

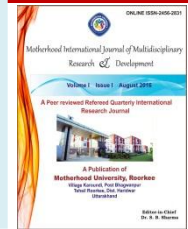


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Physiotherapy Rehabilitation

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Abstract

Sciatica Refers to pain that radiates along the sciatic nerve and is typically felt in the buttocks, down the back of the leg, and possibly to the foot. It is caused by some common conditions herniated disc, degenerative disc disease and lumbar spinal stenosis. Sciatica is the result of a neurological problem in the back or an entrapped nerve in the pelvis or buttock. Such exercises include leg lifts done in a facedown position, straight leg sit-ups, and leg curls using exercise equipment. Exercise may also be effective when combined with a psychological and motivational program. Specific Exercises for Low Back Strength, Partial sit-ups or crunches, pelvic tilt alleviates, Stretching Lower-Back Muscles. Exercises and some medicines are giving very good results in sciatica condition.

Introduction

Sciatica is the result of a neurological problem in the back or an entrapped nerve in the pelvis or buttock. There are a set of neurological symptoms such as:

- Pain (intense pain in the buttock)
- Lumbosacral radicular leg pain
- Numbness
- Muscular weakness
- Gait dysfunction
- Sensory impairment
- Sensory disturbance
- Hot and cold or tinglings or burning sensations in the legs
- Reflex impairment

- Paresthesias or dysesthesias and oedema in the lower extremity that can be caused by the irritation of the sciatic nerves (the lumbar nerve L4 and L5 and the sacral nerves S1,S2 and S3).

Sciatica Refers to pain that radiates along the sciatic nerve and is typically felt in the buttocks, down the back of the leg, and possibly to the foot. Sciatica is typically caused by common conditions including a herniated disc, degenerative disc disease and lumbar spinal stenosis. Sciatica is a descriptive term rather than a diagnosis. The term sciatica is used because it describes the radiculo-pathy that occurs when one or more of the nerves that make up the large sciatic nerve are irritated or pinched. Most cases of sciatica will get better with time and conservative (nonsurgical) care. However, some sciatica symptoms such as progressive weakness, loss of leg sensation and incontinence may indicate a potentially serious injury to the sciatic nerve and surgery may be warranted⁽⁴⁾.

Causes of sciatica

Sciatica is a common symptom of several different medical conditions; however, an estimated 90 percent of cases are due to a herniated (slipped) disk. The spinal column is made up of three parts:

- vertebra (individual bones in the spine that protect underlying nerves)
- nerves
- disks

Disks are made of cartilage, which is a strong and resilient material; the cartilage acts as a cushion between each vertebra and allows the spine to be flexible. A herniated disk occurs when a disk is pushed out of place, putting pressure on the sciatic nerve.

Other causes of sciatica include

- **Lumbar spinal stenosis** - narrowing of the spinal cord in the lower back.
- **Spondylo-listhesis** - a condition where a disk slips forward over the vertebra below it.
- **Tumors within the spine** - these may compress the root of the sciatic nerve.
- **Infection** - ultimately affecting the spine.
- **Other causes** - for instance, injury within the spine.
- **Cauda equina syndrome** - a rare but serious condition that affects the nerves in the lower part of the spinal cord; it requires immediate medical attention.

In many cases of sciatica, there is no single obvious cause.

Risk factors for sciatic nerve pain

Common risk factors include:

- **Age** - people in their 30s and 40s have a higher risk of developing sciatica.
- **Profession** - jobs that require lifting heavy loads for long periods.
- **Sedentary lifestyle** - people who sit for long periods and are physically inactive are more likely to develop sciatica, compared with active people.

Although sciatica-like pain can be a problem during pregnancy, sciatica due to a herniated disk is no more likely during pregnancy

Treatment:

- A conservative home care program is often the first therapy regimen for new back pain (unless the doctor suspects a serious underlying condition). The goals are to reduce any swelling and improve function. The regimen often includes periods of rest and movement, the application of ice or heat, non-steroidal anti-inflammatory drugs (NSAIDs), and gentle exercises. A work ergonomics assessment may also be beneficial.
- Weekly yoga or stretching classes can be effective at improving function and reducing chronic back pain. The effects can last for several months or longer. In a recent study, yoga and stretching classes were shown to be superior to self-care books in reducing chronic back pain and improving function.
- The antidepressant medication Cymbalta was approved by the Food and Drug Administration (FDA) in 2010 for the treatment of chronic lower back pain (as well as pain related to osteoarthritis).
- The American Pain Society concluded in its updated guidelines for low back pain that nonsurgical interventions are quite effective and should be considered over other treatments. Eight new key recommendations war against the use of certain surgical interventions and emphasize shared-decision making between doctor and patient.
- There are several factors to consider when assessing a surgical candidate. For example, preliminary evidence shows that low back pain patients with psychological disorders may respond better to conservative interventions than to spinal fusion. More research is necessary to assess other factors.

- More research is needed to show whether botulinum toxin injections reduce pain or improve function for low back pain. Botulinum toxin injections are not approved by the Food and Drug Administration for the treatment of low back pain.
- Glucosamine, a popular supplement, is not effective for arthritis of the back or for other forms of back pain.

The Role of Physical Therapy

Physical therapy with a trained professional may be useful if pain has not improved after 3 - 4 weeks. It is important for any person who has chronic low back pain to have an exercise program. Professionals who understand the limitations and special needs of back pain, and can address individual health conditions, should guide this program. One study indicated that patients who planned their own exercise program did worse than those in physical therapy or doctor-directed programs.

Physical therapy typically includes the following:

- Education and training the patient in correct movement
- Exercises to help the patient keep the spine in neutral positions during all daily activities

Incorrect movements or long-term high-impact exercise is often a cause of back pain in the first place. People vulnerable to back pain should avoid activities that put undue stress on the lower back or require sudden twisting movements, such as football, golf, ballet, and weight lifting.

Exercises performed after a simple di-sectomy does not seem to provide much added benefit over time. Specific and regular exercise under the guidance of a trained professional is important for reducing pain and improving function, although patients often find it difficult to maintain therapy.

Exercise and Acute or Sub-acute Back Pain

Exercise does not help acute back pain. In fact, overexertion may cause further harm. Beginning after 4 - 8 weeks of pain, however, a rehabilitation program may benefit the patient.

An incremental aerobic exercise program (such as walking, stationary biking, and swimming) may begin within 2 weeks of symptoms. Jogging is usually not recommended, at least not until the pain is gone and muscles are stronger.

Patients should avoid exercises that put the lower back under pressure until the back muscles are well toned. Such exercises include leg lifts done in a facedown position, straight leg sit-ups, and leg curls using exercise equipment. In all cases, patients should never force themselves to exercise if, by doing so, the pain increases.

Exercise and Chronic Back Pain

Exercise can help reduce chronic back pain. Repetition is the key to increasing flexibility, building endurance, and strengthening the specific muscles needed to support the spine. Exercise should be considered as part of a broader program to return to normal home, work, and social activities. In this way, the positive benefits of exercise not only affect strength and flexibility but also alter and improve patients' attitudes toward their disability and pain. Exercise may also be effective when combined with a psychological and motivational program, such as cognitive-behavioral therapy.

There are different types of back exercises. Stretching exercises work best for reducing pain, while strengthening exercises are best for improving function. Graded exercise programs, including daily walks and home and workplace interventions may improve pain and function for 12 months or longer in patients with chronic low back pain.

Weekly yoga and stretching classes can be effective methods to improve function and reduce symptoms.

Exercises for back pain include:

- ***Low Impact Aerobic Exercises:*** Low-impact aerobic exercises, such as swimming, bicycling, and walking, can strengthen muscles in the abdomen and back without overstraining the back. Programs that use strengthening exercises while swimming may be a particularly beneficial approach for many patients with back pain. Medical research has shown that pregnant women who engaged in a water gymnastics program have less back pain and are able to continue working longer.

- *Spine Stabilization and Strength Training.* Exercises called lumbar extension strength training are proving to be effective. Generally, these exercises attempt to strengthen the abdomen, improve lower back mobility, strength, and endurance, and enhance flexibility in the hip, the hamstring muscles, and the tendons at the back of the thigh.
- *Yoga, Tai Chi, Chi Kung.* Practices originating in Asia that combine low-impact physical movements and meditation may be very helpful. They are designed to achieve a physical and mental balance and can be very helpful in preventing recurrences of low back pain.
- *Flexibility Exercises* Flexibility exercises may help reduce pain. A stretching program may work best when combined with strengthening exercises.

Specific Exercises for Low Back Strength

Perform the following exercises at least three times a week:

Partial Sit-up Partial sit-ups or crunches strengthen the abdominal muscles.

- Keep your knees bent and the lower back flat on the floor while raising the shoulders up 3 - 6 inches.
- Exhale on the way up, and inhale on the way down.
- Perform this exercise slowly 8 - 10 times with the arms across your chest.

Pelvic Tilt The pelvic tilt alleviates tight or fatigued lower back muscles.

- Lie on your back with your knees bent and feet flat on the floor.
- Tighten your buttocks and abdomen so that they tip up slightly.
- Press your lower back to the floor, hold for one second, and then relax.
- Be sure to breathe evenly.

Over time increase this exercise until it is held for 5 seconds. Then, extend your legs a little more so that your feet are further away from your body and try it again.

Stretching Lower-Back Muscles The following are three exercises for stretching the lower back:

- Lie on your back with your knees bent and legs together. Keeping arms at the sides slowly roll your knees over to one side until totally relaxed. Hold this position for about 20 seconds (while breathing evenly) and then repeat on the other side.
- Lying on your back, hold one knee and pull it gently toward your chest. Hold for 20 seconds. Repeat with your other knee.
- While supported on your hands and knees lift and straighten your right hand and left leg at the same time. Hold for 3 seconds while tightening your abdominal muscles. Your back should be straight. Alternate with your other arm and leg and repeat on each side 8 - 20 times.

Note: No one with low back pain should perform exercises that require bending over right after getting up in the morning. At that time, the disks are more fluid-filled and more vulnerable to pressure from this movement.

Degenerative Disc Disease Sciatica Management:

A dynamic lumbar stabilization program is recommended. Through this program the patient finds the most comfortable position for the lumbar spine and pelvis and attempts to maintain this position during activities. When performed correctly, this exercise can improve the proprioception of the lumbar spine and reduce the excess motion at the spinal segments. This reduces the amount of irritation at these segments, relieving pain and protecting the area from further damage. Examples of these exercises are; Hook-lying March, Hook-lying March Combination and Bridging.

Conclusion : Physical therapy with a trained professional may be useful if pain has not improved after 3 - 4 weeks. It is important for any person who has chronic low back pain to have an exercise program. Professionals who understand the limitations and special needs of back pain, and can address individual health conditions, should guide this program. Specific and regular exercise under the guidance of a trained professional is important for reducing pain and improving function, although patients often find it difficult to maintain therapy. With help of the goals are to reduce any swelling and improve function. The regimen often includes periods of rest and movement, the application of ice or heat, non-steroidal anti-inflammatory drugs (NSAIDs), and gentle exercises.

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