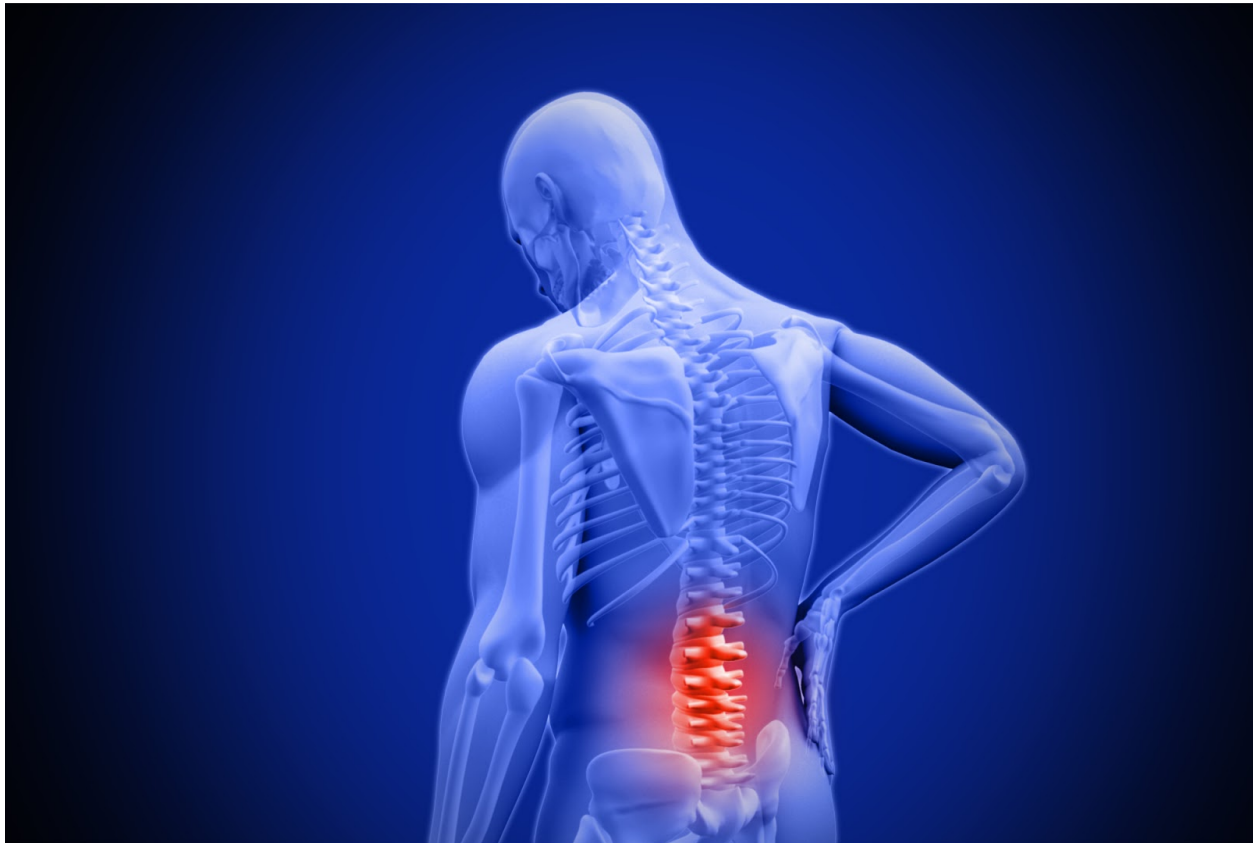


Disc Herniation

The most common complaint physiotherapists tend to hear about is back pain, especially lower back pain. More than 60% of people will experience lower back pain at some point in their lives.¹ One of the most typical sources of this pain is a herniated disc and sciatica.

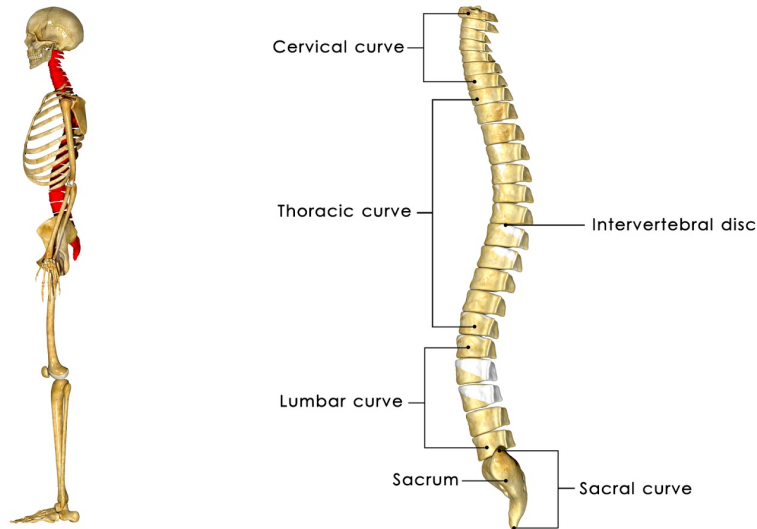


Before we get into what a herniated disc and sciatica are, we need to first understand some basic anatomy of the spine.

Anatomy

Our spines are made up of numerous bones (vertebrae) that are all stacked on top of each other.¹ In between each of your vertebrae are these flat and round discs known as the **intervertebral discs**.¹ These discs act as shock absorbers for your spinal bones when you do activities like walking or running.² Your intervertebral discs are made up of two components: the **annulus** and the **nucleus**. The annulus is the tough yet flexible out ring, while the nucleus is the

soft and jelly-like centre.¹ Also found in the spine is the sciatic nerve. We all have a total of two sciatica nerves, one for each side of the body.³ This nerve begins in the spine and extends all the way down to your leg.



Now that we have the basic anatomy of the spine covered, we can move onto what a herniated disc is and how it occurs!

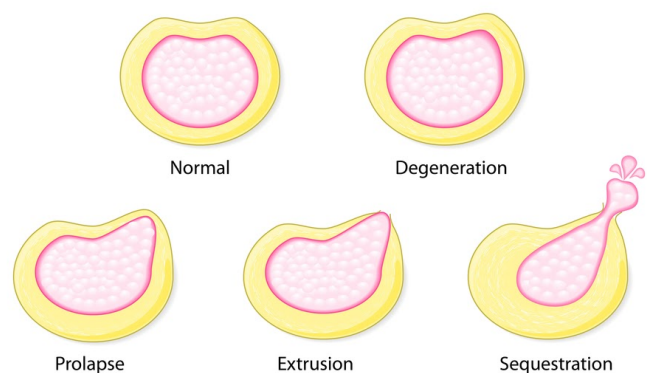
What is it?

A herniated disc is when the nucleus of an intervertebral disc begins pushing through the annulus.¹ The pressure of the nucleus pushing against the annulus is what causes you pain.

There are four stages of disc herniation⁴:

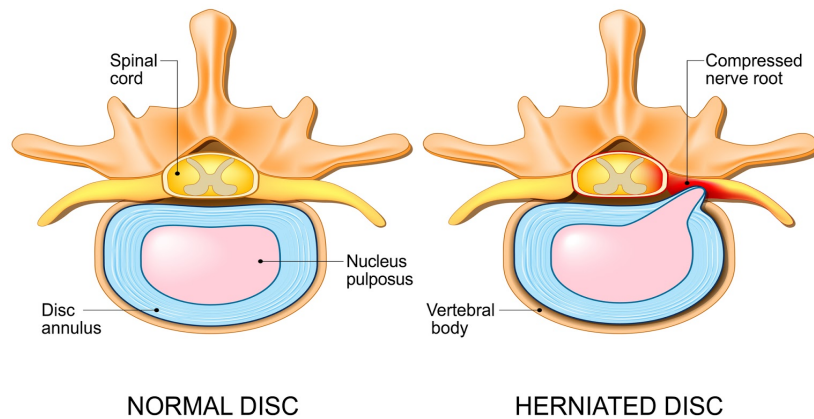
1. Disc protrusion
2. Prolapsed disc
3. Disc extrusion
4. Sequestered disc

STAGES TO A DISC HERNIATION

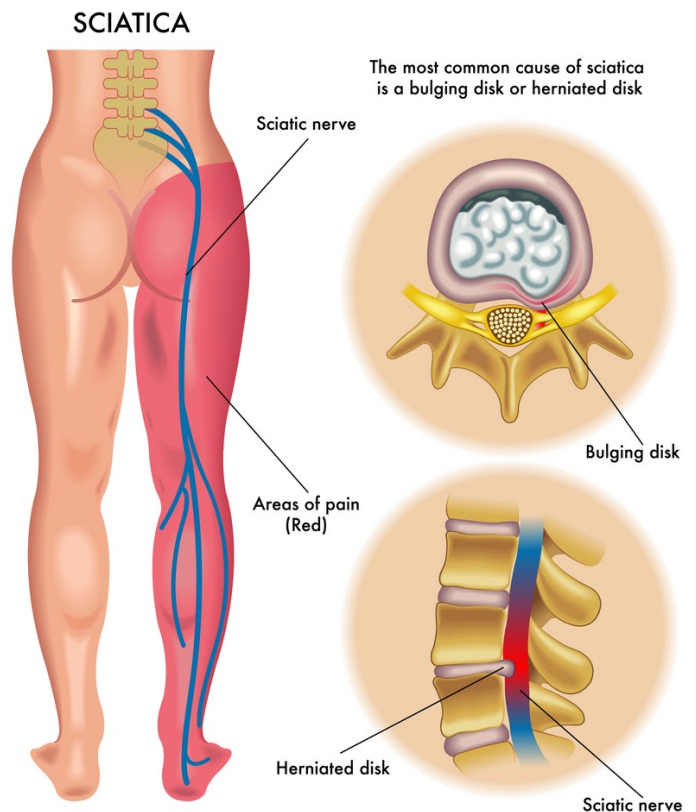


Stages 3 and 4 are considered complete herniations⁴ which means the nucleus has pushed all the way through the outer ring and is now putting pressure on the spinal cord and nearby roots.

Spinal disc herniation



One of the nerve roots being compressed by the herniated disc very well could be your sciatic nerve. This then leads to a condition called **sciatica** and it is characterised by a sharp pain that extends from your buttocks to all the way down the back of your leg.³ Sometimes it can even extend to your foot!³ If the compression only occurs on one side of the sciatic nerve then you will only have symptoms on one side of the body, however, if it compresses both sides then you will have symptoms on both sides.⁵



It is important to note that disc herniation occurs most often in the lower back. Since when you perform the common action of picking something up, that is the area of the spine that supports your entire upper body plus the object you are picking up.

So what causes it?

One of the most common causes of disc herniation is aging. Due to the fact that as we get older, our discs become less flexible which makes us more susceptible to herniations.¹ Simple things like strains and twisting movements that were not a big deal when you were younger, can now cause a disc to herniate if you are older than 50 years old.^{2,6}

Other causes of disc herniation include:

- A traumatic injury or event such as a fall¹
- Poor posture⁶
- Genetics; some individuals are predisposed to disc herniation due to their genetic makeup^{2,7}
- Unsafe lifting techniques and movements^{1,7}
- Sedentary lifestyle; lack of exercise and strength are contributors^{1,7}



Who is at risk?

Risk factors for disc herniation include:

- Gender; men are more likely to herniate one of their discs than women^{1,7}
- Weight; being overweight can add stress to your spine and the discs in your back^{1,6,7}
- Occupation; jobs that require continuous lifting, pulling, bending, and/or twisting^{1,7}
- Driving often; the combination of being seated for prolonged periods of time and the vibrations that emit from your car can potentially cause damage to your spine^{1,7}
- Smoking; reduces oxygen supply to the discs in your spine which leads to faster degeneration^{1,6,7}

What does a herniated disc feel like?

Symptoms typically only affect one side of your body and they include:

- Pain; where depends on the area in which the herniation occurred⁴
 - Cervical level: pain in your neck, shoulder, and arm
 - Thoracic level: pain in your chest
 - Lumbar level: pain in your buttocks, thighs, legs, and feet
- Pain with standing and sitting⁷
- Muscle weakness and spasms in the leg and/or foot^{1,3}
- Numbness and a tingling sensation in your leg and/or foot¹
- Abnormal reflexes³



If you are experiencing loss of bladder or bowel control then you need to see medical attention immediately. This is known as **Cauda Equina Syndrome** and it requires immediate surgical intervention.^{1,3}

What is the diagnosis process like?

Like most diagnoses, your doctor will start by discussing your symptoms and medical history with you. They will then move on to performing a physical exam.

This exam may include:

- A **neurological examination**: helps to determine if you have any muscle weakness or numbness¹
 - Assesses how you walk on both your heels and toes to check the muscle strength in your lower leg
 - Lightly touches your leg and foot to check for loss of sensation
 - Tests your knee and ankle reflexes
- **Straight leg raise test**¹
 - You lie on your back and the doctor lifts your leg while making sure to keep it straight. If pain worsens or is introduced then that is a sign that you have disc herniation.

Imaging tests may also be required by your doctor during the diagnosis process:

- **X-rays** can help to rule out any other issues⁸
- **CAT scans** and **MRIs** provide a clear image of the body's intervertebral discs. These tests can help to also confirm the diagnosis and show which spinal nerves are affected^{1,7}
- **Electromyograms** show which nerves are damaged and compressed⁸
- **Nerve conduction studies** are done at the same time as the electromyogram and serve the same purpose of showing which nerves are damaged⁸
- **Discograms** involve injecting dye into the centre of one or more discs in your spine to help find cracks and damage⁷
- **Myelograms** involve injecting dye into the spinal fluid and taking an x-ray image. This test can show whether the herniated disc is exerting any pressure on the spinal cord and surrounding nerves⁷

What does treatment entail?

The best treatment for a herniated disc is physiotherapy as it often produces the best results! With a good treatment program, your physiotherapist should be able to get you back to your normal lifestyle and activities in 2 to 8 weeks.⁶

Your treatment will depend on what they find during the assessment and may include:

- Reducing your pain and other symptoms
 - Your physiotherapist may use modalities such as ice and heat therapy, acupuncture, and ultrasound therapy to relieve pain²
- Improving your posture
- Improving your mobility
 - Your physiotherapist will teach you stretches to help restore your range of motion
- Improving your strength and restoring muscular endurance
 - For neck and back disc herniations, strengthening the core is commonly used as a way to restore strength to your back, hip, abdomen, and pelvic muscles⁶



- Learning a home program
 - Your physio will teach you a home exercise program that will focus on strength, mobility and and pain reduction to avoid future injuries
- Return to activity
 - Your physio will guide you and provide training on performing certain tasks/activities that you would like to do and get back to so as to prevent further and future injury.

Surgical treatment is only used if all other non-surgical treatments failed to work or if you are experiencing extreme and severe symptoms like mentioned above.

The most common surgery is performed for this condition is a **microdiscectomy**.¹ This procedure involves a small incision at the area of disc herniation and the use of a microscope. The herniated disc is removed in addition to any other fragments that are adding pressure. Risks of this surgery include nerve injury, infection, tearing of the sac covering the nerves, hematoma, recurrent disc herniation, and need for further surgery.¹

Exercises

1. Cat and camel

Start on your hands and knees, with your knees directly underneath your hips and your hands underneath your shoulders, and your back in a neutral position. Place your hands flat on the floor and contract your abdominal muscles, making sure that your spine is well aligned with your back, straight as a table-top. Inhale, and arch your spine away from the floor, pulling your belly up like a cat. When it comes time to exhale, round your spine in the opposite direction, lowering your belly towards the floor and lifting your head. Complete 2 sets of 5 reps.



2. Cobra pose

Lie on your stomach. Place your hands underneath your shoulders. Squeeze your elbows in toward your rib cage throughout the whole movement. Press the top of your feet down into the floor and engage your quads so the knee caps lift off the floor. Engage your abdominals so that the pubic bone presses down to the floor and then engage your back muscles to lift up into extension. Slide your shoulder blades down your back and make sure you keep elbows and shoulders down. Slide your shoulder blades down your back, and then push off the floor into the Cobra position. Complete 2 sets of 10 reps.



3. Trunk extension

Stand with your legs at hip width apart and straight. Place your hands on your hips. Lean your body backwards, trying to arch in the lower back as much as you can, lifting your chest up towards the ceiling. Try to avoid allowing your hips to swing forwards too far. Hold this position before returning to the start position. Complete 2 sets of 10 reps.



What Next?!

If you think you have a herniated disc and/or sciatica or have been diagnosed by a doctor, you should see a physiotherapist. Together we can come up with a treatment plan that works best for you! Email us at informphysio12@gmail.com for more information!

Disclaimer

The information provided on this account is general information only. The content provided is not medical advice, a diagnostic tool, a treatment plan or therapeutic care. It is not intended to change or replace any advice, a diagnosis and/or treatment you have been given from your healthcare team. Always speak to your healthcare provider if you have any questions or concerns that you think may be relevant to you.

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