

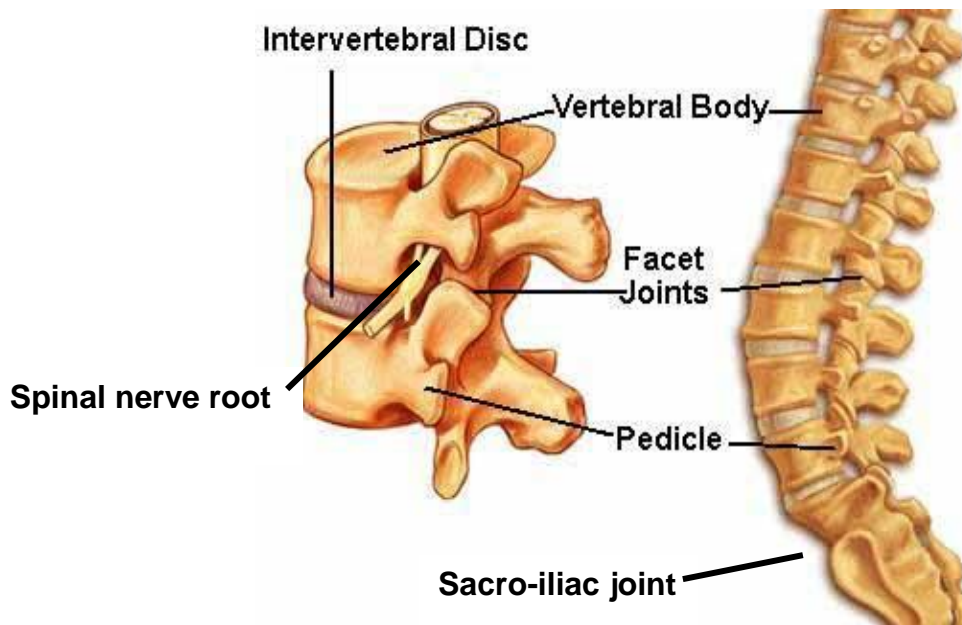
## Patient Information Sheet

# Chronic Low Back Pain

### Introduction

- Chronic low back pain (CLBP) (pain lasting more than 3 months) is the most common reason why people are referred to a pain clinic.
- Low back pain may extend from the lower ribs (at the back) to the buttocks and sometimes into the legs, the lower abdomen or groin.
- 80% of people experience back pain at some stage in their lives; it's so common, some experts say it's 'part of being human'.
- 10% of the population have CLBP at any one time (2.4 million Australians).
- There's usually a history of an injury, strain or overuse (often at work or sports) that triggered the back pain.

Some patients experience back pain *and* leg pain, usually radiating down the back of the thigh or calf, or occasionally 'shooting' in a narrow band into the foot. Leg pain may be caused by the *facet joints* or the *discs* (this is called 'referred pain'). In 10% of cases, pain is caused by irritation of the nerves going to the leg by a *protruding disc* in the spine (this is sometimes called 'sciatica').



This diagram shows structures in-and-around the lower spine which may cause back pain.

**Intervertebral discs:** Are like 'shock absorbers' between the bones of the spine (vertebrae). Discs can develop small tears or 'fissures' (like cracks in a tyre) which may become painful—these cause about 40% of all back pain. Occasionally, discs may develop 'protrusions' which irritate nerves running down the leg, sometimes causing pain, numbness and weakness ('sciatica').

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**Facet joints:** Are small joints (like ‘fins’) on the outside of the spine which cause back pain in 20% of cases (most commonly in people over 60 years of age—quite rare in younger persons).

**Sacroiliac joints:** Are the largest joints in the body, joining the pelvis and spine together—20% of back pain cases, most often felt in the buttock and back of the thigh.

**Back muscles:** Back muscles attached to the spine act like ‘scaffolding’ to support and stabilise it. These muscles may develop ‘knots’ (‘trigger points’) which cause pain. Specific muscles in the buttock, such as the *piriformis* and the *gluteals* may also cause low back pain, often radiating from the buttock, down the back of the leg (similar to ‘sciatica’).

**Spinal stenosis:** Some patients (usually the elderly) experience back pain and ‘aching’ legs when they walk (especially climbing stairs), due to *narrowing* of the holes in the spinal canal through which the nerves run. ‘Leg aching’ tends to come on at a set distance and is relieved by rest or leaning over a shopping trolley in the supermarket when walking (taking the pressure off the lower spine).

**Cluneal nerve irritation:** Cluneal nerves are found just over the iliac (hip) bones on either side of the lower back. Sometimes these nerves get compressed in this area just under the skin and produce nerve pain that is felt in the back and buttock. Cluneal nerve irritation may cause up to 20% of back pain and is often missed because health care professionals may not know about this condition.

**Pars fractures:** About 10% of the population are born with an increased risk of developing small fractures in the base of the spine. These are called *pars (stress) fractures* and are more common in younger people with low back pain and in fast bowlers like Dennis Lillee.

### **Pin-pointing the ‘cause’ of your back pain**

Because there are so many structures in-and-around the lower spine, **it’s often difficult to pinpoint which one (discs, facet joints, muscles, ligaments) is causing the pain** (see below).

**‘Red flags’:** We’re always on the lookout for rare but serious conditions causing back pain, called ‘red flags’. These include *fractures* of the vertebrae with osteoporosis, *infections* of the discs and bones, *tumours* (e.g. breast or prostate cancer), *arthritic conditions* or *major nerve or spinal compression*.

### **The good news is....**

Over 95% of people with low back pain **do not** have a serious ‘red flag’ condition causing their pain such as a fracture, tumour, infection or nerve compression.

### **Pain signals from the back are ‘amplified’ by the brain and spinal cord**

People who’ve had back pain for more than a few weeks undergo changes (seen on brain scans) in the parts of the brain ‘controlling’ their lower back. After a few weeks, most of the pain signals

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aren't coming from the back anymore, but are 'produced' by these areas of the brain! This amazing discovery was made only a few years ago and is one of reasons back pain is so difficult to diagnose and treat.

Our *spinal cord* also has a built-in 'pain signal amplifier'—if you've had back pain for more than a few weeks, the pain signal may be 'amplified' in the spinal cord and continue to fire off, even though the back has 'healed'. In other words, the 'pain alarm' keeps on ringing even though there's no ongoing 'damage' in your back. This is called pain *sensitization*.

### **The 'cause' of your back pain: Don't get hung up on the diagnosis!**

We're all keen to find out what's *causing* our back pain; which disc, joint or nerve is 'damaged'? This is because many of us (including doctors and physios) have a 'mechanical' way of thinking about illnesses and injuries. Pain doesn't really work that way because pain signals are amplified in the brain and spinal cord.

**In 80% of cases, no clear cause is found for a person's back pain.** That's why most people are given the diagnosis of '**non-specific**' **chronic low back pain**. This isn't bad news because in most cases, we don't need to know the exact 'cause' of the pain to manage it effectively.

It might surprise you to know that even now, in the 21st century, there's no 'gold standard' test, x-ray or scan that reliably pinpoints the cause of a person's back pain.

Some people show a lot of changes ('degeneration') on their spinal x-rays but only report minor back pain; others have 'perfect' looking x-rays and complain of lots of pain. Both situations are totally acceptable.

Remember, you *can't* see pain on an x-ray or MRI scan.

The main reason a doctor orders x-rays or MRIs is to rule out **red flags**; rare but serious conditions such as nerve compression, fractures, tumours or infections.

### **Frightening jargon**

Many patients are frightened by the words in their x-ray reports, such as '*bulges*', '*protrusions*', '*degeneration*', '*nerve entrapment*' and '*slippage*'. However these are just technical words used by x-ray specialists in their reports to other doctors and are not as disastrous as they sound.

Don't get worried by your x-ray report-discuss it with your doctor.

Be aware that *jargon* used by health care professionals such as, '*degeneration of the spine*', '*disability*', '*slipped discs*' and '*bone-on-bone*', sound a lot worse than what's actually happening in your back!

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### *Test injections, x-rays and scans*

**Medial branch (facet joint) blocks:** Sometimes we perform local anaesthetic *test injections* of the nerves going to the facet joints (medial branch blocks) to see if they might be 'causing' a person's back pain. If the pain settles whilst the local anaesthetic is working (usually 4 hours or so) we assume the facet joints are causing the pain.

'**Trigger point**' injections of local anaesthetic into back muscles sometimes help to diagnose and treat low back pain.

**Injecting into the discs ('discograms')** are painful procedures that don't help much with the diagnosis of back pain and may cause complications such as spinal infections-we don't recommend these in our clinic.

**MRIs, CT scans and bone scans** provide information about the *structure* of the bones, tissues and nerves in the spine but are not *diagnostic* on their own.

## MANAGEMENT OF BACK PAIN

### *Time for some honesty*

You may have noticed we talk about *pain 'management'* and not so much about pain '*cure*'. Realistically, a '*cure*' for low back pain is *the exception rather than the rule* (probably less than 20% of cases). That doesn't mean we can't do anything to help you, but we want to give you *realistic* expectations and accurate information.

Many patients go from doctor to doctor, physiotherapist to chiropractor, herbalist to surgeon, looking for that elusive cure. This can be disheartening, exhausting and expensive.

### *Analgesics (pain relievers)*

**-Opioids** (morphine-based pain killers (e.g. Oxycontin, MS Contin, 'patches', Journista, methadone, codeine) are *not* very effective in treating chronic low back pain (*effective in only 1 in 5 patients*), they have many *side effects* (sleepiness, reduced breathing, increased pain sensitivity, nausea, constipation, hormone deficiency [especially testosterone in men], dependency and addiction, death in overdose) and should be used with great caution, especially in younger patients and those with a history of substance abuse.

*Older patients* with significant arthritis in their spine causing back pain may benefit *more* from small doses of stronger opioids.

**-Paracetamol** (e.g. panadol™, panadol osteo™) is effective and inexpensive-consider taking 'regular' doses.

**-Tramadol** There's very good evidence of effectiveness in back pain; taken either *regularly* (slow-release form) or '*as required*.'

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-**Tapentadol** (Palexia™) is a weaker morphine-based pain medication which is also effective for nerve pain and tends to have less side effects such as constipation.

-**Non-steroidal anti-inflammatory drugs** (e.g. Celebrex, Naproxen, Ibuprofen) are effective pain relievers, but should only be used from time-to-time, mainly for pain 'flare-ups'. Taking them *all the time* increases your risk of high blood pressure, heart and kidney problems, strokes and stomach ulcers. However, some patients with arthritis are prescribed anti inflammatories *regularly* after the doctor has considered the risks and benefits.

Topical gels (e.g. voltaren gel™) may provide a limited degree of relief.

-**Duloxetine** (Cymbalta™) is an antidepressant with good pain-relieving effects in back pain.

-**Pregabalin and gabapentin** are nerve pain medications—sometimes helpful in patients with 'sciatica' (pain going down the leg due to a 'trapped nerve' in the back).

-**Glucosamine or Chondroitin Sulphate**: Currently, there is no evidence they help in spinal pain.

### **Physical therapies; 'Stay active': A vital part of management.**

Physiotherapy (PT) is a vital part of effective back pain management. A lot of what pain specialists do is to provide pain relief so you're able to work with the physiotherapist, which is usually what helps the most over the long-term.

Remember, the main aim of PT is to improve your *function* and to prevent your pain and disability from getting worse—pain relief is a 'bonus'.

Physical activity of any kind sends 'good messages' to the brain, signalling that 'you're OK'— the brain concludes; 'you're able to move around, so your spine can't be all that bad'!

'**Out of Africa**': Remember, we evolved over thousands of years to walk for days through the grasslands of Africa—so whenever we reproduce this (simply walking or other physical activities) the brain thinks 'everything's OK'—this in turn makes it *harder* for the pain alarm to be set off.

But, if we lay in bed for days with a sore back, not only does this make us stiff and sore, but the brain thinks—'this isn't right, he should be walking around—there must be something wrong in his back'. As a result, the pain signal *increases* and can now be set off by the slightest trigger.

'**I'm scared to move**': Some patients are frightened of physiotherapy (and movement in general, such as lifting, bending and walking) because it 'hurts too much' or it 'might make my back worse' (or cause more 'damage'). We call this **fear-avoidance**—it's a kind of pain phobia and can be quite disabling.

With fear-avoidance, we focus constantly on 'what could go wrong with my back if I do anything' (this is called *catastrophizing*) and a vicious cycle of pain, fear and avoidance is set up (see

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diagram below), leading to more and more disability. However, physiotherapists and psychologists have effective ways of helping with this problem. See the diagram below that explains *fear avoidance*.

Physiotherapy and gentle activities such as walking or swimming are very *unlikely* to 'damage' to your back, even if you experience some pain at the time.  
Remember to stay as active as possible.



**Fear-Avoidance Cycle** (Vlaeyen et al)  
**Pain and movement phobia**

**Exercise:** Walking, stretches, swimming or water-walking (hydrotherapy) are the best. Be guided by your physiotherapist.

**Spinal core stability:** 'Core muscles' of the abdominal wall and the back support and stabilize the spinal column. Strengthening these muscles may reduce back pain and improving mobility. Some physiotherapists use an ultrasound machine so you can see your own core muscles contracting, which helps you to 'train them up'.

**Spinal manipulation:** Is probably not all that helpful for CLBP, but it may help with *acute* back pain or pain 'flare-ups'.

**Pilates and stretches:** Can be helpful.

**Massage:** May reduce muscle tension and discomfort in the lower back, but it's usually a temporary measure (hours to days).

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**'Trigger-point' release:** Loosening-up painful 'knots' (trigger-points) in the muscles of the back and neck may be helpful in some cases.

### *Physical treatments*

**Heat therapy (heat wraps):** Effective for treating flare-ups of *acute* back pain.

**Spinal corsets and back braces:** Are **not helpful** for CLBP and may actually make the situation worse by reducing spinal flexibility.

**Acupuncture:** Is helpful for flare-ups of back pain and in some patients with chronic back pain. The effect may be short-lived in some cases. As a general rule, if five sessions of acupuncture by a qualified practitioner doesn't do anything, then it's unlikely more will work.

**TENS machine:** Is a simple electrical stimulator (the size of a transistor radio) applied to the back, which produces an 'electrical buzzing sensation' in the skin which turns-off the pain signal. It's the same effect as 'rubbing' your arm when you're hurt. TENS sometimes helps, is drug free, low risk and relatively cheap.

### *Procedures (spinal injections)*

**Effectiveness:** Unfortunately, there's no 'magic' procedure or injection for back pain. We say a *50% (or greater) reduction in your pain for at least 3 months* is a 'successful' result after a back pain procedure.

**Facet joint injections (FJIs):** These are the most common spinal injections performed in Australia. A small amount of steroid (cortisone) and local anaesthetic is injected under x-ray into the facet joints. FJIs are effective in only *1 in 5* to *1 in 10 patients* with low back pain. They may be 'worth trying' at least once if your doctor advises it, but if the FJIs don't work the first time, don't keep on having repeat injections in the hope they may work later!

**Facet joint (medial branch) neurotomies ('rhizotomies'):** This involves cauterizing or freezing the small nerves that go to the facet joints (performed under local anaesthetic with an x-ray machine). Neurotomies are successful in about *1 in 5 patients*.

**Spinal epidural steroid injections:** A small amount of steroid (cortisone) and local anaesthetic is injected around a nerve going to the leg, near a protruding spinal disc. This reduces **leg pain** in *1 in 3 patients*. Epidurals often work well for a few days or weeks but may then wear-off.

Epidural steroid (cortisone) injections *do not* reduce **back** pain

**Sacroiliac joint steroid injections:** May be helpful in patients with an arthritic condition (like ankylosing spondylitis), but are not very effective in patients with joint 'wear and tear' or injury (e.g. after childbirth).

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**Cluneal nerve blocks:** Injecting around the cluneal nerves situated just under the skin in the lower back may help some patients with this condition and is a relatively low risk procedure.

**'Trigger point' injections:** Placing a fine needle or injecting local anaesthetic into a tight muscle 'knot' (trigger point) may reduce back pain in some cases. It's not well studied, but is relatively low risk and inexpensive.

Unfortunately, there's no *procedure* or *operation* that reduces pain coming from a spinal *disc*, even though discs cause up to 40% of chronic back pain!

**Spinal operations (fusions, laminectomies):** Surgery should always be a last resort—all good spinal surgeons will tell you this. For *leg pain* due to a disc compressing a spinal nerve (sciatica), or *spinal stenosis* (see above), surgery may be helpful. For the treatment of back pain alone, the success rate is much lower. The use of implantable *artificial discs* is controversial. You should discuss these issues with your surgeon.

### WARNING

Surgery *is required urgently* if you develop weakness or severe numbness in your leg(s), or you lose control of bladder or bowel function. If this happens, you need to go to the *nearest emergency department immediately* (not to your GP).

**'High-tech stuff': Implantable morphine pumps and spinal cord stimulators:** Implantable morphine pumps 'trickle' powerful doses of morphine and other pain medications directly into the spinal fluid in the back. This technique is being used much less however, as there are considerable complications and costs involved and the pumps don't seem to work very well over the long-term.

**Spinal cord stimulators** are like 'pacemakers' of the spine, or an implantable TENS machine. Wires are placed into the epidural space of the spine and electrical impulses are sent from a pacemaker implanted under the skin. These impulses block the pain signals emerging from the back. There's some evidence that spinal cord stimulators may help in a select group of patients with back pain after failed spinal surgery. However, like implantable morphine pumps, these devices have a high complication rate and are very expensive.

## CLINICAL PSYCHOLOGY AND BEHAVIOURAL PAIN MANAGEMENT

**'Stressing the stress':** The **main factor** that predicts a person's risk of developing *chronic back pain*, is not what the MRI scan shows or what the doctor says; it's the amount of '*stress*' (called 'yellow flags') a person is dealing with in their life. These include depression, anxiety, financial or family stresses and work issues (the risk of developing chronic back pain and disability is 'sky-high' if you hate your work or your boss—this isn't *malingering*—it's simply a big stress).

The more stresses you have to deal with, the greater the risk that your back pain may not improve.

Amazingly, life-stressors ('yellow flags') are *more powerful than an MRI scan* in predicting the onset of chronic low back pain!



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**‘Evolution again’:** When we were apes ‘walking on all-fours’, our back and neck muscles would ‘tense-up’ when attacked by predators, so we could run away or fight (‘fight or flight’). Even now, millions of years later, our neck and back muscles still tense up when we are under ‘attack’-now days not by a tiger, but by a boss, family members or a mortgage! That’s why *stress management* (including relaxation) is a vital part of dealing with back (and neck) pain!

**Clinical psychology:** Techniques such as *Cognitive Behavioural Therapy (CBT)* and *Mindfulness-Based Stress Reduction* are very effective components of a pain management programme.

### Is it all in my head?

When we bring up issues such as ‘stress and back pain’, it doesn’t mean we think your pain isn’t ‘real’, ‘it’s all in your head’, you’re ‘weak’, ‘crazy’ or ‘malingering’-it simply highlights the scientific fact that *stress increases pain signals* in people with back problems.

**Pain management programmes:** Such as the *PainHealth website*, or the STEPS programme, are courses run by a health care team (physiotherapists, psychologists, occupational therapists, doctors and nurses) providing physical and behavioural therapies, as well as education and lifestyle tips to help manage many pain conditions, especially CLBP.

There’s *very good scientific evidence* that pain management programmes improve *function* and *quality of life* in people with low back pain. Sometimes the pain also improves, but not always. People often say, “my back pain hasn’t improved all that much, but I’m functioning and coping with it much better” (such as using less medications, or returning to part-time work or sports).

### An inconvenient truth: Realistic expectations

In most cases, a *cure* for your back pain will not be possible. Your aim should be to improve coping, physical function and your quality of life.

To learn how to do this, we strongly recommend that all patients with chronic low back pain complete a *pain management programme*.

**Get active; You take control:** We encourage people with back pain to concentrate on *active pain management*, where **you** do things to help yourself (e.g. relaxation, walking, stretches, gym, swimming, work or sports), rather than *passive* strategies (e.g. rest, massage, trigger point release, ultrasound, heat treatments, cupping, acupuncture, injections, hypnosis) where something is done *to* you.

## Conclusion

Managing chronic low back pain is much the same as managing any chronic health condition, like diabetes, asthma or high blood pressure.

Although it may not be ‘cured’, it *can* be managed effectively. However, pain management is usually a long-term project with few quick fixes and takes a lot of effort and staying power.

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