



Deliverables

- Risk assessment tools and databases for different user groups (experts to practitioners in SMEs).
- Assessed best practice tools, recommendations, guidelines for ergonomic work design, including psychosocial aspects to prevent MSDs.
- Evaluated return to work programs for workers affected by MSDs.

Multifactorial genesis of work-related musculoskeletal disorders (MSDs)

Summary

Work-related musculoskeletal disorders (MSDs) are of immense importance in the occupational sphere. In Europe, work-related MSDs are leading the statistics for sickness absence and result in high direct costs (costs of treatment) and indirect costs (loss of production).

Usually the causes of work-related MSDs are multifactorial and there are numerous work-related risk factors for the various types of MSDs. Workers are generally exposed to several factors at the same time and the interaction of these effects are often unknown.

Research in this area should contribute to a better understanding of work-related MSDs that allows for an evidence-based development of appropriate and more effective prevention approaches and risk assessments.

¹ Eurofound – European Foundation for the Improvement of Living and Working Conditions, European Working Conditions Survey (EWCS) 4., 2007. Available at: <http://www.eurofound.europa.eu/pubdocs/2006/98/ev/2/ef0698en.pdf>

² Eurofound – European Foundation for the Improvement of Living and Working Conditions, European Working Conditions Survey (EWCS) 5., 2010. Available at: <http://www.eurofound.europa.eu/surveys/ewcs2010/index.htm>

Further information:

This research challenge is part of the PEROSH report “Sustainable workplaces of the future – European research challenges for Occupational Safety and Health”. The full report, as well as each of the research challenges separately, can be downloaded in pdf-format from the PEROSH website: <http://www.perosh.eu/p/OSHresearch2020>

PEROSH Secretariat

E-mail: info@perosh.eu, Website: www.perosh.eu

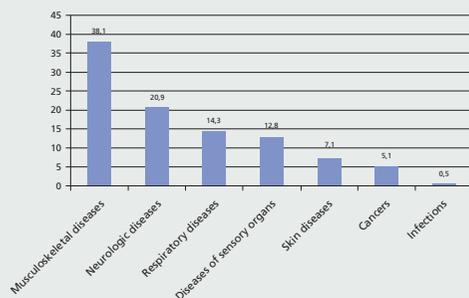


1. Description of the priority, what is at stake? Why is it a priority?

According to the European Foundation for the Improvement of Living and Working Conditions, more than one third of European workers suffer from work-related musculoskeletal disorders (MSDs)¹. MSDs are the cause of a high percentage of sickness absence, rehabilitation cases and early retirements. They are among the most significant diseases in terms of their costs to industry, e.g. direct costs for treatment and production losses. Work-related MSDs represent the main occupational disease category affecting European workers (see figure). These disorders are widespread in all occupational sectors but agriculture and construction are the two most affected sectors.

From the Fifth European Working Conditions Survey (EWCS) in 2010 it can be concluded that European workers remain as exposed to physical and mechanical factors – e.g. manual materials handling, working in awkward postures, repetitive work and vibrations – as they did 20 years ago. One third of the workers (33%) reported that they carry heavy loads at least a quarter of their working time, while almost one in four (23%) are exposed to vibrations¹⁷. Nearly half of all workers (46%) work in awkward postures for at least a quarter of the time, and repetitive hand or arm movements are a feature of work for more Europeans today than they were 10 years ago².

Figure 1: Proportion of occupational diseases in 12 EU member states according to the European Occupational Diseases Statistics obligatory list 2005



Source: OSH in figures: Work-related musculoskeletal disorders in the EU – Facts and figures, European Agency for Safety and Health at Work, 2010

Apart from physical and mechanical risk factor groups, organisational and psychosocial factors, as well as individual and personal factors may contribute to the genesis of MSDs.

The demographic shift and the pending rise in the retirement age constitute further challenges for European countries. Prevention of occupational MSDs is increasingly being conducted against the backdrop of a progressively ageing workforce.

Usually the causes of work-related MSDs are multifactorial and there are numerous work-related risk factors for the various types of MSDs. Workers are generally exposed to several factors at the same time and interaction of these effects may aggravate adverse effects. While some health risks associated with single exposures are well understood, there is a lack of knowledge of health risks due to the combination of different exposures. For workplaces that are similar at the European level, a European effort is therefore reasonable. More intervention studies that prove effects in decreasing work-related MSDs at a high evidence level are needed. It is also necessary to understand the genesis of MSDs better, including the mechanisms behind this. This should lead to better models for MSD prevention.

Improved prevention of MSDs in the workplace by the avoidance or reduction of musculoskeletal workloads will translate into a considerable health benefit for employees and at the same time a considerable economic benefit for businesses. The resulting contribution to enhancing fitness for work and employment is in the interests of the economy and society as a whole.

2. Research needs at European level

In order to make substantial achievements in the further development of effective MSD preventive measures, close cooperation between OSH research organisations in Europe will be required. The following research at EU level is needed:

2.1 Literature reviews

Literature reviews are essential on:

- mixed exposures/risk factors together with MSD incidences and their occurrence in various fields of employment/occupational groups in Europe.
- physiological/psychological/biomechanical models associated with the genesis of work-related MSDs.
- risk assessment tools.

In this way, a common starting point can be defined and knowledge gaps can be identified.

2.2 Genesis of work-related MSDs

Research on the genesis of work-related MSDs is necessary, e.g.

- interaction of combined physical risk factors and physical and psychosocial risk factors.
- links between MSDs and individual physical capacity.
- conduction of epidemiological studies, e.g. analysis of specific work disability patterns.

2.3 Internationally concerted developments

There is a need for internationally concerted developments of:

- task exposure databases and data exchange within OSH research organisations.
- risk assessment tools and prevention strategies with regard to mixed exposures.
- workplaces that accommodate elderly employees and employees with MSD.

2.4 High-quality MSD intervention studies

- International research should conduct high-quality MSD intervention studies, e.g. RTC-studies (randomised controlled trials), on primary, secondary and tertiary MSD prevention levels, including technical interventions, organisational interventions, person-orientated interventions, participatory approaches and cost-effectiveness interventions.