Frequent and heavy lifting and handling can cause back injuries. But using lifting and handling aids can remove or reduce that risk and keep workers healthy and at work.

This guidance is intended for managers, employees and their representatives and others involved in the selection of lifting and handling aids.

Why are back injuries an issue?

Back injuries from manual handling are a major cause of occupational ill health in the UK. But:

- they can often be prevented;
- preventative measures can be cost-effective;
- where back injuries occur, early reporting of symptoms, proper treatment and suitable rehabilitation is essential.

There are health and safety benefits for employers if they control manual handling risks by the use of lifting and handling aids such as:

- improved/maintained productivity;
- reduction in retraining costs;
- limiting the options for liability;
- reduction of injury/ill health to employees.
Costs to employers case studies

<table>
<thead>
<tr>
<th>Case study 1</th>
<th>Case study 2</th>
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<tbody>
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<td>Manual handling injury claims cost a company £150 000 over a 3-year period. This totalled 20% of their employers’ liability claims. Musculoskeletal disorders affecting the back are a common work-related complaint reported through the Labour Force Survey (LFS) and the latest results show an estimated incidence figure of 51 000 cases for 2011/12. The LFS estimated that the main work activities causing or making back disorders worse (averaged over the period 2009/10–2011/12) were: manual handling (lifting/carrying/pushing/pulling); awkward or tiring positions and workplace accidents.</td>
<td>In one year a firm lost 373 working days because of manual handling injuries. This cost about £24 000 in wages paid to absent workers. There were additional overtime payments and other costs. The introduction of handling aids, manual handling training, and a rehabilitation programme reduced days lost to 74 and wage costs to about £5000.</td>
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Costs to employees case studies

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<td>A worker suffered back pain resulting from repetitive heavy lifting. He was off work for eight weeks on reduced earnings (sickness benefit). He was unable to enjoy his usual leisure activities and was worried that he would not be able to return to his normal job. To prevent a recurrence, the company installed a hoist which removed the need for manual handling.</td>
<td>A worker was placing a heavy length of timber on a stack when it slipped. He tried to catch it and suffered an injury to his lower back. He took bed rest and stayed inactive for several weeks. He was not advised to keep active and the pain continued. Some months later he received physiotherapy, but by this time the injury had become chronic and the treatment did little to help. He is still in daily pain and can’t stay sitting or standing for long. He is still unemployed several years later.</td>
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Employees manually feeding 25 kg sacks of material into a mixer had back pain. Managers and employee representatives worked together to solve the problem. They started using bigger bags handled by lift truck and redesigned feed chutes, dust extraction etc to allow use of big bags. This:

- avoided the manual handling;
- reduced dust exposure;
- reduced raw material costs;
- reduced loading times from an hour to 15 minutes, improving production.

The trials were so successful the use of mechanically handled bags has been extended to all areas.

Large containers and crates of beer were frequently delivered into a deep public house cellar by lowering:

- kegs down a steep inclined skid using a looped rope; and
- cases down a plank alongside the skid also using a rope.

The kegs were sometimes damaged and were difficult to return up to street level.

A powered cellar lift was installed which lowered/raised kegs and crates between street level and the cellar floor. This avoided much of the strenuous manual handling and resulted in less damage to containers.

Another problem is pushing empty beer kegs up skids from the pavement onto the brewery vehicle. This can be avoided by the provision of swing-lift hoists or side/tail lifts on the vehicle.

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<th>Lifting and handling aids case studies</th>
<th>Handling kegs and cases of beer</th>
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How can you avoid or reduce the risk from frequent and heavy lifting?

Some examples of solutions using lifting/handling aids: Consider avoiding handling or reducing the unit weight too.

- **Powered trucks and trolleys, vehicles etc**
  - Battery-operated truck
  - Lift truck
  - Pallet converter
  - Drum/reel rotator
  - Lift truck

- **Non-powered trucks, trolleys and aids**
  - Shelf trolley
  - Pallet truck
  - Pallet tilter
  - Keg truck
  - Truck with hydraulic lift

- **Tracks, conveyors, slides/chutes/roller balls**
  - Conveyor with turntable
  - Gravity rollers
  - Roller track
  - In-line weighing
  - Bale table and rollers

- **Adjustable height devices, rotary and tilt tables**
  - Adjustable height turntable
  - Sheet/trolley table
  - Auto-leveller
  - Reel trolley
  - Rotary table

- **Mechanical hoists and vacuum lifting devices**
  - Conveyor and vacuum hoist
  - Vacuum hoist
  - Tub hoist
  - Reel lifting head
  - Vacuum hoist

- **Other**
  - Gravity feed racking
  - Lifting hook
  - Bin tilter
  - Battery-powered tug
  - TV trolley with suction cups
<table>
<thead>
<tr>
<th>Handling*</th>
<th>Porter, cleaning and waste</th>
<th>Setting and maintenance tasks</th>
<th>Goods dispatch/delivery to site/domestic premises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powered trucks and trolleys, vehicles etc</td>
<td>Stair lift</td>
<td>Powered tug</td>
<td>Hoist on vehicle</td>
</tr>
<tr>
<td>Non-powered trucks, trolleys and aids</td>
<td>Star-climbing wheelchair</td>
<td>Cylinder trolley</td>
<td>Wheeled toolbox</td>
</tr>
<tr>
<td>Tracks, conveyors, slides/chutes/roller balls</td>
<td>Slide sheet</td>
<td>Mobile belt conveyor</td>
<td>Sliding dies (low friction surface)</td>
</tr>
<tr>
<td>Adjustable height devices, rotary and tilt tables</td>
<td>Adjustable height bed</td>
<td>Spring-loaded laundry trolley</td>
<td>Platform truck</td>
</tr>
<tr>
<td>Mechanical hoists and vacuum lifting devices</td>
<td>Stand-aid hoist</td>
<td>Engine hoist</td>
<td>Valve lifting jig</td>
</tr>
<tr>
<td>Other</td>
<td>Hand rails</td>
<td>Mop bucket on wheels</td>
<td>Hand protection</td>
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* Take care to select aids which take clients’ condition into account
### Lifting and handling aids case studies

<table>
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<tr>
<th>Order picking</th>
<th>Stacking packaged items</th>
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<td>Staff selecting items for customer orders from storage racking suffered sore backs, necks and shoulders through repetitively stooping and reaching to pick up the items. Installation of gravity feed racking for many products prevented the need to reach to the back of the shelves. Heavier items were stored at waist height where they could be slid onto the collection trolleys. Turntables were provided, enabling pallets to be rotated once items had been picked from the front, eliminating most of the reaching.</td>
<td>A firm identified production and health and safety problems during the manual stacking of packaged items. These were placed into trays on a wheeled dolly at the end of each production line. The tray stacking height varied as more packages were added. An auto-leveler was provided to solve this problem. This improves the operator posture. The installation increased productivity by 45% and controlled the risks. The capital payback time was five months.</td>
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<th>Unpacking fruit</th>
<th>Loading pallets</th>
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<td>Staff in a supermarket were experiencing back problems from stooping to empty fruit boxes from flat bed trolleys. The company introduced a foot-operated hydraulic platform truck, so the boxes could be emptied at the same height as the display fixtures, which eliminated stooping.</td>
<td>Employees loading small packs of product from a conveyor onto pallets frequently reported backache and had time off work. The work involved repetitive bending and reaching across the pallet. The problem was solved by installing a scissor lift with turntable. Other solutions for heavy items include the use of vacuum hoists or automatic palletisers.</td>
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</table>
Factors to consider when selecting lifting and handling aids

- Involve employees and safety representatives during assessment and when considering possible solutions, so that you can be sure what you propose will work in practice and won’t introduce any new hazards.
- Seek advice from suppliers on the suitability of new lifting and handling aid equipment for your business.
- Check equipment is CE-marked and within the safe working load.
- Consider what maintenance will be required.
- Consider whether the equipment will suit the area it will be used in, eg is there enough room to manoeuvre or enough headroom?
- Check that the equipment is suitable for the floor area in terms of stability and ground surface.
- Consider other factors associated with introducing lifting and handling aids, eg site safety, training, information and support.

Where can you get more information about manual handling controls?

- The HSE website, www.hse.gov.uk/msd, contains:
  - case study material about manual handling assessment and controls;
  - references for sector-specific manual handling guidance;
  - online training in the use of MAC, the Manual Handling Assessment Charts.

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at: www.hse.gov.uk/pubns/indg398.htm.

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