



TUS

Ollscoil Teicneolaíochta na Sionainne:
Lár Tíre, An tIarthar Láir
Technological University of the Shannon:
Midlands Midwest

Manual Handling Policy & Guidance

Version 1.0

HEALTH AND SAFETY

CORPORATE POLICY DOCUMENT

MANUAL HANDLING

Introduction

In Europe – about 24% of workers suffer from back pain, while 22% complain of other muscle disorders.

About 50% of early retirements in Europe are caused by pathological changes in the back. 15% of cases of inability to work are connected with back injuries. This kind of disorder constitutes one of the major causes of absence at work in most of the EU Member States. They are not only the cause of suffering, disability to work and loss of workers' income but also of high costs incurred both by employers and national economies.

According to European statistics, 62% of workers in the EU27 are exposed a quarter of the time or more to repetitive hand and arm movements, 46% to painful or tiring positions and 35% to carrying or moving heavy loads.

Manual handling causes over a third of all workplace injuries. These include work-related musculoskeletal disorders (MSDs) such as pain and injuries to arms, legs and joints, and repetitive strain injuries of various sorts.

Manual handling injuries can happen anywhere people are at work – offices, laboratories, workshops, warehouses, farms and while making deliveries. Heavy manual labour, awkward postures, materials handling and previous or existing injury are all risk factors in developing MSDs.

Policy

This policy is intended to reduce the risk of manual handling injuries and provide guidance on the measures that should be taken to ensure safe lifting and carrying in the Technological University of the Shannon (TUS).

This document sets out the commitment of TUS to meeting its responsibility to comply with the requirements of the Safety, Health and Welfare at Work (General Application) Regulations 2007, Chapter 4 of Part 2: Manual Handling of Loads.

TUS will provide appropriate systems of work, equipment, personal protective equipment; information and training to staff to enable them effectively eliminate or minimise manual handling risks.

The objective of this document is to provide guidance aimed at the prevention of accidents and ill health associated with manual handling activities.

The requirements of this policy are based on the principle that staff and or students shall not undertake manual handling tasks having the potential to cause harm, unless they have in the first instance been risk assessed.

Legislation

The legislation relating to manual handling is contained in the Safety, Health and Welfare, at Work Act 2005 and in the Safety, Health and Welfare at Work (General Application) Regulations 2007.

The Regulations set out a framework for the Institute to avoid or reduce the risk of injury resulting from manual handling activities. The basic principle enshrined in the Regulations is that where manual handling of loads which involves a risk, particularly of back injury, to the employee exists, the Institute must take appropriate measures to avoid or reduce the need for such manual handling.

Definition

Manual Handling is defined as;

The transporting or supporting of a load by one or more employees and includes:

- Lifting
- Putting Down
- Pushing
- Pulling
- Carrying or moving a load

Which, by reasons of its characteristics or of unfavourable ergonomic conditions, involves risk, particularly of back injury, to employees.

TUS Obligations

TUS, as far as reasonably practical, will:

- Organise work to allow for the use of mechanical equipment or other means to avoid the need for the manual handling of loads by staff or students.
- Consider whether manual handling can be eliminated or reduced in the design of work systems.
- Carry out a risk assessment of manual handling tasks.
- Reduce identified risks to the lowest level possible
- Ensure that sensitive risk groups are protected against any dangers which specifically affect them in relation to manual handling e.g. pregnant employees/students.
- Ensure that employee/student capabilities are taken into account
- Take account of risk factors specified in Schedule 3 of the Regulations
- Provide general information and where possible precise information on the weight of each load and an indication of the centre of gravity where it is off centre.
- Provide manual handling training to staff and students who are involved in manual handling activities
- Provide protective clothing and equipment appropriate for the tasks involved

Employee/Student Obligations

Employees/students must ensure that;

- TUS is made aware (in confidence) of any personal conditions which may be detrimentally affected by manual handling activity.
- His/her own health and safety is not put at risk when carrying out manual handling tasks.
- Defects in plant, equipment, places of work or systems of work are reported to the appropriate person.
- Make correct use of protective clothing and equipment which has been provided to minimize the risks from manual handling tasks.
- Attend training courses provided by TUS
- Their activities do not put others at risk.
- Safe lifting procedures outlined on training courses have been put into practice.
- The weight of each load is tested before attempting to lift.

Remember if it is too heavy don't risk it - don't lift it.

Controlling the risks

An essential part of managing Health & Safety is controlling the risks to which staff and students are exposed. To do this it is necessary to think about what might cause harm to people and decide whether enough is being done to prevent harm. This process is referred to as risk assessment which is a legislative requirement and must be completed by a competent person.

Assessment of risk

Risks which are identified must be reduced to the lowest level as is reasonably practicable. The following factors shall be considered during the assessment;

- Task
- Individual
- Load and
- Environment

The Task

Bending and stooping to lift a load significantly increases the risk of back injury.

Ideally items should be lifted from no lower than knee height to no higher than shoulder height. Outside this range lifting capacity is reduced and the risk of injury is increased.

When items are required to be lifted from above shoulder height a stand or suitable means of access should be used.

Items which are pushed or pulled should be as near to waist level as possible. Pushing is preferable to pulling.

Carrying distances should be minimized especially if the task is regularly repeated.

Repetitive tasks should be avoided whenever possible.

Avoid tasks which require twisting the body wherever possible.

The Individual

Consideration must be given to age, body weight and physical fitness.

Personnel undertaking lifting or carrying shall be given sufficient information, instructions, training and supervision to undertake the task safely.

Significant knowledge and understanding of the work is an important factor in reducing the risk of injury.

Pregnant employees/students shall not be allowed undertake hazardous lifting or carrying tasks.

Allowance shall be made for personnel with physical or clinical reasons for avoiding lifting/carrying.

Personnel must not attempt to handle items which are beyond their capability.

Personnel involved in manual handling activities must wear the appropriate personal protective equipment i.e. lab coat, overalls, safety footwear and suitable gloves.

Ensure there is a good hand hold, using gloves where necessary to protect against sharp edges or splinters.

The Load

The manual handling of a load may present a risk if it is:

- Too heavy
- Bulky or unwieldy
- Difficult to grasp
- Unstable, or its contents are likely to shift
- sharp, hot or otherwise potentially damaging
- Positioned in a manner requiring it to be held or manipulated at a distance from the trunk or with a bending or twisting of the trunk.

The load should be kept as near as possible to the body to reduce strain.

It should not be as large as would obscure vision.

The weight of the load and the centre of gravity should be provided.

Unstable loads should be handled with caution as the change in the centre of gravity is likely to result in overbalancing.

The Environment

There must be adequate space to enable the activity to be conducted in a safe manner.

The transportation route must be free of obstructions.

The floors must be maintained in good condition and free from slip, trip and fall hazards.

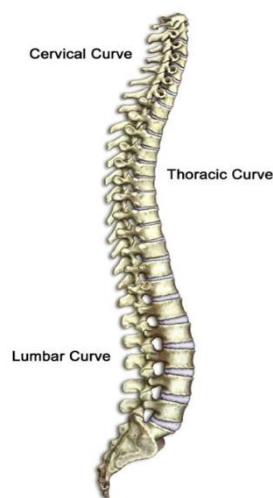
The lighting must be adequate to ensure the activity is carried out safely.

Structure & Function of the Spine

The backbone or spine runs from its base at the pelvis to the base of the skull. It serves as the main supporting structure of the human body or pillar to support the body's weight. It also provides protection for the spinal cord.

There are three natural curves in the spine that give it an "S" shape when viewed from the side.

The spine is divided into three regions;



- **Cervical Spine** – the neck or cervical spine consists of 7 vertebrae.
- **Thoracic Spine** – Consists of 12 vertebrae at the back of the chest. The ribs attach to the spine on the thoracic vertebrae.
- **Lumbar Spine** – the lower back or lumbar spine usually consists of 5 vertebrae numbered L1-L5. The lumbar spine which connects the thoracic spine and the pelvis, bears the bulk of the body's weight and are the largest vertebrae.

Below the lumbar spine is a large bone called the sacrum which consists of several vertebrae that fuse together during a baby's development in the womb. The sacrum forms the base of the spine and the back of the pelvis.

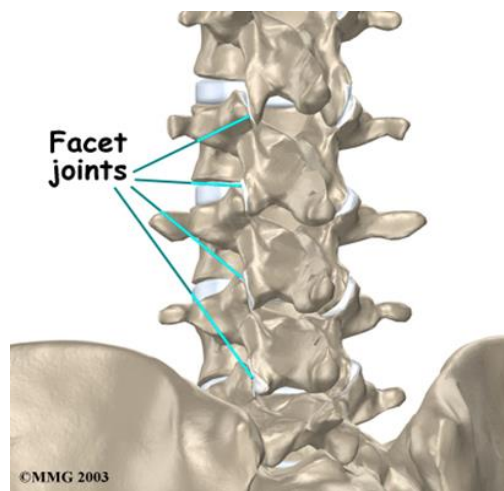
The tailbone or coccyx is the small bone below the sacrum created by the fusion of several smaller bones during development.

The spine is sometimes discussed by parts;

- Bones and joints
- Discs
- Nerves and
- Soft tissues – ligaments, tendons and muscles

Bones & Joints

Joints allow for movement, since bones themselves are too hard to bend without being damaged. The facet joints are the specialised joints that connect the vertebra. The facet joints allows the vertebrae to move against each other providing stability and flexibility. These joints allow us to twist, bend forward and backward and also from side to side. Each vertebra has two sets of facet joints. One pair faces upwards to connect with the vertebra above and the other pair faces downward to connect with the vertebra below.



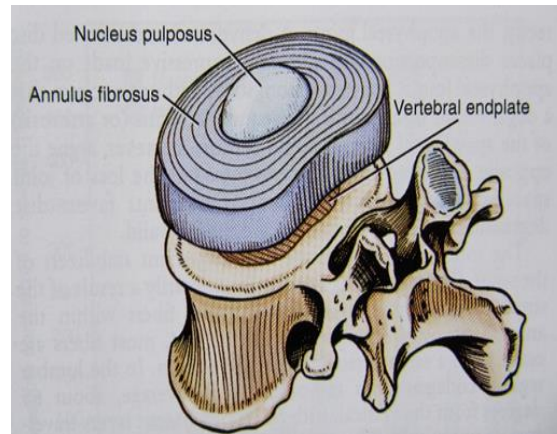
The vertebra are held together by bands of fibrous tissue called ligaments which connect bone to bone.

In the centre of each vertebra is a large opening or hole called the spinal canal, through which the spinal cord and nerves pass.

Intervertebral Discs

Intervertebral discs are flat, round cushioning pads that sit between the vertebra and act as shock absorbers.

The disc is made up of very strong tissue with a soft jelly like or toothpaste material in the nucleus surrounded by a tough outer layer called the annulus.



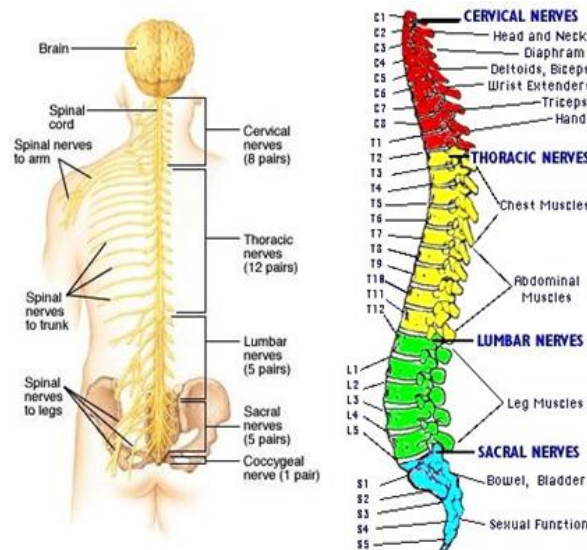
Spinal Cord/Nerves

The spinal cord, the column of nerve fibres responsible for transmitting and receiving messages from the brain runs through the spinal canal.

It is through the spinal cord and its branching nerves that the brain influences the rest of the body, controlling movement and organ function.

As the spinal cord runs through the spinal canal it branches off into 31 pairs of nerve roots, which in turn branch out into nerves that travel to the rest of the body.

The nerve roots leave the spinal canal through openings between the vertebra on both sides of the spine.



Soft Tissues

The muscles are connected to the bones by means of tendons and assist in concentrating the pull of muscle on bone. Muscles provide movements of the body and help maintain position of the body against forces such as gravity.

Ligaments link bones together, adding strength to joints. They also limit movement in certain directions.



Injuries Associated with Manual Handling

Manual handling of loads may cause;

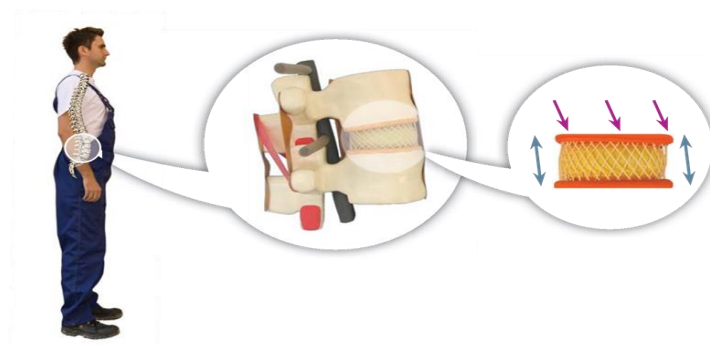
- Cumulative disorders due to gradual and cumulative deterioration of the musculoskeletal system through continuous lifting/handling activities e.g. lower back pain.
- Acute trauma such as cuts and fractures due to accidents

Manual handling injuries can happen anywhere people are at work – in college, on building sites, on farms, in factories, in offices, in laboratories etc.

Heavy manual labour, awkward postures, manual materials handling and previous or existing injury are all risk factors in developing musculoskeletal disorders (MSDs) which predominantly affect the back and the upper and lower limbs.

Risk Factors from the way work is performed

The most favourable body posture, with regard to loading of intervertebral discs and ligaments is standing as these structures are equally loaded i.e. having the load evenly distributed. Hence the need for keeping the back straight while lifting.



Top Heavy Bending (with a rounding back)

Work in this posture causes pinching at the front of the disc and stretching of the thinner part of the disc. It can lead to damage of the intervertebral disc commonly referred to as the “slipped disc”.

The same risks apply to excessive pace of bending activities, due to stretching of posterior ligaments.

**Bending and Twisting**

The biggest risk for discs and ligaments comes from performing work by simultaneously bending and twisting the torso. It results to damage of the disc due to simultaneous pinching at the front and sides of the disc as well as stretching the opposite parts.

**Holding the load over a shoulder joint with simultaneous bending and twisting of the torso**

A danger to discs during the performance of work in this fashion consists of pinching the posterior parts as well as loading the facet joints situated behind the discs. In addition this process involves the so called “leverage effect”. It causes increasing pressure on the disc while simultaneously increasing the distance between the torso and the load being handled.

The greater the distance of a load from the torso the greater the pinching force resulting in increased pressure on the disc.

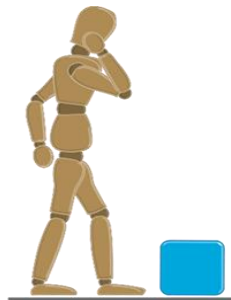


Good Handling Technique for Lifting

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.

When handling a load manually which has to be carried for a long distance consider resting the load on a table or bench midway to change grip. Better still use mechanical equipment.



Adopt a stable posture

The feet should be roughly the width of the shoulders apart with one leg slightly forward to maintain balance (alongside the load if it is on the ground). The operator should be prepared to move their feet during the lift to maintain stability. Avoid tight clothing or unsuitable footwear – dress appropriately for the task.



Get a firm grip

The load should be hugged as close as possible to the body. Use a good palm grip – avoid gripping with the tips of the fingers.

At the start of the lift slight bending of the back, hips and knees is preferable to fully flexing the back or stooping, or fully flexing the hips or 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.



Remember:

“Bend the knees, lift with ease and you will avoid back injuries”.

Keep load close to the body

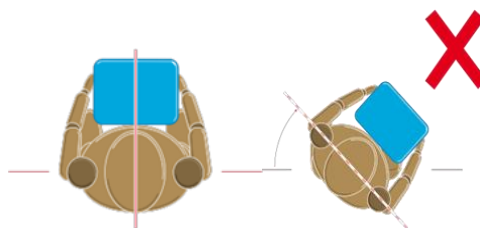
Keep the load as close to the body for as long as possible while lifting keeping the heaviest side of the load next to the body. If a close approach is not possible try to slide it towards the body before attempting to lift it.



Avoid twisting the back or leaning sideways

Avoid twisting the back or leaning sideways especially when 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; keep the head up when handling. Look ahead not down at the load once it has been held securely.

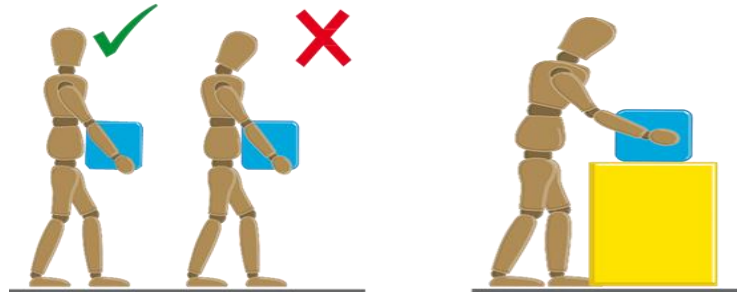


Move Smoothly

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 people can safely lift. If in doubt seek advice or get help.

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



Good Handling Techniques when Pushing & Pulling

The following practical points should be borne in mind when loads have to be pushed or pulled;

Handling Devices

Mechanical 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 equipment must be well maintained.

When buying new mechanical equipment, make sure it is of good quality with large diameter wheels made of suitable material and with castors, bearings etc. which will last with minimum maintenance. Ensure the equipment is fit for purpose. Consulting with the end user will help, as they know what works and what doesn't.

Mechanical equipment must be used as much as possible as it reduces the risks associated with manual handling activities.



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).

Pushing is preferable to pulling when moving a load, provided the operator can see over it and control steering and stopping.

Slopes

Employees should get help from a colleague whenever necessary, if they have to negotiate a slope or ramp, as pushing and pulling forces can be very high.

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 & Pace

To make it easier to push or pull personnel should keep their feet well away from the load and go no faster than walking speed.

Policy Review

This policy will be reviewed on a two-yearly basis or at any other time to reflect legislative change or when it is no longer appropriate in its current format. In such circumstances it will be reviewed and amended accordingly.