


# How does your back work?

## Backcare – a Guide to Avoiding Back Injuries

A 3D rendering of a human spine, showing the vertebrae and intervertebral discs. The spine is colored in a gradient from light blue at the top to red at the bottom, highlighting the lower back area. The rendering is semi-transparent, showing the internal structure of the vertebrae and discs.

The vertebral column or spine is made up of a series of bones (vertebrae), discs, muscles and ligaments. The spine is curved and in profile and it looks like an elongated letter “S” in shape. The cervical (neck) and lumbar (lower back) regions have a forward curve and the thoracic (chest) region a backward curve when viewed from the side.

The muscles and ligaments of the spine are important in maintaining its stability and balance, as well as assisting in spinal movement.

The spinal cord is encased and protected by the vertebra and spinal nerves exit between each vertebra.

Joining each vertebra is a vertebral disc, which act as shock absorbers, giving resilience to the spinal column as well as movement and flexibility. When a spine is erect, the various parts of the disc are under uniform pressure; but when the spine is bent to the side, one part of the disc is under increased compression whereas another part is under tension.

Where possible and practical, avoid performing manual handling. Use a mechanical aid (forklift, trolley) or request assistance from a co-worker. Most back injuries result from improper manual handling. According to the principles of biomechanics, the most damaging lifting situation occurs when the body is extended over the load: the lower back becomes the fulcrum supporting the weight of the body plus the load. Twisting in this position invites injury. Keep your back upright to shift weight onto the powerful leg muscles reducing the lever effect.

### Common Types of Back Injuries

The most common site of injury in the spine is the lower back between L4/5 and L5/S1.

This is the point of the spine that takes the most straining during bending, twisting and lifting actions.

Common types of injuries associated with manual handling activities include:

- Muscle Strain
- Ligament Sprain
- Disc Prolapse
- Sciatica

### Manual Handling Principles

Keep your feet shoulder width apart for a stable base; with your feet pointed in the direction you wish to move.

Ensure you have a firm grip on the load before attempting to lift it.

Don't bend at the waist.

Abdominal muscles support your spine when you lift, offsetting the force of the load. Train muscles groups to work together

Let your powerful leg muscles do the work of lifting, not your weaker back muscles.

Don't hold the load away from your body. The closer it is to your spine, the less force it exerts on your back. Bring the load close to the body before lifting.

This helps to keep the natural curve in your back and to see where you are going, to avoid tripping.

Whether lifting or putting down the load, don't add the weight of your body to the load.

Avoid twisting; it can cause injury

Do not twist your back to move the load

### When lifting an object, ensure the following:

**A firm footing**

**A firm grip**

**Bend your knees**

**Brace your stomach muscles**

**Lift with your legs**

**Keep load close**

**Keep your head up**

**Keep your back upright**

**Move your feet**