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Sciatica and Exercise

Sciatica is pain caused by general compression and/or irritation of one of five nerve roots that are branches of the sciatic nerve. The pain is felt in the lower back, buttock, and/or various parts of the leg and foot. In addition to pain, which is sometimes severe, there may be numbness, muscular weakness, and difficulty in moving or controlling the leg. Typically, the symptoms are only felt on one side of the body.

Sciatica is generally caused by the compression of a lumbar spine nerve root (L4,L5) or sacral spine nerve root (S1,S2,S3) or by compression of the sciatic nerve itself. Nerve root involvement occurs primarily due to disc degeneration; compression of the sciatic nerve is often due to muscular entrapment.

Disc Herniation: the spinal discs are composed of a spongiform cartilage with a liquid center. The discs separate the vertebrae, thereby allowing room for the nerve roots to properly exit through the spaces between the L4, L5, and sacral vertebrae. The discs cushion the spine from compressive forces, but are weak to pressure applied during rotational movements. That is why a person who bends to one side, at a bad angle, to pick up a piece of paper may more likely herniate a spinal disc than a person falling from a ladder and landing on his or her back. Herniation of a disc occurs when the liquid center of the disc bulges outwards, tearing the external ring of fibers, and compresses a nerve root against the lamina or pedicle of a vertebra, thus causing sciatica.

Spinal Stenosis: a condition wherein the spinal canal (the spaces through which the spinal cord runs) narrows and compresses the spinal cord. This narrowing can be caused by bone spurs, vertebral dislocation, inflammation, or herniated disc which decreases available space for the spinal cord, thus pinching nerves in the spinal cord that travel to the sciatic nerve and irritating them with friction.

Piriformis Syndrome: the sciatic nerve runs through the piriformis muscle in the buttocks region beneath the gluteal muscles. When the muscle shortens or spasms due to trauma, it can compress or strangle the sciatic nerve beneath the muscle.

Other causes of sciatica: sacroiliac dysfunction; trigger points; pregnancy.

Exercise considerations:

Stabilize lumbar spine

Improve disc function

Balance muscles

Improve flexibility