

These regulations address the problems associated with manual handling and sets out best practice in dealing with them. The advice is intended for managers of small firms or similar organisations. But the general principles are relevant to all workplaces, whatever their size. Avoiding injuries from manual handling makes sound business sense.

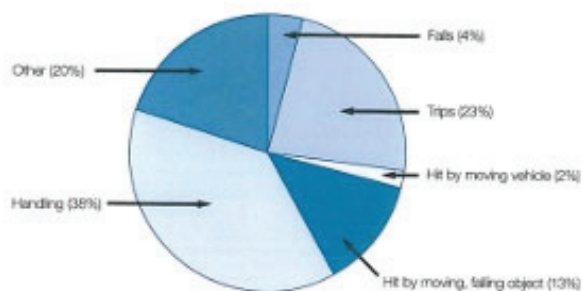
The Manual Handling Operations Regulations 1992, as amended in 2002 ('the Regulations') apply to a wide range of manual handling activities, including lifting, lowering, pushing, pulling or carrying. The load may be either inanimate - such as a box or a trolley, or animate - a person or an animal. This guidance gives useful practical advice for employers, managers, safety representatives and individual employees on how to reduce the risk of injury from manual handling.

Musculoskeletal disorders account for almost half of all work-related ill-health and manual handling injuries represent over a third of accidents reported annually.

## What's the problem?

More than a third of all over-three-day injuries reported each year to HSE and local authorities are caused by manual handling - the transporting or supporting of loads by hand or by bodily force. The pie chart shows the pattern for over-three-day injuries reported in 2001/02.

Figure 1 Kinds of accident causing over-three-day injury, 2001/02 The most recent survey of self-reported work-related illness estimated that in 2001/02, 1.1 million people in Great Britain suffered from musculoskeletal disorders (MSDs) caused or made worse by their current or past work. An estimated 12.3 million working days were lost due to these work-related MSDs. On average each sufferer took about 20 days off in that 12-month period.



## Avoiding manual handling

Check whether you need to move it at all

### For example:

Does a large work piece really need to be moved, or can the activity (e.g. wrapping or machining) safely be done where the item already is?

Can you take the treatment to the patient, not vice versa?

Can raw materials be piped to their point of use?

Consider automation, particularly for new processes. Think about mechanisation and using handling aids

### For example:

A conveyor.

A pallet truck.

An electric or hand-powered hoist.

A lift truck. But beware of new hazards from automation or mechanisation.

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## What about training?

Training is important but remember that, on its own, it can't overcome:

A lack of mechanical aids.

Unsuitable loads.

Bad working conditions.

Training should cover:

Manual handling risk factors and how injuries can occur.

How to carry out safe manual handling including good handling technique (see 'Good handling technique for lifting' and 'Good handling technique for pushing and pulling').

Appropriate systems of work for the individual's tasks and environment.

Use of mechanical aids.

Practical work to allow the trainer to identify and put right anything the trainee is not doing safely.

## Good handling technique for lifting

Here are some practical tips, suitable for use in training people in safe manual handling. In the following section a basic lifting operation is taken as an example.

Think before lifting/handling. Plan the lift. Can handling aids be used? Where is the load going to be placed? Will help be needed with the load? Remove obstructions such as discarded wrapping materials. For a long lift, consider resting the load midway on a table or bench to change grip.

Keep the load close to the waist. Keep the load close to the body for as long as possible while lifting. Keep the heaviest side of the load next to the body. If a close approach to the load is not possible, try to slide it towards the body before attempting to lift it.

Adopt a stable position. The feet should be apart with one leg slightly forward to maintain balance (alongside the load, if it is on the ground). The worker should be prepared to move their feet during the lift to maintain their stability. Avoid tight clothing or unsuitable footwear, which may make this difficult.

Get a good hold. Where possible the load should be hugged as close as possible to the body. This may be better than gripping it tightly with hands only.

Start in a good posture. At the start of the lift, slight bending of the back, hips and knees is preferable to fully flexing the back (stooping) or fully flexing the hips and knees (squatting).

Don't flex the back any further while lifting. This can happen if the legs begin to straighten before starting to raise the load.

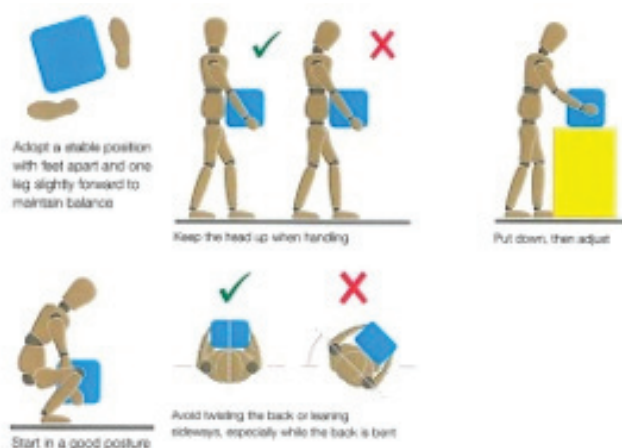
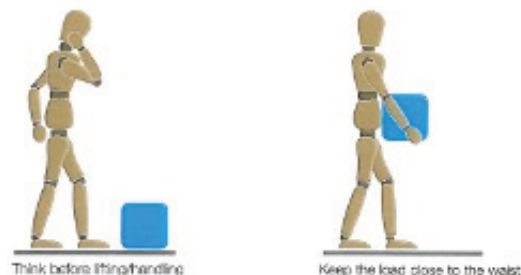
Avoid twisting the back or leaning sideways, especially while the back is bent. Shoulders should be kept level and facing in the same direction as the hips. Turning by moving the feet is better than twisting and lifting at the same time.

Keep the head up when handling. Look ahead, not down at the load, once it has been held securely.

Move smoothly. The load should not be jerked or snatched as this can make it harder to keep control and can increase the risk of injury.

Don't lift or handle more than can be easily managed. There is a difference between what people can lift and what they can safely lift. If in doubt, seek advice or get help.

Put down, then adjust. If precise positioning of the load is necessary, put it down first, then slide it into the desired position.



## References

Manual handling. Manual Handling Operations Regulations 1992 (as amended). Guidance on Regulations L23 (Third edition) visit <http://www.hse.gov.uk/pubns/priced/l23.pdf>

Getting to grips with manual handling: A short guide INDG143(rev2) visit <http://www.hse.gov.uk/pubns/indg143.pdf>

Aching arms (or RSI) in small businesses INDG171(rev1) visit <http://www.hse.gov.uk/pubns/indg171.pdf>

Mark a parcel - save a back INDG348 visit <http://www.hse.gov.uk/pubns/indg348.pdf>

Manual handling assessment charts INDG383 visit <http://www.hse.gov.uk/pubns/indg383.pdf>

Are you making the best use of lifting and handling aids? INDG398 visit <http://www.hse.gov.uk/pubns/indg398.pdf>

## Good handling technique for pushing and pulling

Here are some practical points to remember when loads are pushed or pulled.

**Handling devices.** Aids such as barrows and trolleys should have handle heights that are between the shoulder and waist. Devices should be well maintained with wheels that run smoothly (the law requires that equipment is maintained). When purchasing new trolleys etc, ensure they are of good quality with large diameter wheels made of suitable material and with castors, bearings etc which will last with minimum maintenance. Consultation with your employees and safety representatives will help, as they know what works and what doesn't.

**Force.** As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2% of the load weight. For example, if the load weight is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (e.g. wheels not in the right position or a device that is poorly maintained). The operator should try to push rather than pull when moving a load, provided they can see over it and control steering and stopping.

**Slopes.** Employees should enlist help from another worker whenever necessary if they have to negotiate a slope or ramp, as pushing and pulling forces can be very high. For example, if a load of 400 kg is moved up a slope of 1 in 12 (about 5°), the required force is over 30 kg even in ideal conditions good wheels and a smooth slope. This is above the guideline weight for men and well above the guideline weight for women.

**Uneven surfaces.** Moving an object over soft or uneven surfaces requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10% of the load weight, although this might be offset to some extent by using larger wheels. Soft ground may be even worse.

**Stance and pace.** To make it easier to push or pull, employees should keep their feet well away from the load and go no faster than walking speed. This will stop them becoming too tired too quickly.

Use Figure 2 to make a quick and easy assessment. Each box contains a guideline weight for lifting and lowering in that zone. (As you can see, the guideline weights are reduced if handling is done with arms extended, or at high or low levels, as that is where injuries are most likely to occur.)

Observe the work activity you are assessing and compare it to the diagram. First, decide which box or boxes the lifter's hands pass through when moving the load. Then, assess the maximum weight being handled. If it is less than the figure given in the box, the operation is within the guidelines.

If the lifter's hands enter more than one box during the operation, use the smallest weight. Use an in-between weight if the hands are close to a boundary between boxes.

The guideline weights assume that the load is readily grasped with both hands and that the operation takes place in reasonable working conditions, with the lifter in a stable body position.



Figure 2 Lifting and lowering

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