



SPINAL OUTREACH TEAM

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SPINAL OUTREACH TEAM

Back Care

When caring for a person
with spinal cord injury.



Queensland Government
Queensland Health

We wish to express our thanks to the staff of the physiotherapy and occupational therapy staff of the Princess Alexandra Hospital in Brisbane for their assistance with this booklet.

Notes

Notes

Table of Contents

Introduction	4
Anatomy of the spine	5
Vertebral column	5
Nerves	5
Joints	6
Ligaments	6
Muscles	6
Discs	6
Posture	8
Manual handling	10
Daily back care issues	12
Personal care issues	14
General daily activities	16
Prevention of injury	20
Conclusion	21

DISCLAIMER

This publication has been prepared by the staff of the Spinal Outreach Team in conjunction with the Department of Physiotherapy, Princess Alexandra Hospital, to assist those with back pain. Whilst all care has been taken in the preparation of the text, no responsibility attaches to the Crown in the right of the State of Queensland and its servants and agents for any loss or damage, whatever may be the nature of the loss or damage or however caused, and whether occasioned by negligence, negligent misstatement or otherwise howsoever, arising out of any errors, omissions or inaccuracies whatever in the said text.

1.0 Introduction

Back injury is the leading musculo-skeletal injury in Australia. Up to 80% of the population will suffer from back pain at some time in their lives. Back injury can result from a single event or from a long process of wear and tear on various spinal joints, bones, muscles and ligaments. Many back injuries are avoidable.

The **aim** of this booklet is to give you some practical ways of **preventing back injury**. Prevention of back injury is especially important when you have the added responsibilities of being a carer. Because this occupation can be heavy and repetitive in nature, there may be an increased risk of having a back injury.

When performing daily activities in caring for a person with a spinal cord injury, you will be putting extra stresses on your spine. These extra stresses result from activities such as moving and handling the person you are caring for as well as the daily activities that you have to do for yourself and your family at home. By educating yourself on the principles of back care and handling, and correctly applying them in your daily routine, you can minimise these stresses.

Two main causes of back pain are:

- **Poor posture**
- **Incorrect manual handling techniques**

7.0 Conclusion

The way to prevent the injury is :

- maintain good posture in sitting, standing, lifting and handling
- minimise lifting and manual handling tasks
- adopt good work habits
- maintenance of reasonable level of fitness

You are the only one who knows if you are feeling comfortable. This makes you the prime caretaker of your own posture and manual handling habits. Listen to your body and think about the signals it is sending you. If you feel that you've got a sore back day after day, look at your work and daily habits. Ask yourself 'could I be doing this in a better way? '.

Sometimes it is difficult to pinpoint exactly what you are doing wrong and it may be worthwhile to get some professional help to analyse your posture and manual handling techniques.

Only you can change your habits. By learning why you need to change and how to improve your manual handling techniques, you are well on the way to maintaining a pain-free back while providing effective care for all involved.

For more information, contact your local physiotherapist, occupational therapist or other suitably qualified professional.

If you have a query about any of this information, you can contact one of the staff of the Spinal Outreach Team (SPOT) on 07 3406 2300 or email on spot@health.qld.gov.au.

6.0 Prevention of Injury

The importance of prevention programs to minimise injury cannot be emphasised enough.

Most people associate heavy exercise or manual labour with muscle fatigue, soreness and back pain. However, light repetitive activities can have a similar effect on your muscles. Muscle fatigue can lead to problems with a reduction of muscle support around your spine. This can result in a vicious cycle of postural discomfort and pain, ultimately ending in long term back problems.

Although you may think that the lifting and manual handling you are doing is not very stressful or strenuous for you, you perform these activities all day most days. Because of this, your muscles get tired and the chances of injuring your back increase. Activities such as bending, lifting and any twisting (while carrying a load) may cause injuries if performed incorrectly, no matter how light.

Consider also how you move from position to position. For example, it is not recommended that you come straight up into a sitting position from lying on your back.

A reasonable level of **fitness** is important for the prevention of injury. Any balanced exercise program includes cardiovascular fitness, muscle strength, stability and flexibility. Muscle strength, stability and flexibility are achieved by regular exercise of specific muscles. Regular cardiovascular exercise will assist with weight control. Any excess weight will increase stress on your back and lower limb joints. Giving priority to regular exercise such as walking will assist with maintaining good posture and high energy levels, and provide the necessary stress release.

2.0 Anatomy of the spine

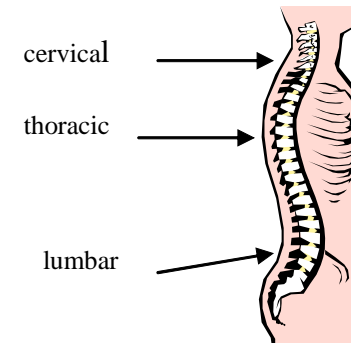


Figure 1 : The spine or vertebral column

The **vertebral column** or **spine** is made up of a number of important structures. The spine or vertebral column (see figure 1) provides mobility, flexibility and stability. When viewed from the side, your spine should resemble a letter 'S'. There are 3 normal curves in the spine – gentle inward curves in the neck (cervical) region and low back (lumbar) region and an outward curve in the upper back (thoracic) region. Changes from these normal curves (or posture) will increase stresses on your spine and thereby increase the risk of injury. For this reason you should always try to maintain the normal curves.

Nerves arise from the spinal cord and exit on both sides at each vertebral level (see figure 2). These nerves provide the feeling in your skin, help you contract your muscles to move your arms and legs, and allow you to feel pain when an injury has occurred.

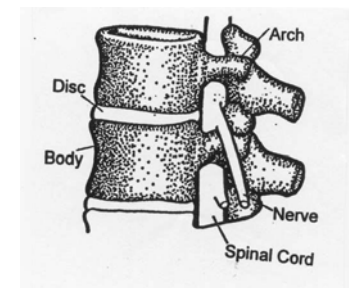


Figure 2 : Anatomy of the lumbar spine

Anatomy (continued...)

Joints in the spine allow it to move in almost any direction and are formed by the junction of 2 or more bones. When excessive stresses are placed on these joints, pain and muscle spasm may result, causing the joints to become stiff. This in turn will reduce your ability to move freely.

Ligaments attach one spinal vertebra to the next. They don't directly cause active movement of the spine but help to control joint movement passively thereby providing stability to your back. If you constantly assume poor postures, ligaments can stretch and lose their supportive ability. This will place more strain on your muscles to provide support to your spine.

Muscles work together with ligaments to support the joints of your spine and control joint movement. Muscles are very effective at maintaining the alignment of your spine and provide the forces needed to move your trunk into the position desired. However, when muscles become tired, or are put in a position that makes it harder for them to work, the risk of injuring other structures such as ligaments, joints, nerves and discs is increased.

Discs are present between each vertebra and act as shock absorbers due to their gel-like interior. Discs also provide flexibility to the spine. Certain postures or positions can produce higher than normal pressures on the disc (see figure 3). For example, when lifting with a bent back, there is increased pressure exerted on the discs. This makes the discs very vulnerable to injury and places enormous stresses through your ligaments and the muscles of your back. The risk of injury in this case is high.

Daily Back Care Issues (continued...)

Mowing

- When starting the mower, place it against a wall or hard surface and then pull the starting cord - predominantly use your arm and avoid twisting or jarring your back.
- Push rather than pull, the mower.
- Maintain an upright posture, using your legs for power and not your back.
- Mow small areas at a time.
- Empty the catcher when half full to reduce the weight to be lifted
- Consider using a 'touch-start' mower.
-

Cleaning cars, walls, windows etc...

- Fill bucket to only half full to reduce the weight to be lifted.
- Squat to do low areas.
- Stand on a step-ladder or foot stool to do higher areas.
- Face the area to be washed.
- Change posture regularly.
- Avoid reaching and bending.

Shopping

- Use a shopping trolley with wheels that move easily.
- Place heavier items towards the back of trolley.
- Avoid twisting your trunk when turning corners.
- Bend at your knees to reach items stored on low shelves, or when unpacking the trolley.
- At the checkout, ask the checkout assistant to distribute the weight evenly between several bags.
- Carry bags of even weight in each hand - to distribute the load evenly.

Daily Back Care Issues (continued...)

Making the bed

- Raise the height of the bed if it is too low to avoid reaching or excessive bending.
- Move the bed away from the wall to allow good access.
- Kneel on the bed at times when making the bed to avoid reaching or excessive bending.

Cooking

- If necessary, raise height of work bench to waist height by using thick cutting boards, to avoid stooping.
- Store commonly used items within shoulder and hip heights.
- If standing for a long time, try to rest one foot on a low stool (or on the lowest shelf of a cupboard) to relieve pressure through the lower back.
- Stand with your knees slightly bent and lean against the bench.
- A tall stool can be used to 'perch' on to prepare food.

Gardening

- Kneel or sit in preference to bending.
- Change posture regularly.
- Use long handled tools to avoid bending.
- Do small areas at one time.



Anatomy (continued)

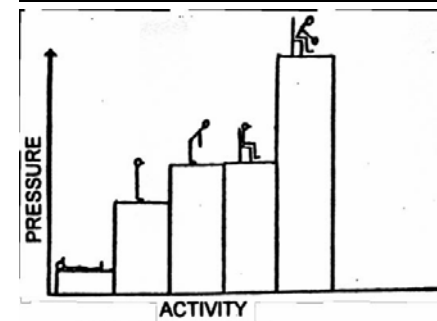


Figure 3: Disc pressures vs activity level

When the disc is injured, it can prolapse or push onto the nerves that run around behind it (see figure 4). This can lead to immense pain due to direct pressure on the nerve.

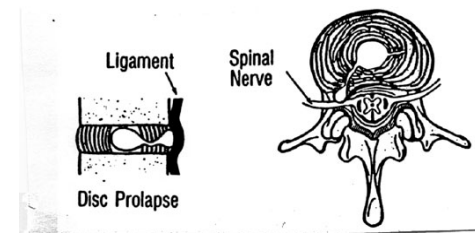


Figure 4: Side on and top views of spine showing disc prolapse

Back pain can result from a number of causes such as:

- Disc injury
- Strain on ligaments
- Muscle tension and fatigue
- Irritation of spinal joints
- Compression on nerves exiting the spine
- Muscles tightening and stretching the nerves

3.0 Posture

As stated previously, one of the most common causes of back pain is incorrect posture. This is especially important for people caring for others, where the adoption of bad techniques and poor posture can result in the development of pain and stiffness.

A good **standing** posture is one in which your spinal curves are maintained, you look ahead with your chin gently pulled in, your shoulder blades are gently pulled back and down, your stomach and buttock muscles are gently tightened and other muscles are relaxed.

A good **sitting** posture is one in which your spinal curves are maintained and you are sitting well back in the chair, upright but relaxed. Use a support behind your lower back if sitting for long periods and keep hips, knees and ankles are at right angles with knees slightly higher than hips.

Avoid sitting for long periods of time without regular posture changes.

A good **lying** posture is one where the support surface is firm and supports the normal spinal curves. A mattress that sags in the middle can cause pain or stiffness.

A good posture is one that:

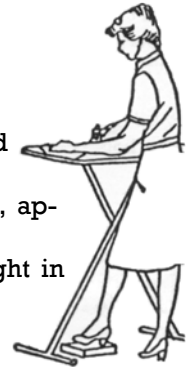
- Places minimal or balanced stresses on body parts
- Requires minimal muscular effort to sustain
- Is comfortable

Daily Back Care Issues (continued...)

B. GENERAL DAILY ACTIVITIES

Ironing

- Ensure ironing board is at elbow height
- Use a foot stool
- Avoid standing for long periods of time, and iron small amounts
- Iron by moving the iron away from your body, applying pressure
- Store the ironing basket or clothes at hip height in such a position as to prevent trunk rotation



Washing

- Bend at your hips, keeping your back straight, when reaching into the machine to retrieve wet clothes.
- Front-opening machines are ideal ergonomically ie you can squat with a straight back rather than bend over to retrieve the clothes.
- Use a trolley to take loads to the line, or carry small loads by hand.
- Excessive bending and reaching should be avoided when hanging out clothes - use a trolley and wind the clothes line down as much as possible, or stand on a small stool with a stable base.

Vacuuming/sweeping/mopping

- Use long-handled tools, and upright vacuum cleaners.
- Use shorter strokes, changing direction with your feet and not by twisting your trunk.
- Avoid leaning forward by bending the knees.
- Always face the area being cleaned.
- Vacuum one room at a time and have a break in between to allow you to change postures.

Daily Back Care Issues (continued...)

Lifting objects (eg wheelchair) out of a car boot

- When manoeuvring the wheelchair into position, push rather than lift it.
- When lifting, keep the item close to your body. Make sure you bend your knees and hips while keeping your back straight.
- Turn with your feet. Do not twist your back.
- Lift the item to the edge of the boot and then make a second lift to get the item into or out of the boot. Use the edge as a lever, protecting it with a heavy blanket if you wish. Keep your back straight before and throughout the lift.
- Place heavier items close to the edge of the boot.
- If possible, lighten the load to be lifted by taking items such as wheels and armrests off the chair and place them in separately.
- Ramps, hoists and wheelchair loaders can be used in certain circumstances to minimise the need to lift the item.



Make sure the car is parked in an area where you can easily access the boot and place objects on the ground.

Overhead Lifting

Heavy items should never be stored or lifted overhead.

When lifting overhead:

- Keep your back straight.
- Use a foot stool.
- Stand in a stride stance position.
- Reach overhead with your weight through your forward foot.
- Store commonly used items between shoulder and hip heights.

Posture (continued...)

Avoid postures that:

- Bend you forward, backward or sideways during an activity
- Twist you during activity
- Encourage prolonged bending
- Occur in sitting without back support
- Combine bending and twisting
- Combine side bending and twisting
- Occur in a poorly arranged work environment that encourages any of the above



4.0 Manual Handling

The need for you to perform manual handling techniques will depend on a number of issues, such as the severity of the injury of the person you are caring for. For example, you may have to assist the person in every way with rolling, dressing, transfers and toileting or you may have to provide supervision only in these tasks.

You may have been shown specific manual handling techniques to use after your significant other suffered a spinal cord injury. Occupational health and safety guidelines have changed significantly in recent years, and when combined with new research, it is now suggested that some of these techniques may be incorrect or unsafe. While these past techniques may have served you well, you may need to consider changing them. Examples such as a 2 person lift or 'bunny hop' are not acceptable to external domiciliary services.

Correct manual handling techniques require less energy to perform, place less stress on the structures of the back and are comfortable for all people involved. There are certain general principles of manual handling that everyone should follow, regardless of the type of disability and handling and transfer methods used. These general principles are listed below.

It is recommended that in the morning before commencing a daily routine involving manual handling, some simple stretches should be performed. These will help to prepare your spine for the activities of the day. Stretches promote circulation, maintain flexibility and prepare your muscles for loading.

All movements should be performed slowly and smoothly. If you have any back pain, or are unsure which stretches may be best for you, seek advice from your local doctor or physiotherapist.

Daily Back Care Issues (continued...)

- Always check brakes are on and you are positioned appropriately to provide the necessary assistance.
- Never attempt to lift a person's whole body weight by yourself.
- Avoid twisting your spine while performing the activity. Turn your whole body when assisting transfers ie keep your nose in front of your toes.
- Encourage the person you are assisting to do as much of the transfer as possible, as long as it is safe for all concerned.
- A sliding sheet can be used to assist with repositioning the person in the chair.
- If assisting the transfer, sit in front and keep your back straight. Don't bend over. Turn your whole body when assisting ie keep your nose in front of your toes.

Positioning in the wheelchair

- Don't bend over. Squat down with back straight when positioning feet, putting socks on or putting the hoist sling in place
- When positioning the person to the back of the wheelchair, slide them by pushing back on their knees from the front rather than lift them back. Use equipment such as a sliding sheet where necessary

Showering and dressing

- Avoid bending for prolonged periods.
- Raise the height of the working area to the best height for you.
- Reduce the strain on your spine by maintaining good postural curves and by standing erect.
- Minimise the number of repeated sequences of each activity by being well prepared.
- Use the assistance of aids such as sliding sheets or hoists where possible.
- Encourage the use of clothes styles and sizes that make dressing easier.

Daily Back Care Issues (continued...)

A. ACTIVITIES OF DAILY LIVING

Positioning the person in bed

- The use of a sliding sheet assists in moving the person around the bed or rolling the person.
- Push rather than pull the person into the position required.
- Avoid reaching across the bed or the person as this puts extra stress on your back.
- Encourage the person to assist where they can. For example if they can help to roll, encourage them to do so.
- Adjust the height of the bed for your needs, if you have to assist with care.
- Use the help of an extra person if it is available.
- Get as close to the load as you can.
- Try using one knee on the bed to stabilise your position.
- Try to maintain good stable posture during the activity.
- If you are needing to turn the person a number of times during the night for comfort or pressure relief, ask for a review of the mattress from your local health professional

Transferring the person in and out of the wheelchair (or toilet, shower &/or car)

- Set up the environment so that there is plenty of room and no obstacles in your way.
- If you, or the person you are assisting, is finding the transfer very difficult or very stressful, try and determine the reason. If equipment such as a hoist is available, use it.
- If using a hoist, use a firm floor surface to make moving the hoist easier.
- Remove any rugs or mats from the area that may cause you to trip or that may get caught up in the hoist.

Manual Handling (continued...)

Performing an activity involving manual handling is not recommended after a period of prolonged sitting, driving or mowing. In these activities, the pressure and subsequent stress on the discs is high. Adding a manual handling activity on top of these stressed discs will greatly increase the risk of injury.

Principles of Manual Handling—Minimising the Risk

- **Plan** the activity
- **Size up the load:** if it is too heavy or awkward for you, look for other ways. Get extra assistance, use a hoist or other devices such as sliding sheets.
- **Organise the environment.** Remove any hazards such as water on the floor. Remove unnecessary furniture in the way, use appropriate floor surfaces, position the wheelchair, use brakes and adjust bed heights.
- Make sure **everyone involved knows** what is to happen. If in doubt, the person who is being transferred is designated the leader and controls the activity.
- Position yourself as **close to the load** as possible. This minimises the risk that you will bend your back during the activity.
- Have your feet apart to use a more **stable base** and place your feet in the direction of the movement.
- Maintain a **good posture** throughout the activity.
- Use a **firm grip** where necessary.
- Gently **tighten your lower tummy and your lower back** muscles before performing the activity. This will encourage a good posture.
- **Avoid bending and twisting** movements of the spine – bend your knees instead.
- Ask for **assistance** whenever and where you can. Use **aids** to reduce the load.

5.0 Daily Back Care Issues

During the day, you may put your spine at risk of damage due to the repetitive nature of your daily activities.

For example:

- ◆ Assisting with transfers to toilet, bed or car
- ◆ Making adjustments to the positioning of the person you are caring for, in their wheelchair
- ◆ Pushing the wheelchair around (twisting movements)
- ◆ Making adjustments related to the wheelchair such as removing footplates and lifting/placing the chair in and out of a vehicle
- ◆ Assisting with dressing and showering
- ◆ Assisting with position changes in bed eg rolling
- ◆ Completing your own daily routine

By encouraging the person you are caring for to assist with the completion of tasks where possible, there will be a lessening of the strain on you.

- ◆ If you have equipment, use it to decrease the load.
- ◆ If you have the opportunity to have the assistance of a second person when performing many of these tasks, use it.

Unfortunately this is often not the case and it is necessary that you complete a great number of these activities alone. In addition, the need for repetition of many of these activities will increase the risk of developing pain or injury.

If you are feeling stressed or finding the workload difficult, take stock of just how many and what activities you are doing each day as well as how you do them.

If you must bend, regularly change posture. Arching backwards can help reduce stresses on discs in your spine after stooping postures.

Daily Back Care Issues (continued...)

Recommended Bench Heights:

Work should be performed at a height that suits the task and maintains your normal postural curves

- If you are doing **precision** work, it is recommended that the height of the work bench be just above elbow height eg shaving, make-up
- If you are doing **light** work, it is recommended that the height of the work bench be at elbow height eg writing, food preparation
- If you are doing **heavier work requiring greater effort**, it is recommended that the height of the work bench be at hip height eg rolling the person in bed

Following are some **suggested ideas for certain activities** to assist you as the carer, to minimise these risks.