risks that workers may be exposed to.■ Establish who might be harmed by shift work.■ Consult workers and their safety representatives.
Take action to reduce these risks.	<ul style="list-style-type: none">■ Assess how severe the risks are and identify where improvements need to be made.■ Improve the shift-work schedule.■ Improve the workplace environment.■ Apply good practice guidelines.
Check and review your shift-work arrangements regularly.	<ul style="list-style-type: none">■ Implement a system for early reporting of problems associated with shift work.■ Monitor alterations to shift-work schedules and/or work conditions.■ Periodically review the effectiveness of your shift-working arrangements.

Long hours and accidents

Fatigue, both long term chronic fatigue and acute fatigue or sleepiness, is a major problem for many workers. In the transport sector it is estimated that 20% of road accidents are a result of fatigue, and there are similar concerns in sectors like rail, aviation and shipping. However any organisation can have an issue with fatigue and it can be a problem with any sector where there are long hours, high demands, monotonous work, shift work or where low pay forces workers to take on additional part-time work.

Errors, productivity and accidents

For shift working to be financially viable, you need to maintain a satisfactory level of productivity and safety. Fatigued shift workers may perform less well than those working standard daytime hours, especially during periods of low alertness. The consequences of this could range from relatively minor events to serious accidents. Take both ends of this spectrum into account when you are assessing the cost-effectiveness of shift working as the social and financial costs of frequent minor events may equate over time to those associated with a rarely occurring serious accident.

The risk of errors, accidents and injuries has been found:

- to be higher on the night shift;
- to rise with increasing shift length over eight hours;
- to increase over successive shifts, especially if they are night shifts;
- to increase when there are not enough breaks.

Poorly designed work schedules causing fatigue-induced impairment of performance will increase the risks. For example, a long night shift without breaks after a succession of previous night shifts will increase the likelihood of errors, accidents and injuries.

It is important not to underestimate the potential risk for serious fatigue-related errors and accidents. Sleepiness is thought to be the cause of up to one in five accidents on major roads in the UK, contributing significantly to the approximate 3000 road deaths recorded annually. After young men, shift workers are considered to be the category of drivers most at risk from accidents and, compared to day workers, night workers are more likely to be involved in accidents while driving home from work.

(from Managing Shiftwork HSG256, HSE, 2006)

There is little doubt that fatigue can lead to errors and accidents, ill-health, injury and reduced productivity. It has often been found to be the root cause of major accidents e.g. Herald of Free Enterprise, Chernobyl, Clapham Junction, Exxon Valdez. After BP's Texas City refinery blew up in March 2005 (15 people dead, \$1.5 billion damage), an enquiry found that the board operator had been working 12-hour shifts for almost a month without a day off.

Because it is often identified as a cause of accidents, employers will tend to blame the worker if they have an accident when suffering from fatigue. In fact most fatigue is caused by the demands placed on people by the employer and can be prevented by ensuring that workers are not fatigued or having systems in place to stop them working when fatigued.

Railways

The UK Office of Rail Regulation has identified fatigue (extreme tiredness) as one of the main causes of incidents on the railways. Employers must make arrangements to ensure that workers do not carry out safety-critical tasks if they are affected by fatigue (or would be affected if they carried out the task) in a way that also affects health and safety. ORR has published guidance on "Managing Rail Staff Fatigue". According to ORR, an effective process for managing fatigue in safety-critical workers should include the following stages. (This could apply to any industry).

1 Identify the workers affected

Find out who carries out safety-critical tasks, and particularly consider those workers who are most at risk of being affected by fatigue when carrying out these tasks.

2 Set standards and design working patterns

Identify, set and keep to appropriate standards and good practice for working hours and working patterns. The working-time restrictions set out by law are not enough on their own.

3 Limit the times when workers go beyond the standards

Make sure workers only go beyond the standards in exceptional circumstances. A good way of doing this is to record the times this happens to help build a profile.

4 Consult safety-critical workers

Involve employees and their safety representatives when developing the arrangements for managing fatigue, and consult them on the changes you plan to make. You could also consider how workers can be encouraged to report fatigue at the start of or during a shift without being penalised in any way.

5 Record the arrangements

Make and update a record of these arrangements. Make sure the affected workers are aware of and understand the arrangements.

6 Provide information

As well as the above, make sure that employees who carry out safety-critical work know how fatigue should be controlled and have access to all relevant information about health and safety risks caused by fatigue.

7 Monitor

Check that the arrangements are effective (for example, by monitoring actual hours worked, levels of overtime, and how often workers go beyond the standards).

8 Taking action when safety-critical workers are affected by fatigue

Make sure that workers who come to work while clearly affected by fatigue do not carry out safety-critical tasks. Similarly, workers who become affected by fatigue during a shift should not continue carrying out a safety-critical task. Providing enough rest is one way of controlling this risk.

9 Review the arrangements

Update your arrangements if you have reason to doubt their effectiveness (for example, if you are concerned they are not working properly or if you make changes to working patterns).



Causes

The main cause of fatigue is a loss of sleep, either "acute" from the night before, or "cumulative" as a result of lack of sufficient regular sleep over a longer period. It can also be caused by poor quality sleep or changes in sleep patterns.

There can be medical reasons for fatigue, or it could be a result of personal issues such as a new-born child, but often it is work related. Long working hours, or poorly designed shift work can lead to fatigue and of course stress can also be a significant cause of sleep loss. Among the causes of fatigue that are related to work or the work environment are:

- Duration of shifts, split shifts, time off between shifts and changes to shift patterns.
- Ability to sleep on rest days, the quality of sleep, and sleeping disorders.
- Scheduling and quality of rest breaks during a shift.
- Cold starts and inadequate recovery times.
- Commuting time to and from the workplace.
- Workload and responsibilities both physical and mental including repetitive, monotonous, demanding or strenuous work
- The impact of second or multiple jobs
- Stress at work.
- A working environment which can encourage through being too warm, dark or quiet.
- Pressures from "digital life", including the pressure to respond to emails when not at work.

Certain factors can make fatigue worse. These include having to work at a 'low point' in the day e.g. early hours of the morning, mid to late afternoon and after a meal and inadequate breaks during the working day. In addition, a number of long term health disorders can cause fatigue.

Effects

Compared with their normal state, a person who is either acutely or chronically fatigued is likely to:

- Find it hard to concentrate, make clear decisions or take in and act on information

- Have more frequent lapses of attention or memory
- React more slowly (for example, to hazards arising in the workplace)
- Make more errors
- Occasionally fall asleep at work – momentarily or for several minutes
- Have little motivation or interest in their work
- Be irritable

This means that people with fatigue are not only likely to be performing badly, they can also pose a danger to themselves and others. Over time, they also risk damaging their health. The long term effects of fatigue can be similar to stress and often people who are suffering from fatigue think they are stressed. Of course work can cause both stress and fatigue and they often go together. Among the symptoms are:

- Insomnia (often people with fatigue are simply unable to return to usual sleep patterns even if they try to)
- Depression and anxiety
- Headaches
- Confusion Dizziness
- Blurred vision
- Unexplained weight loss or gain
- Digestive problems

Not only can fatigue lead to death through strokes and heart attacks, but in Japan it has been recognised that fatigue, and the stress that often goes with it, can lead to suicides. The Japanese even have a word for it – Karojisatsu. They also have a word for death from overwork - Karoshi.

Why is fatigue a problem?

Fatigue can adversely affect safety at the workplace. As set out above, fatigue reduces alertness which may lead to errors and an increase in incidents and injuries, particularly when:

- operating fixed or mobile plant, including driving vehicles
- undertaking critical tasks that require a high level of concentration
- undertaking night or shift work when a person would ordinarily be sleeping.

How can you tell if someone is fatigued?

The following signs or symptoms may indicate a worker is fatigued:

- excessive yawning or falling asleep at work
- short term memory problems and an inability to concentrate
- noticeably reduced capacity to engage in effective interpersonal communication
- impaired decision-making and judgment
- reduced hand-eye coordination or slow reflexes
- other changes in behaviour, for example repeatedly arriving late for work
- increased rates of unplanned absence.

A fatigued worker may also experience symptoms not obvious to others including:

- feeling drowsy
- headaches
- dizziness
- difficulty concentrating
- blurred vision or impaired visual perception
- a need for extended sleep during days off work

Sleep Apnoea

Obstructive Sleep Apnoea (OSA) is a serious, potentially life-threatening condition that is far more common than is generally understood. OSA is a breathing disorder characterised by brief interruptions of breathing during sleep.

As we go to sleep, the muscles of the throat relax as a normal part of the sleep process. In individuals with OSA, this relaxation progresses to the point where the passage for air is partially or completely blocked, dramatically reducing or stopping airflow into the lungs. This causes an increase in Carbon Dioxide levels and the brain responds by waking up the individual for a short while to open the air passage. Breathing begins again, but the natural sleep cycle is interrupted.

Having OSA means that a person can stop breathing for periods when asleep. These interruptions (apnoeas), which last for 10 seconds or more, occur when the airway narrows so much that it closes. This stops breathing, and the brain reacts

by briefly waking up, causing the airways to re-open and breathing to restart. The individual is usually unaware of this awakening and this process can be repeated up to several hundred times during the night. Proper restful sleep becomes impossible, resulting in sleepiness and impairment of daytime function. Early recognition and treatment of OSA is important.

The excessive sleepiness associated with OSA impairs quality of life and places people at increased risk of road traffic and other accidents. It may also be associated with irregular heartbeat, high blood pressure, heart attack and stroke, impairment of cognitive function and mood and personality disorders.

Unite has published detailed guidance for professional drivers about OSA. It can be accessed at: www.unitetheunion.org/

The law

There is a legal duty on employers in the UK to manage any risks from fatigue that arise from work. Fatigue needs to be managed, like any other hazard, through risk assessment and risk management. Simply complying with the Working Time Regulations alone is insufficient to manage the risks of fatigue. Nor can an employer claim that a person willingly worked additional hours or shifts. The employer must ensure that they are aware of the hours a person works and take action to prevent any risk to the worker or to others. In addition there is a legal requirement to consult within the workplace, either directly or through the health and safety representatives.

The HSE has produced detailed guidance for employers on complying with the law and also a 'fatigue risk index' which is a helpful tool that employers can use (see Useful Resources).

The Fatigue and Risk Index (FRI) was designed primarily for comparing different shift schedules but can also be used to identify any particular shift, within a given schedule, which may be of concern. The HSE stress that whilst the FRI is a useful tool, which can be used to help assess the risks of fatigue and injury, it should not be relied upon as the sole or primary means of assessing these risks.

Shift work planners should always start by considering the HSE guidelines in Managing shift work: Health and Safety Guidance (HSG 256), which includes background information on the health and safety risks associated with shift work and fatigue, UK legal duties and practical guidance on how to reduce the risks. FRI outputs should also be considered in conjunction with feedback from staff on how tiring they find their work patterns.

HSE advice

In a briefing note on fatigue, the HSE gave the following advice on how to manage fatigue:

- Working hours are not too long
- Employees get enough rest between shifts
- Employees don't work too many night shifts in a row
- Managers negotiate with staff about overtime or double shift working
- Managers fit in with individuals' preferences – some people prefer nights
- Employees avoid critical jobs at the ends of shifts or at 'low points' in the day or night e.g. 3a.m.
- Shifts rotate 'forwards' that is, mornings, then afternoons, then nights
- Employees take quality rest breaks in their work
- Anyone can report fatigue problems to management and the company will make improvements
- The environment doesn't cause drowsiness (it's light with visual interest, not too hot and there is always variation in the level of sound)
- There are contingency plans to avoid overloading one person with overtime or double shifts
- Incidents or accidents where fatigue may be responsible are thoroughly investigated

In addition to these recommendations from the HSE, Unite insists that employers ensure that they involve the workforce and their representatives in any discussions concerning fatigue.

Role of Unite Reps

If reps think that fatigue is an issue in their workplace they can survey members to find out what the causes are and raise it with the employer. Raising awareness of the dangers of fatigue and work with employers should help to develop an environment where workers can report when they are fatigued without fear of repercussions.

In addition Unite reps can ensure that they are supporting their members who feel they are fatigued by ensuring that they get their employer to refer them to an occupational health provider for help if they are ill as a result. However in most cases the best support is to ensure that the causes of the fatigue are removed.



Unite reps can have a positive role in preventing workplace fatigue. Fatigue affects all sectors, including rail, road transport, aviation, oil and gas extraction, manufacturing, power generation and shipping. Unite seeks to work with all employers to ensure that the demands of work and shift patterns do not risk the health of workers or the public. The HSE guidance and their fatigue index calculator are a good starting point.

Finally Unite reps should support members who are threatened with disciplinary action because the employer claims they have made a mistake or underperformed as a result of fatigue. Employers have a responsibility to prevent workers from getting fatigued through work and, where there is a safety critical job, they also need procedures to be in place to monitor the risk of a fatigued worker placing themselves and others at risk, even if the fatigue is a result of factors outside their work. If a mistake happens because a worker is fatigued, it is because these procedures have failed and they should not scapegoat the worker.

Action points

1. Raise awareness of fatigue issues amongst employers and members
2. Member surveys
 - Sleep surveys
 - Tiredness surveys
 - Working Hours surveys
3. Emphasise the employer's legal duty to address and manage fatigue risks
4. Fatigue considerations must be part of any risk assessments
4. Incident and accident investigations should consider fatigue as a factor
5. Encourage members to report fatigue problems



Useful resources

Unite shiftwork

www.unitetheunion.org/uploaded/documents/ShiftandNightWork%2011-4950.pdf

TUC fatigue

www.tuc.org.uk/workplace-issues/health-and-safety/fatigue-guide-health-and-safety-representatives

HSE Human Factors Briefing Note No. 10 – Fatigue

www.hse.gov.uk/humanfactors/topics/10fatigue.pdf

HSE fatigue pages

www.hse.gov.uk/humanfactors/topics/fatigue.htm

HSE Fatigue Index Calculator

www.hse.gov.uk/research/rrhtm/rr446.htm

ORR – Managing Rail Fatigue

http://orr.gov.uk/__data/assets/pdf_file/0005/2867/managing_rail_fatigue.pdf

http://orr.gov.uk/__data/assets/pdf_file/0013/2056/revised-orr-guidance-managing_rail-staff-fatigue.pdf

