

BACK TALK

AN OWNER'S MANUAL FOR BACKS



WORK SAFE BC

WORKING TO MAKE A DIFFERENCE
worksafebc.com

About WorkSafeBC

WorkSafeBC (the Workers' Compensation Board) is an independent provincial statutory agency governed by a Board of Directors. It is funded by insurance premiums paid by registered employers and by investment returns. In administering the *Workers Compensation Act*, WorkSafeBC remains separate and distinct from government; however, it is accountable to the public through government in its role of protecting and maintaining the overall well-being of the workers' compensation system.

WorkSafeBC was born out of a compromise between B.C.'s workers and employers in 1917 where workers gave up the right to sue their employers or fellow workers for injuries on the job in return for a no-fault insurance program fully paid for by employers.

WorkSafeBC is committed to a safe and healthy workplace, and to providing return-to-work rehabilitation and legislated compensation benefits to workers injured as a result of their employment.

WorkSafeBC Prevention Information Line

The WorkSafeBC Prevention Information Line can answer your questions about workplace health and safety, worker and employer responsibilities, and reporting a workplace accident or incident. The Prevention Information Line accepts anonymous calls.

Phone 604 276-3100 in the Lower Mainland, or call 1 888 621-7233 (621-SAFE) toll-free in British Columbia.

To report after-hours and weekend accidents and emergencies, call 604 273-7711 in the Lower Mainland, or call 1 866 922-4357 (WCB-HELP) toll-free in British Columbia.

WorkSafeBC Publications

Many publications are available on the WorkSafeBC web site. The Occupational Health and Safety Regulation and associated policies and guidelines, as well as excerpts and summaries of the *Workers Compensation Act*, are also available on the web site: WorkSafeBC.com.

Some publications are also available for purchase in print:

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The low back is subject to greater mechanical stress than any other part of the body and, because of this, is commonly injured. It is important to know which situations cause excessive loads and how to use proper body mechanics to reduce the risk of injury.

A majority of low-back problems are caused by simple strains that can heal within six to eight weeks with appropriate treatment. Fear and misunderstanding are the two main factors that can delay recovery.

The information and advice in this booklet will help you understand how the back works, provide tips for avoiding injury, and show you how to care for your back during recovery.

Remember that this booklet is not meant to replace your health professional. It is particularly important to seek professional advice if back pain spreads down your leg, especially below the knee, and is accompanied by weakness, tingling, or numbness.

Spine

The main functions of the spine are to:

- Support the trunk and the head
- Allow flexibility of the body
- Protect the spinal cord



Back and side view of the spine

Vertebrae

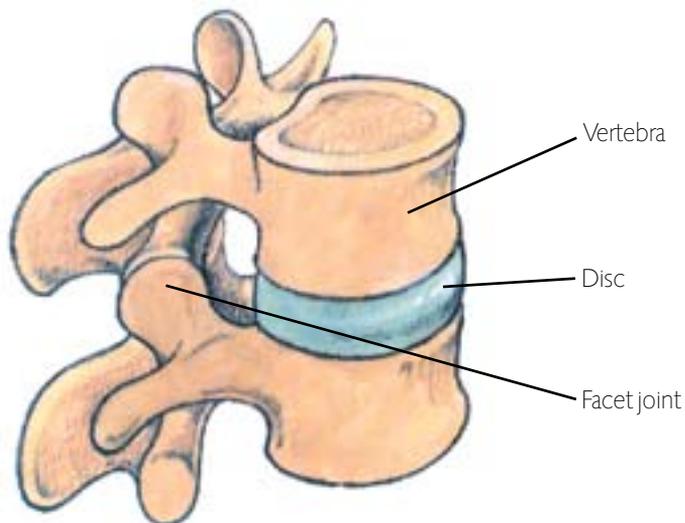
The spine is composed of 24 blocks called "vertebrae" that are stacked on top of one another and separated by shock-absorbing discs. The neck has seven vertebrae. The chest has 12 vertebrae, each carrying two ribs. There are five vertebrae in the low back or lumbar area. Five fused vertebrae create a solid base called the "sacrum," and the "coccyx" or tailbone has three very small and fused vertebrae.

Discs

Discs act as cushions between the vertebrae. They have a very strong, tough outer casing with a soft jelly-like substance inside. Discs are firmly attached to the vertebra above and below and can withstand considerable compression. A disc can never slip out but can be ruptured, causing the jelly-like substance to protrude.

Facet joints

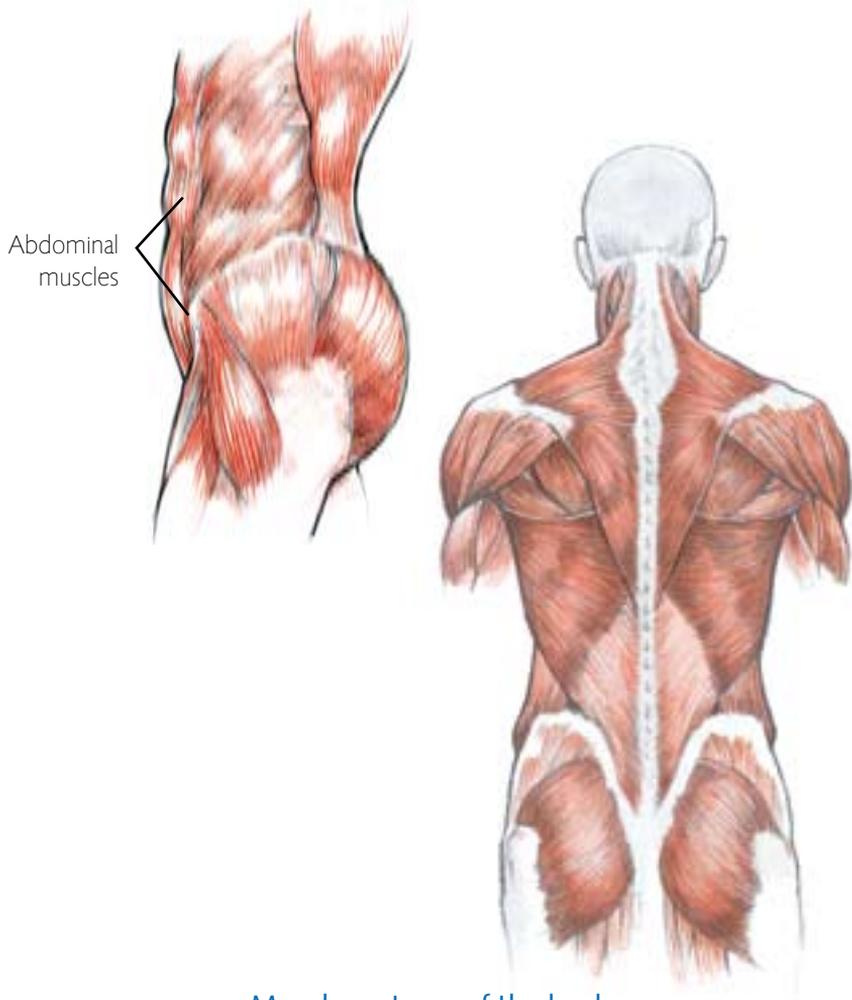
Facet joints join adjacent vertebrae and allow the vertebrae to move on each other. Their main function is to make sure your back doesn't bend or twist further than it should.



Lumbar disc and facet joint

Muscles

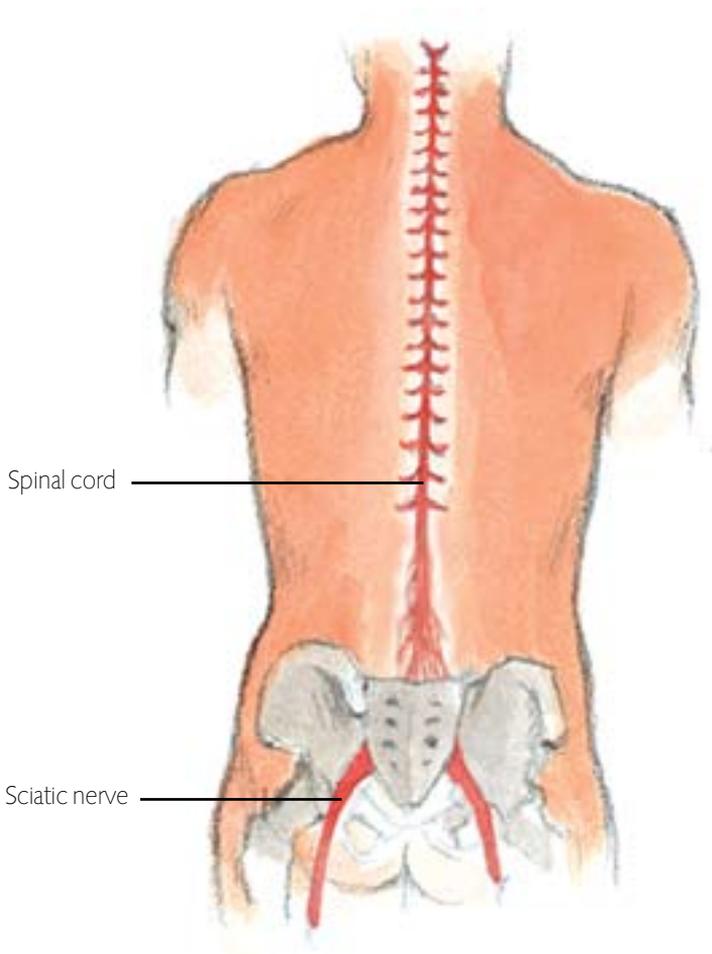
Back, abdominal, and buttock muscles stabilize the spine and help maintain proper posture. If muscles or ligaments are stretched or strained they, like the facet joints, often cause low-back and buttock pain. They too usually heal within six weeks to eight weeks.



Muscle systems of the back,
buttocks and abdominals

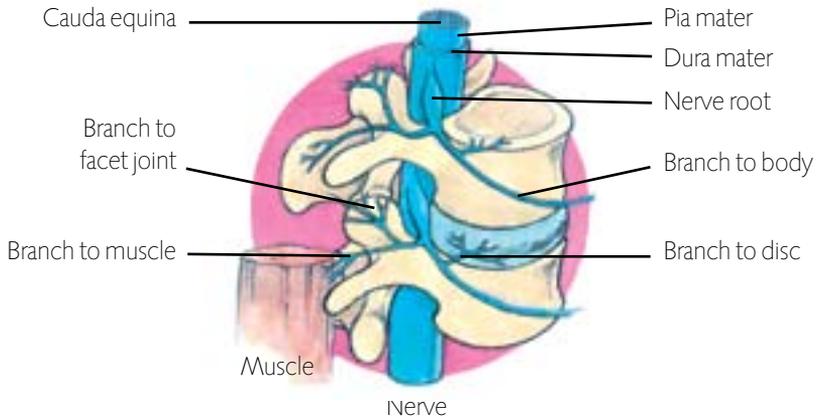
Spinal cord

The spinal cord runs from the brain to the level of the second lumbar vertebra. The lumbar spinal nerves join to form the sciatic nerve.



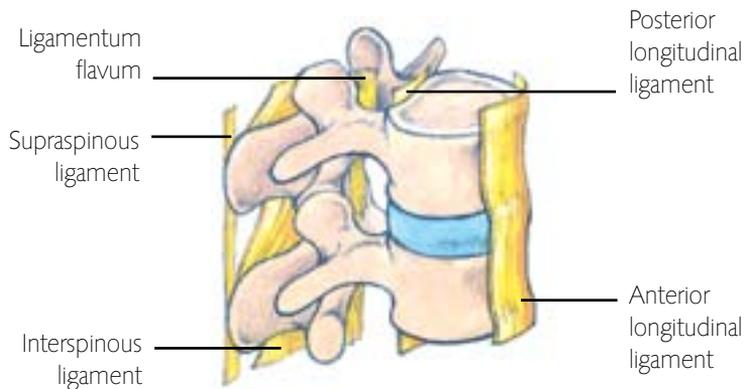
Spinal nerves

Spinal nerves branch out from the spinal cord between each two vertebrae and carry commands to the organs and muscles. These nerves also send messages relating to touch, temperature, and pain to the spinal cord and the brain. If a nerve is pinched by a protruding disc, pain often results in the back and the leg.



Ligaments

Ligaments are bands of tough tissue between the bones that keep the vertebrae in good alignment and prevent damage due to excessive movement.



Most minor back pain is caused by overuse or overstretching of the muscles and/or ligaments. These conditions usually heal completely within a few weeks if given the proper care and treatment.

Back pain can also result from a strained facet joint. Facet joints can wear out with age and be more prone to injury, particularly from twisting.

Muscles

Muscles are most often damaged by a movement that is sudden, unexpected, or unfamiliar. This damage is more likely to occur if the muscle:

- Lacks strength due to inactivity
- Has not been warmed up and stretched before activity
- Is tired due to repetitive movement or stationary positioning that is held too long

Ligaments

Ligaments can be injured in much the same way as muscles. A sudden movement can overstretch the ligament, causing damage. The same can occur when body posture is incorrect or any one position is held for too long.

Facet joints

A sudden back pain episode, sometimes called a “locked back,” is often due to an unexpected twist. This causes the joint to become irritated and painful, causing the muscles to go into spasm. Poor posture can also put excess strain on the facet joint.

When confronted with sudden movement, muscles may not have time to contract enough to protect the spinal joints. Also, the contractions may not be coordinated, causing damage to the muscles and even the ligaments if the force is sufficient. The same factors are at work—with similar results—when you slip and fall.

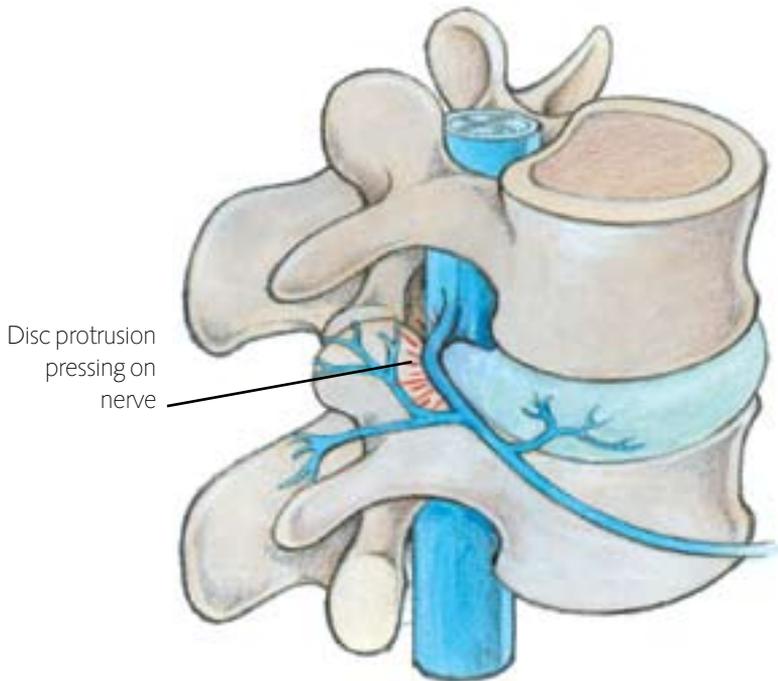
Aches and pains can be a warning signal that muscles are tired or they have been held in one position for too long. Changing position can allow the muscles to relax. It's best to stretch in the opposite direction or move before aches and pains begin.



Very few back problems are due to disc injuries; most are related to injured muscles, ligaments, or joints.

However, when a disc is strained beyond its limit, the outer casing can tear or rupture. The inner jelly-like substance can then seep out of the disc. If this material touches a spinal nerve, pain will be felt in the leg. This leg pain is called "sciatica."

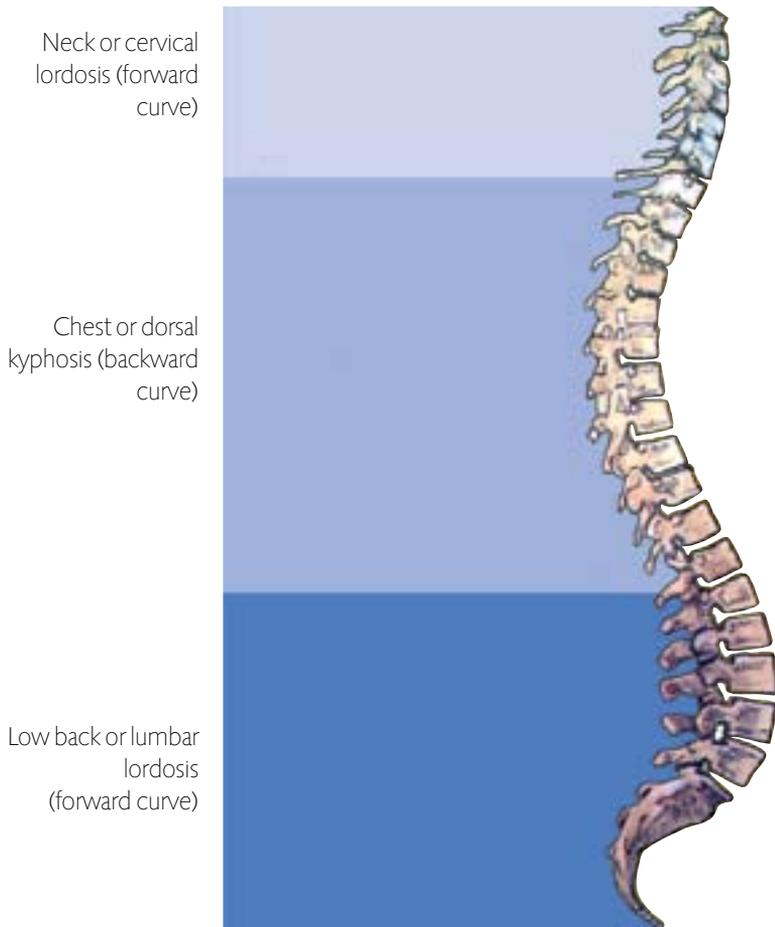
Most disc problems improve without surgery.



Proper spinal curves produce proper posture

The result: comfort

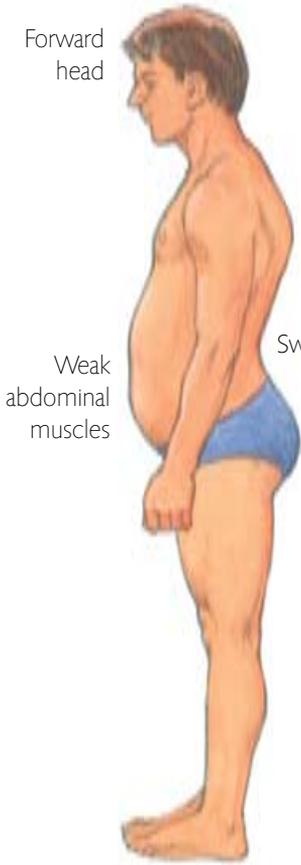
A normal spine is shaped as a double S-curve with two curves to the front and one to the back. These curves balance each other so that the head is supported on a pillar. If the curves are decreased (as in a "flat" back), or increased (as in a "sway" back), the spine becomes unbalanced. The muscles, ligaments, and joints then have to work harder to support the head. Fatigue and discomfort are the results.



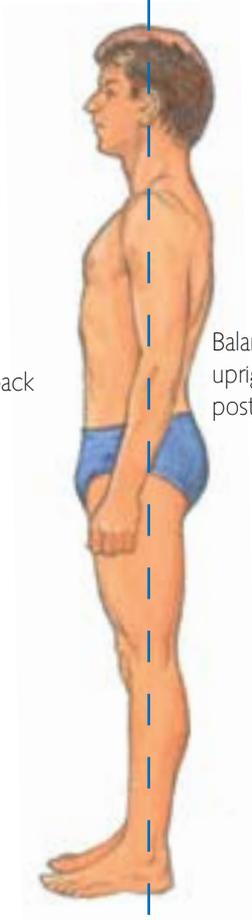
Poor posture

Good posture

Poor posture



Sway back



Balanced, upright posture



Flat back

Good posture—standing

The way you stand, particularly over prolonged periods, has a direct effect on your back. Good posture—when you are standing—is straight vertical alignment of your body from the top of your head, through your body's centre, to the bottom of your feet.

Avoid standing in one place for too long. For relief, try any of the following:

- Walk around from time to time
- Raise and rest one foot on a block about 15 or 20 centimetres (six or eight inches) high
- Crouch periodically to relax your back
- If you have been bending forward, stretch and bend backwards

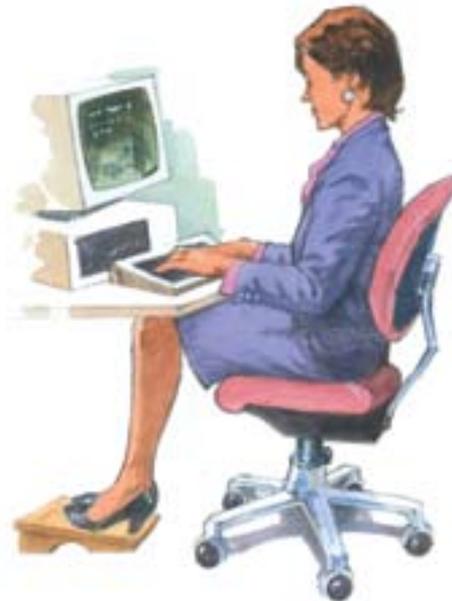


Good posture—sitting

Poor posture when sitting is an occupational hazard for many of us. Badly designed chairs or seats cause the pelvis to tilt, flattening the lower back and causing discomfort or pain. Using a proper chair or a small pillow or lumbar roll will relieve this strain.

To sit correctly, the pelvis should be in a neutral position. The spine should be supported along its natural curve, allowing the muscles to relax. The feet should be supported. The height of the seat should place the knees level with, or slightly higher than, the hips. Stand up regularly (at least every 45 minutes) and walk around.

If you sit at a computer, raise the screen to eye level and adjust the chair so you don't have to lean forward.



Good posture—lying down

Good sleeping posture is as important as standing or sitting posture. If lying on your back with your legs straight leads to low-back pain, try bending your knees.

Lying on your side with hips and knees bent relieves a sway back. One or both legs may be bent. If only the top leg is bent, place a pillow under the knee to prevent twisting.

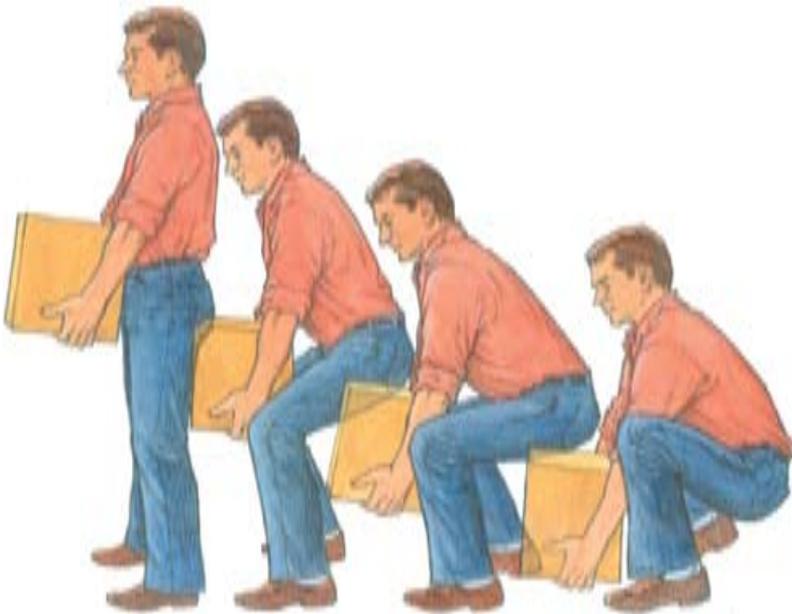
A sagging mattress gives poor support to your back. A good mattress is one that gives firm support along the length of your body and comfortably follows the natural curve of your back. It should allow you to sleep well and awake refreshed.



It is particularly important to stay healthy and prevent injury to the lower back when you are on the job. Good ergonomic design in the workplace is important, as are the rules for safe lifting and carrying. Always follow these rules, even for lifting light objects:

- Place your feet apart for good balance
- Bend your knees
- Hold the object as close to your body as possible
- Lift smoothly and slowly
- Pivot with your feet; don't twist the back
- Push, rather than pull a load
- Share the load, work with a partner
- Get mechanical assistance for heavy loads

Know your own strengths and limitations. Use proper lifting, bending, and sitting techniques on the job to help reduce low-back injuries in the workplace.



Exercise and your back

Many people who have back pain are afraid that any exercise will cause further damage. The fact is, most backs benefit from exercise. Strong, flexible muscles are essential to a healthy back. They support the spinal column and determine posture, which is the key to a healthy back. If your muscles are weak or tight, back injuries are more likely and recovery is more difficult.

Exercise is the only way to keep your muscles healthy.

Exercise to:

- Build strength and endurance for more efficient support and better posture
- Stretch shortened muscles that are causing imbalances
- Maintain mobility of joints



Exercises

Stay fit by exercising regularly to maintain a proper balance of flexibility, strength, and endurance. On the following pages you will find exercises designed to improve and maintain the overall fitness of your back.

This information is not intended as a substitute for medical attention. If you are receiving professional care, do only the exercises you have been instructed to perform.

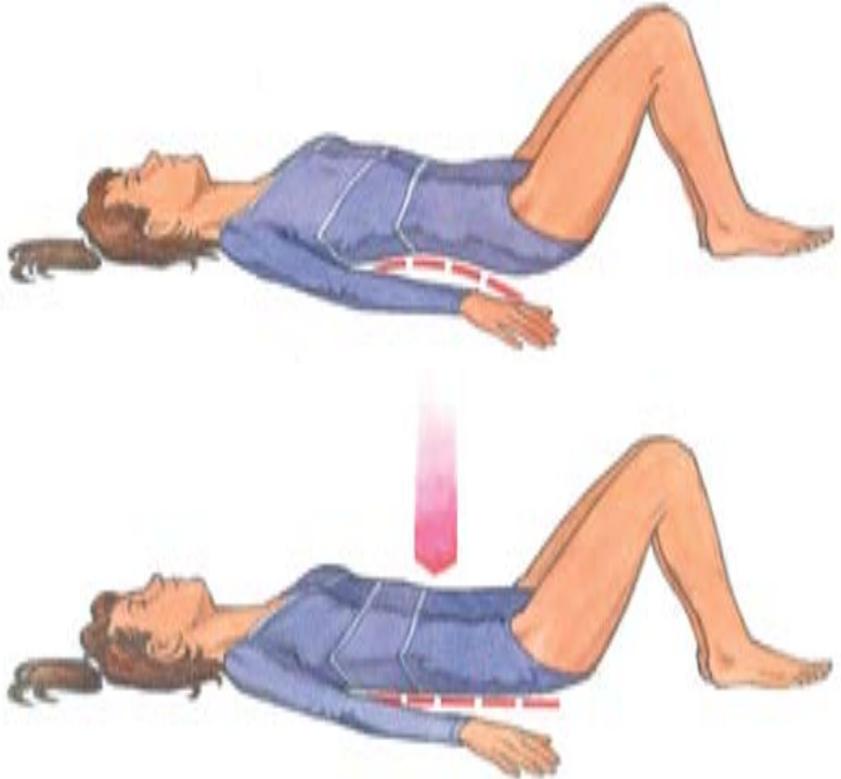
At the end of this book is a chart for your health professional to write recommended exercises and the number of repetitions you should do.

- Exercises 1–6 are stretching exercises and should be done before strengthening exercises 7–11
- Start with five repetitions of each exercise
- Progress slowly to 15 repetitions, but use your own judgment and don't advance too quickly
- A minimum of 20 minutes should be set aside daily for doing your exercises
- If the exercises cause pain for longer than 15 minutes, alter them or reduce the frequency



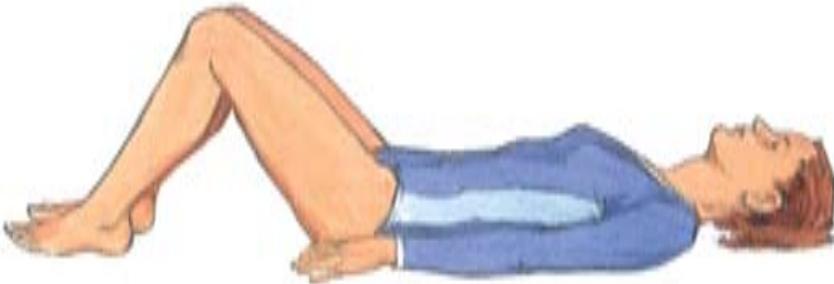
1. Pelvic tilt

Lie on your back with your knees bent, feet flat on the floor, and arms at your sides. Tighten your stomach muscles and flatten the small of your back against the floor without pushing down on the feet. Hold for five seconds, then slowly relax.



2. Knee to chest

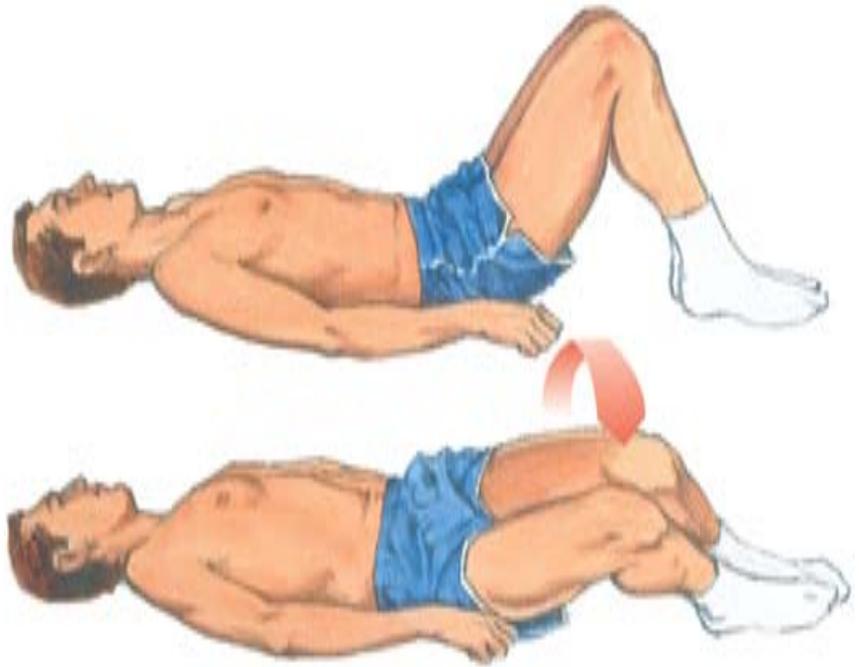
Lie on your back with your knees bent, feet flat on the floor, and arms at your sides. Grasp your right knee and gently pull toward your right shoulder. Hold for five seconds. Return to the starting position and repeat with the left leg. This is one repetition.



3. Lumbar rotation

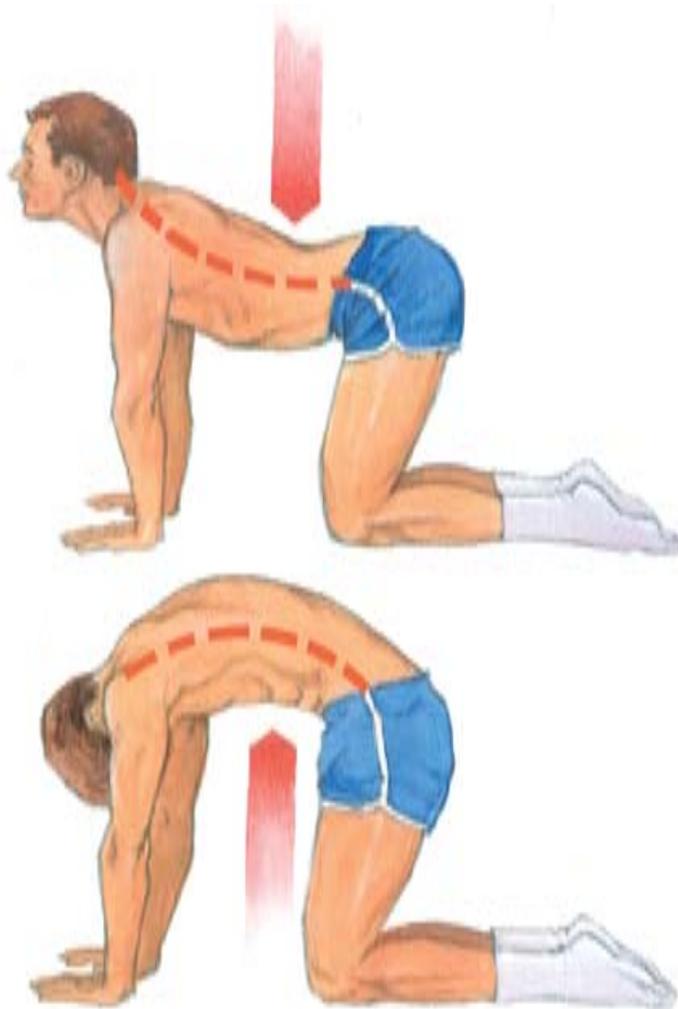
Start with your back, shoulders, and arms flat on the floor. With your knees together, roll them to one side as far as you can without lifting your shoulders off the floor.

Hold for five seconds and repeat on the other side. This is one repetition.



4. Hump and hollow

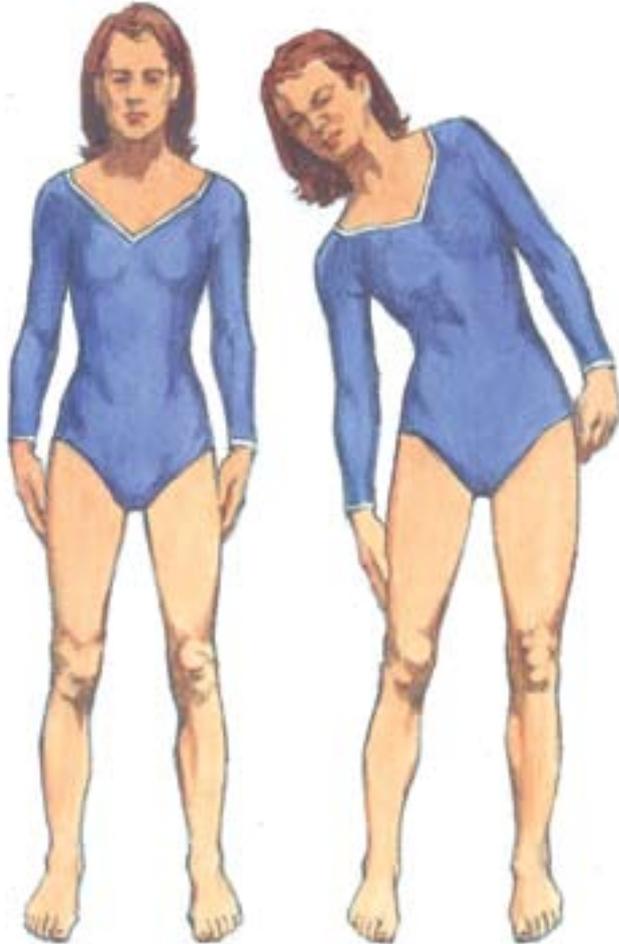
On your hands and knees, relax your abdomen and let your back sag downward. Then hump your back. Repeat.



5. Side bending

With your feet shoulder width apart, drop your head and shoulder while sliding your hand down your leg. Bend sideways slowly, as far as you can.

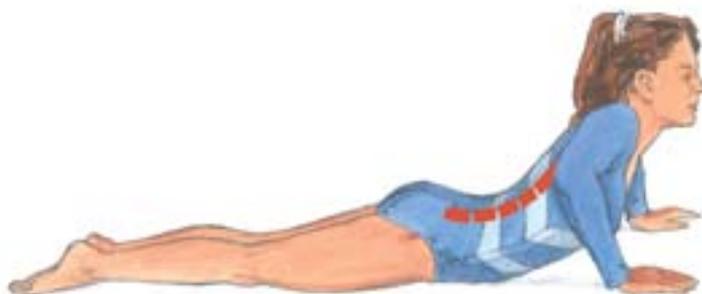
Hold for five seconds and repeat on the other side.
This is one repetition.



6. Trunk extension, prone

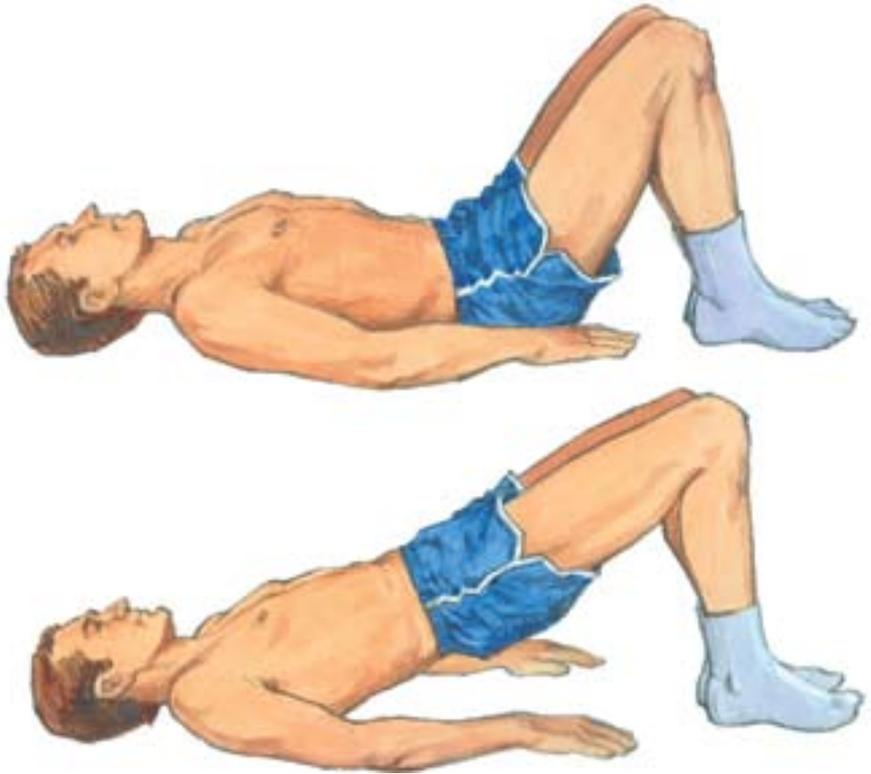
Lie on your stomach. Push up with your arms. Keep your hands on the floor. Let your stomach muscles relax and your back sag. Be careful not to bend back too far.

Hold for five seconds. Return to the starting position.



7. Bridging

Start with your back, shoulders, and arms flat on the floor. With your knees slightly apart, slowly raise your buttocks from the floor, keeping your stomach tight. Let your buttocks return to the floor.



8. Wall squat

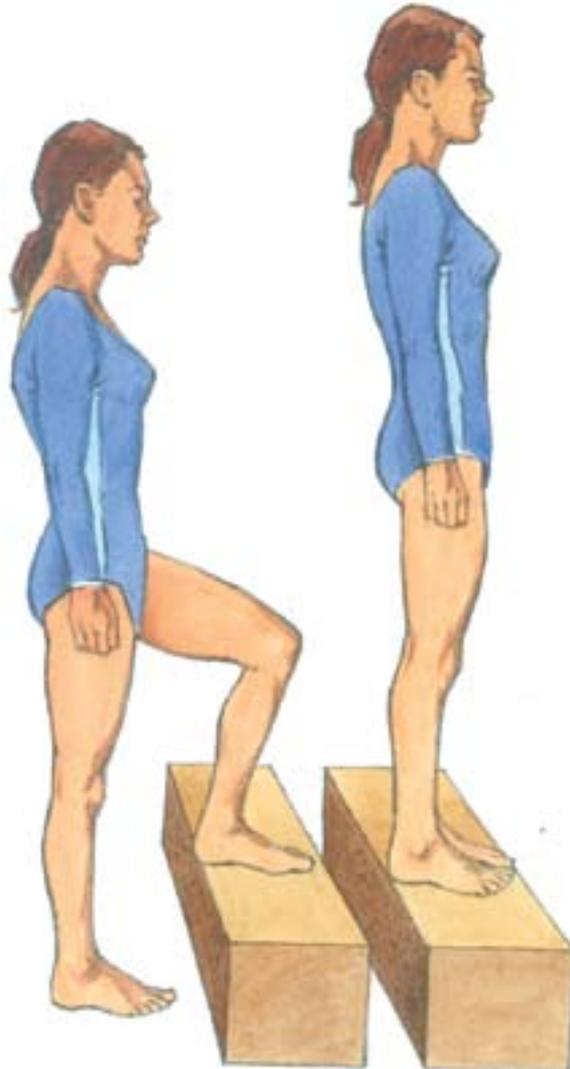
Lean against a smooth wall with your feet pointing straight ahead, heels about 45 centimetres (18 inches) from the wall. Slowly slide down the wall until your knees are bent to 90°.

Hold for five to ten seconds and slide back up. As you become stronger, increase the time you hold the squat.



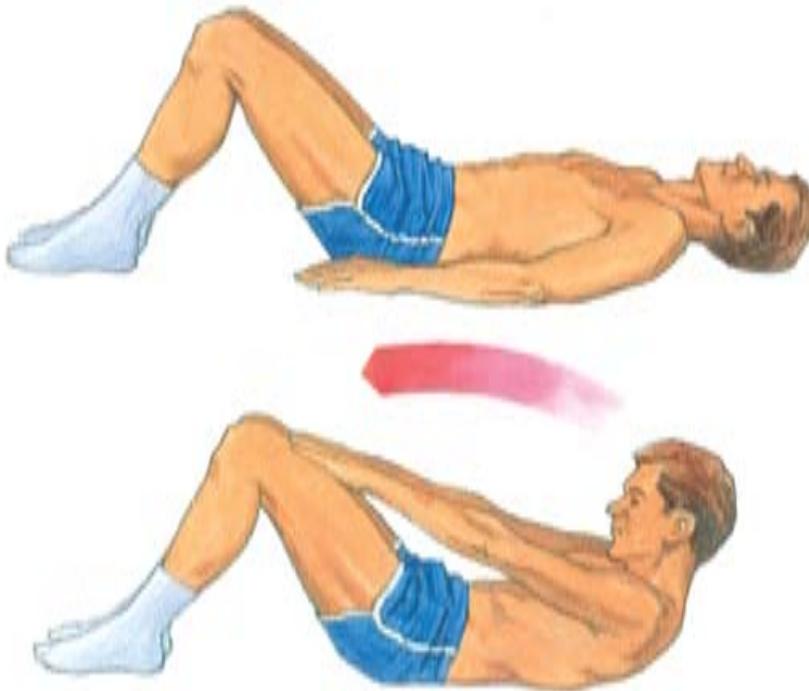
9. Step ups

Stand facing a 30- to 45-centimetre (12- to 18-inch) step stool. Step up with your left foot, then slowly step back down with your right foot. Do one set starting with one foot, then another starting with the other.



10. Partial sit-up

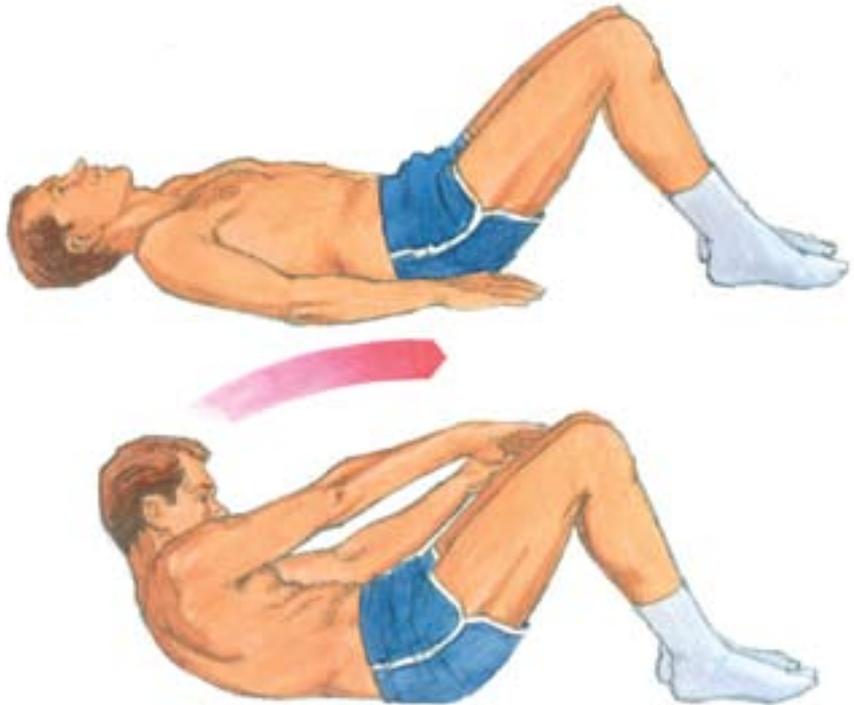
Lie on your back with your knees bent, feet flat on the floor, and arms at your sides. While holding this position, curl your head and shoulders and arms up and forward until your shoulder blades are off the floor. (Don't lead with your chin—keep it tucked in.) Hold briefly. Return slowly to the starting position.



11. Rotational sit-up

Lie on your back with your knees bent, feet flat on the floor, and arms at your sides. While keeping your hips flat, rotate your upper body so that the weight rests on your left shoulder. Then curl your head and shoulders upward, raising your right shoulder and arm higher than the left. Keep your chin tucked in.

Hold briefly before returning to the starting position. This is one repetition. Rotate your upper body to the right and repeat the movement, this time raising the left shoulder and arm higher than the right.



Your diet and your back

Excess weight places an unnecessary strain on the spine. The remedy includes developing good eating habits that provide you with enough nutrition without causing you to put on extra weight. Have your doctor or dietitian recommend a proper diet that suits your needs.

Rest and activities after back injuries

If you are suffering from a strained back, take a hot bath or shower followed by stretching exercises. If you have a very sore back, bedrest may be appropriate for a couple of days—not weeks. Find the most comfortable position and apply heat or ice to the area for a maximum of 20 minutes at a time.

When the pain starts to ease:

- Do some gentle stretching
- Walk around the room
- Walk around the house
- Walk around the block
- Keep moving a little further every day
- Swim and exercise your back if you can

Remember

- Balanced posture while standing, sitting, and sleeping is essential to a healthy back
- Exercise helps prevent injuries and assists in recovery
- Gentle post-injury exercise is essential
- Stay fit and avoid overeating
- Keep a positive attitude
- Stop smoking; smoking is linked to back pain

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Visit our web site at WorkSafeBC.com.

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