



# UNDERSTANDING LOW BACK PAIN

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(02) 4954 5330

# Introduction

Low back pain is common, and is a common cause of disability. The aim of this e-book is to provide an overview of low back pain, as well as what to expect from a treatment provider. It is not a diagnose yourself or treat yourself guide. There are several potential sources of back pain, most of which are not medically serious. However pain is often a warning sign and sometimes serious pathology can cause back pain. **If you have a problem you need to be professionally assessed.**

Pain from the low back is usually felt in the low back, but it can also cause pain in the legs and groin. Other symptoms such as pins and needles or numbness are also common. Historically treatment for back pain has primarily concentrated on attempting to find a diagnosis and then treat the diagnosis. Our current knowledge of back pain indicates that we can only find a diagnosis in about 20% of cases. The other 80% we classify as non-specific low back pain.

This may seem problematic, as anybody who is used to seeing a doctor will normally expect a diagnosis, however with low back pain this is not the case. **Most low back pain is not caused by any serious pathology, it will settle and the long term outlook is good.**



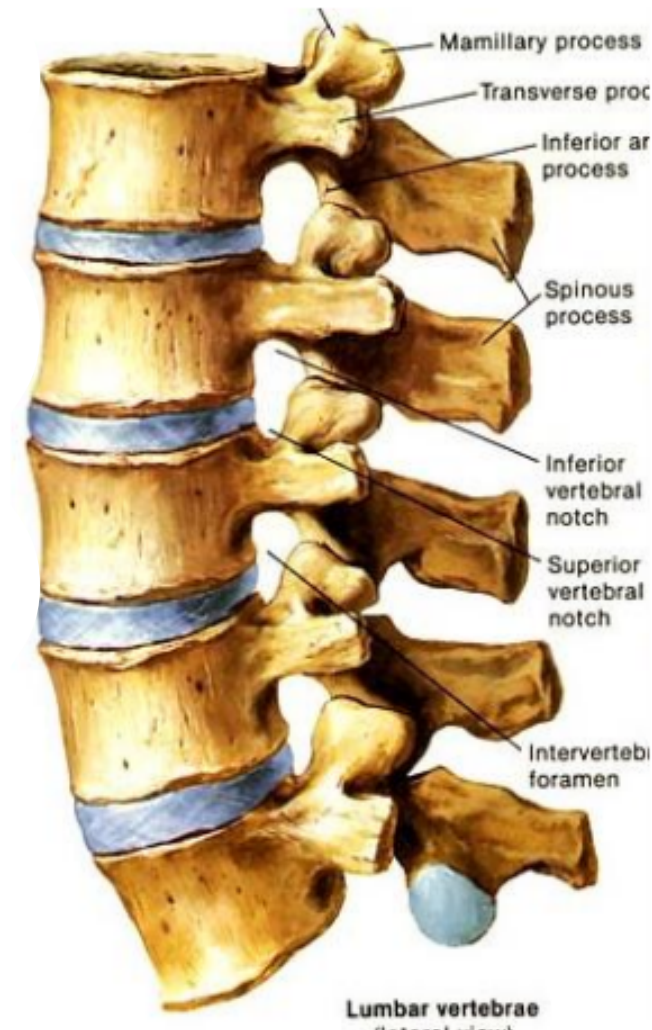
# Basic anatomy

The low back is made up of a series of vertebrae or bones which are joined together by discs, facet joints and ligaments. The vertebrae are large and strong, and you can feel the tip of these as small lumps in the middle of your spine. These lumps are called the spinous processes and are the tip of the vertebrae. Vertebrae are similar in width to your knee.

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These structures are designed to absorb load and to move, and as with most human tissues are kept healthy with the right level of activity. This means that active people have less back pain on average than non-active people. **It also means that people who stay active during and after an episode of low back pain do better than those who do not.**

You can overdo it, but back pain is more common in people who are not active.



# The lumbar discs

The lumbar discs are important structures. They are worth discussing as they are a common cause of low back pain.

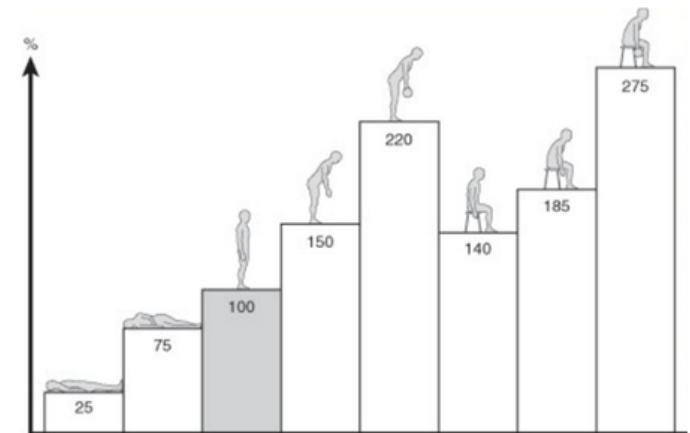
Discs are put under different degrees of stress with different postures. One study (Nachemson 1981) looked at this.

As you can see in **Figure 1** disc pressures can vary widely with various activities.

Look how different postures affect disc pressures. See how standing puts less pressure on the disc. Sitting with a lumbar roll also does this. More later on this.

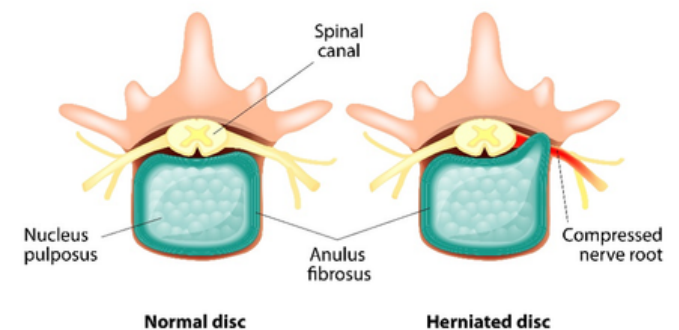
Discs, muscles and ligaments can adapt to load. This means that they can strengthen over time if the loads imposed on them are not increased too quickly. Some athletes for example can lift massive weights without injury because they have adapted to lifting these weights over many years.

**Figure 2** shows a normal disc and a herniated disc from a top view. Herniated discs are common, and the majority of these settle over time. More on this later.



**Figure 1**

## TOP VIEWS OF VERTEBRAE



**Figure 2**

# What to do if you have an attack of low back pain?

01

**Let a professional assess you.** Back pain can have causes other than the low back such as the organs and only a trained person can assess this.

02

**Manage your pain.** This can include medication, support strapping or bracing or some exercises and hands-on treatments. It should also include sensible activity modification.

03

**Don't stress about it.** Psychological stress can actually increase pain. Relax, most back pain settles if looked after correctly.

04

**Don't expect to avoid everything that is painful.** We know that unless you are in severe pain, bed rest is not appropriate. The quicker you get going the quicker you recover. Pain is a warning signal but it will occur well before any further damage occurs.

## What if this pain radiates into my leg?

If this is the case it is possible that one of the lumbar nerves is compressed, although this is not always the case. The disc is one common cause of nerve compression.



# What to expect from your treatment provider



01

An explanation of your problem with alternative explanations if the actual diagnosis is not clear

02

Advice on what to do and what to avoid

03

An estimate of how long treatment will take and how much this will cost

04

A discussion of your goals for this problem and whether they are realistic

05

A program tailored to your needs. Everyone's situation is different. No one treatment is effective for all back pain.

06

A discussion with other treatment providers, who can assist in your management.

# What to avoid from treatment providers

01

**Electrotherapy.** Ultrasound, electric current and other modalities have at best temporary effect and will not help you heal. There are better ways for your therapist to spend their time.

02

**Unnecessary use of medical imaging.** X-rays and MRI are very useful in some situations but routine imaging of all back pain is not necessary. Your health professional should discuss why imaging is required.

03

**Permanent treatment.** Stating that you need to come back periodically to keep your back healthy is not required. Telling that your back is out of alignment and needs regular treatment is simply not understanding the current evidence.

04

**Unfounded diagnoses.** These are common, and are not founded in any science. They are often elegant explanations, and are sometimes used to encourage unnecessary treatment. One reason they have been popularised is that people expect a diagnosis, and it is easier for a provider to make up a story than admit that no diagnosis is possible. Some common ones are:

- a. A hip or pelvis “out of alignment” or “twisted”
- b. A vertebrae has moved or subluxed, and can be put back
- c. Your core is not working

# What to do in the event of an episode of low back pain



**Figure 3**



*Getting active early is important, but if you are in pain your usual activities may require some modification. The basic principles are*

**01**

Don't stay in one place too long

**02**

If the pain worsens change position

**03**

Don't allow yourself to stiffen up

**04**

Ensure you're seating is comfortable including your car seat. This may include the use of a lumbar roll (see fig 3). This can be attached to your chair, office chair and car seat. You should ask your physiotherapist if they are likely to help you. Generally if it hurts to sit and it hurts to bend forward these are worth a trial.

**05**

Seek professional help. Don't try to figure this out for yourself. Using the internet for a resource is not useful. Most websites are simply promotional vehicles and are not reviewed by experts and often give unrealistic expectations or poor advice.

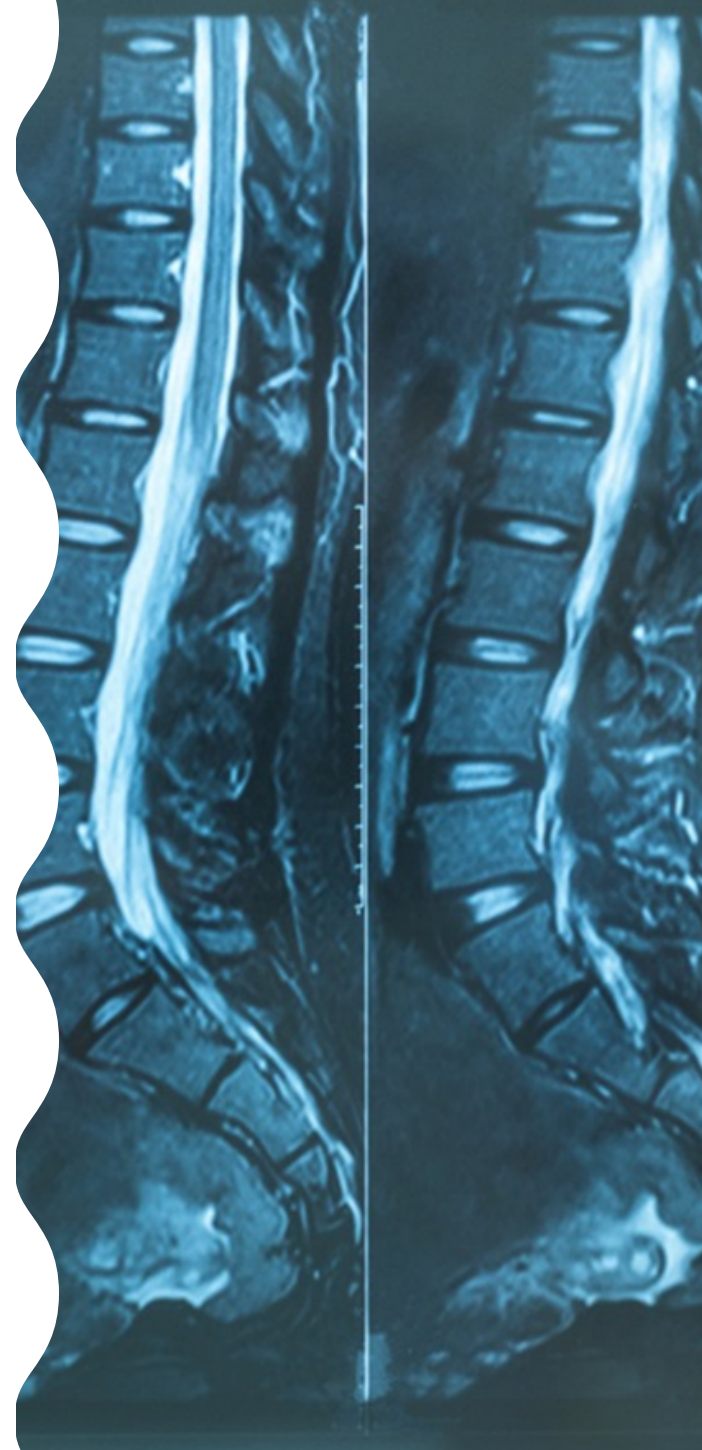


# Medical imaging

X-Rays, MRIs and CT scans are commonly used in low back pain. They are vital tools in the diagnosis of some problems. However they produce a lot of misleading information. Just because you have a disc bulge on MRI, does not for example mean that is the cause of your low back pain.

A study from Brinjiki, et al. in the American Journal of Neuroradiology 2014, looked at people without back pain, and confirmed that disc degeneration and disc bulging are extremely common in people **without** low back pain. For example 37 % of 20 year olds **without** back pain have disc degeneration on MRI. 84% of 80 year olds without back pain have disc bulging on MRI.

Medical imaging can be vitally important in diagnosing serious pathology such as fractures or cancers, and can also be important for some forms of back pain (particularly if it radiates into the legs). However it is limited in cases of non-serious back pain.



# The myth of core stability

This is worth discussing as it is one of the most poorly understood concepts regarding back pain.

The concept of core stability was derived from studies in the early 90's which showed that the timing of the contraction of certain abdominal muscles was altered during an episode of back pain. It lead (incorrectly) to the assumption that strengthening the core (whatever it is) will lead to a stronger back. It has led to a proliferation of exercise classes and therapeutic approaches claiming to be the answer to low back pain, and emphasising holding in and controlling the abdominal muscles.

It is an elegant explanation but unfortunately is misleading. Essentially “core” training, although better than seeing a General Practitioner and receiving medication as the only treatment, is no more effective for chronic low back pain (CLBP), all forms of low back pain (LBP), recurrent low back pain, or back pain in pregnancy, than other forms of exercise, physical therapy or CBT (Lederman 2010).

Weak abdominal muscles will not lead to back pain. Tensing the trunk muscles is unlikely to provide any protection against back pain or reduce the recurrence of back pain. Exercise is important but there is nothing special about core exercises.

If you enjoy doing Pilates or yoga or anything else that offers benefits to the core, and they don't make your problem worse, by all means do them as they are a way of keeping yourself more active. Just don't think that you are doing anything special for your low back that could not be achieved with swimming or gym or a home program. Better still see a Physiotherapist who can design an individualised program.



# Basic management principles

These are the approximate steps that your treatment provider will take you through during an episode. These steps are not mutually exclusive and can overlap. You should discuss each of these with your health professional.

01

**Pain management** – this can be achieved by activity modification, some exercises, medication, hands-on treatment and strapping/bracing.

02

**Restoring movement and strength** – this can be achieved by gradually increasing your activity levels and by exercises you are given. **Don't prescribe your own exercises.**

03

**Prevention** – keeping strong and active and understanding the cause of the back pain will help you prevent future episodes.

**Remember, always seek professional advice.** Your Physiotherapist is the best person to guide your treatment. We hope this guide is helpful. Please feel free to share it with anyone you think would benefit from it.

# References

- Brinjiki et.al. Systematic literature review of imaging features of spinal degeneration in asymptomatic populations. (2014)
- Lederman, E.; The Myth of Core Stability Journal of Bodywork & Movement Therapies (2010) 14,
- Nachemson, A.L. Disc Pressure Measurements. Spine (Jan/Feb 1981)





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02 4954 5330



Unit 2 Building 2, 335 Hillsborough Rd,  
Warners Bay NSW, 2282

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