Ergonomics and Manual Handling

06.02.03

– Manual handling

Care for your back at work >

Most of the back injuries sustained at work are a result of poor systems of work and ergonomic design. Employers have a duty of care to ensure a safe workplace is provided and maintained for all workers and other people affected by the work. To this end employers must ensure that risks are reduced as far as practicable for all manual handling tasks performed in the workplace. This information bulletin outlines some basic considerations in caring for your back at work.

What causes back pain?

By far the most common, and also the most costly and debilitating back pain, results from an accumulation of many tiny injuries. This is the type of back pain that many people experience as a result of their poor work habits, both at their place of employment and at their homes.

Like anything, the spine eventually begins to wear out. Typically, it is the small joints at the rear of the spine and the discs that wear out first. How fast these wear out is dependant on how we treat them. If we look after them, they should continue to serve us well throughout our life.

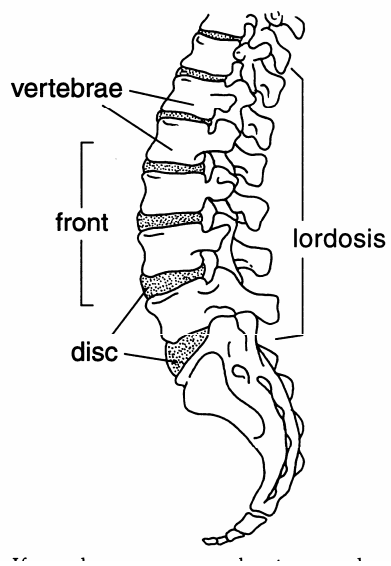
Some back pain is associated with direct trauma. This can happen as a result of many things (eg. sporting injuries, falls, car accidents), but these injuries represent the minority of back pain cases.

If you have suffered back pain before you will know how bad it can be. It is not unusual for people who have experienced back pain to have periodic relapses. Those who fall into this category need to be particularly diligent in safe work practice, and should develop a specific back care program in consultation with their health care professional.

Anatomy of the lower back

The anatomy of the lower back (lumbar spine) is complex, but understanding a little about the way our back works, can help us to understand why it is prone to injury, and what we can do about it. The spine serves many purposes, including - supporting our weight, protecting the spinal cord and providing an attachment for the muscles that allow us to move.

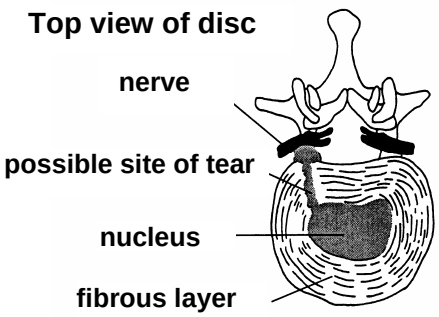
It also allows the trunk to be easily positioned and can act as a lever arm. The soft tissues around the spine, in particular the discs, help to absorb forces by acting like shock absorbers.



The lower back has a naturally occuring forward curve known as a **lordosis.** Maintaining the **lordosis** is important for preventing back pain.

Ligaments in the back have the function of preventing excess movement at each of the joints. They are made of fibrous connective tissue and join each vertebrae to the one above and below. These can become stretched by poor posture and work habits over a period of time. This can contribute to lower back pain.

The discs in the spine have fibrous layers that surround a jelly like nucleus. They function to absorb shocks and disperse pressure. Sometimes the fibrous layers can tear allowing the nucleus to push out and press on nerves. This is what some people falsely call a slipped disc.



Factors shown to increase the likelihood of getting pain are listed below together with some ideas on how to reduce this risk.

Driving or sitting is a likely cause of back pain

If you spend most of your day driving or sitting in a chair, you are at increased risk of back pain as the seated position actually places more load on the spine. The curve in our back (lordosis) flattens, this produces extra load in the discs of the lower back.

Reduce this pressure by

Alternating between sitting and standing regularly, if this is possible. You can also help to reduce the pressure by placing a support in the small of your back if the chair does not already have one. Correct workstation design can also significantly reduce the potential for back pain (see NT WorkSafe information bulletins 06.01.01 through to 06.01.08

Lack of exercise is a likely cause of back pain

If you don't exercise regularly, studies have shown you are more likely to suffer from back pain. The exercise you choose to do, however, does not necessarily have to be overly strenuous.

Exercise by

Walking for 20 to 30 minutes at a time, at a moderate pace. This is sufficient if done 3 or 4 times a week. Swimming is also a good exercise, as the weight of the body is supported by the water. The type of exercise you choose, is not important. What is important, is that you select a form of exercise that suits you, and you enjoy. This makes it much easier to stick to. If you haven't exercised for a long time you should consult your doctor before commencing any exercise. (Refer to the exercise sheet on the back of this bulletin).

Being overweight is a likely cause of back pain

If you are overweight your centre of gravity is usually further forward than normal, this increases the lumbar curve (lordosis), places extra strain on the lower back and increases the load on the joints. The discs wear out more quickly as they have to continuously absorb more force.

Lose weight by

Regularly exercising. This can not only help you to lose weight but also strengthen muscles that are important for the stability of the spine.

Smoking is a likely cause of back pain

If you smoke regularly, you are more likely to develop back pain. This is because the blood supply and nutrition reaching the discs can be compromised.

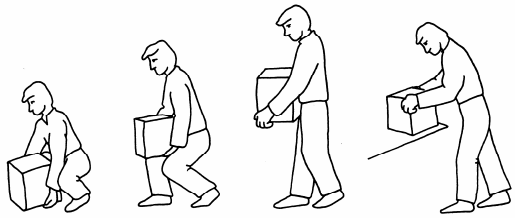
Quit smoking

Your local doctor will be able to help you get the assistance you need to quit. 'Quit' packages are available from your pharmacist.

Addressing manual handling problems in the workplace

Employers duty of care

The Workplace Health and Safety Act in the Northern Territory requires all employers to have a system of identifying, assessing and controlling hazards in the workplace. If you haven't been properly trained for your job, your employer is failing in their duty of care, to provide you with a safe workplace.



Training

Adequate training would encourage understanding of ways to avoid the risks in manual handling. Adequate training should also be provided in the use of mechanical aids, team lifting and personal protective equipment such as gloves and aprons.

Identify the risks and discuss with your employer

If you have concerns about manual handling problems in the workplace, (eg. heavy or repetitive lifting), talk with your employer and workmates to identify the risks and discuss ways you can reduce them.

Exercises

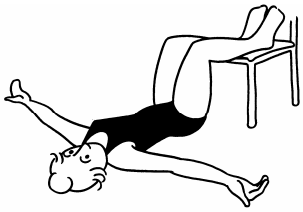
Any athlete serious about their sport will train for it. Although work takes up 8 hours of our day, very few people consider training for it. A few simple exercises performed on a daily basis can help to reduce the incidence of back injuries, when combined with safe work practices.

The following exercises are designed to strengthen the muscles that support the spine and maintain the flexibility in the lower back.

NB If you are already experiencing back pain, or have a known back condition, you should seek a specialised exercise program from your Doctor/Physiotherapist or health professional, as some of the following may be unsuitable.

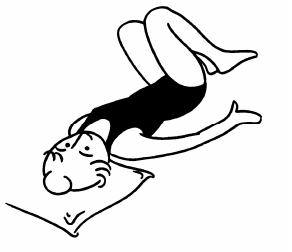
Exercise 1

This exercise can help to relax your back and can be as a position of rest if you experience mild back pain. It is done lying on your back with your knees bent up on a chair. The arms are outstretched and rest on the floor. Concentrate on doing long slow breaths to allow you to fully relax.



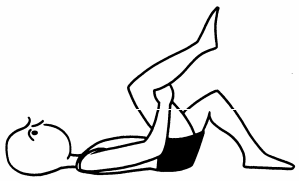
Exercise 2

This exercise aids the movement and flexibility of the spine. It also helps to nourish the discs. It is done lying on the back with the knees bent and the feet together. Keep your feet on the floor and slowly roll the knees from side to side. Don't let your shoulder blades lift. Do this for one minute.



Exercise 3

This exercise stretches the lower back and the muscles in the buttock. It is done lying with the knees bent and the feet on the floor. Gently raise one knee and pull it towards the chest. You may feel a stretch in the buttock. It should not be painful. Hold the stretch for 20 seconds. Repeat this 3 or 4 times on each leg.



Exercise 4

This exercise is a simple hamstring stretch. Often, tight hamstrings limit how we can safely use our backs.

Place one leg on a raised surface. Pull the toes of that foot back so just the heel is in contact with the raise. Keep the knee straight. Keeping the back straight bend slowly forward from the hips. You will feel a stretch behind your thigh. Hold each stretch for 20 seconds. Repeat 3 or 4 times on each leg.

None of the above exercises should cause anything more than a mild stretch. If you experience pain during these exercises discontinue them immediately and seek further advice.

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