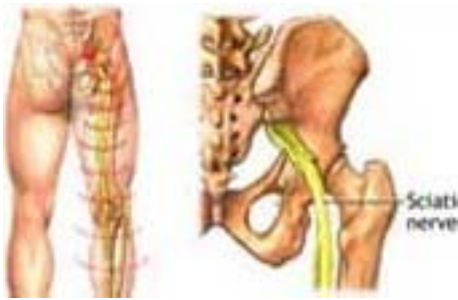


UNDERSTANDING SCIATICA

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The sciatic nerve is the longest nerve in the human body. It is made up of five separate nerve roots originating from the low back region on each side. The sciatic nerve runs from your pelvis through your buttock and hip area and down the back of each leg. It controls many of the muscles in your legs and provides feeling to your thighs, lower legs and feet.

Sciatica is a common term used to describe any form of pain that radiates into the leg. However, this is not technically correct. True sciatica occurs when there is a mechanical irritation and/or inflammatory response directly compressing any component of the sciatic nerve. This differs from “referred” pain into the leg, which is pain from a joint or muscle that sends a pain signal into the leg, but not along the sciatic nerve. Sciatica is a set of symptoms of a problem, rather than a diagnosis for what is irritating the nerve and causing the pain. This is an important point to consider because the treatment for sciatica will often be different depending on the underlying cause of the symptoms.



True sciatic pain can radiate from the low back region, into the hip or buttock, and down the leg into the calf and even the toes. The pain may be felt almost anywhere along the nerve pathway. The pain can vary widely, from a mild ache, bruised or cramping feeling, to a sharp, burning sensation or excruciating discomfort like an electric shock. In addition you may also experience numbness, tingling, and muscle weakness in your leg. There are many different activities that may aggravate the discomfort such as bending forward or to the side, walking, prolonged sitting or standing, and even coughing or sneezing. The pain may start gradually and intensify over time.

True sciatica is generally caused by compression of the nerve roots in the lower back due to their anatomical proximity to many potential sources of irritation. Below is a brief summary of three common causes of sciatica:

- 1. Spinal disc herniation/bulge** – Spinal discs separate and cushion lumbar vertebra and consist of a tough outer cartilage layer (*annulus fibrosus*) that enclose a softer inner jelly-like substance (*nucleus pulposus*). Repetitive and cumulative loads or a heavy single load has the potential to push the *nucleus pulposus* through the *annulus fibrosus* and cause a disc herniation or bulge, thereby causing a mechanical and inflammatory irritation of the nerve root(s). This most commonly occurs in adults aged 20-50.
- 2. Degeneration and Osteoarthritis** – The normal aging process causes lumbar disc degeneration (*spondylosis*), osteoarthritis of lumbar facet joints, and occasionally vertebral slippage (*spondylolisthesis*). The consequence of these processes is that mechanical irritation from bony spurs and vertebrae along with inflammation can cause symptoms of sciatica. This most commonly occurs in adults over 50.

3. Lumbar spinal stenosis – This condition causes sciatica due to narrowing of the spinal canal, which puts pressure on the nerve roots or spinal cord. This most commonly occurs in adults over 60. It is usually secondary to degeneration and osteoarthritis.

Other causes of true sciatica include: direct irritation of the sciatic nerve by the piriformis muscle; direct trauma or injury to the sciatic nerve or nerve roots; and postural and mechanical changes associated with pregnancy. Some common causes of sciatic-like symptoms or referred pain include; muscular trigger points and ligament sprains from the low back, hip, gluteal and pelvic regions; sacroiliac joint dysfunction; and arthritic low back, hip and knee joints.

Treatment for sciatica will often be different depending on the underlying cause of the symptoms. Therefore, it is important to obtain an accurate diagnosis. A proper medical history, along with physical examination consisting of range of motion, strength, neurological and orthopaedic testing, along with diagnostic imaging (if necessary) should be performed to aid in the diagnosis. It is extremely important to rule out rare causes of sciatic symptoms such as spinal tumors and infections. Individuals with a loss of bowel or bladder control may be experiencing cauda equina syndrome and should be referred for emergency care.

There are preventative measures that can be taken to reduce the risk of developing sciatica. The use of correct body mechanics with lifting can minimize the potential of injury to structures in your low back. Proper sitting posture should ensure that the natural curve of your low back is maintained, thus decreasing the mechanical stress on the lumbar discs, joints and muscles. Regular exercise, with special attention to the core muscles can help strengthen the low back region to withstand everyday activity. When sciatica strikes, there are natural and conservative treatment options available. These may include: mechanical traction, spinal manipulation and mobilization, soft tissue techniques, acupuncture, ice/heat application, electrotherapy, and rehabilitative exercise.

The symptoms of sciatica can range from mild and infrequent to severe and debilitating. A qualified health professional can determine the cause of your sciatica and prescribe appropriate therapy, exercises, and rehabilitation strategies specifically for your circumstance. For more information, visit www.nhwc.ca.

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