Extreme tiredness and fatigue management

In the second of two features on extreme tiredness and fatigue management, Professor Craig Jackson of Birmingham City University looks at the effects of fatigue and how to intervene to prevent accidents.

Behavioural effects

One certainty of fatigue is that when it manifests in the individual or the organisation at large, the levels of both physical and psychological fatigue are highly correlated. Clear links show that there are many increased hazards and dangers for those operating in workplaces while fatigued.

Taking the common activity of driving as an example, links are seen between the driver’s circadian rhythms and vehicle accidents, with accidents peaking at 2am, 6am and 4pm even after making adjustments for traffic volume and road congestion (Horne, 1995). Additional evidence from the Health and Safety Executive (HSE) shows that workplace accidents tend to increase in the final couple of hours of a shift — partly due to the effects of physical fatigue, as well as behavioural effects such as carelessness and corner-cutting. Fatigued workers are also more likely to accept poor and unsafe performance by themselves and others; they become less vigilant, show signs of poor judgement and suffer from difficulties in making decisions.

The effects of fatigue, if not reversed, will become more compounded. The HSE has found that fatigue negatively influences many aspects of worker performance that place individuals at risk, including:

- vigilance/monitoring
- reaction times
- logical reasoning
- mental arithmetic
- encoding and decoding information
- memory
- the ability to sustain attention
- multi-tasking
- decision making
- visual tracking.

One element of fatigue that makes it easier to prevent is that it can be seen as a great leveller — it will eventually impact upon all workers irrespective of their skills, wilfulness, stamina, fitness, education, training, experience, professionalism, motivation, caffeine-intake or other stimulant use. This is a key point that fatigue education programmes need to emphasise to workers — that everyone is susceptible to the effects of fatigue.

Primary interventions

For any organisation that is concerned about the potential for fatigue to develop among staff, the application of a low-key fatigue survey is recommended as an initial procedure. Depending on the frequency of fatigued staff in the organisation, and the severity of any fatigue responses, an organisation may wish to make interventions. The appointment of a “health and safety aware” individual to oversee such a programme will allow for a cohesive approach to the problem.
A fatigue survey can be seen as being synonymous with the principles of conducting a stress survey. Staff in the organisation will need to be made aware of the reasons behind such a widespread investigation and, more importantly, will need to be informed of their rights regarding the data they provide. The ethical considerations of such testing and the security of the resultant data should be treated in accordance with good practice and principles concerning health and medical data.

The organisation may wish to identify the hazards and operations that could be associated with increased fatigue scores or symptoms, eg specific tasks, shifts, work patterns or demographic factors among staff. The next step may then be to quantify the strength of any relationship between hazards and fatigue scores, eg is working night shifts in the organisation associated with a significant increase in the number of severely fatigued staff, relative to the day shift workers?

With any relationship between hazards and associated fatigue quantified, attempts can be made to eliminate, reduce or control such fatigue, perhaps though altered processes, alternative working methods, ergonomics, psychology or behavioural science. The use of prolonged processing or tedious tasks in unstimulating environments should be avoided. In some cases, processes and tasks could be made “harder” for the worker in order to avoid under-stimulation and tedium. Leadership training for managers can also be used, as their improved knowledge of fatigue awareness issues will be followed by its dissemination among the workforce. Education also supports future interventions such as encouraging flexible working or allowing workers to self-allocate the shifts that suit them best in order to help combat fatigue.

Secondary interventions

Secondary interventions would include fatigue awareness campaigns and routine fatigue management sessions for workers who may feel they are at risk of fatigue. Organisations may wish to consult external experts to provide specialist help in providing interventions as broad as cognitive behavioural therapy, change management or time management. Other external experts could introduce workers to the techniques of sleep-hygiene, clinical hypnotherapy or even psychotherapy to help workers combat any personal or lifestyle psychological problems that may increase sleeplessness and lead to workplace fatigue. Workers should be encouraged to refer themselves to occupational health for help and advice if they feel they have fatigue issues; such a referral should be confidential and possess an individualised approach. Dietary improvements within organisations, especially for workers on night shifts, could also help to combat fatigue. The use of natural environmental stimulants within the environment can also be trialled, eg the use of “novel” surroundings, colours, smells, furniture, artwork, active postures, interesting decor, music and creative use of daylight when available.

Other secondary interventions may include the following (Jackson, 2007):

- help employees to develop good sleeping habits
- ensure employees have the chance to sleep for at least eight hours between shifts
- restrict consecutive night shifts to a maximum 4 x 6 hrs shifts or 2 x 12 hrs shifts
- allow at least two days off after the last night shift in a string of shifts
- rotate shifts “forwards” — early shifts, changing to afternoons, changing to nights
- comply with the EU Working Hours Directive
- avoid long shifts and the use of too much overtime
- provide quality breaks during the working day
• consider individual worker differences — people are often “morning larks” or “night owls”
• “power naps” of 20 minutes can restore performance and morale in night workers
• arrange for interesting and varied work to be done on night shifts.

Summary
Fatigue and extreme tiredness could represent a new wave of psychosocial hazard in UK workplaces, which are already struggling to cope with the aftermath of the “stress epidemic”. The level of fatigue present in workplaces may depend on the future economic position of the UK and how hard the population is worked in the next few years. It is clear that the workplace will not always be responsible for the fatigue that some workers experience, and lifestyle factors can play a major role in its aetiology; however, the effects of fatigue will no doubt manifest in the workplace irrespective of the nature of the source, and the workplace remains the best opportunity for addressing such a problem.

In a sleep-deprived society, where many people no longer get the necessary hours of slumber required, the workplace may become the new front of public health development in addressing this pervasive health problem.

Additional resources
• s.3 Health & Safety at Work, etc Act 1974.
• regulations 3 & 5 Management of Health and Safety at Work Regulations.
• HSG48: Reducing Error and Influencing Behaviour.
• Good Practice in Fatigue Management Checklist. HSE.
• Shift Work Guidance. HSE.
• Shift Work Booklet. ASLEF.

References