Manual Handling

Introduction

This booklet has been designed to offer a flexible way in which to learn about and revise core parts of the skills and knowledge associated with manual handling.

Why is this important?

- Moving and handling is a frequent activity for most workers in the beef cattle industry.
- The agricultural industry has a significant number of annual injuries due to poor manual handling skills or a failure to follow safe work guidelines.

Your employer has responsibilities to….

- AVOID moving and handling activities if there is a risk of injury to you
- ASSESS moving and handling activities if it cannot be avoided
- REDUCE the risk of injury to employees as far as reasonably practicable
- UNDERTAKE task risk assessments regularly

You have responsibilities to:

- Follow prescribed safe systems of work set down by your employer.
- Be aware of and understand how to work safely when lifting, loading and relocating loads.
- Use equipment provided properly.
- Follow legal directions promptly.
- Co-operate with your employer on moving and handling matters, applying the proper techniques.
- Ensure your activities or omissions do not put yourself or others at risk

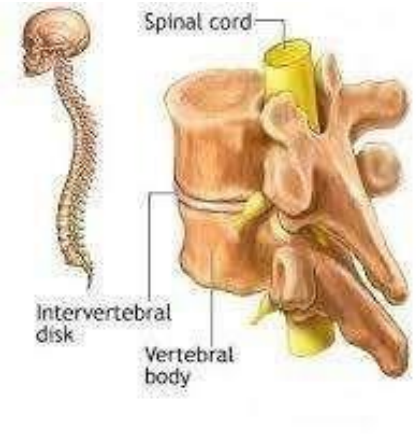
How is moving and handling defined?

One definition for manual handling is:

"...any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or bodily force"

MHOR, 1992

The spine and back



Your back is particularly vulnerable to injury. Its main components are:

- The spinal cord which is a thick cord of nerve tissue enclosed by the spine this together with the brain forms the central nervous system
- The vertebrae are the bones which act as the building blocks of the spine. They can be damaged by impact injury as with any other bone
- The intervertebral discs are kind of shock absorbers – they are soft fibrous discs with a jelly like centre and are positioned between the vertebrae. They allow the spine to move by cushioning movements between the vertebrae
- Ligaments – gristly straps between vertebrae holding them together and mainly control the direction of motion and limit movement at the end of the normal range
- Tendons – the tissue by which the muscles are attached to the bones
- Muscles – found in pairs on either side of the spine and provide the main stability for the vertebral column

Back injuries at work can be prevented by understanding what causes them and taking preventative measures to reduce risk when moving and handling loads.

Most common injuries

Musculo-skeletal Disorders describe any injury, damage or disorder of the joints or other tissues in the upper/lower limbs or the back. Common activities that can cause Musculo-skeletal Disorders include holding a static posture, bending, and moving and handling activities on a regular basis particularly

when they involve bending or twisting, lifting heavy loads and poor seating posture.

Common injuries include:

- Back injuries – trapped nerves, disc injury, strain
- Muscles and tendons – repetitive strain injury
- Ligaments, tendons, and muscles can be injured (stretched or torn) because of twisting and stretching, particularly if carried out repetitively. These types of injuries are called soft tissue injuries and tend to be the cause of the majority of reported back injuries
- Cumulative strain is when these injuries occur because of repetitively carrying out these activities – and is a loss of elasticity in muscle structures.
- Hernias- when an internal part of the body (usually bowel) pushes through a weakness in the muscle or surrounding tissue wall.
- Abrasions/bruises – banging into and scraping against objects, typically with arms/legs and hands
- Wear and tear
- Fractures- typically through tripping over, slipping and falling through not viewing and preparing the route and tripping over obstacles/steps not seen because load is blocking view of feet.

Injuries tend to come on gradually

Serious injuries involve damage to the disks & vertebrae

Less serious involve muscle strains

The vast majority of reported manual handling accidents result in an over-three-day injury, most commonly a sprain or strain of the back.

To prevent these common injuries, there are several things that can be done to promote healthy back care. Key activities include:

- Always risk assess a lift and use the proper techniques
- Always ensure a good posture
- Try to use a chair with a backrest
- Change how you sit every few minutes
- Stay active and exercise - Particularly strengthen abdominal and back muscles
- Maintain a healthy weight
- Do not smoke

- Reduce stress

Manual handling Risk Assessment

This assessment method is easily remembered by the acronym **TILE**. Before starting any manual handling, you need to look at four specific areas:

- **Task** - does the activity involve twisting, stooping, bending, excessive travel, pushing, pulling or precise positioning of the load, sudden movement, inadequate rest or recovery periods, team handling or seated work?

- **Individual** - does the individual require unusual strength or height for the activity, are they pregnant, disabled or suffering from a health problem. Is specialist knowledge or training required?

- **Load** - is the load heavy, unwieldy, difficult to grasp, sharp, hot, cold, difficult to grip, are the contents likely to move or shift?

- **Environment** - are there space constraints, uneven, slippery or unstable floors, variations in floor levels, extremely hot, cold or humid conditions, poor lighting, poor ventilation, gusty winds, clothing or Personal Protective Equipment that restricts movement?

The Task….

Before you undertake any moving or handling task you should consider the work area and the work load you are to handle. You can do this by asking yourself the following questions:

- Why am I moving this load?
- Can I avoid the move in some way?
- Is there an alternative?
- How often will I perform this task?
- Where am I going to and from?
- What is the most effective/safest way of fulfilling the task?

Individual capability

It is important to consider both your own and others, if this is a team situation, physical attributes when thinking through the task. Do you of any other member of the team have any medical or physical characteristics / problems which would affect ability to carry out the task?

- Previous injuries
- Pregnancy
- Differences in height
- How tired are you? (tiredness can affect ones physical and mental ability as well as concentration)

The Load

You should make a personal assessment of the risk when moving and handling any type of load. You need to assess a number of factors including:

- Is the load Heavy?
- Is it bulky or unwieldy?
- What about the shape?
  - Will this present any difficulties?
- Will it be difficult to grasp?
- Is it unstable or will it shift unpredictably?
- Is it hot or cold?
- Has it any sharp edges?
- Will it be slippery?

You must be able to get an idea of the weight of the load prior to lifting. If in the original container, look for weight indication on boxes and bags, volumes on liquid containers- remember (1litre of water weighs 1kg).

Where this is not the case then you should rock the load from side to side to gauge the weight before attempting to lift it.

In general, unfamiliar loads should be treated with caution. For example, it should not be assumed that apparently empty drums or other closed containers are empty.
They should be tested first, for example by trying to raise one end.

Apply force gradually until either too much strain is felt, in which case the task should be reconsidered, or it is apparent that the task is within your capability.

The Environment

People do not often think about the environment they work in. But it is very important that you recognise any hazards that the environment you are operating in has.

You need to consider if there is a lack of space to manoeuvre or are the work surfaces to high or low meaning you will have to stretch or reach.

Uneven or slippery floors are hazardous as are steps and inadequate lighting. Be mindful of any obstructions that may cause you to trip and fall.

The environmental temperature could be a hazard if it is too hot or cold.

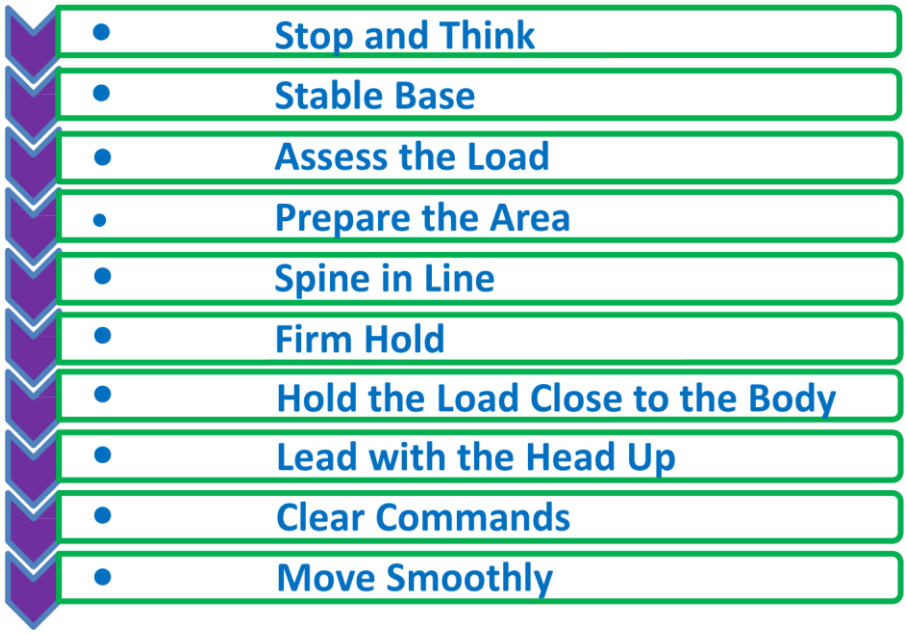
Inadequate or harsh lighting could also pose an additional risk.

Other possible risk factors

When assessing risk, you may also need to consider other factors that may influence your outcome. They may include:

- Previous or existing injuries
- Psycho / social factors
- Availability of equipment
- Use of protective clothing

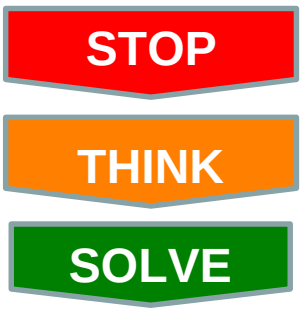
Principles of Safer Handling Be aware of and use the **Principles of Safer Handing** to promote your safety.



Assessment leads to a plan

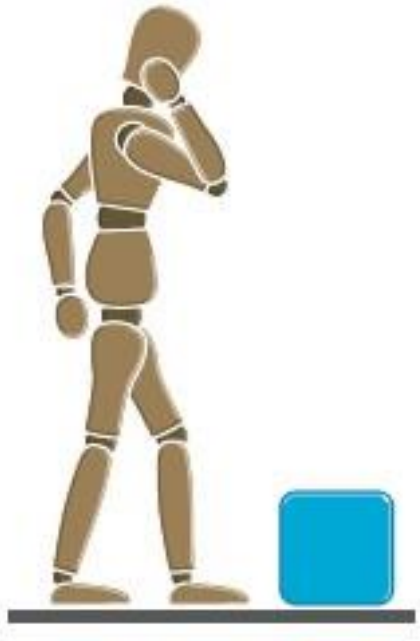
In any situation where you are expected to move or handle a load it is important that you stop and take time to think through how you will undertake the task.

You will need to formulate a plan of how to complete the task, minimising any risks to others or yourself. To do this you must ask and answer the questions the **TILE** model proposes.



Don't forget the first question you should be asking yourself is, "Do I need to move this load manually? Can I use a handling aid to transport the load?"

Think before handling/lifting.



Plan the lift/handling activity.
Where is the load going to be placed?
Use appropriate handling aids where possible.
Will help be needed with the load?
Remove obstructions, such as discarded wrapping materials.

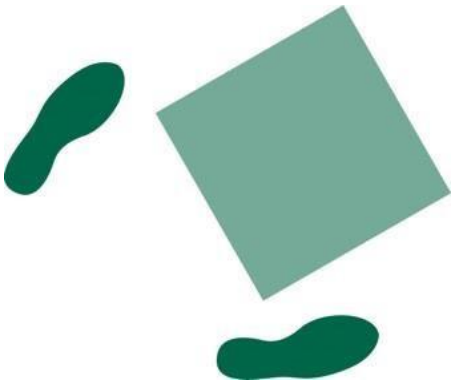
For long lifts, such as from floor to shoulder height, consider resting the load mid-way on a table or bench to change grip.

Keep the load close to the waist.

Keep the load close to the waist for as long as possible while lifting. The distance of the load from the spine at waist height is an important factor in the overall load on the spine and back muscles.

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.

Position your feet correctly

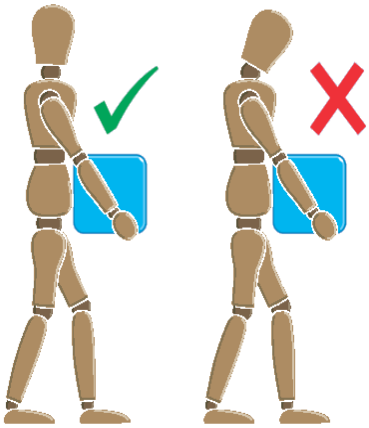


Adopt a stable position. Place your feet shoulder width apart with one leg slightly forward to maintain balance (alongside the load if it is on the ground). You should be prepared to move your feet during the lift to maintain your stability. Avoid tight clothing or unsuitable footwear, which may make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

Adopt a good posture

Bend the knees so that the hands when grasping the load are as nearly level with the waist as possible but do not kneel or over-flex the knees. Keep the back straight (tucking in the chin helps). Lean forward a little, over the load if necessary, to get a good grip. Keep shoulders level and facing in the same direction as the hips.

Get a good hold



Get a firm grip. Try to keep the arms within the boundary formed by the legs. The optimum position and nature of the grip depends on the circumstances and preference, but it must be secure. A hook grip is less fatiguing than keeping the fingers straight. If it is necessary to vary the grip as the lift proceeds, do this as smoothly as possible.
A load becomes more difficult to handle if it is held:

- Above the shoulders
- Below your knees
- Away from the body i.e. with arms stretched out.
- Do you need gloves?

Use equipment to move objects

You should reduce your risk of injury by using mechanical handling aids. Equipment such as trolleys, sack trucks and wheelbarrows can be used to move items and if they are used correctly will reduce the likelihood of injury.

More sophisticated manual equipment may be needed in some health care situations. Before you use any piece of equipment your employer should provide training in their proper use and the assessment of risk associated with their use.

Remember it is better to push rather than pull, and to use body weight and leg muscles to do the work. Make sure the load is kept under control, particularly on slopes.

It should be remembered that, although the handling aids will eliminate many manual handling risks, their use will introduce others and these risks must be assessed. Another consideration is that regulations require that many of these items require a periodic statutory inspection on safety critical components.

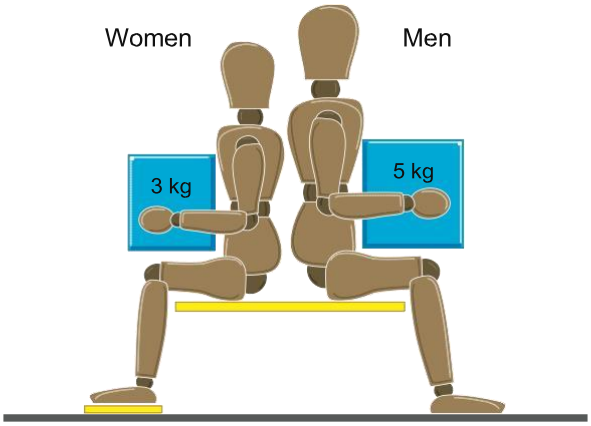
Twisting

Reduce the guideline weights if the handler twists to the side during the operation. As a rough guide, reduce them by 10% if the handler twists beyond 45°, and by 20% if the handler twists beyond 90°.

Frequent lifting and lowering

The guideline weights are for infrequent operations – up to about 30 operations per hour where the pace of work is not forced, adequate pauses to rest or use different muscles are possible, and the load is not supported by the handler for any length of time.

Guidelines for handling while seated



Seated workers face risks when handling because they cannot use their stronger leg muscles to lift the load. The load's weight limits are much smaller, and the object should be held closer to the body.

Important Points

You must not put yourself at risk by attempting to move items that are too heavy for you and have a real potential to cause you injury.

But how do I know if there is a risk of injury?

It's a matter of judgement in each case, but there are certain things to look out for, such as puffing and sweating, excessive fatigue, bad posture, cramped work areas, awkward or heavy loads (above the guidelines) or a history of back trouble. People doing the tasks can often highlight which activities are unpopular, difficult or hard work, you know your body and capabilities.

You cannot live a full life and enjoy activities with your family if you have injured yourself through inappropriate manual handling at work.

If the loads that you are intending to move exceed the guidelines then you must reduce them (e.g. break them down into smaller loads), use mechanical aids (e.g. a trolley or sack barrow) or seek assistance from other workers.

Moving items that exceed above safe weight or in tight spaces requiring awkward postures or any other factors that could be considered potentially hazardous and must be subject to a more thorough risk assessment.

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 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 be maintained. When you choose trolleys etc, make sure they are good quality with large diameter wheels made of suitable material and with castors, bearings etc which will last with minimum maintenance.

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 worker should try to push rather than pull when moving a load, provided they can see over it and control steering and stopping.

Slopes. Always get help from another worker whenever necessary, if you must 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 expected capacity for men and well above the capacity guidelines 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, workers 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.

Team handling

Handling by two or more people may make possible an operation that is beyond the capability of one person or reduce the risk of injury to a single handler. However, it may introduce additional problems that need to be assessed. The load that a team can handle safely is less than the sum of the loads that the individual team members could cope with when working alone.

As a guide, the capability of a two-person team is two-thirds the sum of their individual capabilities and for a three-person team the capability is half the sum of their individual capabilities. There may be additional difficulties if:

- Team members get in the way of each other's' sight or movement; or
- The load does not have enough good handholds
- The background noise level is too high to allow easy communication between team members

For safe team handling there should be enough space for the handlers to manoeuvre as a group. They should have adequate access to the load, and the load should provide sufficient handholds.

One person should plan and then take charge of the operation, ensuring that movements are co-ordinated. However, there should be good communication between team members.

Person in charge asks "READY?" team members reply "READY" Then person in charge says "READY, STEADY, LIFT" team all lift together on the word "LIFT"

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