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MANUAL HANDLING




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Aims and Objectives


Provide sufficient understanding and knowledge of Manual Handling, the risks involved and the control measures available.



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HOW ?

- ◆ Theory
- ◆ Discussions
- ◆ Practicals



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What is Manual Handling ?

- ◆ Any transporting or supporting of a load by hand or bodily force

This includes:

- ◆ Lifting, putting down, pushing, pulling, carrying or moving
- ◆ This human effort can be applied indirectly

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Indirect effort can be :

- ◆ Hauling on a rope or pulling on a lever

Applying a force to manipulate a load supported on :

- ◆ Spade
- ◆ Fork
- ◆ Similar implement

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Basic Approach

- ◆ **Avoid** – manual handling if at all possible
- ◆ **Assess** – where unavoidable assess the risks
- ◆ **Reduce** – reduce the risks by appropriate control measures: Mechanical Handling, Changing work practices, Information, Instruction, Training and Supervision



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Manual Handling Facts

- Low back pain occurs with the same frequency in people with sedentary occupations as those in heavy labour.
- Musculo-skeletal disorders arising from work situations have an estimated annual cost in the region of £3 billion and account for 30 million lost work days each year.

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Manual Handling Facts

- Being overweight increases the likelihood of back pain.
- Age doesn't necessarily make any difference, bad backs affect people of all ages.
- Poor handling techniques when you are young will contribute to problems in later life.
- Those who have suffered from a back injury are three times more likely to suffer injury again.

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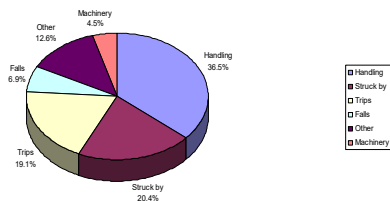
Reasons for Manual Handling Training

- ♦ Reduce lost working days through injury.
- ♦ The Law.
- ♦ Looking after one of the most important parts of the body.

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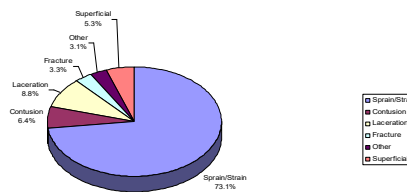
Kinds of Accident Causing Injury
(HSE Figures 1996 – 1997)



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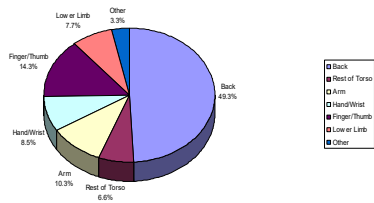
Types of Injuries Caused by Handling Accidents
(HSE Figures 1996 – 1997)



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Sites of Injuries Caused by Poor Handling
(HSE Figures 1996 – 1997)



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The Law and Manual Handling

- ◆ The Health and Safety at Work etc Act 1974 (HASAWA)
- ◆ The Management of Health and Safety at Work Regulations 1999 (MHSWR)
- ◆ The Manual Handling Operations Regulations 1992

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The Law and Manual Handling

HASAWA:

- ◆ General duty to ensure the health, safety and welfare at work of their employees. In particular, they have a duty to ensure the safe use, handling, storage and transport of articles and substances so far as is reasonably practicable.

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The Law and Manual Handling

MHSWR:

- ♦ Regulation 3(1) requires employers to risk assess work activities. This risk assessment should identify whether there is a risk of injury from manual handling operations in the workplace.

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The Law and Manual Handling

MHOR:

- ♦ These regulations are based on an ergonomic approach to preventing manual handling injuries. This involves fitting the job to the worker, taking into account anatomy, physiology and psychology.


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The Law and Manual Handling


Whereas previous legislation set limits on the weight of loads that can be lifted, these regulations require a number of relevant factors to be taken into consideration:

This is known as **T I L E**

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The Law and Manual Handling


Task
Individual Capability
Load
Environment

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TASK

What is the nature of the activity to be performed ?

- What is involved in the task?
- What equipment is available and have I been trained to use it ?
- Where am I going to and from ?
- Is it possible to eliminate stooping and bending ?
- Is there a risk of fatigue. ?

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INDIVIDUAL CAPABILITY

Consider yourself and others. Ask questions like:

- Have I any medical or physical limitations?
- Can I do the task within my personal capacity?
- Do I know enough to be able to perform the task safely ?
- Do I need assistance to carry out the task ?
- Do I require any Personal Protective Equipment (PPE). ?

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LOAD

What is the nature of the Load ?

- Is it heavy ?
- Is it bulky or unwieldy ?
- Is it difficult to grasp or hold ?
- Is it sharp, hot or corrosive. ?



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ENVIRONMENT

Questions to ask about the environment:

- Is the route to the destination as free from obstructions and risk as practicable ?
- Is the floor uneven or slippery ?
- Are there changes in height on the route ?
- Is the lighting adequate ?
- Will the weather cause problems ?
- What traffic hazards exist. ?

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The Law and Manual Handling

These regulations set out a hierarchy of measures employers should work through to prevent or reduce the likelihood of injury:

- Avoid manual handling
- Assess the task
- Reduce the risk
- Monitor the task
- Inform and train staff on risks

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Avoid Manual Handling !

Eliminate:

- ◆ By design- Reduce heavy structural materials, layout of workplace to minimise manual handling operations
- ◆ Automation/mechanisation:- Cranes, hoists, forklift trucks, sack trolleys etc
- ◆ Management- Delivery of heavy articles to point of use, storing heaviest materials at waist level

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Main Types of Injury

- ◆ Traumatic: Strain/Sprain, Slipped Disc
- ◆ Repetitive: Effects overtime, Arthritis



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Cumulative Manual Handling Injuries

- Back Pain
- Neck
- Shoulders
- Knees
- Feet
- Wrist/Elbows
- Hernia
- Overall Fatigue
- Many Others

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Work Related Upper Limb Disorders

Affects shoulders, arms and wrists

Main Causes:

- ◆ Excessive force
- ◆ Excessive repetition
- ◆ Lack of recovery time or rest
- ◆ Poor static posture
- ◆ Stress
- ◆ Individual susceptibility

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Causes of Back Pain

Not just caused by heavy work and heavy weights. Can be due to:

- ◆ Poor static posture
- ◆ Sitting too long in one position
- ◆ Sudden movement
- ◆ Vibration during handling
- ◆ Psychological stress

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The Structure and Function of the Spine

- ◆ Provides a flexible connection between the upper and lower half of the body
- ◆ Encloses and protects the spinal cord
- ◆ Is involved in most movements of the trunk and limbs by providing key attachment points for muscles
- ◆ Has a very significant function in weight bearing but only with correct posture
- ◆ Is very prone to injury if used incorrectly

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The Human Spine

Consists of a column of small bones each called a VERTEBRA. If numbered 1-33 (starting with 1 nearest the skull):

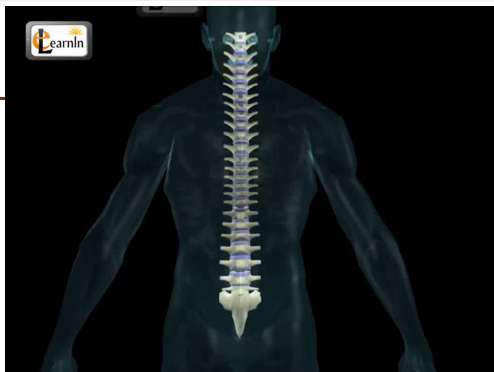
- 1-7 are known as "CERVICAL VERTABRAE"
- 8-19 are known as "THORACIC VERTABRAE"

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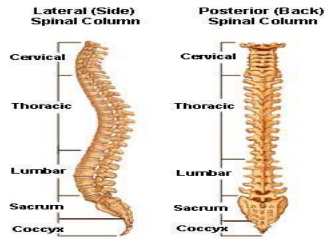


The Human Spine

- 20-24 are known as "LUMBAR VERTABRAE"
- 25-30 Fused Vertebrae known as "SACRUM"
- 30-33 Fused Vertebrae known as "COCCYX"



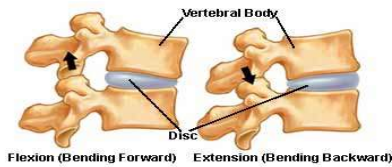
The Human Spine



The Spine

Each vertebrae is separated by a gel like substance, the disc. These discs bend and stretch as we move

Facet Joints in Motion



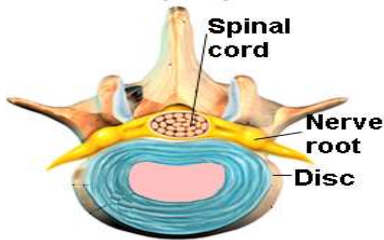
The Spinal Cord

The Spine protects the spinal cord. The spinal cord and the nervous system controls all systems in the body. As the cord descends from the brain nerves peel away from the cord at each vertebrae, leading to all other parts of the body. Damage to the cord will result in the blockage of signals from the brain to the area affected.

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The Spinal Cord

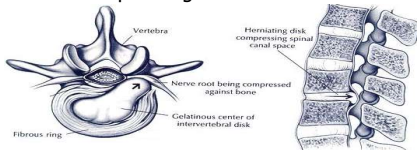


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Slipped Disc

- ◆ A slipped disc is also called a "herniated or prolapsed" disc
- ◆ It is a bulge in the wall of one of the discs between the vertebrae pressing onto the nerve



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Slipped Disc

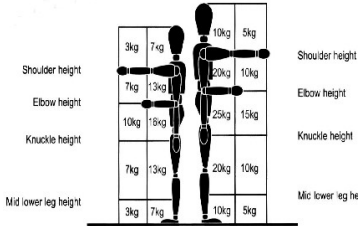
- ◆ Main symptom is sciatica (pain in legs, back and buttocks)
- ◆ Other damage often occurs at the same time, such as muscles strain and tears


Treatment:

- ◆ Minimum stress to the spine
- ◆ Correct posture
- ◆ Time to heal

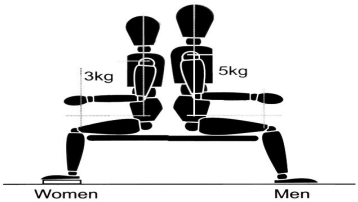
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Lifting and Lowering Limits
Guidance for tasks performed less than 30 per hour




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Handling While Seated



Handling while seated

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How to Lift

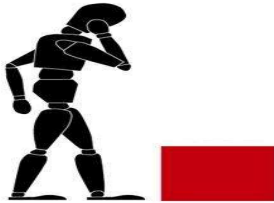
- ◆ 1kg Weight close to the body exerts 10kg force onto muscles of the back (1:10)
- ◆ 1kg Weight held at arms length exerts 100kg force onto the muscles of the back (1:100)

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How to Lift

1. Stop and think.



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How to Lift

2. Place the feet



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How to Lift

3. Get a firm grip



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How to Lift

4. Don't Jerk



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How to Lift

5. Move the feet, keep close to the load



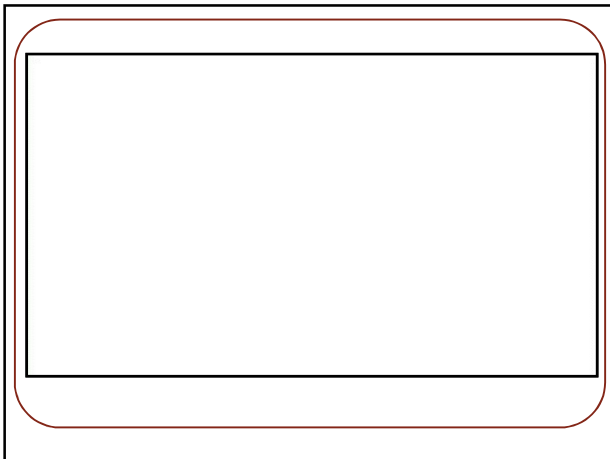
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How to Lift

6. Put down and then adjust






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Pushing a load

- Pushing is preferable to pulling
- Bend your arms at the elbows and stretch out to about half their length
- Keep hands in a position where they will not get knocked or trapped
- Stand with one foot in front of the other

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Pushing a load

- Use your legs and the weight of your body to move the load
- Tighten your stomach muscles
- Bend your knees, maintain your spinal curve and lean into the push
- Keep your feet away from the load and maintain walking pace

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Pushing a load

- Ramps and Slopes may require help of another person
- Force required to push a load on a flat surface is 2% of the load i.e. 400kg requires 8kg force to move it
- On a 1 in 12 slope it will take 30kg force to push 400kg (above guideline max of 25kg)

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Pulling a load

- First ask yourself can the task be done by pushing rather than pulling
- Handles of the equipment should be between waist and shoulder height
- Shoes that give good traction to the floor should be worn

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Pulling a load

- Keep your hands where they will not get trapped against doors and walls
- Put one leg behind the other to provide a secure base
- Maintain your spinal curves and keep arms close to your body's centre line

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Pulling a load

- Be aware of your surroundings as not looking in the direction of travel
- Use your legs and the weight of your body to move the load
- Keep your feet away from the load and keep at a walking pace
- DO NOT TWIST use feet to turn



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Carrying & Team Handling

- Loads can be shared between individuals to reduce weight
- Lifting in a team of two does not mean weight can be doubled.
- The capability of a team of two is two thirds the sum of their combined individual capability

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Carrying & Team Handling

- Where possible in teams those lifting should be of the same height and build
- Check there is enough space for the whole team to manoeuvre
- Check there are enough hand holds for each member of the team

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Carrying & Team Handling

- Nominate a member of the team to take charge
- Make sure clear instructions given by team leader. *“On the command Lift – Ready – Steady Lift”*
- Bend Knees and straighten legs together to keep load balanced

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Carrying & Team Handling

- Make sure all members of the team look ahead to maintain their own spinal curve
- Position your body to avoid twisting
- Walk in small steps in unison and maintain an appropriate speed of travel – do not rush

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Carrying & Team Handling

- If somebody has to walk backwards make sure it is not the team leader



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Awkward and Asymmetrical Objects

- The usual principles apply
- However positioning of hands is key
- Take hold of the opposite top and bottom corners of load
- If load is awkward for one person, always seek help

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Working at low Levels

- If loads to be moved are at a low level eg on shelving
- It is better to kneel than to bend and stoop.
- If working at low levels for extended periods change position regularly

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Lowering From a Height

- Lifting from above your shoulders and reaching for loads away from your body puts a strain on your back and arms
- Avoid lifting heavy objects from a height by storing them on a lower shelf in the first place
- Use a firmly placed stool or stepladder to get closer

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Lowering From a Height

- Slide the object towards you and grip it securely with the whole hand and not just fingertips
- Reduce the weight of the object by splitting the item or removing contents if possible
- Consider mechanical handling methods if possible

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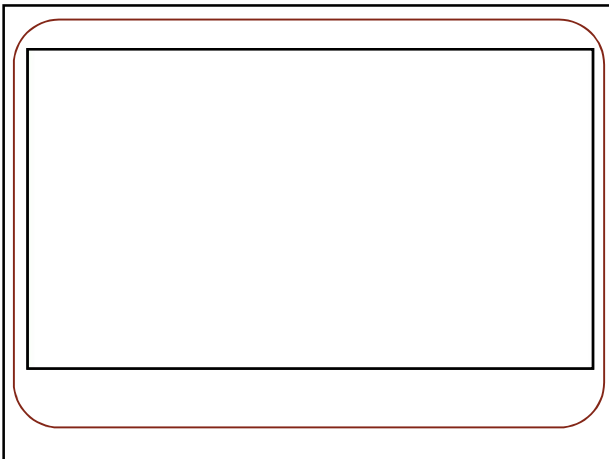
Practice Time !


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Manual Handling Principles


- Stay balanced. Spread the feet to create a stable base
- Keeping your centre of gravity close to the load's centre of gravity
- Bending from the knees
- Keeping the back straight, and head up
- Staying compact when pushing
- Moving the feet to turn, not the body
- Moving smoothly, particularly when setting loads down
- Ensure you can see where you are going



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Take Note !

- ◆ Knowledge and training alone will not guarantee safe handling
- ◆ A risk assessment needs to be undertaken
- ◆ Avoid if possible
- ◆ Know your own limits
- ◆ Put training into action at home as well as work

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Remember the Basic Approach

- ◆ **Avoid** – manual handling if at all possible
- ◆ **Assess** – where unavoidable assess the risks
- ◆ **Reduce** – reduce the risks by appropriate control measures: Mechanical Handling, Changing work practices, Information, Instruction, Training and Supervision

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And Finally

- ◆ You've carefully thought out all the angles.
- ◆ You've done it a thousand times.
- ◆ It comes naturally to you.
- ◆ You know what you're doing, its what you've been trained to do your whole life.
- ◆ Nothing could possibly go wrong.

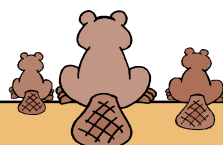
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Think Again !!



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No beavers were actually injured during the generation of this PowerPoint presentation!

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Any Questions ?
