

Low back pain

a simple protocol for GPs

A diagnostic triage can help GPs choose the appropriate management strategy for patients presenting with low back pain.

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Many GPs cringe when a patient comes into the consulting room complaining of low back pain or sciatica, particularly when the waiting room is full of patients with much more obvious problems. One of the most common fears of any health professional treating back pain is that he or she will miss the patient with serious pathology; consumerism and litigation have exacerbated this situation.

In this article I outline how to group people with low back pain into various diagnostic and, thus, therapeutic categories.

Cure the soul, not just the body

Patients with a lower back complaint usually have two problems: pain and disability. We often make the mistake of assuming that it is simply a question of pain causing disability and that if we treat the pain the disability will disappear. Too often this does not work, not just because our treatment for back pain is often ineffective, but, more fundamentally, because there is not a simple relation between pain and disability. Failure to distinguish between pain and disability has a major impact on management.

Pain

There are four aspects or dimensions of pain, as described by Loeser:¹

- nociception from stimuli that could cause tissue damage (stimuli act on peripheral pain receptors which activate sensory nerve fibres)
- pain, which is usually secondary to perceived nociception, although it can be perceived without any tissue damage
- suffering, which is the unpleasant emotional response generated in the higher nervous centres by not only pain but also grief, stress, anxiety or depression (pain can occur without suffering, and suffering without pain)
- pain behaviour, which is a form of communication suggesting the presence of pain; it includes talking, moaning, making facial expressions, limping, taking pain killers, seeking health care and stopping work.

Disability

Disability is defined as restricted activity, including diminished capacity for everyday activities and gainful employment. When inquiring about disability in patients with a low back complaint,

IN SUMMARY

- One of the most common fears of any health professional treating back pain is that he or she will miss the patient with serious pathology.
- Patients presenting with low back pain should be placed into one of three diagnostic categories, thereby aiding practical management.
- Mechanical back pain is very common; it is usually self-limiting, resolving spontaneously in five to 10 days.
- Patients with nerve root pain usually present with unilateral pain radiating down to below the knee.
- The presence of red flags, or warning signs, may indicate a serious cause of low back pain, such as a tumour, infection, inflammatory disorder or the cauda equina syndrome.

I usually ask them about their level of activity before the onset of the back pain. By comparing this with the current level of activity, I can quantify the disabilities specific to the individual, and use this information to develop targeted goals.

We still do not know why some people become crippled with chronic back pain after suffering from simple backache.

Practical management in general practice

The aim of a general practice consultation of a patient with a lower back problem need not necessarily be to work out the particular structure causing the patient's problem. I believe the aim should be to triage people into one of the following diagnostic categories, thereby aiding practical management:

- simple backache (i.e. mechanical back pain)
- nerve root pain
- a serious problem.

Start with the patient's main presenting symptoms, take a detailed clinical history and examine him or her, then triage the patient into one of the above groups. The flowchart on page 20 describes a step-by-step approach that can be used to categorise patients into one of these groups.

Diagnostic categories

Simple backache


Simple backache, or mechanical back pain, is very common, so much so that it is almost 'normal'. The pain occurs in the lumbosacral area and varies with time and activity. It usually affects patients aged 20 to 55 years, but can occur at any age. More detailed investigation is usually required for patients under the age of 20 years, and specialist referral after spinal imaging (CT or MRI) would be appropriate if symptoms do not resolve within 10 to 14 days.

Patients present with either a stiff sore back, making day-to-day activities painful and difficult, or episodes of 'instability' (i.e. episodes of severe pain in the lower back where the slightest movement hurts). Overall, the patient is well.

An acute episode of mechanical back pain ('instability') is usually self-limiting, resolving spontaneously within five to 10 days. It is usually treated expectantly provided a strategy is put in place later to minimise the chance of recurrence.

Treatment of simple backache comprises:

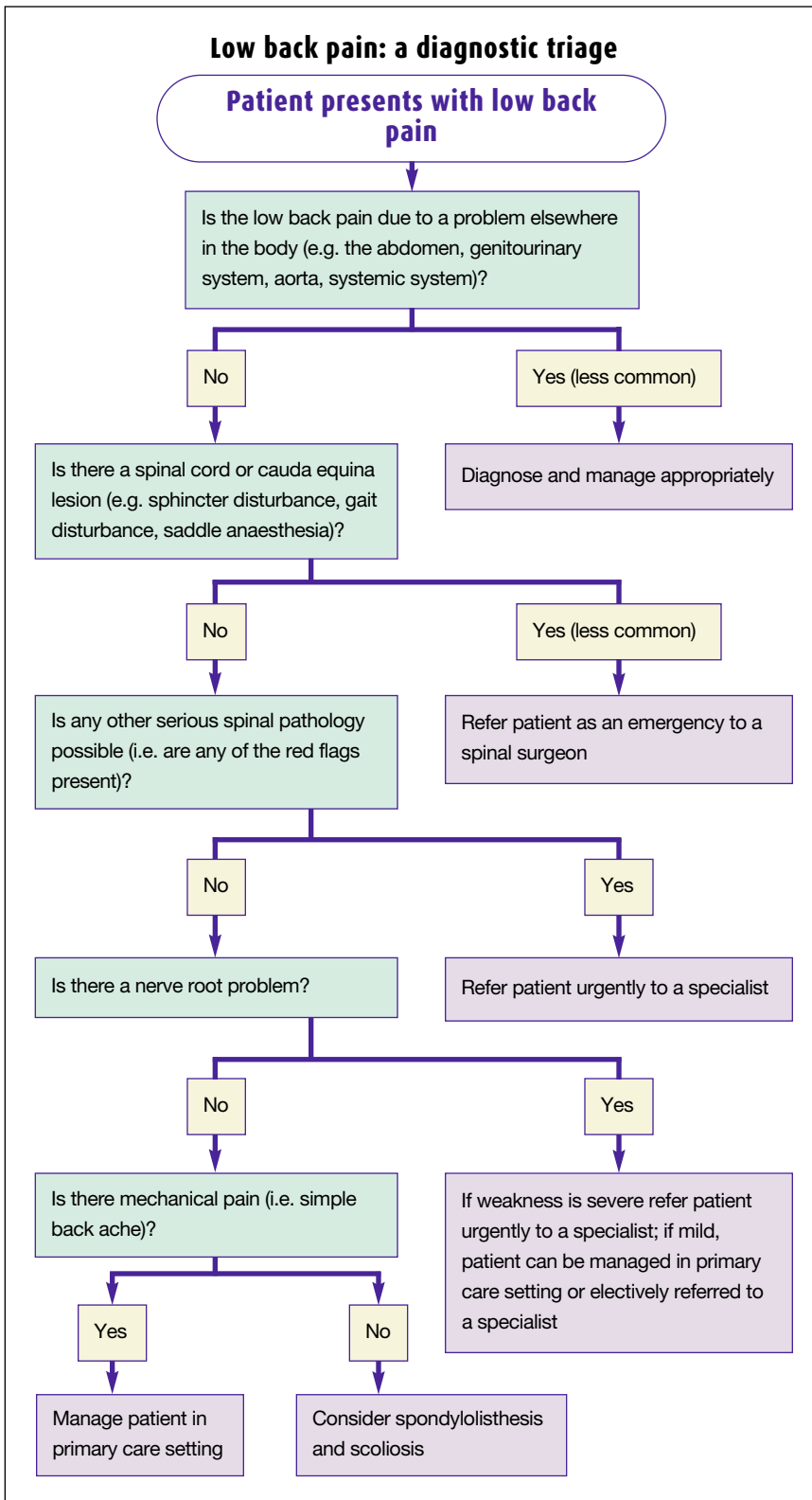
Low back pain



The most common condition affecting the lower back seen in general practice is that of mechanical back pain. Look out, however, for red flags, or warning signs, which may indicate a serious cause of low back pain, such as a tumour, infection or the cauda equina syndrome.

- daily floor exercise, as demonstrated by a physiotherapist – these exercises should take no more than five minutes to do and should maintain mobility of joints and minimise back stiffness or episodes of instability (see the boxes on pages 21 and 22).

continued



- supervised exercise, including gym work; fitness should then be maintained by low impact exercise, such as swimming, walking, cycling or light gym work.

Adjunctive treatments are available if the above approach fails to achieve the desired result. They include:

- a facet block (an injection of local anaesthetic and soluble corticosteroid into a painful joint in the lower part of the patient's spine, carried out by a radiologist under x-ray control)
- occasional and short-term use of a lumbar support (a corset)
- short-term use of NSAIDs and COX-2 inhibitors
- surgery, which is rarely required unless sciatica is present or one level of the spine is severely affected and the rest is normal.

Nerve root pain

Patients with nerve root pain usually present with unilateral pain radiating down to below the knee. There is sensory change in a dermatomal pattern and weakness in one nerve root distribution. Patients may also demonstrate asymmetrical spinal reflex (e.g. knee jerk L4 and ankle jerk S1), and there is likely to be positive femoral or sciatic root tension signs (e.g. a positive straight leg raising test).

The two most common causes of nerve root pain are disc prolapse and spinal stenosis.

Disc prolapse

Disc prolapse is an irritating condition due to the:

- character and chronicity of the resulting pain
- worsening pain on activity
- lack of response to physiotherapy (patients may feel worse after physiotherapy)
- very slow rate of improvement, which usually occurs over months and sometimes years (only 25% of patients

lose their symptoms spontaneously within one year).

Patients may have a major weakness, which I distinguish by the affected myotomal function as follows:

- L4, the inability to step up on to a 25 to 30 cm high stool
- L5, the inability to walk on one's heels
- S1, the inability to walk on one's toes.

If the patient has no major weakness, the usual management includes:

- waiting, while improvement occurs
- McKenzie extension exercises, as shown by a physiotherapist (see the box on page 25)
- use of a lumbar corset to minimise forward-flexion of the lumbar spine
- education on posture to avoid any that increases pressure inside the disc
- controlled gentle activity to avoid deconditioning and maintain blood flow; this includes swimming, walking and having a spa or sauna
- taking anti-inflammatories as tolerated; COX-2 specific inhibitors have reduced risk of gut ulceration
- using a Bambach saddle seat when working in an office or at a computer
- using a back support when driving
- having an epidural injection, either a local injection, performed by a radiologist under CT control, or a caudal block under sedation in hospital if the exact point of nerve compression is uncertain.

Definitive surgical treatment is indicated if there is a significant neurological deficit or failure to respond to the normal measures above. Keyhole surgery reduces the pressure on the nerve root and is indicated urgently if there is significant weakness of, or interference to, the nerves to the bladder and bowel. Keyhole surgery is not always appropriate, however, particularly if cauda equina dysfunction is present.

Spinal stenosis

A degree of spinal stenosis is common in people over the age of 55 years (incidence increases with age). Spinal stenosis means

Examples of stabilisation exercises

The figures below are examples of stabilisation exercises that a physiotherapist might demonstrate to your patients with mechanical backache.



Figure 1a. Lying on your back with your knees bent, place your hands below your ribs. Without holding your breath, tighten your abdominal muscles. Your ribs should be squeezed down towards your back. Hold this position then relax.



Figure 1b. Sitting on an exercise ball with your feet flat on the floor, slowly raise one arm above your head then lower it. Repeat with the other arm. Slowly raise and lower one heel, then repeat with the other heel. Combine these two movements, raising one heel and the opposite arm at the same time. Repeat with the other heel and arm. Slowly march, raising one foot up from the floor then the other.

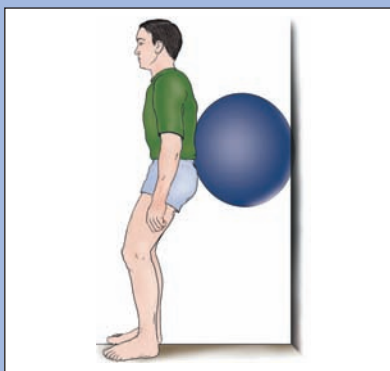


Figure 1c. Place an exercise ball between your lower back and a wall. Slowly bend your knees 45 to 90 degrees and hold this position, then relax. Repeat this exercise, bending the knees while raising both arms above your head.

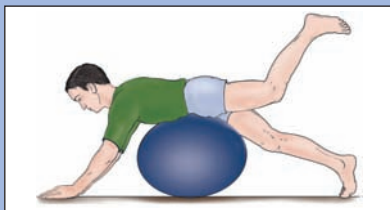


Figure 1d. Lying over an exercise ball, slowly raise one arm above your head, then repeat with the other arm. Lying over the ball, slowly raise one leg off the floor, then repeat with the other leg. Lying over the ball, raise alternate legs off the floor as before while raising alternate arms above your head.

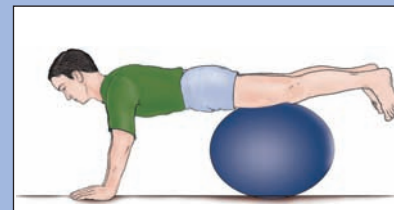


Figure 1e. Lying over an exercise ball, walk forwards on your hands so that the ball is under your knees. Then walk your arms backwards to the starting position. With the ball under your legs, slowly raise alternate arms above your head. With the ball under your legs, slowly do push ups.

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continued

a narrowing of part of the spinal canal or part of a small outlet from the spine where the nerve root passes. It usually causes 'neurogenic claudication'. This is a pain or feeling of premature fatigue in the back, buttocks or legs when walking or standing. The affected person often has difficulty straightening up after sitting or getting out of bed in the morning, and walking distance is also limited. Sitting or perching on a stool or fence can usually relieve

symptoms. The severity of the symptoms determines the extent of treatment required. Left untreated, the symptoms of spinal stenosis usually fluctuate, but over a long period of time they tend to progress.

Conservative treatment comprises:

- lumbar flexion exercises, as demonstrated by a physiotherapist (the exercises will be tailored to the patient)
- general activity such as swimming, which is usually well tolerated; many

people use an exercise bike or ride a mountain bike instead of walking

- intermittent use of anti-inflammatories as prescribed by the GP
- a caudal block, which may provide temporary relief of symptoms.

If the symptoms interfere with the patient's normal enjoyment of life and prevent activities such as walking, a surgical 'decompression' may be indicated. This is an operation that creates enough space in the lower spinal canal to alleviate nerve pressure. Occasionally, when significant deformity is present, a spinal fusion may be required to prevent progression of the deformity.

Serious problems

The presence of red flags, or warning signs, may indicate a serious cause of low back pain (Table). Serious causes of low back pain include tumours, infections, inflammatory disorders and the cauda equina syndrome.

Inflammatory diseases

An inflammatory disease, such as ankylosing spondylitis, rheumatoid arthritis or psoriatic arthritis, may cause low back pain. Affected patients are usually younger than 40 years and have a family history of the disease. Pain onset is gradual, and there may be morning or persistent stiffness. Peripheral joints are inflamed. Iritis, skin rash, colitis, and urethritis may be present.

Cauda equina syndrome

The most dramatic presentation of an acute disc herniation is the profound or progressive neurological deficit referred to as cauda equina compression syndrome. Patients with the cauda equina syndrome have urinary retention, reduced anal tone, saddle anaesthesia, widespread motor weakness and altered sensation or sensory levels. It is a true surgical emergency. If bowel and bladder function is to be preserved, immediate surgical decompression of the cauda equina is imperative. The longer the delay, the less recovery can be

Examples of flexion exercises

The figures below are examples of flexion exercises that a physiotherapist might demonstrate to your patients with mechanical backache.

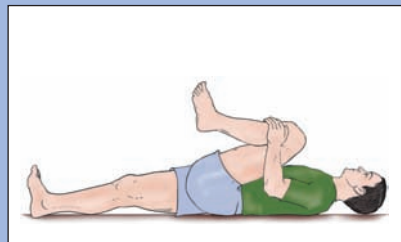


Figure 2a. Knees to chest. Lying flat on your back, lift one knee towards your chest and press the small of your back towards the floor. Hold this position then relax. Repeat five times, then repeat with the other leg.

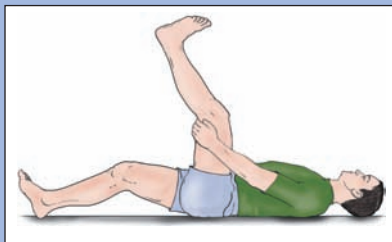


Figure 2b. Hamstring stretch. Lying flat on your back with your legs bent, lift up one leg and hold the thigh behind the knee. Slowly straighten the knee to stretch the back of the thigh. Hold this position for 20 seconds then relax. Repeat five times, then repeat with the other leg.

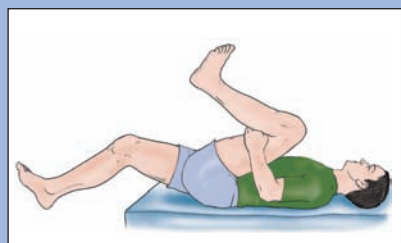


Figure 2c. Hip flexor stretch. Lying on your back on a bed or table, pull both knees towards your chest. Slowly lower one leg while keeping your knee bent. This will stretch the thigh and hip area. Hold this position for 20 seconds then relax. Repeat five times, then repeat with the other leg.



Figure 2d. Piriformis stretch. Lying flat on your back with your knees bent towards your chest, cross one leg over the other then pull the lower knee towards the chest. This will stretch the buttock/hip area. Hold this position for 20 seconds then relax. Repeat five times on each side.

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expected, and, in view of the complex interplay of compression, oedema and vascular insult to these delicate nerve roots, prediction of surgical results is difficult. These patients may fail to recover fully even with the most expeditious treatment.

Infection and tumours

Infection and tumours are serious causes of low back pain. The pain is usually

worse at night and not relieved by changes in posture.

Investigations

I believe it is reasonable for a patient to have a plain x-ray of the lumbosacral spine at the first attack of back pain, but not for recurrent episodes. Spinal imaging, in the form of a CT scan or MRI, is usually appropriate to assess the cause of

McKenzie extension exercises

The figures below are examples of McKenzie extension exercises that a physiotherapist might demonstrate to your patients with disc prolapse.



Figure 3a. Prone lying. Lying on your stomach with arms stretched along your sides, turn your head to one side. Hold this position for five to 10 minutes. Repeat with head turned to the other side.



Figure 3b. Prone lying on elbows. Lying on your stomach with your weight on your elbows and forearms and your hips on the floor, relax your lower back. Hold this position for as long as comfortable, up to 10 minutes.



Figure 3c (above). Prone press ups. Lying on your stomach with your hands near your shoulders, slowly push your shoulders up, keeping your hips on the floor and letting your back and stomach relax. Hold this position, then repeat.



Figure 3d (right). Standing extension. Standing upright, place your hands in the small of your back and lean backwards. Hold this position for 20 seconds then relax and repeat.

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Table. Red flags: signs of serious pathology

- Age less than 20 and over 55 years
- Trauma history
- Nonmechanical pain
- Thoracic pain
- Past history of malignancy, corticosteroid use, drug abuse, HIV infection
- Patient unwell
- Unexplained weight loss
- Persistent stiffness
- Widespread neurological signs or symptoms
- Deformity
- Increased erythrocyte sedimentation rate
- Fracture or bone destruction seen on x-ray
- Fever
- Pain worse at night
- Pain not relieved in supine position
- Bowel or bladder dysfunction

sciatic pain. Full blood count and measurement of erythrocyte sedimentation rate and C-reactive protein are indicated if any of the red flags are present.

Summary

The most common condition affecting the lower back seen in general practice is that of mechanical back pain, or so-called simple backache. Although the pain may be severe only intermittently, patients should be placed in the correct diagnostic category and treated appropriately, hence the emphasis on a triage. The consultation need not be excessively prolonged.

Hopefully, the simple protocol described above will not only improve efficiency in the consulting room, but may also lead to more appropriately directed management. **MT**

Reference

1. Loeser JD. Concepts of pain. In: Stanton-Hicks, editor. Chronic low back pain. New York: Raven Press, 1982: 145-148.