

Work – related musculoskeletal disorders (MSDs) and the pace of work

Summary

Pace of work is one of the major causes of ill health in the workplace, and the available evidence shows that it is quickening. The faster the pace of work, the greater is the risk of an individual developing musculoskeletal disorders (MSDs). Stress levels increase when workers do not have control over their pace of work. This leads to muscle tension then fatigue, which increases the risk of developing MSDs. Bodies also need time for rest and recovery between periods of work. Pace of work is increasing as people work longer hours, more of which are at home. Workers should be able to set their own pace of work and not be subjected to excessive performance targets. Work should be varied and allow workers choice over how and when to perform the task. Although pace of work is not specifically covered by EU legislation, there are some relevant European Directives and standards.

Introduction

Musculoskeletal disorders (MSDs) can affect the body's muscles, bones, joints, tendons, ligaments and nerves. Most work - related MSDs develop over time and are caused either by the work itself or by the employees' working environment. They can also result from accidents, e.g. fractures and dislocations. Typically, MSDs affect the back, neck, shoulders and upper limbs; less often they affect the lower limbs. Health problems range from discomfort, minor aches and pains, to more serious medical conditions requiring time off work and even medical treatment. In more chronic cases, treatment and recovery are often unsatisfactory — the result could be permanent disability and loss of employment. MSDs are given many names, including: repetitive strain injuries, cumulative trauma disorders and soft tissue disorders.

The 'Fourth European Working Conditions Survey' (4th EWCS, 2005) revealed that workers complain of:

- back pain (25%)
- overall fatigue (23%)
- muscular pains (23%)

What are the risk factors for MSDs?

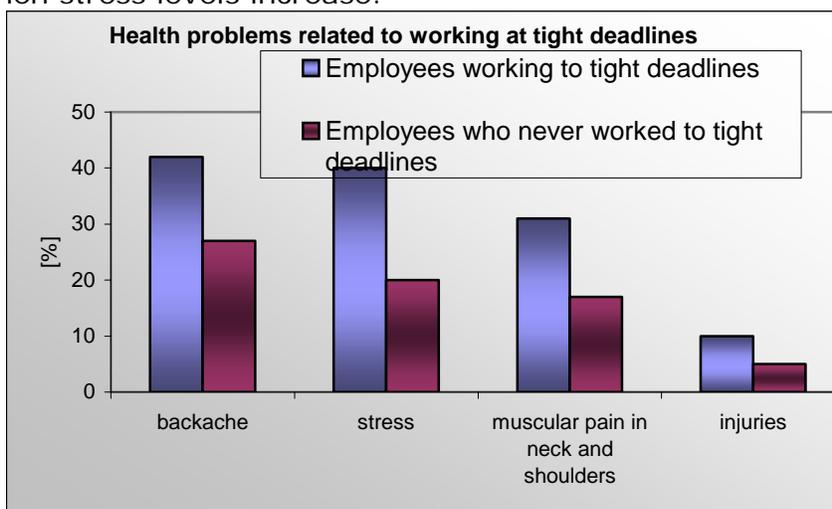
Many factors can contribute — either individually or in combination — to the development of MSDs. Physical factors include: using force, repetition, poor posture and vibration. Organisational factors such as low job satisfaction and a high pace of work are also significant, as are an individual's medical history, physical capacity and age.



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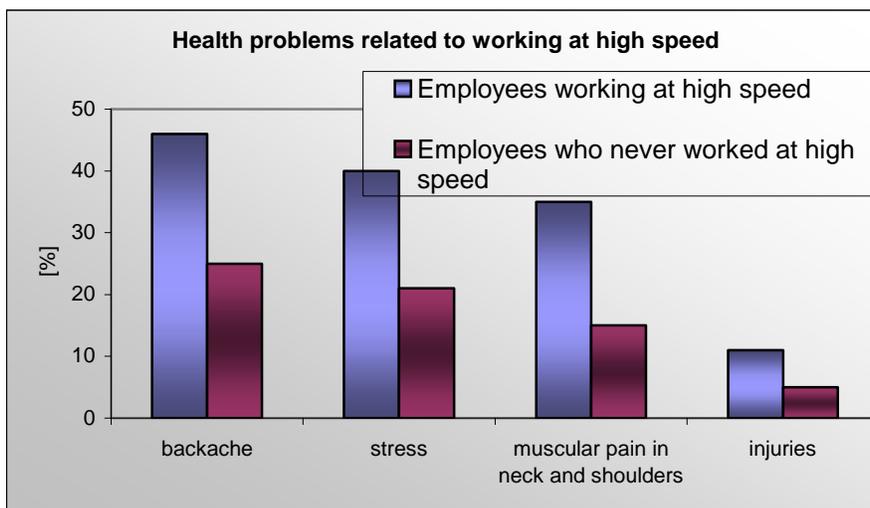
What is pace of work?

According to 'Third European Working Conditions Survey' (3rd EWCS, 2000) there is a very strong link between the degree of intensity or working at tight deadlines and reported health problems. The pace of work determines the amount of time available for the rest and recovery of the body between cycles of a particular task. The faster the pace, the greater is the risk of an individual developing MSDs. When a worker has no control over the speed of work because of external factors such as assembly line speed or quota systems then stress levels increase.



Source: adapted of the 3rd EWCS data

Higher stress levels lead to muscle tension; in turn this causes fatigue, which increases the risk of MSDs. Controlling the pace of work externally denies workers the flexibility to determine their own work speed. It is a human characteristic to work at varying rates at different times of the day. But, between 1990 and 2000, high-speed periods of work rose from 46% to 56%.



Source: adapted of the 3rd EWCS data



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How to reduce risk of MSDs related to pace of work?

The nature of work has changed in recent years. Notions of cost-efficiency, quality, service and flexibility have entered its lexicon. To some extent, the boundaries between work and private life have blurred thanks to developments in computer technology and an increase in teleworking. Data from the 1999 'Working Environment Survey' in Sweden showed that 28% of women and 38% of men work longer than their regular hours at least once a week. It also revealed that 20% of women and 25% of men work at home for at least some hours during the week. The result in both cases is an increase in the pace of work.

In 2000, according to EU statistics (13th CEIES seminar: 'Health and Safety at work'), the pace of work was mainly determined by 'human demands'. External demands from clients, passengers or patients were mentioned by 67% of employees; 48% named demands from colleagues; 38% mentioned direct control of boss; production norms were noted by 31%; and the automatic speed of the machine or product were cited by 21%.

Reducing the risk of developing MSDs is realistic. It involves finding the optimum combination of factors such as posture, exerted force and time sequences. Pace of work is one of the features that characterises work conditions. From both a biomechanical and psychosocial point of view, workers should be able to set their own pace of work.

In 2000, 64% of employees had a choice over their order of tasks, 70% of employees were free to choose their pace of work and 70% to pick their methods of work. Work processes should:

- be varied
- involve a range of tasks
- give an understanding of the significance of the work in the context of the whole process.

The task should allow the worker choice over how and when to perform the task. Since people work at varying rates at different times of the day, workers should be able to move between tasks. Workers should not be subjected to the imposition of excessive and non-negotiable performance targets. And workers should be educated in occupational health issues and be made aware of the occupational factors that influence their health.

Relevant European legislation

Although there is no EU legal instrument specifically targeting MSDs and pace of work, a number of European Directives and standards in the occupational health and safety area are relevant.



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The following Directives are related to MSDs associated directly or indirectly with the pace of work:

- 93/104/EEC (23 November 1993) concerning certain aspects of the organisation of working time;
- 90/269/EEC (29 May 1990) on the minimum health and safety requirements for the manual handling of loads where there is a risk, particularly, of back injury to workers;
- 90/270/EEC (29 May 1990) on the minimum safety and health requirements for work with display screen equipment.

European standards focus on allowable parameters relating to posture, exerted force and the frequency of movements. Those parameters determine musculoskeletal loads that might cause MSDs. The relevant standards are:

- EN-614-1: Safety of machinery. Ergonomic design principles. Terminology and general principles. Presents overall rules related to design process with consideration of antropometry and biomechanics;
- EN 614-2: Safety of machinery. Ergonomic design principles. Interaction between machinery design and work task;
- EN 1005: Safety of machinery. Human physical performance. Standard consists of five parts that are intended to cover the range of human physical performance variables relating to machinery design;
- EN 1005-1: Safety of machinery. Human physical performance. Terms and definitions;
- EN-1005-2: Safety of machinery. Human physical performance. Manual handling of machinery and component parts of machinery;
- EN 1005-3: Safety of machinery. Human physical performance. Recommended force limits for machinery operation;
- EN-1005-4: Safety of machinery. Human physical performance. Evaluation of working postures in relation to machinery;
- prEN-1005-5: Safety of machinery. Human physical performance. Risk assessment for repetitive handling at high frequency;
- EN ISO 9241-2: Ergonomic requirements for office work with visual display terminals (VDTs). Guidance on task requirements;
- EN ISO 12100-1: Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology.

For more information, see: <http://osha.europa.eu/legislation>

Conclusion

Disorders of the musculoskeletal system are common throughout Europe. Pace of work, which relates to the frequency of movements or to pauses between tasks, is a significant risk factor in the development of MSDs. European legislation advises that this should be taken into account in the assessment of the musculoskeletal load, although there is no Directive or European standard that relates directly to the pace of work.