



Work-related Low Back Disorders Summary of Agency report

Work-related low back disorders, covering both low back pain and low back injuries, are a significant and increasing problem in Europe. This fact sheet highlights the key findings of an Agency report on the prevalence, origins, work-related risk factors and effective prevention strategies for low back disorders. The report is limited to low back disorders although some of the findings may be applicable to other types of work-related back problems.

Size of the problem

Studies suggest that between 60% and 90% of people will suffer from low back disorders at some point in their life and that at any one time between 15% and 42% of people are suffering (depending on the study population and the definition of back pain used). Data from the European survey on working conditions (1) reveal that 30% of European workers suffer from back pain, which tops the list of all reported work-related disorders. In another recent Agency report (2) some Member States of the European Union have reported an increase in manual handling injuries and back injuries.

While in most cases patients make a full recovery from an episode of low back pain (60-70 % recover within 6 weeks, 70-90 % within 12 weeks) this still adds up to a very large amount of lost time from work (3) (4). In addition the recurrence rate for low back disorders is very high. In one year the recurrence rate is between 20% and 44% and over a lifetime recurrences of up to 85% are reported. It is important to remember that once injured, the back can become susceptible and re-injury is more likely if there are risk factors in the work place that are not corrected.

Although very common across all types of industries and jobs, several studies have demonstrated that low back disorder rates are particularly prevalent in certain types of industries and within certain occupations. Particularly high prevalence rates are found for example among: agricultural workers; construction workers; carpenters; drivers including truck and tractor operators; nurses and nursing assistants; cleaners, orderlies, domestic assistants. It appears that the prevalence of low back disorders in the European Union is similar among men and women (1).

Estimates from Member States of the economic costs of all work-related ill health range from 2.6 to 3.8% of Gross National Product (5), although precise figures do not exist. However the figures may be higher as the true social costs are difficult to estimate. A study from the Netherlands (6) estimated the total cost of back pain to society to be 1.7% of the gross national product in 1991.

Origins of Low Back Disorders

Low back disorders include spinal disc problems such as hernias and spondylolisthesis, muscle and soft tissue injuries. In addition to the normal degenerative aging process, epidemiological studies reveal that poor ergonomic factors in the workplace contribute to low back disorders in a healthy back or accelerate existing changes in an already damaged back. Poor ergonomic work factors increase the load or strain on the back. This may arise from many situations, for example lifting, twisting, bending, awkward movements, stretching, and static postures. Tasks include physical work, manual handling and vehicle driving (where whole body vibration is known to be another contributing factor).

Although spinal disc related problems maybe detectable by x-rays or bone scans, other abnormalities, such as muscular and other soft-tissue injuries, can often not be detected in this way. In fact, 95% of low back disorders are termed "non-specific". Evidence suggests that the common approach suggested below can be taken to prevent and reduce all types of work-related low back disorders.

Work-related risk factors

Many review articles have been published investigating the risk factors of low back disorders, including a multitude of physical, psychosocial and/or personal risk factors. The number of epidemiological studies addressing psychological risk factors during work is considerably smaller than studies focussing on physical load. In addition, the strength of the association is generally higher for biomechanical factors. However, the evidence to link psychosocial factors with low back disorders is growing, especially where they occur at the same time as the physical factors. The incidence of low back disorders has also been strongly associated with low job content and poor work organisation. The main work-related risk factors are given in Box 1.

Box 1: Work factors that increase the risk of low back disorders

Physical aspects of work

- Heavy physical work
- Lifting and handling of loads;
- Awkward postures (for example: bending; twisting; static postures)
- Whole body vibration (for example truck driving)

Psychosocial work-related factors

- Low social support
- Low job satisfaction

Work organisation factors

- Poor work organisation
- Low job content

Strategies and effectiveness of prevention

Strategies to prevent low back disorders include both workplace based and health care based interventions. Increasingly there is recognition that an integrated approach including both types of intervention is needed to really tackle the problem effectively. In the workplace there is growing support for the effectiveness of ergonomic interventions. Ergonomics interventions are based on a "holistic" or systems approach that considers the effect of the equipment, the work environment and the work organisation as well as the worker. The full participation of workers in the ergonomics approach is important for its effectiveness.

A summary of the main prevention strategies is given in Box 2. These cover strategies for both primary prevention (eliminating the causes) and secondary prevention (treatment and rehabilitation). Again expert opinion is that although the focus should be strongly on primary prevention, all these factors need to be looked at together. For example studies show that training alone is unlikely to be effective if the ergonomic factors in the work remain poor and basic training, for example, needs to include how to spot potential risks and what to do if found as well as safe physical handling techniques.

Box 2: Strategies to prevent low back disorders in the workplace

- Reduction of physical demands
- Improvements in work organisation
- Education/training (as part of an integrated approach)
- Medical treatment and rehabilitation
- Cognitive and behavioural strategies (for example coping strategies)

European employers are already provided with important information to protect workers from back injury from manual handling work in the "Manual Handling Directive" (Council Directive 90/269/EEC) (7), which was made with the particular goal of preventing risks of back injury during the manual handling of loads. Based on current knowledge, it includes minimum health and safety requirements that follow an ergonomic approach, with a list of risk factors provided in the schedule to the directive. Employers should to pay attention to these risk factors when making an assessment and selecting prevention measures. They include:

- Characteristics of the load (for example: is it heavy or difficult to hold);
- Physical effort required (for example: strenuous; twisting; body in an unstable position);
- Characteristics of the working environment (for example: not sufficient room or other constraints on the posture of worker such as working height too high or low; uneven or slippery flooring);
- Requirements of the activity (for example: prolonged activity or effort; insufficient rest periods; excessive distances to move loads; imposed work rate)
- Individual factors (for example: clothing etc. restricting movement; inadequate knowledge or training)

It is thought to be somewhat artificial to separate out low back disorders from other work-related back problems as there is no strict divide between back problems and other musculoskeletal disorders. A common approach is needed to all musculoskeletal problems in the work place (for example see Agency reports and website information on musculoskeletal disorders (8) (9) (10))

Need for research and consensus

There is support in the literature for the ergonomics approach, contained in the "Manual Handling Directive", as the basis for employers to take action. To assist its application the report suggests that the main focus of future research should be on how the ergonomics approach can be used most effectively in practice. Such research may include:

- Satisfactorily evaluated studies of "holistic" intervention strategies (for example: application of ergonomics; ergonomics integrated with rehabilitation and health surveillance)
- Studies to develop and evaluate practical risk assessment methods for use in the workplace
- Studies of the effect of combinations of factors and their practical assessment

Although it is proposed that the main focus of future research be on strategies to prevent injury in the work place, a number of areas concerning laboratory analysis of the problem are suggested (for example: exposure measurement techniques; joint movement measurement methods and studies to further understand the biochemical and biomechanical properties of the vertebra, disc and ligaments).

Getting more information

More information about preventing musculoskeletal disorders is available from the Agency website, <http://osha.eu.int> where the full text of Agency publications can be down loaded free of charge. Information includes short "factsheets" and various reports. Examples of solutions to MSD risks can be found at http://europe.osha.eu.int/good_practice/.

Bibliography/References

1. Working conditions in the European Union (summary of Survey1996)- European Foundation for the Improvement in Living and Working Conditions
2. "The State of Occupational Safety and Health in the Member States" Agency report, 2000
3. Andersson GBJ. Epidemiological features of chronic low-back pain. The Lancet 1999; 354: 581-585.
4. Hillman M, Wright A, Rajaratnam G, Tennant A, Chamberlain MA. Prevalence of low back pain in the community: implications for service provision in Bradford, UK. Journal of Epidemiology Community Health 1996; 50: 347-352.
5. "Economic impact of occupational safety and health in the Member States of the European Union" - Agency report, 1998 available at <http://agency.osha.eu.int/publications/reports/>
6. Van Tulder MW, Koes BW, Bouter LM. A cost-illness study of back pain in the Netherlands. Pain 1995 ; 62 : 233-240.
7. Agency website links to EU legislation, <http://europe.osha.eu.int/legislation/>, and to Member State sites where national legislation and guidelines may be found related to the Manual Handling and other directives.
8. "Work related neck and upper limb musculoskeletal disorders" -Agency report, 2000 ; available at <http://agency.osha.eu.int/publications/reports/>
9. "Repetitive Strain Injuries in the Member States of the European Union" - Agency report, 2000, available at <http://agency.osha.eu.int/publications/reports/>
10. Agency web feature on Good practice MSDs at http://europe.osha.eu.int/good_practice/

How to get report

The full report is available in English on the Agency's Web site at <http://agency.osha.eu.int/publications/reports/lowback/> where it can be down loaded free of charge. The printed report - "Work-related Low Back Disorders", Op De Beeck, R. and Hermans, V., European Agency for Safety and Health at Work, 2000, ISBN 92-95007-02-6 - can be ordered from the EC's Publications Office EUR-OP in Luxembourg (<http://eur-op.eu.int/>), or from its sales agents. The price is 7 EUR in Luxembourg (excluding VAT).

This Fact Sheet is available in all EU languages at <http://agency.osha.eu.int/publications/factsheets/>

About the report

The European Agency has published a research information report on work-related low back disorders. The report provides an overview of current knowledge on the issue. The work was carried out by the Institute for Occupational Safety and Health (Prevent), Belgium.