



Hazards and risks associated with manual handling of loads in the workplace

What is manual handling of loads?

Manual handling of loads (MHL) is any of the following activities carried out by one or more workers: lifting, holding, putting down, pushing, pulling, carrying or moving of a load ⁽¹⁾. The load can be animate (a person or animal) or inanimate (an object).

Though decreasing lately, the rate of workers in the EU-25 that report carrying or moving heavy loads, is still high (34.5 %), reaching 38.0 % in the EU-10 ⁽²⁾.

How MHL can affect workers' health

Manual handling of loads may cause:

- cumulative disorders due to gradual and cumulative deterioration of the musculoskeletal system through continuous lifting/handling activities, e.g. low back pain;
- acute trauma such as cuts or fractures due to accidents.

Back pain is a major work-related health complaint (23.8 %) in the EU, with significantly more workers (38.9 %) affected in the new Member States ⁽³⁾.

What makes MHL hazardous?

There are several risk factors that make MHL hazardous and thereby increase the possibility of injury. Particularly for back injury, they are related to four aspects of MHL.

The load

The risk of back injury increases if the load is:

- too heavy: there is no exact weight limit that is safe — a weight of 20–25 kg is heavy to lift for most people;
- too large: if the load is large, it is not possible to follow the basic rules for lifting and carrying — to keep the load as close to the body as possible; thus, the muscles will get tired more rapidly;
- difficult to grasp: this can result in the object slipping and causing an accident; loads with sharp edges or with dangerous materials can injure workers;
- unbalanced or unstable: this leads to uneven loading of muscles and fatigue due to the centre of gravity of the object being away from the middle of the worker's body;
- difficult to reach: reaching with outstretched arms, or bending or twisting the trunk takes greater muscular force;
- of a shape or size that obscures the worker's view, thus increasing the possibility of slipping/tripping, falling or collision.

The task

The risk of back injury increases if the task:

- is too strenuous, e.g. it is carried out too frequently or for too long a time;
- involves awkward postures or movements, e.g. a bent and/or twisted trunk, raised arms, bent wrists, over-reaching;
- involves repetitive handling.

The environment

The following characteristics of the work environment may increase the risk of back injury:

- insufficient space for MHL may lead to awkward posture and unsafe displacement of loads;
- an uneven, unstable or slippery floor may increase the risk of accidents;
- heat makes workers feel tired, and sweat makes it hard to hold tools, meaning that more force must be used; cold can make hands numb, making it hard to grip;
- insufficient lighting may increase the risk of accidents, or force workers into awkward positions to see clearly what they are doing.

The individual ⁽³⁾

Some individual factors might affect the risk of back injury:

- lack of experience, training and familiarity with the job;
- age — the risk of low back disorders increases with age and with the number of years at work;
- physical dimensions and capacity such as height, weight and strength;
- prior history of back disorders.

Risk assessment

Employers are required to assess the health and safety risks that their employees face. Simple steps can be followed to carry out an effective risk assessment.

- Look out for hazards that could cause accidents, injuries or ill health.
- Evaluate who might be harmed and how this might happen.
- Evaluate whether existing precautions are adequate or if more should be done.
- Monitor the risks, and review preventive measures.

⁽¹⁾ Council Directive 90/269/EEC on the minimum health and safety requirements for the manual handling of loads.

⁽²⁾ European Foundation for the Improvement of Living and Working Conditions, '4th European working conditions survey', 2005.

⁽³⁾ European Agency for Safety and Health at Work, 'Research on work-related low back disorders', 2000.

Prevention measures

Accidents and ill health can be prevented by eliminating or at least reducing MHL risks. The following hierarchy of prevention measures should be used.

- Elimination — consider whether MHL can be avoided, for example by using powered or mechanical handling equipment such as conveyers or lift trucks.
- Technical measures — if MHL cannot be avoided, consider the use of supporting devices such as hoists, trolleys and vacuum lifting devices.
- Organisational measures such as job rotation and the introduction of breaks of sufficient length should only be considered if elimination or reduction of MHL risks is not possible.
- Provide information on the risks and negative health effects of MHL, and training in the use of equipment and correct handling techniques.

Rehabilitation and reintegration of workers with musculoskeletal disorders (MSDs) back into work should form an integral part of workplace MSD policy. This will improve workers' health and well-being, and prevent reductions in productivity.

Workers and their representatives' involvement is essential when tackling workplace hazards.

Correct handling techniques

Lifting

Before lifting a load, you need to plan and prepare for the task. Make sure that:

- you know where you are going;
- the area where you move is clear of obstacles;
- you have a good grip on the load;
- your hands, the load and any handles are not slippery;
- if you are lifting with someone else, both of you know what you are doing before you start.

You should use the following technique when lifting a load.

- Put your feet around the load, with your body over it (if this is not feasible, try to get your body as close as possible to the load).
- Use the muscles of your legs when lifting.
- Straighten your back.
- Pull the load as close as possible to your body.
- Lift and carry the load with straight downward turned arms.

Pushing and pulling

It is important that:

- pushing and pulling is done using the body's own weight; lean forward when pushing, lean backwards when pulling;
- you have enough grip on the floor to be able to lean forward/backwards;
- you avoid twisting and bending your back;
- handling devices have handles/hand grips so that you can use your hands to exert a force; handle height should be between the shoulder and waist so that you can push/pull in a good, neutral posture;
- handling devices are well-maintained so that the wheels have appropriate size and they run smoothly;
- floors are hard, even and clean.

European legislation

Council Directive 90/269/EEC sets out health and safety requirements for the MHL, particularly where there is a risk of back injury to workers.

The requirements of other European directives, standards and guidelines, together with provisions in individual Member States, may also be relevant to the prevention of work-related health problems caused by MHL (*).

More information on manual handling of loads, prevention of MSDs 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>

Correct manual handling of loads



Twisting and bending of back **should be avoided**

Source: Demaret, J.-P., Gavray, F. and Willems, F. (Prevent), *Aidez votre dos — Manuel de la formation «prévention des maux de dos dans le secteur de l'aide à domicile»*, Proxima, 2006.

(*) Agency's legislation website: <http://osha.europa.eu/legislation>

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