



# BACK to BASICS

A GUIDE TO BACK INJURY  
PREVENTION AND RECOVERY



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## ABOUT THE WCB

The Workers Compensation Board of Manitoba is an injury and disability insurance system for workers and employers, paid for by employers. The WCB also has a role in prevention – the very best we can do for Manitoba workers and employers is to help them prevent workplace injuries and illnesses from occurring in the first place. The WCB has partnered with the Manitoba government's Workplace Safety and Health Division to create and maintain a safety culture in Manitoba.

If workplace injuries or illnesses do occur, the WCB is here to help. The WCB offers a wide range of benefits to help injured workers return to health and meaningful work as soon as it is safe to do so.

Benefits include:

- replacement of lost income
- healthcare treatments and medication costs
- dental costs
- employment retraining
- payments for permanent impairments
- benefits to spouses and children in the event of a workplace death



This booklet was re-produced by the Workers Compensation Board of Manitoba in 2005. The publication is based on *Back Talk*, published by the Workers' Compensation Board of British Columbia.

# TABLE OF CONTENTS



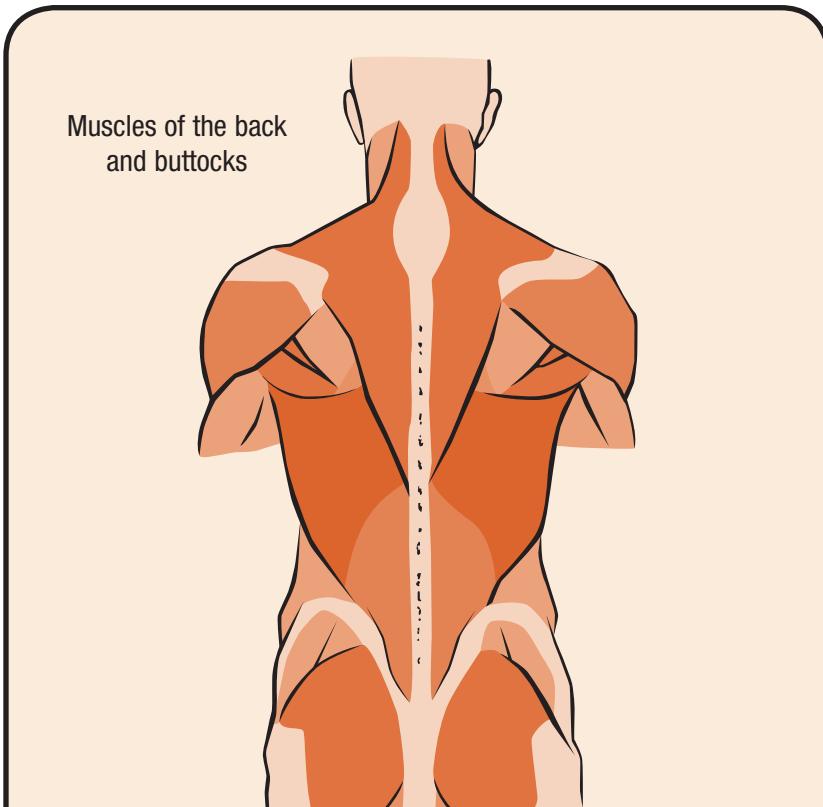
INTRODUCTION	1
THE STRUCTURE OF THE BACK	2
CAUSES OF BACK PAIN	5
PRACTICE GOOD POSTURE	8
Good Standing Posture	8
Good Sitting Posture	10
Good Lying Posture	11
BENDING, LIFTING AND CARRYING	13
SOME THOUGHTS ABOUT EXERCISE	15
STRETCHING EXERCISES 1-5	16
Pelvic Tilt	16
Knee to Chest	17
Lumbar Rotation	18
Hump and Hollow	19
Side Bend	20
STRENGTHENING EXERCISES 6-10	21
The Bridge	21
Wall Squat	22
Step-Ups	23
Partial Sit-Up	24
Rotational Sit-Up	25
INJURY PREVENTION AND RECOVERY TIPS	26

# INTRODUCTION

It is important to know what kinds of stress place additional load on your low back, and how you can use good lifting and carrying techniques to reduce the chance of injury.

Most low back complaints result from simple strains that can heal within one to six weeks. What you do about back pain is very important. Rest for more than a day or two does not usually help and may actually delay recovery.

This booklet has been prepared to help you understand how the back works, to provide tips on what you can do to avoid injury and to show you how to care for your back during recovery.



# THE STRUCTURE OF THE BACK

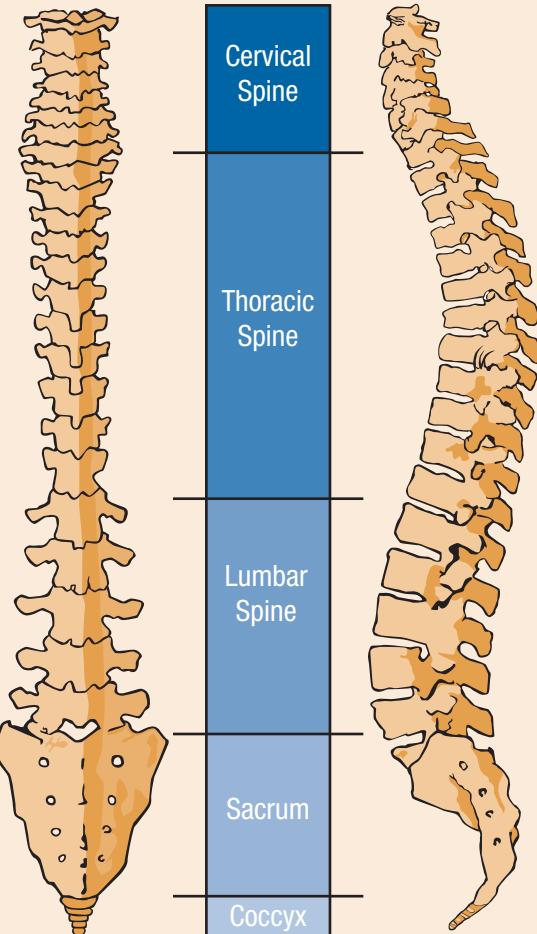
When we talk about your back, we are really referring to your spinal column. Your spine's job is to:

- support your upper body and head
- increase the flexibility of your body
- protect your spinal cord

The six primary components of your spinal column are:

- vertebrae
- facet joints
- discs
- spinal nerves
- ligaments
- muscles

Back and side view of the spine



Two weight-bearing vertebrae separated by a disc

## VERTEBRAE

The spine is made up of 24 segments called vertebrae. They are stacked one on top of the other and are separated by flexible shock-absorbing discs.

The spine is divided into five distinct sections:

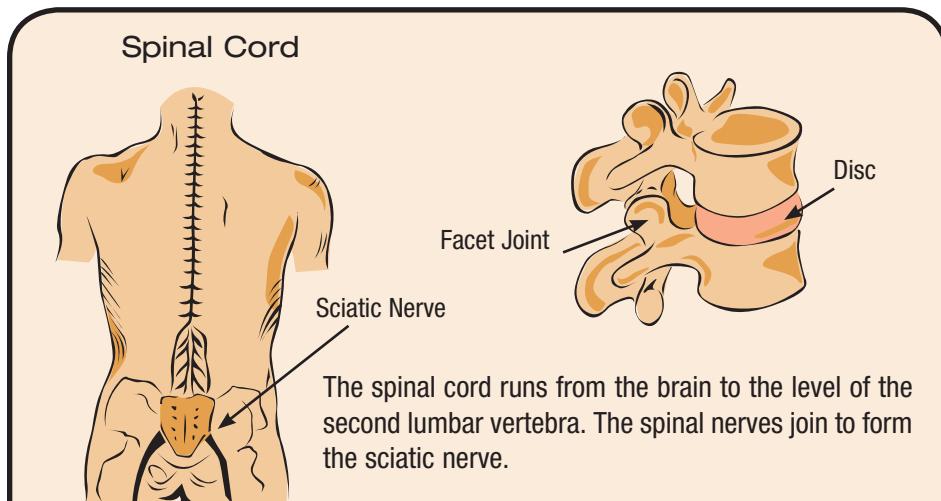
- the neck, with seven vertebrae
- the chest with 12 vertebrae, two ribs attached to each
- the low back or lumbar area, with five vertebrae
- the sacrum, comprised of five fused vertebrae
- the coccyx or tailbone, with three very small fused vertebrae

## FACET JOINTS

Facet joints connect one vertebra to its neighbour, allowing them to move on each other and ensure that your back doesn't bend or twist further than it should.

## DISCS

Between each set of vertebrae is a flexible cushioning disc. It is made up of a strong outer sac that is filled with a soft jelly-like substance. Each disc is firmly attached to the vertebra above and below it. Discs can withstand a lot of compression, but excessive force can cause the jelly-like substance to leak out of the enclosing sac.



## SPINAL NERVES

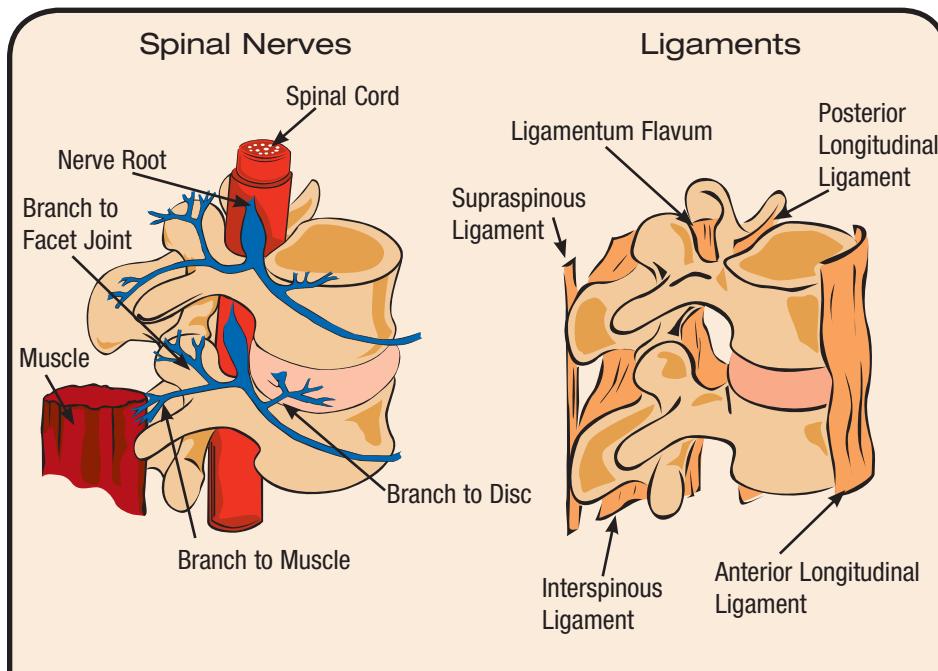
Spinal nerves branch out from the spinal cord between each two vertebrae and are connected to the muscles, discs and vertebrae. They carry commands to the various organs and muscles and also deliver messages about touch, temperature and pain to the spinal cord and brain. If an injured disc in your lower back pinches or irritates one of these nerves, you may feel pain in your back and legs or weakness in your legs.

## LIGAMENTS

Bands of tough tissue, called ligaments, encase the spinal column and connect the vertebrae to one another. Along with the facet joints, ligaments help to keep the vertebrae in position and help to prevent injury by stabilizing the spine and limiting its movement.

## MUSCLES

The muscles in your back, abdomen and buttocks contract to cause spinal movement and to stabilize the spine when moving and lifting. They also help maintain good posture. Muscles and ligaments that are over-stretched or strained can cause pain.



## CAUSES OF BACK PAIN

Even with today's technology, the exact cause of an individual's low back pain is often difficult to determine. Most times, symptoms are attributed to weak back muscles, muscle strains, ligament sprains, joint conditions, or disc injuries. In these cases, the low back condition is medically classified as non-specific low back pain.

The good news is that in most cases low back pain is not a sign of anything serious, and simple treatments like modifying one's activities and performing basic exercises are effective.

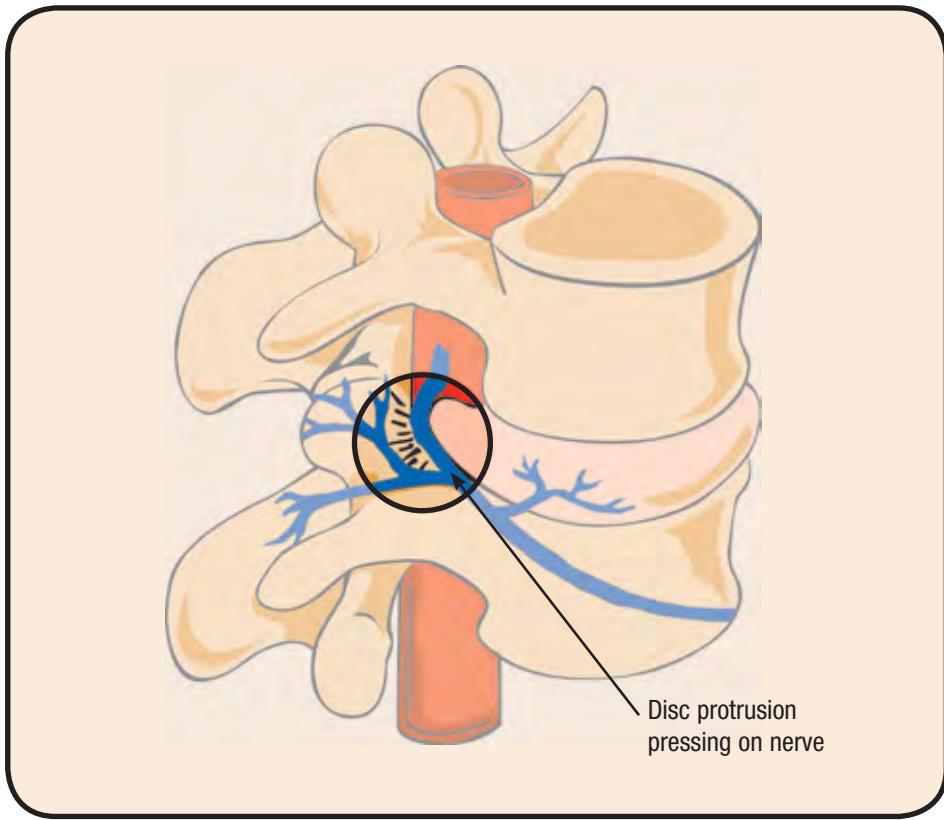
Most cases of back pain can be treated without undergoing a CT scan or MRI. These tests may be appropriate in the following cases:

- when persistent leg pain is greater than lower back pain
- problems controlling bowel or bladder function
- back pain following significant trauma
- back pain accompanied by fever, chills, night sweats or unexplained weight loss





Sudden or unexpected movements may strain muscles or sprain ligaments. Slipping or falling may produce similar results.



Some back problems result from disc injuries. If a disc is strained beyond its limit, the outer casing can tear, causing the inner substance to seep out. If this substance presses on or irritates a spinal nerve, you may feel pain or tingling in the leg. The leg pain is known as "sciatica". Most disc problems recover without surgery.

# PRACTICE GOOD POSTURE

## GOOD STANDING POSTURE

Always try to maintain a healthy spinal posture. This will lessen strain on the muscles, ligaments and joints that support your body.

Poor Posture

Forward Head



Good Posture

Balanced  
Upright  
Posture



Poor Posture

Forward  
Head

Rounded  
Shoulders

Weak  
Abdominal  
Muscles

Sway  
Back





Periodically adjust your body to prevent fatigue by doing one of the following:

- if you have been leaning forward, stretch and bend backwards
- crouch from time to time
- if you have been standing in one position, move your feet or walk around
- when standing in one position or when leaning forward, try to place one foot on a support approximately 7-15 cm (3-6 inches) high and change feet frequently

## GOOD SITTING POSTURE

Many jobs today involve long periods of sitting. Besides “correct” sitting posture, the chair and setup of the workstation are important. However, more important than these factors are “micro-breaks” or frequent position changes. You should adjust your posture slightly at least two to three times per hour. Also, get out of your chair, walk around and stretch for a few minutes every hour. This will reduce muscle fatigue.



***A healthy spinal posture should be maintained while seated.***

The seat should be positioned so that your knees are level with or slightly higher than your hips, and your feet are flat on the floor. Your spine from the base to the level of the shoulder blades should be fully supported by the chair back – you may require an extra lumbar support to prevent slouching. The arm rests should be positioned so that you can comfortably rest your forearms on them while keeping your elbows bent to approximately 90 degrees. Adjust your workstation so that your reference material, computer screen and other important equipment are directly in front of you. The top 1/3 of the screen should be at eye level.

**Remember** – even when sitting with a good spinal posture at a good workstation, the best position is your next position.

## **GOOD LYING POSTURE**

A good night's sleep is important for healing and recovery. Maintaining good posture when you sleep is just as important as when you stand or sit.

If you are not getting a restful sleep, try different sleeping positions.





The “best” position will vary from person to person. If you experience low back pain when you lie on your back with your legs straight, try:

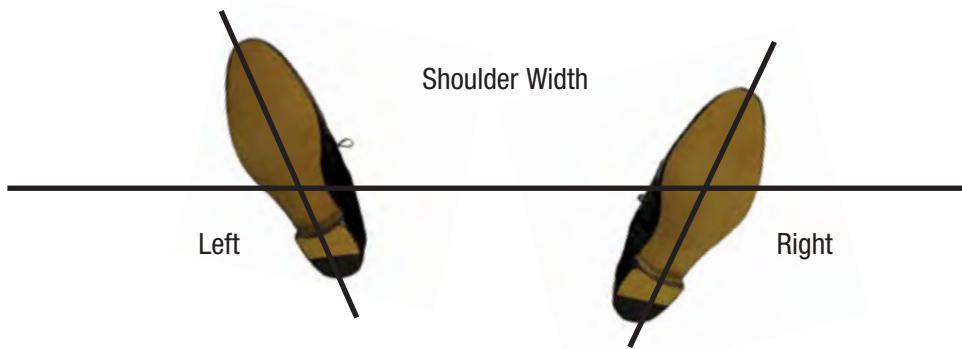
- bending your knees and supporting them with a pillow
- lying on your side with a pillow between your knees with your knees and hips bent
- lying on your stomach with the same hip and knee bent up
- (see image on previous page)

# BENDING, LIFTING AND CARRYING

By always following these rules, you will stay healthy and prevent injury to your back.  
When lifting or carrying even light objects:

- place your feet shoulder width apart for good balance
- bend your knees and do not bend over to lift
- keep the load close to the centre of your body
- lightly “tense” your trunk muscles before and during lifting
- lift gradually and smoothly, without jerking - keeping your back straight
- pivot with your feet, don’t twist your back while lifting
- coordinate your lift when working with a partner





# SOME THOUGHTS ABOUT EXERCISE

Exercise is important in the prevention of and recovery from a back injury.

The exercises on the following pages are designed to improve the flexibility and strength of your back. They are not intended as substitutes where direct professional care could serve you better. If you are under the care of a healthcare professional, do the exercises that have been recommended to you.

Exercises 1-5 are stretching exercises and should be done before exercises 6-10, which are strengthening exercises.

- Start with five repetitions of each exercise.
- Progress gradually to 10 repetitions of each exercise, using your own careful judgement.

Aside from the stretching and strengthening exercises, set aside 20 to 30 minutes each day for some type of general conditioning exercise such as walking, cycling or swimming.

A moderate amount of discomfort associated with exercise is acceptable and expected with back problems. However, if the following exercises consistently cause an increase in back pain, or pain, numbness or tingling down one or both legs, they should all be stopped and you should consult your healthcare provider.

# STRETCHING EXERCISES 1-5

Exercises that increase flexibility help by reducing the pain and making it easier to keep the spine in a healthy posture. Remember to breathe normally and relax into the stretch.

## 1. Pelvic Tilt

Lie on your back with your knees bent, your feet flat on the floor hip width apart, and your arms near your side. Flatten the small of your back against the floor by pulling in your stomach muscles, but without pushing down with your feet. You should feel your ribs and pelvic bones come closer together. Hold this position for five seconds, then slowly relax.



## **2. Knee to Chest**

Take the same position as with exercise 1, grasp your right knee and gently pull your knee toward your right shoulder. Stop when you feel a comfortable stretch in your back/buttock. Hold for five seconds, then return to the starting position. Repeat with the left leg.



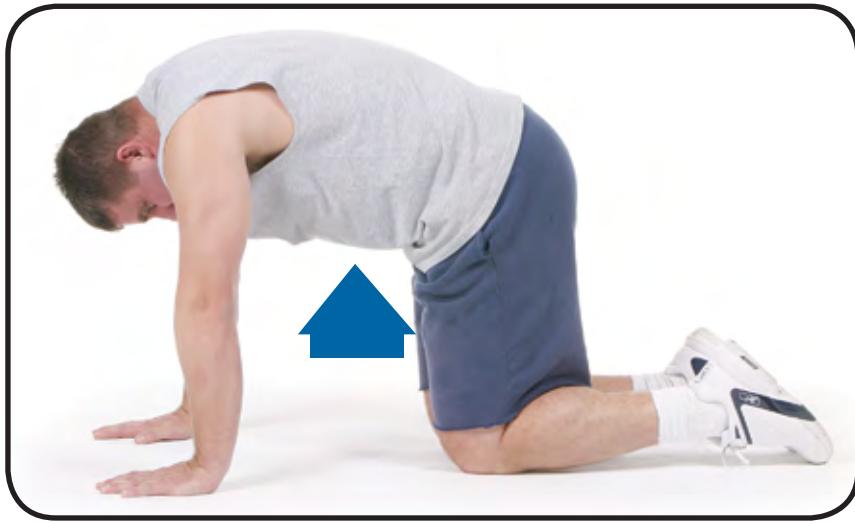
### **3. Lumbar Rotation**

Start in the same position as with exercise 1, with knees and ankles together. Place your right arm out to your side. Roll your knees to the right side without lifting your shoulders from the floor. Stop when you feel a comfortable stretch in your back. Hold for five seconds, then return to the starting position. Repeat the procedure to the left.



#### **4. Hump and Hollow**

Get down on the floor on your hands and knees. Relax your abdomen and let your back sag downward, then hump your back upward. Hold the hump for five seconds, then return to the original position.



## **5. Side Bend**

In a standing position, place your feet shoulder width apart. Drop your head and shoulder to the right while sliding your right hand down the outside of your right leg, slowly bending sideways. Stop when you feel a comfortable stretch in your back. Hold for five seconds, then return to the starting position. Repeat the procedure to the left.



## STRENGTHENING EXERCISES 6-10

Exercises that increase strength help support the spine in a healthy posture. Strong abdominal, back and hip muscles form a natural back “brace”. To build strength, increase repetitions.

### 6. The Bridge

Start in the same position as with exercise 1. With your knees slightly parted, slowly raise your buttocks from the floor, keeping your stomach tight and your abdomen in line with your thighs. Hold for five seconds, then return to the starting position.



## **7. Wall Squat**

*If you have hip or knee problems, consult with your healthcare provider prior to doing this exercise.*

Lean against a smooth wall with your feet pointing straight ahead and your heels about 30 cm (12 inches) from the wall. Slowly slide down the wall until your knees are mildly bent. Hold for five seconds, then slowly slide back up. As you become stronger, increase the time that you hold the squat.



## **8. Step-Ups**

*If you have hip or knee problems, consult with your healthcare provider prior to doing this exercise.*

Stand facing a 15-30 cm (6-12 inch) step stool. Step onto the stool, starting with your left foot. Slowly step down, starting with your right foot. Repeat the procedure starting with your right foot.



## **9. Partial Sit-Up**

Do the Pelvic Tilt (exercise 1). Tuck your chin into your chest. While holding this position, raise your head and shoulders up until your shoulder blades are off the floor. Hold for two seconds before returning to the starting position. Do not hold your breath.



## **10. Rotational Sit-Up**

Do the Pelvic Tilt (exercise 1). Keeping your hips flat on the floor, rotate your upper body onto your left shoulder. Keeping your chin tucked in, curl your head and right shoulder upward by stretching out your arms and hands toward your left knee. Hold for two seconds before returning to the starting position. Repeat the procedure to the right side.



# INJURY PREVENTION AND RECOVERY TIPS

## **Activity after Injuring Your Back**

If you have strained your back, try taking a hot bath or shower followed by the stretching exercises (1-5). Gradually increase your walking distance, from walking around the house, to walking around the block, to walking a few blocks.

While progressing with the stretching exercises and your walking distance, gradually introduce the strengthening exercises (6-10).

## **Diet and Your Back**

Excess body weight places additional strain on the spine. If you are overweight, consider changing your eating and exercise habits. Your healthcare professional can help you develop a diet and exercise plan to suit your needs.

## **Some Points to Remember**

- most back injuries resolve quickly with time and simple treatment
- a good posture while standing, sitting and sleeping helps maintain a healthy back
- stay fit and avoid overeating
- exercise helps to prevent back injury and also speeds recovery
- gentle exercise after a back injury is essential to recovery
- keep a positive attitude



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## How to Reach Us

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