MANUAL HANDLING

Corporate Health and Safety Guidance

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Contents

Introduction

Manual handling means the transporting or supporting of a load by hand or bodily force. It includes lifting, putting down, pushing, pulling, carrying or moving a load. A load can be an object, person or animal.
The Health and Safety (Manual Handling Operations) Regulations 1992 sets out a clear a hierarchy of measures to be followed to prevent and manage the risks from hazardous manual handling:

- Avoid the need for hazardous manual handling;
- Assess the risk of injury from any hazardous manual handling that cannot be avoided;
- Reduce the risk of injury from hazardous manual handling.

Where manual handling cannot be eliminated, for example by redesign of plant or systems of work to avoid moving a load through automation of the task, then an assessment of the risks from manual handling should be completed. Appropriate steps should then be taken to reduce the risk of injury to the lowest level reasonably practicable. Consider the following:

- Task
- Individual capabilities
- Load
- Environment
- Other Factors

Musculoskeletal Disorders

Manual handling injuries are part of a wider group of musculoskeletal disorders (MSDs) that covers injuries, damage or disorders of the muscles, nerves, tendons, joints, cartilage, and spinal discs. Work-related musculoskeletal disorders (WMSD) are conditions in which:

- The work environment and performance of work operations causes or contributes significantly to the condition
- The condition is made worse or persists longer due to work conditions

The parts of the body most likely to be affected by MSDs are:

- Shoulders, forearms, wrists and hands, as well as the neck sometimes referred to as upper limb disorders (ULDs)
- The hips, legs, knees, ankles and feet sometimes referred to as lower limb disorders (LLDs)
- The lower back

There is evidence that awkward postures, repetitive work, increased force and pre-existing injuries are risk factors that contribute to the development of MSDs. These risk factors occur in many manual handling operations.

Manual Handling Assessment

The manual handling assessment forms a structured way of analysing the risks associated with the operations and aid in developing solutions to reduce the associated risks. In accordance with the University Moving and Handling Arrangement, prior to any manual handling activity a dynamic assessment should be undertaken considering all the above factors to determine the level of risk.

Where there is a significant risk, a manual handling assessment must be completed and recorded prior to the activity. The assessment should ensure measures are in place to complete the activity safely with minimal risks to health.

The level of detail given to each of these factors will depend upon the nature and circumstances of the manual handling operation. Fitting the manual handling to the individual is considered the best way to achieve optimal results in reducing risks. Better job or workplace design may not eliminate handling injuries, but it can greatly reduce them.

A more detailed or full manual handling risk assessment will be needed if any of the following apply:

- Lifting or lowering operations that involve lifting loads above head level, lowering loads below floor level, reaching forward beyond normal reach of the arms.

- Carrying a load which cannot be held against the body, carrying the load over 10 meters, if the load is difficult to grasp or handle, prevents the handler from walking normally or obstructs vision.
- Pushing and pulling a load over 20 meters (without a pause or break), or where the task requires significant force which effects the ability to maintain correct posture or the ability for correct positioning of the hand on the load (between hip and shoulder level).
- Frequent manual handling that involves the lifting and lowering of loads at more than twelve lifts per minute/one lift every five seconds.
- The handling of the load involves twisting of the torso, including handling of a load whilst seated.
- The handling of the load requires more than one person in a team lift.
- Aspects of the working environment are not favourable including factors such as slopes, uneven floors, confined spaces and trapping hazards.
- Individual staff or students are at increased risk due to temporarily reduced or low capacity for physical work. E.g. New and expectant mothers, young workers, those with significant health conditions or recent injuries.

If in any doubt as to the level of assessment required, conduct a full risk assessment using the University Manual Handling Risk Assessment.

Generic assessments can be an effective way of assessing risks that are common across similar operations, or where individuals rotate between similar tasks. However, in some situations and locations a solution which may be reasonably practicable in one part of the workplace may not be reasonably practicable elsewhere. Generic assessment may then need to be supplemented with further information specific to the individual tasks. This is especially important where there are factors specific to individuals, or operations unique in that working environment whereby it will be necessary to assess manual handling tasks separately.

Consideration also needs to be given to the provision of mechanical assistance where this is reasonably practicable. Using mechanical aids, such as sack trucks or a powered hoist, may reduce but not eliminate manual handling as human effort. A manual handling assessment is still required to move the mechanical aid, steady or position the load.

The utilisation of mechanical handling aids may also introduce different risks that need to be given consideration. Examples of this might be increased risks from using mechanical aids incorrectly or unsuitable equipment being used for the task, both of which can increase the risk factors that can lead to injuries occurring.

There are also additional considerations under legislative requirements when using equipment provided for use at work, such as ensuring arrangements are in place for routine examinations, statutory requirements, testing and maintenance of lifting equipment (hoists for lifting and moving people). Ensure safe systems of work are in place to protect against the possible mechanical and electrical hazards of powered equipment.

Task

This means considering the nature of the manual handling activity itself. For example, consider whether the task involves the following:

- Holding or manipulating the load at a distance away from the body (inability to keep load close to the body).
- Awkward bodily movements or posture, especially twisting, stooping or stretching to reach.
- Excessive movement of load including large vertical movement and long carrying distances.
- Strenuous pushing and pulling.
- Repetitive handling (frequent or prolonged effort).
- Risk of sudden movement of the load. This may be due to movement of another operative during a multi-person lift, or due to the contents of the load.
- Insufficient rest or recovery time.
- A work rate that is imposed by the process and cannot be individually paced.
- Team handling due to the size or weight of the load

If the task does involve any of the above, it may be necessary to reconsider how best to complete it in a way which will reduce the risk factor so far as is reasonably practicable. Some ways in which this can be done are as follows:

- Changing the layout of the operations to reduce carrying distance and improve the flow of materials from storage to areas of use.

- Improving storage and positioning of loads in storage areas. For example, the heaviest loads should be stored around waist height, with lighter loads being stored above shoulder height or below knuckle height (when arms are hanging loose at the side of the body).
- If possible, incorporate rest periods when lifting or lowering over increased distances. When carrying over prolonged distances (as a guide, anything over 10 meters), there is an increased risk of muscle fatigue and injury.
- There are large differences in individual capabilities for carrying loads. It is therefore important to factor in flexibility for different individuals to take rest breaks.
- To avoid twisting, approach loads squarely, ideally facing the direction of travel.
- When using mechanical aids, avoid frequent starting, stopping and manoeuvring. If possible, plan the route, and make use of automatic door mechanisms or hold open devices.
- Ensure team handling is used in situations where operations are beyond the capabilities of an individual. Consider additional planning and coordination needs to ensure the safety of all team members.

Individual

The design and planning of manual handling operations will need to take account of all individual capabilities. Individuals who may be especially at risk include:

- New or expectant mothers - manual handling may have implications for the health of an expectant mother and the foetus.
- People with physical or learning disabilities which may affect their ability to do manual handling or make it more difficult to do a particular task.
- People with health conditions or physical weaknesses from existing or previous injuries to the back, hips and knees.
- Those returning to work after a recent manual handling injury who may be on a phased return to work.
- New staff/students or those who are inexperienced in manual handling operations including temporary staff.
- Young persons.

- Older persons – whilst the benefits of experience, knowledge and judgments are benefits. Older workers are more susceptible to work-related musculoskeletal injuries than younger workers due to decreased functional capacity that occurs with age.
- Those for whom English is not their first language.

It is important for individuals to know their limits and work within them to reduce the risk of injury. Consider individual capabilities within the planning and design of manual handling operations. Where required, providing additional equipment and support in the form of temporary or permanent adjustments may be required. Additional support may include:

- Additional information and training.
- Adjustment of job roles to remove or reduce manual handling operations through use of mechanical aids or assistance form others.

Advice on reasonable adjustments should be obtained through a line manager referral to Occupational Health.

Load

The load that is being handled is a very important consideration when undertaking a manual handling task. Many factors influence whether something is more difficult and potentially dangerous to lift or carry. For example, consider the following:

- The weight of the load – The Health and Safety (Manual Handling Operations) Regulations 1992 do not set specific weight requirements. However, consideration should be given towards reducing the weight where possible. For example, by splitting the original load into smaller, more manageable quantities.
- Is the load bulky or unwieldy? – The size and shape of an item may affect the way it can be handled, such as by preventing the handler getting a good grip. A bulky item can also obstruct a handler's vision, reducing their ability to see other hazards or obstructions. In this case, team handling should be considered to ensure someone has clear vision of the direction of travel.

- Is the load difficult to grasp? – Loads which are large, round, wet or greasy, may be difficult to grasp. In these cases, more strength is required to grip the load, which can increase muscular fatigue and the risk to injury through dropping the load. Consider placing the load in a container with handles, to enable better grip.
- Whether the load is unstable with contents that are likely to shift – Unstable loads are less predictable and harder to handle. Ensure items are secured to prevent shifting where possible. When moving liquids, containers should be kept upright and as full as possible to reduce movement. Decanting liquids into smaller containers to reduce overall weight may reduce manual handling risks, however it is important to be mindful that this may disproportionately increase risks from the decanting process.
- Does the load contain sharp, hot, cold or otherwise potentially damaging substances? - Consider use of insulated containers, protection, or PPE if required. However, it is important to ensure that PPE does not introduce additional risk (e.g. ill-fitting clothing/footwear may increase risks through tripping).

Environment

Where a manual handling task is taking place will have a large influence on the level of risk. It is therefore important to consider the working environment before undertaking the task, for example:

- Space constraints preventing good posture – ensuring good housekeeping and organisation of the area will aid in improving the safety of a manual handling task.
- Uneven, slippery or unstable floors – this will increase the force required to start and keep a load stable, increasing the risk of injury. Ensuring slip resistant flooring/footwear, in addition to procedures in place to promptly clear away spillages, will reduce the risk of slips during a manual handling task.
- Variation in level of floors or work surfaces – steps and slopes can increase risk by making movement more difficult when handling loads. If possible, consider use of ramps to create a gentle slope that can be positioned with stability.

- Extremes of temperature or humidity – Manual handling in hot conditions can increase sweating, which can result in reduced vision and ability to grip loads securely. Low temperatures can reduce blood flow to the fingertips, impairing dexterity and the ability to grip. In situations where the temperature cannot be altered, it may be necessary to provide suitable PPE.
- Conditions that cause ventilation issues – Poor ventilation in enclosed spaces not only contributes to increasing temperatures and risks associated with hot conditions, but can also lead to reduced levels of oxygen in the atmosphere, which in turn will impact physiological abilities to undertake prolonged and strenuous manual handling tasks.
- Poor lighting conditions – This can make it difficult to judge height and distance within the working environment, which may aggravate tripping hazards. Ensure lighting is well directed to enable handlers to clearly see where they are going, the layout of the working area, and enable them to make an accurate judgement of distance and positioning of loads.

Other Factors

It is important that any clothing or personal protective equipment (PPE) worn during manual handling tasks does not hinder correct posture and reduce the ability to use appropriate lifting techniques. Where manual handling requires the use of PPE, factors that need to be considered in selection include:

- Correct fitting to the individual. For example, ill-fitting PPE will increase risk when manual handling.
- Suitable for the task. For example, chemical resistant gloves when handling chemicals.
- Ensure that the use of PPE does not affect the way in which the tasks can be completed safely. For example, hinder being able to lift, lower, hold, move or carry the load safely.
- Consider additional risks. For example, wearing PPE may increase thermal comfort and require additional rest break and hydration to be taken into consideration in the design and planning of the task.

Psychosocial factors such as high workloads, tight deadlines, monotonous work and lack of control over the pace of work or working methods can contribute to the onset of MSDs. This is due to the increase of stress related bodily changes that can make a person more susceptible to musculoskeletal problems. They can also cause behavioural changes, such as missing breaks to try and cope with deadlines and increasing fatigue.

Factors to consider to reduce psychosocial risk factors include:

- Ensuring reasonable workloads with realistic deadlines.
- Good communication and reporting of problems.
- Good teamworking.
- Monitoring working patterns to ensure rest breaks are taken and work outside of working hours is kept to a minimum.
- Monitoring of tasks involve manual handling to ensure safe manual handling and correct use of lifting techniques and equipment.

Good Handling Techniques

Good handling techniques are not a substitute for other risk reduction steps such as improvements to the design of the task, load or working environment or providing lifting aids. Good handling technique does form a valuable addition to other risk control measures. To be successful, good handling technique needs to be practiced and implemented in all handling operations in the workplace. The following important points should be considered when undertaking manual handling operations:

- Think before handling/lifting. Plan the handling activity.
- Ensure a good hold on the load, where possible, keeping the load as close to the waist as possible to reduce overall load on the back and spine muscles.
- Adopt a stable position with feet alongside the load if it is on the ground. Wearing overtight clothing or unsuitable footwear will make stable positions more difficult.
- Moderate flexion (slight bending) of the back, hips and knees at the start of the lift is the best method over fully bending the back (stooping) or fully flexing the knees and hips (full deep squatting).
- Maintain back posture throughout the lift by starting the lifting manoeuvre using the leg muscles while maintaining the back posture as a constant in a smooth continual movement.
- When carrying the load, avoid twisting movements, keep the shoulders facing in the same direction as the hips. Turn by moving the feet.
- Keep the head up when moving with the load, looking down increases the pressure on the neck and back.

- Avoid leaning backwards or sideways, carrying items in one hand or under the arm can increase the risks of bending sideways. Loads that are too heavy can increase the potential to lean backwards.
- Lift, lower and carry smoothly. Do not snatch or jerk the load as this makes it harder to control and increases resistance increasing the risk of injury.
- Put the load down to adjust. Trying to adjust your hold or positioning whilst handling the load could involve twisting or awkward positions that will increase the risk of injury.
- Do not lift or handle more than can be easily managed, there is a difference between what people can lift and what can be safely lifted, if in doubt do not lift it.

Mechanical Assistance

Mechanical assistance involves the use of handling aids. Some manual handling will still be retained but bodily forces will be applied more efficiently, reducing the risks of injury. There are many examples of mechanicals aids that can be selected:

- A trolley or sack truck can greatly reduce the effort required to move a load horizontally.
- Hand pallet trucks and roll cages are ways of moving bulky loads.
- Hoists, either power operated or hand operated can support the weight of the load and leave the handler free to control its positioning.
- Handling devices such as hooks, suction cups or containers with hand hold or handles can simplify the problem of handling a load that is difficult to grasp.

Mechanical aids should be suitable for the operation to be completed and selected based on the factors identified within the manual handling assessment. All equipment provided for use during manual handling should be included in a planned preventative maintenance programme. The University **procedure for inspecting and tagging trolleys** is part of our overall safe systems of work for manual handling operations.

The inspection procedure will further facilitate:

- Equipment maintenance
- Record keeping for auditing purposes

The inspection procedure is also a mechanism for identifying damaged or defective equipment. Damaged or defective trolleys can lead to serious accidents. Therefore, they need to be removed from service and either repaired or disposed of. Disposal should be carried out in accordance with Estates and Campus Services **redundant equipment procedures**.

Assessment for Moving and Handling People

When undertaking moving and handling of people, the assessment needs to consider generic risk such as:

- The type and frequency of moving and handling people
- Equipment available
- Available persons to assist

Consideration will also need to be given to the individual person that is required to be moved. This may change dependant on the condition of the person. Those involved need to be able to adapt their practices and be able to:

- Identify the situations where moving and handling will be needed.
- Determine who should carry out the handling, equipment, number of people required and be able to communicate the plan to the person being lifted.
- Plan how that person should be moved and handled, taking into account ways the person may be able to help with the manoeuvre themselves.

Training, Supervision and Monitoring

Before allowing staff or students to undertake any manual handling task, it is important that they receive information and training. However, the provision of information and training alone will not ensure safe manual handling. The first objective should always be to design the task to be as safe as reasonably practicable.

Training

Where manual handling activities cannot be avoided and actions have been taken to reduce the risk to as low as reasonably practicable, information and training assists in the management of the remaining risks. However, training on its own cannot overcome:

- Badly designed tasks
- A lack of mechanical aids
- Unsuitable loads
- Unsuitable working environments

Information and training ensure that all involved in manual handling tasks are aware of:

- Manual handling risk factors and how injuries can occur
- The systems of work in place for individual working environments and tasks
- The correct use of mechanical aids and the processes in place to maintain them in a suitable and sufficient working condition.
- How to carry out safe manual handling including good handling techniques.
- How to report incidents or injuries as a result of manual handling activities.

Where English is not the first language, information, instruction and training should be provided to work safely with clear communication that has been understood.

Supervision

The extent of supervision required depends on the risks involved and the ability of individuals to identify and manage health and safety issues. The level of supervision needed is a decision which should be made by the line manager based on the manual handling assessment – the higher the risk, the greater the level of supervision required. It is a good idea for a new worker to be supervised at first if they are:

- Being trained
- Doing a job with specific risks
- Dealing with new situations

Monitoring

Manual handling activities should be regularly monitored and reviewed to ensure that there are no changes to the activities or working environment. Monitoring manual handling ensures that:

- The working environment is safe and without risks to health.
- The systems of work in place to reduce risk are being complied with.
- Mechanical aids are being appropriately used, remain suitable for the manual handling activity and are being maintained.
- All those involved in manual handling activities are carrying out safe manual handling and using correct techniques.
- Incidents, injuries or sickness absence where manual handling are or could be a contributory factor are reported via the **HS1 form** to ensure an appropriate investigation takes place, any trends identified, activities reviewed and additional control measures put in place where required.