

MANUAL OSTEOPATHIC INTERVENTION FOR SCIATICA

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ABSTRACT

Sciatica is a symptomatic pain as a result of the irritation or damage to the sciatic nerve. It is very important to underscore that sciatica is actually a symptom and not a diagnosis. Sciatica usually affects only one side of the lower body. Often, the pain extends from the lower back all the way through the back of the thigh and down through the leg. The nerve roots that exit the spine to form the sciatic nerve are extremely sensitive, and the inner portion of the disc that may herniate or extrude contains proteins that are inflammatory and easily irritate the nerve. Quite often, the initial practitioner is sought at a public walk-in clinic, chiropractic office, physiotherapy and/or on osteopathic manual practitioner's clinic.

Manual Osteopathic Practitioner's practices and interventions, on the other hand, is a complementary therapy designed to work alongside conventional medicines and treatments rather than to replace them. Most complementary therapies concentrate on treating the whole person (holistic) rather than specifically treating the sciatica itself. Osteopaths provide a range of treatments aimed at managing pain and improving mobility utilising osteopathic massage and passive mobilisation techniques. A programme of treatment can also involve exercise, self management and advice tailored to individual needs. It is important to note that active spinal manipulation is not recommended by manual osteopathic practitioners for patients with sciatica due to risk of injuries, including fracture.

INTRODUCTION

Sciatica is one of the most common forms of pain caused by compression of the spinal nerves in the lower back, and the leg pain is usually much worse than the back pain. The sciatic nerve is the largest single nerve in the human body; it runs from each side of the lower spine through deep in the rear and back of the thigh and all the way down to the foot, connecting the spinal cord with the leg and foot muscles.

To clarify the terminology, the term sciatica is often used to indicate any form of pain that radiates into the leg.

- If the sciatic nerve is pinched and the pain in the leg is from the nerve (radicular pain),
- If the sciatic nerve is pinched and the pain in the leg is from the nerve (radicular pain), then this is a correct use of the term sciatica.
- If the pain is referred to the leg from a joint (referred pain), then using the term sciatica is technically incorrect.

As mentioned previously, sciatica is actually a symptom, not a diagnosis. Sciatica is actually a symptom, not a diagnosis. The term literally means that a patient has pain down the leg resulting from compression of the sciatic nerve. The diagnosis is what is causing the compression. Sciatica symptoms one feels (nerve pain, numbness, tingling, weakness) tend to be different depending on where the pressure on the sciatic nerve occurs.

PREVALENCE

The lifetime prevalence of low back pain is reported to be more than 70% in industrialized countries (1-year prevalence, 15% to 45%; adult incidence, 5% per year) with varying degrees of symptom severity. The prevalence of low back pain during school age approaches that seen in adults, increases from childhood to adolescence,⁴ and peaks between ages 35 and 55 years.

Few studies specifically examine sciatica, but some low back pain studies include data on sciatica prevalence, risk factors, and natural history. Low back-related leg pain, or sciatica, is one of the most common variations of low back pain.

Patients with sciatica usually have a more persistent and severe type of pain than patients with low back pain, have a less favorable outcome, consume more health resources, and have more prolonged disability and absence from work.

Low back pain was long considered a mainly mechanical problem. However, in the past decade, several authors reported that sociocultural, socioeconomic, and work-related factors (e.g., poor job satisfaction and psychological stress at work) not previously investigated may contribute to low back pain prevalence and intensity. A patient's culture may also affect not only the likelihood of reporting low back pain, but also the perception and intensity of low back pain.

ETIOLOGY

Sciatica is known by a range of terms in the literature, such as lumbosacral radicular syndrome, radiculopathy, nerve root pain, and nerve root entrapment or irritation. Controversy exists in clinical and research circles about the use of sciatica as a term. Although definitions of sciatica used in epidemiological surveys vary, sciatic pain is generally defined as pain radiating to the leg, normally below the knee and into the foot and toes. As with low back pain, sciatica is a symptom rather than a specific diagnosis, but lumbar disk herniation and lumbar canal or foraminal stenosis are typical pathologies that may cause sciatic pain.

Risk factors for sciatica include degenerative arthritis of the lumbar spine, lumbar disc disease, and slipped disc, and trauma or injury to the lumbar spine.

A variety of lower back problems can lead to pain that radiates along the sciatic nerve. Most often, sciatica pain is caused when the L5 or S1 nerve root in the lower spine is irritated by a herniated disc.

When this happens, pain radiates into the rear and back of the thigh and calf, and occasionally may extend down to the foot. Numbness, tingling, and/or a burning or prickling sensation are also common sciatica symptoms.

Degenerative disc disease may also irritate the sciatic nerve root and cause sciatica, while conditions that mimic sciatica include piriformis syndrome and sacroiliac joint dysfunction. Sciatica may also be felt if the nerve is actually mechanically compressed, such as spondylolisthesis, spinal stenosis, or arthritis in the spine.

The sciatic nerve is comprised of five nerves. It is formed on the right and left hand side of the lower spine by the combination of the fourth and fifth lumbar nerves and the first three nerves in the sacral spine.

Each nerve exits the spine between two vertebral segments and is named for the segment above it.

- The nerve that exits between lumbar segment 4 and lumbar segment 5 (L4 and L5) is called the L4 nerve root, and the nerve that exits between the L5 and Sacral segment 1 is called the L5.
- The nerves that emerge from the sacral foramen are called the S1, S2 and S3 nerves.

The five nerves group together on the front surface of the piriformis muscle (in the rear) and become one large nerve, the sciatic nerve. This nerve then travels down the back of each leg, branching out to provide motor and sensory functions to specific regions of the leg and foot. In the lower thigh/above the back of the knee, the sciatic nerve divides into two nerves, the tibial and peroneal nerves, which innervate different parts of the lower leg:

The peroneal nerves travel laterally (sideways) along the outer aspect of the knee to the upper foot.

The tibial nerves continue to travel downward towards the feet and innervate the heel and sole of the foot.

The sciatic nerve supplies sensation and strength to the leg as well as the reflexes of the leg. It connects the spinal cord with the outside of the thigh, the hamstring muscles in the back of the thighs, and muscles in the lower leg and feet. As such, when the sciatic nerve is impaired, it can lead to muscle weakness and/or numbness or tingling in the leg, ankle, foot, and/or toes. The sciatic nerve starts as a collection of nerve roots that exit the lower spine and combine into one larger nerve that runs down the back of the thigh and into the legs and feet. When the sciatic nerve is irritated by a condition in the lower back, it produces symptoms of leg pain, known as sciatica.

SIGNS AND SYMPTOMS

The most common form of leg pain from the sciatic nerve is characterized by the following symptoms:

- Occurs in one leg (not both)
- Starts in the low back or buttock, and radiates down the back of the thigh and typically into the lower leg and/or the foot
- Is usually experienced as a sharp pain, as opposed to a throbbing or dull ache. Words people often use to describe sciatic nerve pain include burning, searing, sharp pain.
- Is usually worse when standing or sitting still, and feels better lying down or walking.

In addition to pain, other common symptoms include pressure, numbness, tingling, or a prickling sensation that radiates down the leg. Leg or foot weakness may also be present. Most cases of sciatica are caused by a simple irritation to the nerve and will get better with time and nonsurgical care, such as exercise. However, some sciatica symptoms may indicate a potentially serious injury to the sciatic nerve, including:

- If there is bowel or bladder incontinence (inability to control the bowel or bladder) and/or progressive weakness or loss of sensation in the legs, the condition may be serious and immediate medical attention should be sought.
- If weakness or numbness is present, the nerve may be damaged and it is important to seek attention from a health care professional. If the nerve is compressed and the pain and symptoms are severe, surgery may be warranted.

The patient's pain and specific sciatica symptoms can usually be traced to where the injured/irritated nerve originates in the lower back. Typical symptoms include:

- *Sciatica from L4 nerve root*
Symptoms of sciatica stemming from this level of the lower back may include: pain and/or numbness to the medial lower leg and foot; weakness may include the inability to bring the foot upwards (heel walk). The patient may have reduced knee-jerk reflex.
- *Sciatica from L5 nerve root*
The patient may have weakness in extension of the big toe and potentially in the ankle (called foot drop).

Symptoms of sciatica originating at this level of the lower back may include: pain and/or numbness at the top of the foot, particularly in the web between the great toe (big toe) and the second toe.

- *Sciatica from S1 nerve root*
Symptoms of sciatica originating at this level of the spine may include: pain and/or numbness to the lateral or outer foot; weakness that results in difficulty raising the heel off the ground or walking on the tiptoes. The patient may have reduced ankle-jerk reflex.

Conditions with Sciatica-Like Symptoms

- *Pressure on the sacral nerve roots from sacroiliac joint dysfunction*
Symptoms of sacroiliac joint dysfunction may include: a sciatica-like pain or numbness that is often described as a deep ache felt inside the leg more so than a linear, well-defined geographic area of pain/numbness found in true sciatica.
- *Pressure on the sciatic nerve from piriformis muscle*
This pressure on the sciatic nerve can tighten and irritate the sciatic nerve (called piriformis syndrome).

Symptoms of piriformis syndrome may include: a sciatica-like pain and/or numbness in the leg that is usually more intense above the knee, usually starts in the rear rather than the low back, and often spares the low back of symptoms or signs. Piriformis syndrome can mimic the signs and symptoms of sciatica pain from a disc herniation and is part of the differential diagnosis of possible causes of sciatica.

DIAGNOSIS

Sciatica diagnosis is straightforward upon an immediate visit to a health care practitioner based on the symptoms, be it a medical doctor most often by a rheumatologist, physiotherapist, chiropractor, massage therapist and/or a manual osteopathic practitioner. Sciatica is diagnosed with a physical exam and medical history. The typical symptoms and certain examination maneuvers help the health-care professional to diagnose sciatica. Historically, once the diagnosis was made, the practitioner involved will be able to provide treatment options including but not limited to stretches, exercises or at worst case a cortisone injection or pain reliever. Further test are not usually necessary unless a potentially serious cause of your symptoms is suspected. In such cases, you may have a blood test to rule out infections and/or scans, such as a computerized tomography (CT) scan or a magnetic resonance imaging (MRI) scan to detect any problems with the nerves and structure of your spine. Scans may also be carried out to examine your spine if surgery is being considered as a treatment option.

TREATMENT

Treatments for sciatica depend on the underlying cause and the severity of the pain. A variety of low back conditioning and stretching exercises are employed to help people recover from sciatica. Medications used in the treatment of sciatica include pain relievers, muscle relaxants, anti-inflammatories, and antidepressants. Antidepressants actually can help in this setting by reducing pain perception in the brain.

Surgical procedures can sometimes be required for persisting sciatica that is caused by nerve compression at the lower spine. Sometimes pain management specialists help with chronic sciatica conditions. Depending on the precise cause of the sciatica and the duration of symptoms, the outlook for recovery from sciatica ranges from excellent to having long-term chronic symptoms.

Physiotherapy is a very important part of the treatment for sciatica. A physiotherapist can put together a programme of exercises that will increase your muscle strength and help you to maintain mobility in your spine, lumbosacral region and other joints. It's especially important to exercise and stretch the piriformis on the gluteal area.

A lot of people with sciatica do find massage to be beneficial, especially in helping to manage pain or as a means of relaxation. On its own, massage is not going to improve your flexibility, but it may help to reduce pain and discomfort so that you are then more likely to feel like stretching out after the massage and working on maintaining good posture. The effects of massage tend not to be very long lasting. There are many forms of massage, but the two most common forms are Swedish and deep tissue massage.

Transcutaneous Electrical Nerve Stimulation (TENS) machines work by delivering small electrical pulses to the body via electrodes placed on the skin. TENS machines are thought to affect the way pain signals are sent to the brain. Pain signals reach the brain via nerves in the spinal cord. If pain signals can be blocked then the brain will receive fewer signals from the source of the pain and less pain may be felt. TENS machines are thought to act by stimulating the body to make its own pain-easing chemicals called endorphins. These act a bit like morphine to block pain signals.

Therapeutic Kinesiology Taping is gaining its growing popularity due to a wide beneficial help to a variety of musculoskeletal and sports injuries, plus inflammatory conditions. Kinesio Taping gives support and stability to your joints and muscles without affecting circulation and range of motion. It is also used for Preventive Maintenance, Edema, and to treat pain especially providing relief from sciatica. Kinesio Taping is a technique based on the body's own natural healing process.

Manual Osteopathic Practitioner provides a range of treatments aimed at managing pain and improving mobility utilising massage and passive mobilising techniques. A programme of treatment can also involve exercise, self management and advice tailored to individual needs. The same principle as physiotherapist, manual osteopathic practitioner may prescribe sets of exercises and stretches for muscle strengthening, thereby improving mobility and alleviating muscle hypertonicity. There are different types of exercises to lessen the pain and stiffness

- Range of motion exercises reduce pain and stiffness and keep your joints moving. To achieve the most benefit, these exercises should be done daily.
- Strengthening exercises maintain or increase muscle tone and protect your joints.
- Moderate stretching exercises help to relieve the pain and keep the muscles and tendons around an affected joint flexible.
- Endurance exercises strengthen your heart, given you energy, control your weight and help you feel better overall. These exercises include things like walking, swimming and cycling. It is best to avoid high-impact exercises like step aerobics, jogging or kickboxing.

Crucial to the DOMP practice is the educating aspect of patients in understanding sciatica and its appropriate pain management mechanism on how they can improve quality of life through diet and nutritional support, ergonomics, posture, exercise and stretches. It is strongly not recommended for Manual Osteopath to employ spinal manipulation on the lumbar area for patients with sciatica due to potential risk of injuries. Spinal lumbar mobilization is encouraged. Where appropriate an osteopath may refer back the patient to a General Practitioner or other healthcare professional. In turn, a GP can refer to other health care specialist including but not limited to a rheumatologist.

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REFERENCES

1. The Arthritis Society – Canada

<http://www.arthritis.ca/page.aspx?pid=915>

2. American Chiropractic Association

<http://www.acatoday.org/>

3. Canadian Spondylitis Association

<http://www.spondylitis.ca/>

4. The Journal of the Canadian Chiropractic Association

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2077878/>

5. The American Arthritis Society

<https://www.americanarthritis.org/>

6. Kinesio Taping - <http://www.kinesiotaping.com/>