



**INLAND
WATERWAYS**
ASSOCIATION

GUIDANCE NOTE

Manual Handling

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INTRODUCTION

Where possible manual handling should be avoided. It is inevitable that some manual handling will be required on a restoration site. This guidance note provides information on correct manual handling.

Volunteers are not likely to be used to the manual handling activities that they are required to do on a restoration site. They will need training, instruction and supervision in these activities, which should be planned so that sufficient breaks or changes can be taken to avoid fatigue.

All construction involves lifting and handling activities. Manual handling includes lifting, lowering (putting down), carrying, pushing, pulling or moving a load by hand or bodily force. Poor manual handling techniques can result in injury. Musculoskeletal disorders (MSD) can result from manual handling injuries and include upper and lower limb disorders or repetitive strain injury. Wherever possible use mechanical lifting aids and try to arrange for delivery close to the work area.

The site risk assessment must address the risk to volunteers of harm from manual handling. A specific assessment should be carried out when manual handling tasks cannot be avoided. The aim of the assessment is to identify the risk factors and to direct you in what is needed to be done to control the risks.

Accidents and the risk of MSD will be reduced by appropriate training in correct manual handling techniques and providing lifting aids. In addition the work needs to be supervised to ensure volunteers are using the correct techniques and proper equipment.

The back, particularly the lower back, is most vulnerable to injury resulting from poor handling techniques and once damaged will be weakened for the rest of the person's life. All other joints and muscle groups can be damaged if correct handling techniques are not used. Injury can result in long-term incapacity or permanent inability to work.



The task, individual, load and environment are factors that determine whether it is safe for a volunteer to manually handle a load. Where manual handling cannot be avoided, mechanical lifting aids should be used where possible.

MANUAL HANDLING OPERATIONS REGULATIONS (1992)

The regulations set out the duties of employers and employees. Restoration groups and other organisations would take on the duties of the employer and volunteers the employee under the civil duty of care.

Under the regulations restoration groups need to take steps, so far as is reasonably practicable, to avoid the need for volunteers to carry out manual handling operations where it puts them at risk of injury. If manual handling cannot be avoided, an assessment of the risk factors needs to be made and appropriate steps taken to implement control measures to reduce the risk of injury.

Volunteers undertaking manual handling need indications or precise information on:



The weight of each load.



The heaviest side of the load where the centre of gravity is not placed centrally.



The assessment should be reviewed if there are significant changes to the operations it refers to and the changes recorded in the assessment where required.

Volunteers must follow the systems of work which have been designed for the task and use any machinery or equipment provided in accordance with any instruction and training that has been given.



INJURIES SUSTAINED FROM MANUAL HANDLING

Unsafe or incorrect manual handling can result in injury to all limbs and the whole body. Many injuries result in a lifelong weakness or medical condition.



Cuts and abrasions

Can be reduced by wearing personal protective equipment (PPE) to protect from rough surfaces, sharp or jagged edges, splinters and projections.



Crush injuries

Can be caused by falling loads or trapping of fingers, hands or feet. Correct positioning of hands and feet during manual handling is essential.



Strains, sprains, torn ligaments, disc trouble and hernias

Caused by sudden and awkward movements, such as twisting or jerking, and by volunteers trying to lift loads beyond their physical capability.



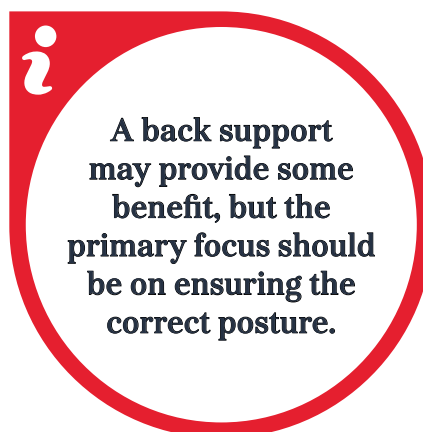
Musculoskeletal disorders

Any injury, damage or disorder of the joints or other tissues in the upper limbs or the back, neck and shoulders. Less often they affect the lower limbs.



Back injuries

These are most frequently sustained while manual handling with a bent back. Stresses imposed on the back when lifting while stooped are six times higher than those when lifting with the trunk straight while bending the knees.



Upper limb disorders

Affect the muscles, tendons and ligaments in the arms and neck. They are often called repetitive strain injuries (RSI), cumulative trauma or occupational overuse syndrome. RSI is caused by carrying out a task over and over again, such as twisting or bending, and is more damaging if a load is involved.



Carpal tunnel syndrome

An upper limb disorder that causes pain, numbness and a burning or tingling sensation in the hands and fingers. Repetitive hand / wrist movements, such as bricklaying, plant operation or painting, cause tendons in the wrist to swell and compress the nerve.



Lower limb disorders

These affect the knees, hips and legs and usually occur as a result of overuse.

Lower limb disorders include:

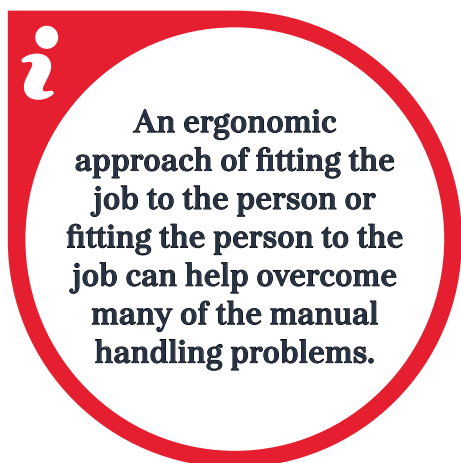
- ① **Osteoarthritis:** a degenerative condition when the cartilage coating joints becomes damaged or worn away and can occur to knees, hips and spine.
- ② **Knee bursitis:** a tenderness, swelling and a reduction in knee movement due to pain and tightening of the skin over the kneecap generally caused by repetitive kneeling or knee-straining activities.
- ③ **Meniscal lesions or tear damage:** caused when the knee is bent or twisted whilst lifting or carrying a load or overuse trauma (repetitive squatting or kneeling). This damage can result in the knee being more susceptible to osteoarthritis.



MANUAL HANDLING ASSESSMENT

The manual handling assessment must consider:

- 1 **Task:** the job that needs to be carried out and the timescale within which it needs to be done.
- 2 **Individual:** your volunteer and their capabilities. For instance a small person would not manage a high lift.
- 3 **Load:** the size, shape, balance and weight of the load. Can it be broken down into smaller loads? Is more than one person needed to move it?
- 4 **Environment:** the hazards on the route or place where the task is being done. Also consider the weather conditions.



The Health and Safety Executive (HSE) has developed online tools to assist in carrying out manual handling assessments (links are included in other resources):

- 1 **Manual handling assessment charts (the MAC tool)** helps identify high-risk manual handling situations and incorporates a numerical and colour coded scoring system.
- 2 **Variable manual handling assessment chart (V-MAC tool)** is used in conjunction with the MAC tools where weights of loads may vary.
- 3 **Assessment of repetitive tasks of the upper limbs (the ART tool)** allows the assessment of the risks of MSDs arising from repetitive tasks.
- 4 **Risk assessment of pushing and pulling (RAPP tool)** helps analysis of the risks of pushing or pulling.

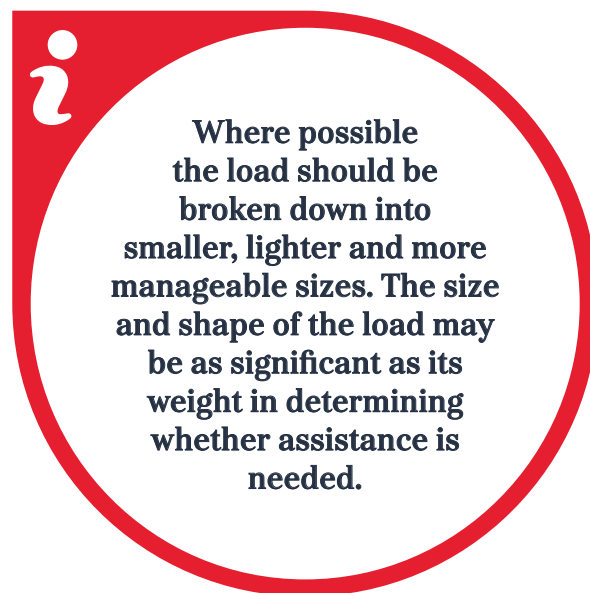
SCHEDULE 2 OF THE MANUAL HANDLING OPERATIONS REGULATIONS SETS OUT THE FACTORS THAT MUST BE CONSIDERED WHEN CARRYING OUT AN ASSESSMENT

Factors	Questions
The tasks	<p>Do they involve:</p> <p>Holding or manipulating loads at distance from the trunk (body)?</p> <p>Unsatisfactory bodily movement or posture, especially:</p> <ul style="list-style-type: none"> • Twisting the trunk? • Stooping? • Reaching upwards? <p>Excessive movement of loads, especially:</p> <ul style="list-style-type: none"> • Excessive lifting or lowering distances? • Excessive carrying distances? <p>Excessive pushing or pulling of loads?</p> <p>Risk of sudden movements of loads?</p> <p>Frequent or prolonged physical effort?</p> <p>Insufficient recovery periods?</p> <p>A rate of work imposed by a process?</p>
Individual capability	<p>Does the job:</p> <p>Require unusual strength, height, etc?</p> <p>Create a hazard to those who might reasonably be considered to be pregnant or to have a health problem?</p> <p>Require special information or training for its safe performance?</p>
The loads	<p>Are they:</p> <p>Heavy?</p> <p>Bulky or unwieldy?</p> <p>Difficult to grasp?</p> <p>Unstable with contents likely to shift?</p> <p>Sharp, hot or otherwise potentially damaging?</p>
The working environment	<p>Are there:</p> <p>Space constraints preventing good posture?</p> <p>Uneven, slippery or unstable ground?</p> <p>Variations in level of ground or work surfaces?</p> <p>Extremes of temperature or humidity?</p> <p>Conditions causing ventilation problems or gusts of wind?</p> <p>Poor lighting conditions?</p>
Other factors	<p>Is movement or posture hindered by personal protective equipment or clothing?</p> <p>Are the volunteers used to manual handling?</p> <p>Has the task been adequately explained to the volunteers?</p>

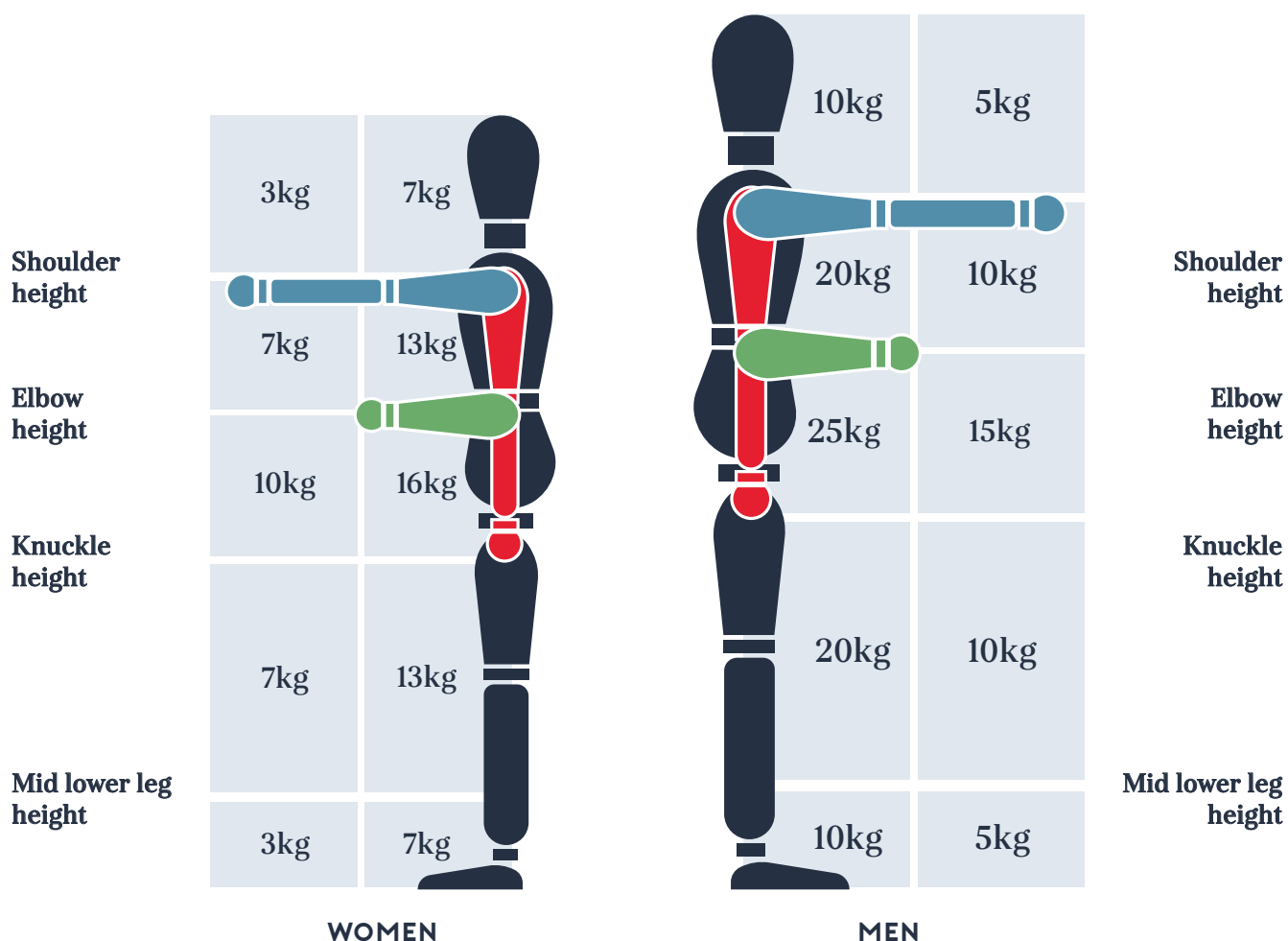
LIFTING & MANUAL HANDLING

The weight that can be lifted will vary between individuals depending on:

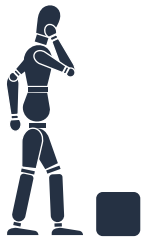
- 1 Personal physique.
- 2 Age.
- 3 Condition of health.
- 4 Practice.
- 5 Techniques employed.



THE HSE HAS PRODUCED GUIDELINES FOR THE MAXIMUM WEIGHT THAT AN INDIVIDUAL SHOULD LIFT. THIS WEIGHT VARIES DEPENDING ON THE HEIGHT AND DISTANCE FROM THE BODY TO WHICH THE LOAD IS TO BE LIFTED.



MANUAL HANDLING TECHNIQUES



Plan the task

Before carrying out the manual handling make sure that you have considered:

- ▶ What has to be moved?
- ▶ Does it really have to be moved?
- ▶ What does it weigh?
- ▶ Can it be broken into smaller loads?
- ▶ Can the process that requires it to be moved be changed?
- ▶ Where is the centre of gravity?
- ▶ Can it be securely handled by one person?
- ▶ Will assistance be required?
- ▶ Can the move be carried out more safely with mechanical assistance?
- ▶ How far does it have to be moved and from where to where?
- ▶ Is the route clear of obstructions?
- ▶ Can it be put down safely?



Lift with your legs

Do not jerk or snatch, let thigh muscles do the bulk of the work, lift in stages.

Putting the load down

Position the feet and back. Lowering is the reverse of the lifting technique.

Team lifting

If the load is heavy and cannot be broken down, get assistance. Plan the lift and agree who will give directions. The lift leader should outline the plan for the lift with the rest of the lift team. He will give instructions during the lift and make sure everybody understands them.

Lifting aids

The following mechanical aids can reduce the risk of injury during manual handling:

- Wheelbarrows.
- Kerb lifters.
- Stillages.
- Sack trolleys.
- Conveyor belts.
- Pallet trucks.
- Suction pads.
- Skids.
- Temporary handles or grips.
- Telehandlers.
- Correct delivery locations.
- Excavators and dumpers.
- Built-in lifting attachments.



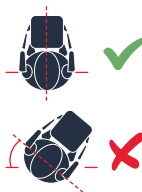
Use your body wisely

Let the leg and thigh muscles do the work, keep your spine straight and don't flex your back once you have started the lift, avoid twisting or leaning and do not jerk the load.



Bend your knees

Place feet slightly apart on a suitable stable footing, one foot slightly in front of the other, bend the knees.



Get a good grip

Use the whole of the hands to get a secure grip as close to the body as possible, keeping elbows tucked in.

Ensure that the lifting and lowering areas and access route are clear of tripping hazards.

EXAMPLES WHERE MANUAL HANDLING HAZARDS ARE FOUND ON RESTORATION SITES

- 1 **Loading and unloading tools and equipment from the trailer** can involve lifting and twisting while in an out-stretched position. When carrying this out try to position yourself close to the load to minimize stretching and twisting with a load. Move lighter items from around heavier items to make room for you to get closer or for more than one volunteer to move the heavy item.
- 2 **Fencing** - driving posts will require repeated lifting of the post driver. Alternate post driving with another volunteer to avoid fatigue. Installation of Heras fencing requires moving heavy feet into position and positioning the fence panels into the holes. This is a two or three person activity.
- 3 **Mixing concrete and mortar in a mixer** requires shoveling loose materials and potentially twisting with a loaded shovel. Gauging buckets of materials have to be repeatedly lifted from the ground to the drum. The mixer should be sited close to the materials to reduce the distance to travel when loading the drum. Share the mixing with another volunteer to avoid fatigue.
- 4 **Installation of stop planks** are heavy pieces of equipment that have to be lifted from their store to the stop plank location and maneuvered into position across the canal. Lifting the stop planks into their grooves will require at least two people at each end and possibly a floating mechanical lifting aid. A trolley is useful for moving the stop planks from the store to the location of the stop plank grooves.
- 5 **Manoeuvring loaded wheel barrows** can be hazardous when heavily or unevenly loaded. Make sure the tyre is fully inflated and the access route is free from obstructions. Care is needed when tipping the wheel barrow because the position of the hands needs to be changed.
- 6 **Moving and loading materials** such as bricks, blocks, stones, copings and kerbs from a stockpile to the point of use will require repetitive lifting and twisting. If a form of transport is used (wheel barrow, trolley) place it close to the stockpile to reduce movements required. Don't over-reach when removing items from a stockpile, use a suitable platform to reduce stretching and pass materials to somebody on the ground. Take regular breaks to avoid fatigue and don't try to lift too many at a time.
- 7 **Brick and block laying** involves lifting and twisting and when a wall is low to the ground or working platform there will be some bending. Volunteers used to bricklaying will be used to this activity, but new volunteers should be instructed and supervised. The hand movements when placing mortar are repetitive and can lead to RSI. Don't overload the trowel with mortar and keep the materials close to the work area. Take regular breaks to avoid fatigue. Laying solid blocks may require two volunteers.
- 8 **Scaffolding** - the erection, alteration and dismantling of scaffold will involve repetitive lifting and twisting with unwieldy tubes and boards that need to be moved into position often from horizontal to vertical then back to a horizontal position. It is poor practice to carry scaffold tubes and boards on a shoulder. Use a partially erected scaffold to support one end of the tube / board when lifting it into position. Take regular breaks to avoid fatigue.
- 9 **Filling gabion baskets with rock** will require repetitive lifting, twisting and leaning. Fingers may get trapped between rocks as they are being placed. Assembling the baskets requires wire to be cut and twisted leaving sharp edges. Take regular breaks to avoid fatigue and wear gloves.



GUIDANCE NOTE

USEFUL RESOURCES:

[HSE guidance](#)

[Legal guidance](#)

[Manual handling operations regulations](#)

[Manual handling video, Childs Play](#)

[Bad techniques video](#)

[Manual handling assessment chart \(MAC\) tool](#)

[Variable manual handling assessment chart \(V-MAC\) tool](#)

[Assessment of repetitive tasks \(ART\) tool](#)

[Risk assessment of pulling and pushing \(RAPP\)](#)

Sign up to read the full Practical Restoration Handbook and supporting resources here:

waterways.org.uk/practicalrestorationhandbook





Historic England

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