



# Sciatica

## DESCRIPTION

Sciatica is an inflammation of the sciatic nerve, which runs from the back to the leg. The sciatic nerve supplies the muscles of the back of the thigh (hamstrings), lower leg, ankle, and foot. It also supplies sensation to the skin of the back of the thigh, outer leg, and bottom and inner portions of the foot. This nerve can become inflamed for many different reasons.

## COMMON SIGNS AND SYMPTOMS

- Pain in the back of the thigh, usually traveling below the knee; may be worse with bending, sneezing, coughing, straining, or prolonged sitting
- Numbness or weakness affecting the thigh, lower leg, ankle, or foot
- Occasionally, pain in the back or buttocks

## CAUSES

Sciatica is caused by inflammation of the sciatic nerve as a result of irritation from a variety of sources, which include:

- Trauma
- A ruptured disk
- Arthritic spurs of the spine
- Spondylolisthesis (slippage of the vertebrae)
- Pressure from muscles of the pelvis (hamstring, piriformis)
- Prolonged sitting on a wallet

## FACTORS THAT INCREASE RISK

- Any sport that causes downward or twisting pressure on the spine, most commonly football, weight lifting, equestrian sports, bowling, tennis, jogging, track, racquetball, or gymnastics
- Poor physical conditioning (strength, flexibility)
- Inadequate warm-up before practice or play
- Family history of low back pain or disk disorders
- Previous back surgery, especially fusion
- Preexisting spondylolisthesis
- Poor mechanics with lifting
- Prolonged sitting, especially with poor mechanics

## PREVENTIVE MEASURES

- Use proper posture when sitting and proper technique when lifting.
- Appropriately warm up and stretch before practice and competition.

- Maintain appropriate conditioning that includes back and hamstring flexibility, muscle strength and endurance, and cardiovascular fitness.
- Maintain an ideal body weight.
- If your back has ever been injured, avoid any vigorous physical activity that requires twisting of the body under uncontrollable conditions.

## EXPECTED OUTCOME

Sciatica is usually curable within 6 weeks with appropriate conservative treatment; however, some patients need surgery.

## POSSIBLE COMPLICATIONS

- Permanent numbness, weakness, or paralysis
- Muscle wasting
- Chronic back pain
- Risks of surgery, including infection, bleeding, injury to nerves (persistent or increased numbness, weakness, or paralysis), persistent back and leg pain, and headache

## GENERAL TREATMENT CONSIDERATIONS

The initial treatment consists of rest, medications, and ice to relieve pain and inflammation. Exercises to improve strength and flexibility and proper back mechanics are important, as is refraining from any activities that produce symptoms. Referral to a physical therapist or athletic trainer may be recommended for exercises, education regarding back mechanics, and possibly other treatments, such as transcutaneous electronic nerve stimulation (TENS) or ultrasound. Biofeedback and psychotherapy may also be recommended. Occasionally, epidural steroid injections or oral steroids may be offered to reduce inflammation of the nerve. For patients who continue to have symptoms despite conservative management—particularly those with persistent pain, numbness, or weakness—surgery may be recommended to remove the source of irritation to the sciatic nerve.

## MEDICATION

- Nonsteroidal antiinflammatory medications, such as aspirin and ibuprofen (do not take for 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician, and contact your doctor immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

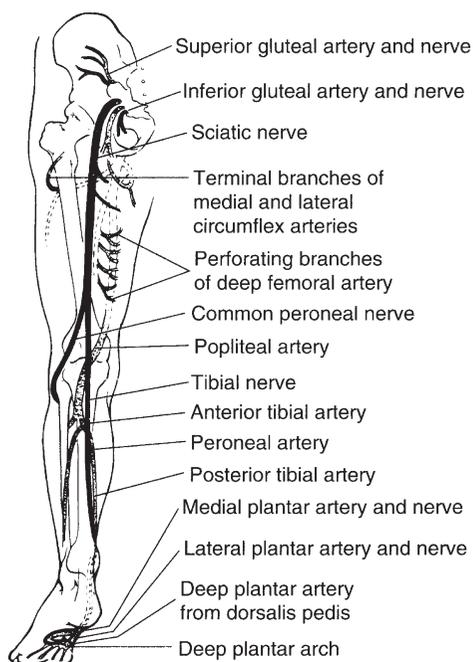
- Topical analgesic ointments may be of benefit.
- Stronger pain relievers and muscle relaxers may be prescribed as necessary. Use these only as directed, and take only as much as you need. Do not use any heavy machinery or drive a car while taking these medications.
- Injections of corticosteroids into the epidural space of the spine may be given to reduce inflammation, although this is not usually done for acute injuries.
- Oral steroids may be given to reduce inflammation, although this is not usually done for acute injuries.

## HEAT AND COLD

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. It should be applied for 10 to 15 minutes every 2 to 3 hours as needed and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

## WHEN TO CALL YOUR DOCTOR

- Symptoms get worse or do not improve in 2 to 4 weeks despite treatment.
- You develop loss of bowel or bladder function.
- New, unexplained symptoms develop. Drugs used in treatment may produce side effects.



**FIGURE 1** From Jenkins DB: *Hollinshead's functional anatomy of the limbs and back*, ed 6, Philadelphia, 1991, W.B. Saunders, p 221.

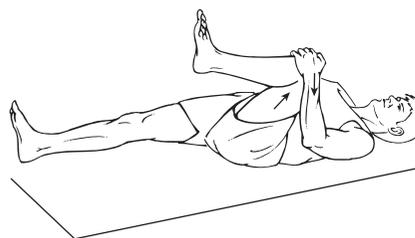
## RANGE OF MOTION AND STRETCHING EXERCISES

### Sciatica

The range of motion and stretching exercises appropriate for you usually need to be determined on an individual basis. Some people respond better to flexion (pulling your knees to your chest), whereas others respond better to extension (arching your back). The key point to remember is that *if any exercise—range of motion, stretching, or strengthening—causes pain to radiate away from your back toward your buttocks or legs, stop the exercise immediately.* The purpose of these exercises is to begin to decrease the intensity and the size of the area of your pain.

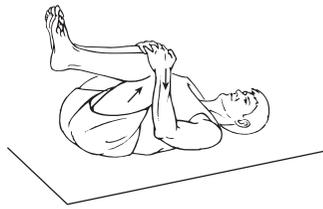
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Flexion and extension exercises are presented here, but the exercises appropriate for you *must be specified by your physician, physical therapist, or athletic trainer before beginning.* Please remember:

- Flexible tissue is more tolerant of the stresses placed on it.
- A *gentle* stretching sensation should be felt.
- If pain or other symptoms radiate away from your back toward your buttocks or legs, *stop the exercise immediately.*



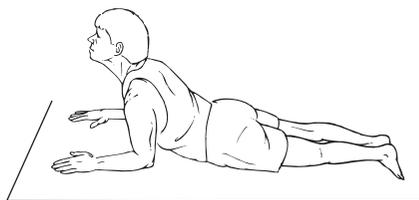
### RANGE OF MOTION • Lumbar Spine Flexion

1. Lie on your back with both legs flat on the floor.
2. Bend one knee up toward your chest.
3. Grasp your knee and pull it *gently* toward your chest. Keep your other leg flat on the floor while doing this exercise.
4. Hold each repetition for \_\_\_\_ seconds.
5. Repeat this exercise on the opposite side, \_\_\_\_ times for each side, \_\_\_\_ times per day.



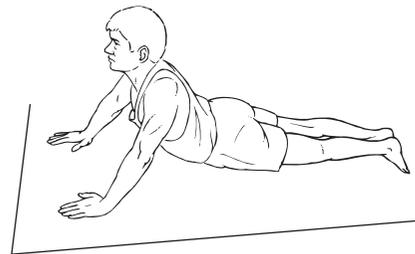
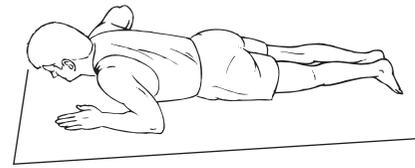
**RANGE OF MOTION • Lumbar Spine Flexion**

1. Lie on your back with both legs flat on the floor.
2. Bend one knee up toward your chest and then the other.
3. Grasp your knees and pull them *gently* toward your chest.
4. Hold this stretch for \_\_\_\_ seconds.
5. Release one knee, allowing the leg to return to the floor, then release the other knee.
6. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



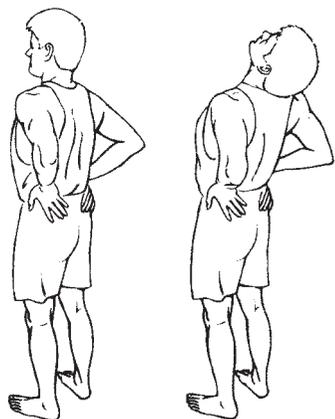
**RANGE OF MOTION • Lumbar Spine Extension**

1. Lie on your stomach on the floor.
2. Place your arms underneath you and prop yourself up on your elbows as shown.
3. Allow your back to relax and sag, and hold this position for \_\_\_\_ seconds.
4. Return to the starting position, lying on your stomach, flat on the floor.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



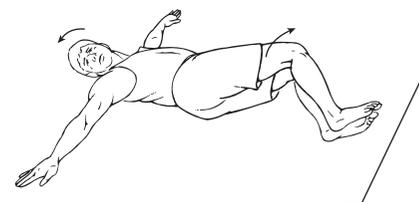
**RANGE OF MOTION • Lumbar Spine Extension**

1. Lie on your stomach on the floor as shown.
2. Place your palms flat on the floor, and push down on your hands, straightening your arms and putting an arch in your back. Straighten your elbows fully, keeping your hips on the floor.
3. Hold each repetition for \_\_\_\_ seconds, and return to the starting position.
4. If you are unable to fully straighten your elbows while keeping your back relaxed, place your hands farther in front of you, and try again.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



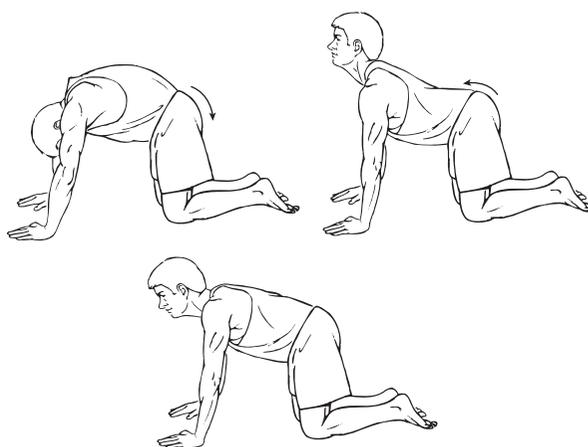
**RANGE OF MOTION • Lumbar Extension**

1. Stand erect and place your hands on the back of your hips as shown.
2. Bend backward until you feel a *gentle* stretch in your back. Hold each repetition for \_\_\_\_ seconds.
3. *Slowly* return to the starting position.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



**RANGE OF MOTION • Lumbar Spine Rotation**

1. Lie on your back with your hips and knees bent and your feet flat on the floor. Keep your arms out at your sides and your shoulders flat on the floor.
2. Rotate your hips and knees to one side as far as you can, keeping your arms and shoulders flat on the floor. Hold this position for \_\_\_\_ seconds.
3. Bring your knees back to the starting position, and rotate your hips and knees to the opposite side. Hold this position for \_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



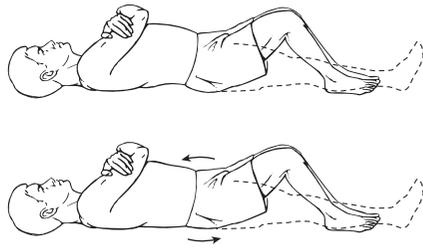
**FLEXIBILITY • Lumbar Stretch**

1. Get on your hands and knees, assuming the position shown.
2. Tighten your stomach muscles and tuck your hips under, arching your back as shown. Hold this position for \_\_\_\_ seconds.
3. Tighten your back muscles, rotating your buttocks up and allowing your back to sag as shown. Hold this position for \_\_\_\_ seconds.
4. Find a neutral position, and tighten your stomach and back muscles. Hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.

**STRENGTHENING EXERCISES**  
Sciatica

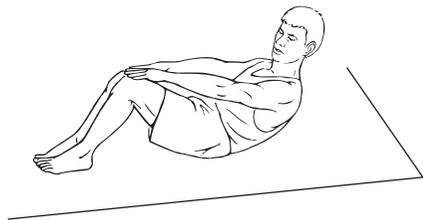
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise under their guidance, gradually increasing the number of repetitions and weight used.
- If pain or other symptoms radiate away from your back toward your buttocks or legs, *stop the exercise immediately*.



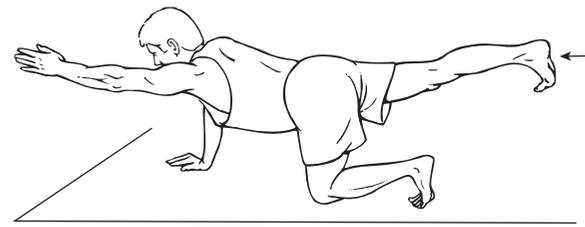
**STRENGTH • Pelvic Tilt**

1. Lie on the floor as shown. You may do this exercise with your knees bent or straight, but it is harder with your knees straight.
2. Tighten your stomach and buttock muscles, and push back flat onto floor. If you do this properly, your pelvis will rotate in the direction shown in the diagram.
3. Hold each repetition for \_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day. Count out loud, and do not hold your breath.



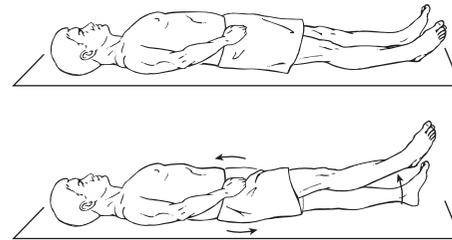
**STRENGTH • Partial Sit-ups**

1. Lie flat on your back with your hands resting on your thighs.
2. Tuck your chin to your chest, and sit up *slowly*, until you can touch the top of your knees.
3. Hold this position for a count of \_\_\_\_\_. *Count out loud, and do not hold your breath.*
4. Return to the starting position.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



**STRENGTH • Quadruped Lift**

1. Position yourself on your hands and knees, keeping your back flat and parallel to the floor. *Do not let your back arch or move during this exercise.*
2. Lift your *left* arm up to shoulder height. Hold this position, and lift your *right* leg to the same height.
3. Balance and hold this position for \_\_\_\_ seconds.
4. Return to the starting position, and repeat the exercise with the opposite arm and leg.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day. Count out loud, and do not hold your breath.



**STRENGTH • Pelvic Tilt and Straight Leg Lift**

1. Lie on the floor as shown. You may do this exercise with your knees bent or straight, but it is harder with your knees straight.
2. Tighten your stomach and buttock muscles, and push back flat onto floor. If you do this properly, your pelvis will rotate in the direction shown in the diagram.
3. With your back flat on floor, slowly lift one leg off the floor 6 inches, keeping your knee straight. *Do not let your back arch, and count out loud to \_\_\_\_\_.*
4. Repeat this exercise with the other leg, \_\_\_\_ times on each side, \_\_\_\_ times per day.

**POSTURE AND BODY MECHANICS CONSIDERATIONS**  
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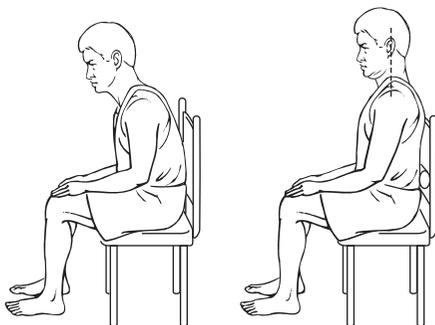
Maintaining good posture and using proper body mechanics can have a significant effect on back pain. The following are basic suggestions regarding correct posture and body mechanics. These should be specifically discussed with your physician, physical therapist, or athletic trainer. Please remember:

- Good posture minimizes the stress and strain on your entire spine.
- Incorporate these posture principles into all of your daily and recreational activities.



**RESTING POSITIONS**

Sleep or rest on a firm surface in a comfortable position. The most commonly suggested positions are side-lying positions with a pillow between your knees or on your back with a pillow under your knees.



**PROPER SITTING POSTURE**

Do not slouch! Sit with a rolled-up towel, foam cushion, or pillow against your lower back area, just above your belt. Sit with your buttocks all the way back in the chair.

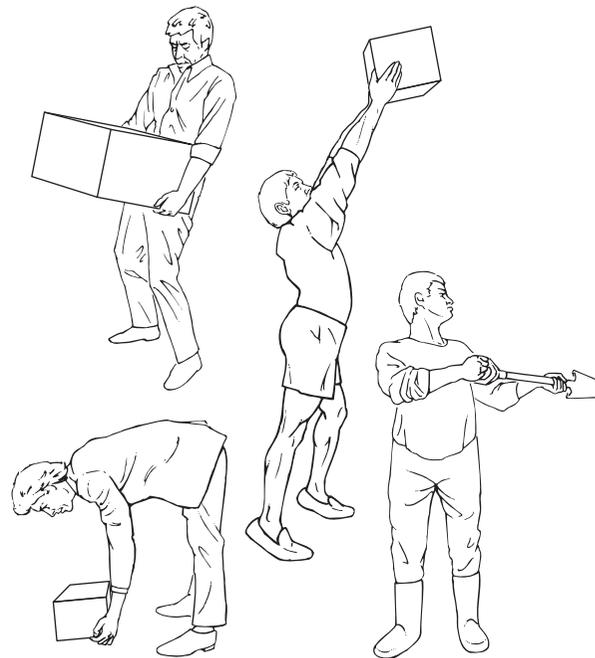
**CORRECT LIFTING TECHNIQUES**



**DO**

- Lift with your legs, keeping your back straight.
- Use a footstool for objects that need to be placed or retrieved from high places.
- Use two people to lift heavy or awkward objects.

**INCORRECT LIFTING TECHNIQUES**



**DO NOT**

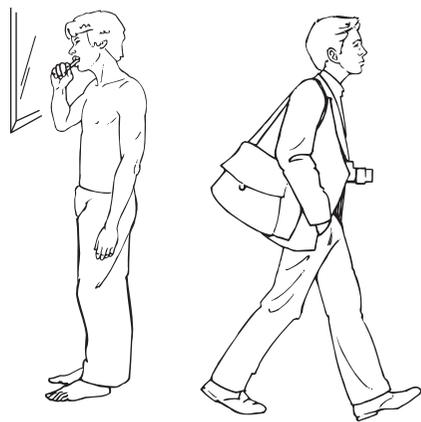
- Do not lift with your legs straight and your back bent.
- Do not lift heavy objects over your head.
- Never lift and twist at the same time.
- Do not lift an object that is very heavy or awkward to lift without help.



**PROLONGED STANDING IN SLIGHT FLEXION**

When you must stand in a position that requires a prolonged period in slight flexion, consider finding a footstool or other object to place one foot on. This will minimize the load on your back.

**CORRECT STANDING POSTURES**



**DO**

Stand upright and erect whenever possible.

**INCORRECT STANDING POSTURES**



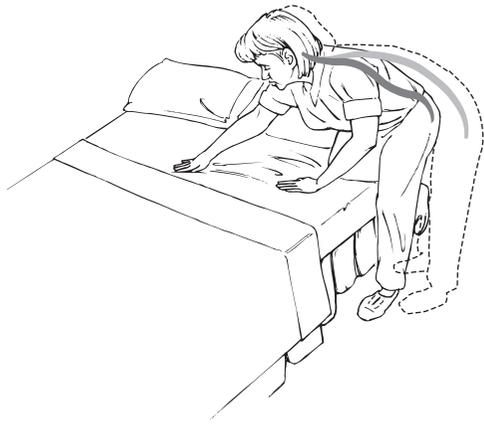
**DO NOT**

Do not slouch, and do not maintain flexed standing postures for prolonged periods.



**LIFTING**

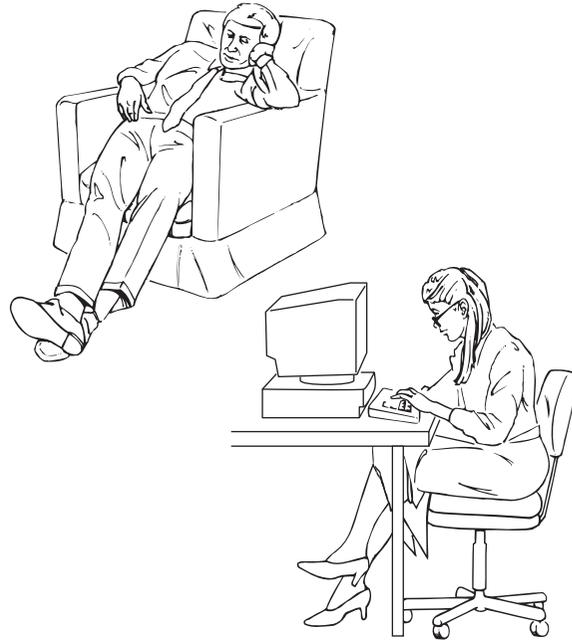
Do not round out your back when lifting any object. You should make sure that you bend your knees and attempt to maintain a normal curve in your spine.



**PROLONGED ACTIVITY IN A FLEXED POSITION**

Try to avoid doing any activity in a flexed position for a prolonged period. Put one leg up if possible, which will minimize stress on your back. You should attempt to keep a normal spinal posture when doing any activity.

**INCORRECT SITTING POSTURES**



**CORRECT SITTING POSTURES**

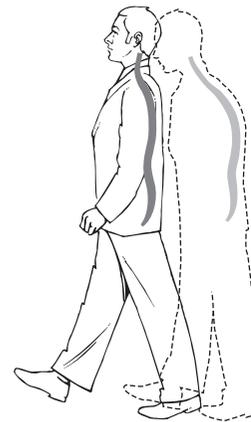


**DO**

Sit erect and use a lumbar roll, cushion, or pillow against the small of your back. Use a chair that has a high enough back to support your back up to your shoulder blades.

**DO NOT**

Do not slouch or slump. Maintain a proper position in the chair.



**SLOUCHING**

Avoid slouching when you sit, walk, or stand. Stand up straight, and walk erect and tall.