



Introduction to work-related musculoskeletal disorders

Why are musculoskeletal disorders our common priority?

Musculoskeletal disorders (MSDs) are the most common work-related problem in Europe. Almost 24 % of the EU-25 workers report suffering from backache and 22 % complain about muscular pains. Both conditions are more prevalent in the new Member States, 39 % and 36 % respectively⁽¹⁾. Not only do MSDs cause personal suffering and loss of income, but they also cost businesses and national economies. Any worker can be affected, yet MSDs can be prevented by assessing work tasks, putting in place preventive measures, and checking that these measures stay effective.

'Lighten the load' is the theme for the 2007 European Campaign dedicated to MSDs. The Campaign will take forward action on MSDs initiated during the first European Week in 2000, 'Turn your back on MSDs', and it will involve all EU Member States and EFTA countries.

What are MSDs?

Work-related musculoskeletal disorders are impairments of bodily structures such as muscles, joints, tendons, ligaments, nerves, bones and the localised blood circulation system, that are caused or aggravated primarily by work and by the effects of the immediate environment in which work is carried out.

Most work-related MSDs are cumulative disorders, resulting from repeated exposure to high or low intensity loads over a long period of time. However, MSDs can also be acute traumas, such as fractures, that occur during an accident.

These disorders mainly affect the back, neck, shoulders and upper limbs, but can also affect the lower limbs. Some MSDs, such as carpal tunnel syndrome in the wrist, are specific because of their well-defined signs and symptoms. Others are non-specific because only pain or discomfort exists without evidence of a clear specific disorder.

What factors may contribute to MSDs?

Different groups of factors may contribute to MSDs, including physical and biomechanical factors, organisational and psychosocial factors, individual and personal factors (see box 1). These may act uniquely or in combination.

Box 1: Factors potentially contributing to the development of MSDs

Physical factors:

- Force application, e.g. lifting, carrying, pulling, pushing, use of tools
- Repetition of movements
- Awkward and static postures, e.g. with hands above shoulder level, or prolonged standing and sitting
- Local compression of tools and surfaces
- Vibration

- Cold or excessive heat
- Poor lighting, e.g. can cause an accident
- High noise levels, e.g. causing the body to tense

Organisational and psychosocial factors:

- Demanding work, lack of control over the tasks performed, and low levels of autonomy
- Low levels of job satisfaction
- Repetitive, monotonous work, at a high pace
- Lack of support from colleagues, supervisors and managers

Individual factors:

- Prior medical history
- Physical capacity
- Age
- Obesity
- Smoking

How to tackle MSDs?

An integrated management approach is necessary to tackle MSDs. This approach should consider not just the prevention of new disorders, but also the retention, rehabilitation and reintegration of workers who already suffer from MSDs.

Preventive measures should address the whole load on the body that may contribute to the development of MSDs. Normally there is no single factor that causes them — for example,

Box 2: Tackling MSDs: the European approach⁽²⁾

To prevent MSDs⁽³⁾:

- Avoid MSD risks
- Evaluate the risks which cannot be avoided
- Tackle the risks at source
- Adapt the work to the individual
- Adapt to changing technology
- Replace what is dangerous with what is safe or less dangerous
- Develop a coherent overall prevention policy, addressing the whole load on the body
- Give collective protective measures priority over individual protective measures
- Give appropriate instruction to workers

Keep workers with MSDs at work:

- Provide rehabilitation
- Reintegrate workers that suffer or have suffered from MSDs back into work

⁽¹⁾ European Foundation for the Improvement of Living and Working Conditions, 'Fourth European working conditions survey', 2005.

⁽²⁾ European Agency for Safety and Health at Work, 'Research on work-related low back disorders', 2000.

⁽³⁾ Based on Council Directive 89/391/EEC, article 6.2.

manual handling alone is rarely the cause of back pain: there are many other factors that may contribute to its development, such as stress, vibration, cold and work organisation. Therefore, it is very important to assess the full range of MSD risks and to address them in a comprehensive way.

Keeping workers with MSDs at work should be an integral part of workplace MSD policy. A special emphasis should be placed on multidisciplinary approaches, which combine prevention and rehabilitation. Particularly important is the role of social and organisational support in enabling workers with MSDs both to return to work and to stay in work. The active support and involvement of workers at risk and other stakeholders in the organisation is important.

The key elements of the European approach to tackling MSDs are given in box 2.

Tackling MSDs is cost-effective: a case study from the hospital sector (*)

Tasks carried out by workers in the laundry of a large general hospital put them at risk of lower back and shoulders injuries. The tasks included a combination of excessive forward bending to lift dry and wet linen, forceful exertion, and work in awkward postures.

Figure 1: Feed conveyer before modification, requiring employees to work in awkward postures



Source: HSE, UK.

Based on an ergonomics assessment involving experts, workers and management, changes were introduced such as modifications to workstations and laundry equipment (e.g. extending the feed conveyer, see Figure 2), job rotation, and providing feedback to workers.

The change resulted in a 62 % reduction in staff sickness absence, a 12 % increase in productivity, a 20 % decrease in overtime payments, and improved staff morale. The total cost of intervention was GBP 29 030: assuming that the process lifecycle is three years from the date of intervention, the net intervention benefit was GBP 209 739 and payback period 4.38 months.

Figure 2: Feed conveyer after modification, showing an extended conveyer and the use of plastic linen bags



Source: HSE, UK.

European legislation

The main components of MSD prevention are already recognised in European directives, Member States' regulations and good practice guidelines. The directives are supplemented by a series of European standards (known as EN standards), which fill out the details or enable the directives to be implemented (*).

The main European directives relevant to preventing MSDs are:

- 89/391/EEC: covers the measures to encourage improvements in the safety and health of workers
- 89/654/EEC: covers minimum requirements for the workplace
- 89/655/EEC: covers the suitability of work equipment
- 89/656/EEC: covers the suitability of personal protective equipment
- 90/269/EEC: covers the identification and prevention of manual handling risks
- 90/270/EEC: covers the minimum health and safety requirements for work with display screen equipment
- 93/104/EC: covers the organisation of working time
- 98/37/EC: covers machinery
- 2002/44/EC: covers the identification and prevention of risks arising from vibration

Further information relating to the MSDs Campaign is available at <http://ew2007.osha.europa.eu>

More information on MSD prevention and retaining workers with MSDs at work is available at <http://osha.europa.eu/topics/msds/>

More information on Agency publications is available at <http://osha.europa.eu/publications>

(*) Health & Safety Executive, UK. Research report 491: 'Cost benefit studies that support tackling musculoskeletal disorders'.

(*) Agency website links to European legislation relevant to MSDs: <http://osha.europa.eu/topics/msds/>; to EU legislation relating to workers protection: <http://osha.europa.eu/legislation>, and to Member State sites where national legislation and guidelines may be found.