Representatives' guide
# Work-related fatigue

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# Introduction

Fatigue has become one of the main health and safety issues facing Prospect members. Work-related fatigue can be caused by a range of organisational and job factors. It is a hazard that needs to be managed like any other, through a process of identifying risks and removing them where or, where that is not achievable, mitigating them as far as possible.

Most of the discussion about how to manage work-related fatigue focuses on working time and, by extension, an individual's ability to obtain sleep. While the number of hours an individual has worked and the time of day they worked them have a significant bearing on fatigue, they are only part of the equation. Work-related fatigue can also be a product of the physical, mental and emotional demands of the job; working conditions; organisational culture; and other issues.

Employers should adopt a risk-based approach which ensures that fatigue risks are identified, understood, monitored and controlled. Each job has its own characteristics which must be assessed to decide on the best way to protect people.

This document provides reps with information on key fatigue risks and management best practice, and advice on engaging with employers to ensure a risk management approach is adopted in practice..

# 1. What is fatigue and what causes it?

**1.1** There is no single agreed definition of fatigue, and there are various conceptual models of what it is and why it happens.

**1.2** The Health and Safety Executive describes fatigue as "the decline in mental and/or physical performance that results from prolonged exertion, lack of quality sleep or disruption of the internal body clock".

**1.3** Academics at the University of Hull, who have studied work-related fatigue extensively, define fatigue simply as "the subjective experience of tiredness and aversion to further expansion of effort".

**1.4** Most research on fatigue, particularly that carried out in occupational settings, has focused on long hours and/or work scheduling, the extent to which working arrangements inhibit workers' opportunity to obtain good quality sleep and the knock on effect this has for individuals' circadian rhythm, or body clock.

**1.5** It is well established that long working hours are associated with an increase in accidents. This shapes most employers' approach to the issue, with them focusing on working hours to tackle fatigue – how many and at what time of day they are worked, and how shifts are arranged.

**1.6** While this is important, it is not inadequate on its own. Recent research has shown that there are different types of fatigue, each with distinct risk factors. Additionally, there is a growing recognition that sleepiness and fatigue are two interrelated, but distinct phenomena, meaning that measures to address sleep-related factors must sit alongside other factors that drive fatigue.

**1.7** An individual's level of fatigue is affected by a range of factors that are independent of the amount of sleep they have had recently. As well as sleep quantity and quantity, and associated circadian imbalance/disruption, there are the following areas:

- Mentally/cognitively demanding work – demanding cognitive activity has been shown to significantly affect physical fatigue and performance; the higher the perceived exertion, the more significant the effect and the more it negatively affects performance.
- Physically demanding work – physical fatigue risks are linked to decline in performance in a number of different ways, including sleepiness, emotional distress and demotivation.
- Emotionally demanding work – studies have found that emotional exhaustion negatively affects job performance and is associated with lower organisational commitment.

- Exposure to extreme environmental conditions – these can increase fatigue and affect performance, with factors such as noise, vibration, and temperature among the most significant drivers.

**1.8** These factors can interact, increasing the overall level of risk.

**1.9** There is a list of key fatigue risks and possible control measures contained at appendix B. This will support reps when consulted on risk assessment and can also be used as a "ready reckoner" to help quickly identify risks during, for example, an inspection or during an accident investigation.

# 2. Consequences of fatigue

**2.1** In the short term, fatigue can affect an individual's ability to work safely and in the long term can affect an individual's physical and mental health.

**2.2** Observable signs of fatigue include fidgeting, rubbing eyes, yawning, frequent blinking, staring blankly, long blinks, difficulty keeping eyes open and head nodding. If you are experiencing fatigue, you may feel as though you have "lost time", find yourself daydreaming, losing concentration, being easily distracted or being poorly co-ordinated.

**2.3** Head nodding and difficultly keeping eyes open are associated with extreme levels of fatigue and are symptoms of micro-sleeps – short periods of time when we slip uncontrollably into light sleep.

**2.4** Being fatigued can also make people reluctant, consciously or unconsciously, to engage in further activity. If someone is physically fatigued, their ability to engage in further physical activities, such as manual labour, will be reduced. The same goes for mental fatigue, such as making decisions, or emotional fatigue, such as empathising with or caring for others.

**2.5** Research has shown that people become averse to further effort when they are fatigued, unconsciously processing information and tasks in a low effort manner. Therefore, fatigued people:

- become less concerned with deviating from optimal performance or standards;
- are less able to pay necessary attention to secondary, supplementary tasks; and
- start to trade off risk and effort, and are more likely to make risky decisions if they are low effort.

This has obvious consequences for safety.

**2.6** Thinking more long term, fatigue is associated with a range of physical health problems, including impaired metabolism; heart disease risk factors, including hypertension; gastrointestinal disorders; and diabetes and insulin resistance.

**2.7** Fatigue is also linked with a range of mental health problems, such as depression and anxiety, and emotional distress and behaviours such as irritability, cynicism, apathy, anger and a lack of motivation, among others.

# 3. What does the law say?

**3.1** While no health and safety law explicitly addresses fatigue, there are various that touch on the issue and must frame an employer's response to it. These apply regardless of any individual's willingness to carry out fatiguing work.

## Health and Safety at Work Act 1974

**3.2** Places a duty on all employers to ensure, in so far as is reasonably practicable, the health, safety and welfare at work for all employees and those affected by work activities. While the act does not explicitly mention fatigue, it covers all work factors which are a risk to health and safety.

## Management of Health and Safety at Work Regulations 1999

**3.3** Requires employers to assess the health and safety risks employees are exposed to, with the aim of removing or minimising them.

**3.4** This requires employers to take full account of the hazards associated with fatigue, consider who might be at risk of fatigue, and introduce measures to minimise the risk of it occurring.

**3.5** The regulations also place a requirement on employers to train employees and provide them with information on the risks they face and the measures in place to control them.

## Working Time Regulations 1998

**3.6** Introduces legal minimums on the organisation of working time. In summary, employers must ensure that workers:

- work no more than an average of 48 hours in each seven days, including overtime;
- do not exceed an average of eight hours night work in each 24-hour period;
- have a rest period of no less than 11 hours in each 24-hour period;
- have an uninterrupted rest period of no less than 24 hours in each seven-day period; and
- have an uninterrupted rest break of at least 20 minutes for every six hours at work.

**3.7** Where workers carry out night work involving "special hazards or heavy physical or mental strain", they cannot work more than eight hours in any 24 period. The work will be considered to involve special hazards or heavy physical or mental strain if it is either identified in a collective agreement or it is recognised in a risk assessment carried out under the Management of Health and Safety at Work Regulations 1999.

**3.8** The WTR allow workers to opt out of the weekly maximum limit on working time if they choose, but they cannot opt out of the other provisions in the legislation, for example a daily rest period of at least 11 hours.

**3.9** Whether or not workers have opted out of the 48-hour limit, the Health and Safety at Work Act requires employers to ensure the risks they face from working excessive hours are managed, which could involve limiting the number of hours they work. Simply complying with the Working Time Regulations alone is insufficient to manage the risks of fatigue.

**3.10** The regulations allow for certain requirements to be disapplied where the worker's activities involve the need for continuity of service or production, subject to certain conditions. It cites several industries where this may apply, including airports, broadcasting, research and electricity production, transmission and distribution, among others.

**3.11** The elements of regulations that are disapplied are the requirements concerning:

- Length of night work;
- Rest periods in 24 hour and seven-day periods; and
- Breaks when work is over six hours.

**3.12** However, where an employer applies these exceptions, the regulations require them to provide affected workers with an equivalent period of compensatory rest or, in exceptional cases where that is objectively impossible, whatever is required to protect their health and safety.

**3.13** Additionally, while these industries operate around the clock, it does not mean that all activities carried out within them require continuity of service or production. Employers should apply this provision sparingly.

# 4. Engaging with employers

**4.1** Effective fatigue risk management involves acknowledging and understanding the potential for fatigue that arises from work activities and the effect it can have on staff and their performance. Employers should anticipate and mitigate risks in advance. They should monitor working hours, structure and analyse work tasks, shifts, rest breaks and routines to make the best use of peak alertness times, and to mitigate against low alertness times and cumulative fatigue.

**4.2** Employers should have a supportive culture that encourages open discussion of fatigue, not implicitly or explicitly discourages it. Having said that, individual workers should not have to disclose they are fatigued in order for action to be taken to address it. Reliance on individuals declaring they are not fatigued in order to continue with work should be discouraged – fatigue can be difficult to identify in ourselves.

**4.3** While the consequences of fatigue are primarily health and safety issues, some causes could be considered industrial relations issues, such as staffing, rostering or even pay. Tackling fatigue in the workplace will require a joined up approach from reps in different roles across the branch, allowing each to contribute different knowledge and expertise.

## Consultation

**4.4** The Safety Representatives and Safety Committees Regulations 1977 place duties on employers to consult with health and safety representatives in a range of circumstances, many of which will be relevant in the context of fatigue. Among other things, employers must consult health and safety representatives in good time on:

- the introduction of any measure which may substantially affect the health and safety of the employees – such as a fatigue management initiative, or new working arrangements which may cause fatigue;
- any health and safety information, and the planning and organisation of any health and safety training, such as fatigue training; and
- the health and safety consequences of the introduction of new technologies in the workplace, for example new software or equipment with which employees may be unfamiliar.

**4.5** It may be necessary to create a joint working group to oversee the development of control measures to address fatigue, and supervise their implementation.

## Policy

**4.6** If your employer has no written documentation on fatigue or working time, a policy is a good place to start. It should set out the employer's general approach and commitment to the issue, set expectations and provide a point of refence for managing the issue in practice.

**4.7** The following questions will help to evaluate the content of a policy or, if your employer does not have one, indicate what it should contain.

- Does the policy specifically address fatigue, working hours, overtime and other risk factors? Does it take a holistic view of work-related fatigue risks – i.e. not simply focusing on working time, but other causes too?

- Does the policy demonstrate leadership commitment to the management of the issue?

- Have employees and/or representatives been involved in developing and reviewing the policy?

- Does the policy state how risks arising from fatigue should be assessed and controlled?

- Does it state the approach to issues such as overtime and out-of-hours working?

- Does it outline the responsibilities of management, supervisors and staff?

- Does it contain a procedure for employees to self-report fatigue?

- Is there a commitment to ensure fatigue is considered in accident investigations?

- Is there a periodic review and update of the policy?

## Risk assessment and planning

**4.8** Whether or not your employer has actively considered how to manage fatigue, it is likely there will be some measures in place to guard against it arising. If there is no risk assessment or plan for how to address fatigue, or if it needs revising and updating, the employer, in consultation with reps, will need to establish what is being done and whether it is sufficient.

**4.9** This may involve gathering evidence on the impact of fatigue on the organisation and its staff. Various data held by the organisation will help with this. Appendix A contains a list of sources that will indicate the risks and whether any controls already in place are working.

**4.10** Additionally, thought should be given to what tasks or working arrangements are likely to cause fatigue. Appendix B contains a list of risk factors to help inform this. As part of this review, employee views should be sought, as

they have knowledge of working practices and risk factors which senior managers will not.

**4.11** This risk assessment should answer the following questions:

- How likely is fatigue to occur? Where, which and how many employees are at risk of being affected by fatigue? Fatigue can affect anyone. It is important to consider non-operational staff, including office and home workers.

- How could fatigue occur? What tasks or arrangements present fatigue risks? (See appendix B for risk factors.)

- How many employees are likely to be harmed outside the workplace – i.e. driving home or work-related driving?

- How will fatigue risk factors be controlled?

- Who will implement the control measures?

- How urgently does action need to be taken?

**4.12** It may be necessary to supplement this with a procedure or risk assessment template for circumstances where people carry out work that is not explicitly considered during the general assessment, for example especially high risk, ad-hoc or emergency work. This may need to be carried out by the person who is setting others to work.

**4.13** This should seek to answer questions including:

- What is the degree of risk posed by the work or task (see appendix B)? Can it be completed safely?

- Are the individuals safe to travel home at the end of their work and, if they will be too fatigued to drive, for example, can they be provided with overnight accommodation?

- Can the work be done in a different way, for example are additional members of staff available to complete the work who are not fatigued? Can the work wait until there are staff available who are not fatigued? Can it be carried out at a time that will be less fatiguing?

- How can employees report that they are fatigued?

- Are there inducements that encourage staff to continue to work despite being fatigued, e.g. generous overtime payments?

# 5. Accident investigation

**5.1** Incidents and near-misses are opportunities to learn and improve risk control arrangements. The investigation and analysis of work-related accidents and incidents forms an essential part of managing health and safety. It is important that investigations correctly identify what is wrong so that steps can be taken to put it right.

**5.2** It is important that employers' investigation protocols actively try to understand whether fatigue was present at the time of the incident or a causal or contributing factor. Those who carry out accident investigations should be trained in the principles of fatigue, how it occurs and how it manifests itself.

# 6. Training

**6.1** Employers must provide information, instruction, training and supervision to employees to enable them to work in a way that is safe and without risks to health. Training can support employees to manage the requirements and demands of their role, and understand and identify fatigue and associated risks.

**6.2** Training and information on fatigue should be made available to all workers, covering:

- any specific knowledge and skills related to fatigue that the person needs to fulfil their role effectively;

- training in the policy and risk assessment;

- risk factors for fatigue;

- procedures for preventing fatigue, such as incident reporting;

- signs and symptoms of fatigue in self and others;

- health and lifestyle factors that may contribute to fatigue; and

- balancing work and life demands.

**6.3** Managers and supervisors, and other employees with responsibilities for managing fatigue risk and/or rostering, should be provided with enhanced training, covering:

- how to identify the causes of fatigue and potential consequences;

- understanding and applying relevant legislation;

- obligations and responsibilities for various roles;

- development and implementation of risk management strategies, such as work scheduling, to eliminate or minimise fatigue-related risk so far as reasonably practicable;

- effective control measures for fatigue, such as work scheduling and job design; and

- the importance of a workplace culture that supports fatigue management.

# 7. Culture

**7.1** Workers must feel they work in a supportive environment and for senior managers who value their opinions and perspectives.

**7.2** It is important that employers take fatigue seriously and create a culture where workers feel they can speak openly and honestly about fatigue without being penalised; where people who feel too tired to work safely can confidently tell their employer and that appropriate action will be taken. Where this happens, the employee must be confident that they will be rapidly relieved of their duties, and do not have to return to work until they have had enough time to recover.

**7.3** Reps should encourage their employer to implement a system or protocol for employees to proactively report concerns.

**7.4** Reps may also want to consider whether to encourage their employer to implement a "just culture" alongside protocols to tackle fatigue. A just culture is a reporting environment in which staff can bring to their employer's attention underlying safety risks and issues without fear of repercussions, but where cases of wilful and/or significantly negligent acts are not tolerated.

**7.5** For more information on implementing a just culture, visit (you will need to be logged in to the Prospect website): **http://bit.ly/ JustCultureToolbox**.

# 8. Appendix A: Data sources

## Hours of work records

- Number of hours worked on a weekly, fortnightly and/or monthly basis
- Number of hours worked on overtime
- Distribution of hours worked (including overtime) among employees
- Number/percentage of safety critical tasks scheduled between midnight and 6am
- Frequency of breaks not being taken.

## Hazard/near miss reporting database

- Number and nature of hazards related to fatigue
- Recurring issues related to fatigue, hours of work, roster design, workload, work demands and work design that may have an impact on fatigue levels
- The number of employees having reported fatigued at work
- Frequency of employees reporting fatigued, not fit for duty or tired before a shift or during a shift
- Whether issues raised have an action plan in place.

## Accident and incident investigations

- Number and nature of accidents/incidents where fatigue was present at the time or found to be a causal or contributing factor
- Percentage of incidents that occur during times where there is an elevated risk of fatigue (i.e. midnight to 6am, at the end of a shift)
- Number of accidents that occur on the way home (including transport), where disclosed.

## Leave usage, including sick and annual leave

- Increased leave usage during certain periods
- Accrual of leave over a long period
- Accrual of time off in lieu
- Leave taken more or less frequently in certain job roles or work groups.

## Employee assistance data

- Reports of poor sleep, stress or other factors that may contribute to an elevated fatigue risk.

## Workplace inspections records

- Workplace conditions such as inadequate lighting, excessive vibration, exposure to noise.
- Percentage of shifts that have facilities in place for managing working conditions that may impact on fatigue levels.

## Fatigue-related survey data

- Employees' self-reported sleep quality and quantity
- Self-reported fatigue levels
- Perceptions of the reporting culture
- Percentage of employees that have reported swapping shifts to self-manage fatigue
- Percentage of employees who report taking a rest break, changing tasks or adopting fatigue proofing strategies if they start to feel the onset of fatigue.

## Medical and health assessment records

- Sleep disorders (self-reported and assessment identified)
- Number of reported medical conditions that may impact on sleep
- Employee Assistance Program (EAP) data associated with poor sleep, stress or other factors that may contribute to an elevated fatigue risk
- Percentage of random drug and alcohol tests that indicate alcohol consumption or use of drugs known to impact on sleep/ fatigue or promote alertness.

# 9. Appendix B: Fatigue risk factors and ready reckoner

Discourse around fatigue tends to focus on sleep, and while this is an important factor, there are a range of other issues that can cause fatigue. Fatigue is also cumulative, meaning that it can get worse without being properly addressed.

This appendix provides a range of fatigue hazards is their relative risk, alongside suggested measures that may mitigate the risk. Remember that certain hazards can overlap and increase the overall risk.

| Hazard | Relative risk (low → high) | | Possible controls |
|---|---|---|---|
| **Mentally or physically repetitive work** | Tasks vary | → Little or no variation Lengthy idle periods | • When planning work, is an appropriate workload planned that takes account of the length and the timing of the shift? |
| **Work requiring concentration** | Demands are satisfactory (not too high or low) | → Requires intense focus for long periods, or too little concentration required | • Is demanding, dangerous and/or safety-critical work avoided during the night and early hours of the morning, and towards the end of long shifts, as far as possible? |
| **Emotionally demanding work** | Generally relaxed | → Very emotionally demanding/ stressful | • Where work is particularly demanding, is thought given to shortening the length of the shift? |
| **Strenuous activities** | Requires little physical exertion | → Very physically demanding | • Are a variety of tasks scheduled into the work plan and workers allowed some choice regarding their completion? |

Possible controls (continued):
- Are an adequate number of employees and other resources allocated to do the job?
- Is there a process for managing unplanned absences?
- Is there appropriate recovery time for staff who have been affected by inadequate staffing?
- Do staff have adequate skills and supervision for the job?

| Hazard | Relative risk (low → high) | | Possible controls |
|---|---|---|---|
| **Total work shift / day** | Fewer than eight hours | → 12 hours or more | **Working time**<br>• Are there limits for the number of daily and weekly working hours? |
| **Daily work hours and travel time combined** | Nine hours or fewer | → 13 hours | • What are the consequences/arrangements if these limits are exceeded?<br>• Are there limits on the maximum amount of agreed overtime and/or standby? |
| **Weekly hours** | Fewer than 40 hours per week | → 56-hour week | • Are overtime/standby duties spread equally across staff?<br>• Is shift and/or standby duty swapping allowed and, if so, how is it monitored and controlled? |
| **Changeable work schedules** | Regular, predictable hours | → Irregular, unpredictable, schedule changes at short notice | • Is there a system in place to record working hours, overtime and standby working?<br>**Night work**<br>• Is night work restricted as much as possible? |
| **Speed and direction of shift** | Forward rotation; day -> afternoon / evening -> night | → Backward shift rotation and/or slower rotation | • Is sufficient recovery time allocated following night work?<br>• Are permanent night shifts avoided? |
| **Breaks between work periods / recovery time** | 12 or more hours between shifts<br><br>Adequate time for sleep, travel, meals and socialising | → Less than 10 hours between shifts.<br><br>Not enough time for sleep, travel, meals and socialisation | **Early starts**<br>• Move early starts before 6am forward (e.g. 7am not 6am start).<br>• Are the number of successive early starts limited i.e. before 7am (to four maximum if possible)?<br>• Are shifts involving an early start shorter in length to counter the impact of fatigue later in the shift? |
| **When a shift ends** | Early evening | → Early morning (e.g. between 1am and 6am) | **Shift length**<br>• Does the allocation of overtime factor in the number of hours the individual has worked? Is overtime restricted if necessary?<br>• Are long working hours avoided? |
| **Sequential night shifts** | No night shifts | → More than three consecutive night shifts | **Rest periods**<br>• Is a minimum of 11 hours rest allowed between work days? (Rest period between shifts should permit sufficient time for commuting, meals and sleep.) |
| **Time of shift** | Day shift | → Night shift | • Is a "quick return" to work avoided wherever possible? |
| **Time not working between a sequence of night shifts** | A minimum of two full sleep periods at night-time (after three night shifts worked) | → Less than 48 hours | • Do employees get sufficient weekly rest time, i.e. at least two days?<br>**Social considerations**<br>• Are start/finish times convenient for public transport, social and domestic activities?<br>• Has the travelling time of workforce been considered? |
| **Break frequency during work** | Adequate and regular breaks | → Infrequent, short or no breaks | • Is there individual choice where possible to accommodate night larks/morning owls and family commitments?<br>• Do employees have a degree of flexibility to choose their own work schedule, i.e. through flexible working? |

| Hazard | Relative risk (low → high) | | Possible controls |
|---|---|---|---|
| **Exposure to hazardous substances** | Exposure standards indicate a low risk | → Exposure standards indicate a high risk | Fatigue can be induced by exposure to hazards, such as noise, heat and chemicals. The risk of the exposure to the hazardous environment may also increase during extended working hours. |
| **Exposure to extreme temperatures** | Minimal exposure | → Lengthy exposure | Any exposures should be as low as is reasonably practicable, and no higher than the relevant exposure limit, where there is one. |
| **Exposure to noise** | Minimal exposure | → Lengthy exposure | For further information see: |
| **Exposure to vibration** | Minimal exposure | → Lengthy exposure | • Control of substances hazardous to health ACOP **http://bit.ly/coshh-acop** |
| **Remote work** | Regular human contact | → Long periods of isolation | • Controlling noise at work ACOP **http://bit.ly/noise-acop**  • Hand-arm vibration ACOP **http://bit.ly/HAVs-acop** |
| **Dealing with distressed people or animals** | Minimal exposure | → Lengthy exposure | • Whole-body vibration ACOP **http://bit.ly/WBV-acop** |
| **Information on fatigue risk identification and management** | Extensive | → None provided | See training section above. |
| **Training on fatigue and sleep** | Extensive, targeted at both managers and for employees | → None provided | |
| **Job skills training** | Extensive | → None provided | |

| Hazard | Relative risk (low → high) | | Possible controls |
|---|---|---|---|
| **Sleep (amount and quality)** | Sleeping at night<br>Eight hours duration | → | Sleep (amount and quality)<br>Six hours duration (or less) | See training section above. |
| **Health** | Good nutrition<br>Moderate regular exercise | → | Poor diet<br>Lack of exercise<br>Recent illness/ injury<br>Sleep disorder | |
| **Fitness for work** | Alert, energy, generally well | → | Consumes drugs or alcohol | |
| **Lifestyle** | Sufficient sleep period, work-life balance | → | Activities or responsibilities that limit amount of sleep (i.e. second job or long-distance commute) | |

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