Back pain – disc problems

Summary

- Intervertebral discs are spongy cushions located between the vertebrae (bones) of the spine.
- Disc protrusions (often called ‘herniated’, ‘bulging’ or ‘prolapsed’ discs) are often found in people without back pain.
- Risk factors for developing disc changes include older age, obesity, lack of exercise and lifting heavy loads.

The term ‘disc’ is short for ‘intervertebral disc’. These are the spongy cushions that separate the bones of the spine (vertebrae). Discs provide shock absorption, keep the spine stable and give the vertebrae ‘pivot points’ to allow movement.

Discs have two parts: the elastic outer shell (the ‘annulus fibrosis’), and an inner jelly-like substance (the ‘nucleus pulposis’). The outer shells surrounds and holds the ‘inner jelly’ within the disc core.

Discs can handle quite a lot of pressure or load without problems. But certain types of pressure can cause strain and irritation of the outer shell. In some cases, this can push its contents out. This is known as disc protrusion.

Disc changes happen across our lifetime as connective tissues change with age, and the structures of the spine adapt to cope with the physical loads of daily life. These ‘degenerative changes’ may show on an x-ray or back scan, even in healthy people with no back pain. Disc bulge, narrowing of the disc space (loss of disc height) and disc dehydration are normal, common age-related changes.

Symptoms of disc problems

The symptoms of an irritated disc can vary according to its location and severity. Back scans are often unhelpful for determining whether a person’s back pain is coming from a disc issue, as discs change with aging and use. However, symptoms may include:

- back pain
- increased back pain when repetitively bending or with prolonged sitting
- increased back pain with coughing, sneezing, laughing or straining
- pain, numbness or pins-and-needles radiating into an arm or leg if a disc has caused irritation of a nearby nerve.

Risk factors for disc problems

Some people are more susceptible to disc problems than others. Risk factors include:

- obesity
- lack of fitness
- lack of regular exercise
- cigarette smoking
- older age
- poor posture
- lifting heavy loads.

Often, however, disc changes develop without a recognisable risk factor.

Types of disc problems

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Common disc-related problems include:

- disc strains and sprains
- degenerative disc disease (which can also be found in people who do not have any symptoms)
- protruded discs (also called ‘herniated’, ‘prolapsed’, ‘extruded’ or ‘slipped’ discs). For some people, protruded discs can cause nearby nerve irritation and result in sciatica (nerve pain spreading into the lower limbs).

Disc strain

Disc strain happens like any strains or sprains in other parts of the body. Applying sustained or excessive load to any soft tissues of the body (such as ligaments, tendons or muscles) can cause pain. If the force or load is more than the soft tissue can cope with, it may cause irritation and inflammation. This may not show on x-rays or scans.

Degenerative disc disease

The discs of a young child are plump and moist (fluid filled and well hydrated). But the water content of discs reduces with age until they are comparatively thin and hard. This normal ageing process is thought to increase friction between the bones, resulting in growths around the discs. These are called bone spurs.

Often, these age-related changes do not cause problems, but some people can experience pain. These changes are often called ‘degenerative disc disease’. The most common symptom is back pain that can be aggravated by activity or prolonged sitting. It’s often thought to be the most common cause of back pain in older people.

Disc protrusion

A ‘slipped disc’ is an inaccurate term still sometimes used to describe a disc protrusion. It suggests a disc has moved out of position, but this is not the case. Discs are held firmly in place by ligaments, muscles and the vertebrae themselves.

Terms like ‘protruded’, ‘herniated’, ‘extruded’, ‘bulged’ or ‘prolapsed’ better describe the situation. The problem is not that the entire disc ‘slips’ out of place but that a small area in the tough outer disc shell weakens. This allows the soft jelly-like contents to ooze out. When this ‘jelly’ comes into contact with other structures, especially nearby spinal nerves, it can cause:

- referred nerve pain (pain radiation into the lower limbs)
- altered nerve function (numbness or pins-and-needles).

The most common site for a disc protrusion is in the lower back, and lower backache can be a symptom. As we get older, we are less at risk of disc protrusion. This is because the discs ‘dry out’ and the contents are less able to ooze through any weakened areas in the outer disc shell.

Sciatica

Sciatica is nerve pain caused by irritation of the sciatic nerve. The pain radiates from the spine and down into the buttock, back of the thigh, leg and sole of the foot. Sciatica is often associated with altered nerve function. It may cause altered sensation in the affected lower limb, such as pins-and-needles or numbness.

Disc protrusion is a common cause of sciatica. The spinal nerves normally have room to slide up and down inside the spinal column whenever the body moves. However, a disc bulge can cause referred lower limb pain by protruding into the spinal column and pressing against spinal nerves. This hampers their movement. If the bulging disc leaks some of its contents around the nerves, this can cause local chemical irritation or inflammation.

Diagnosis of disc problems

The diagnosis of disc problems involves:

- taking a medical history to:
  - determine predisposing risk factors and conditions
  - identify any associated spinal nerve involvement
- doing a physical examination.

Investigations are carried out if:
symptoms persist for more than six weeks despite remaining active, or
there is concern the disc is affecting a spinal nerve.

**Treatment for disc problems**

Most disc problems will resolve with time, regardless of treatment, just like soft tissue sprains in other parts of the body. Short-term bed rest for a few days may help in the initial management of severe sciatica. However, most people can stay active, with some restrictions, according to their level of pain. Appropriate pain relief and allowing the person to stay active within their pain limits is usually the best approach.

Some treatments used for pain relief include:

- heat treatment (for example heat wraps or hot packs)
- gradually increasing activity levels within pain limits
- an exercise program designed to improve strength, flexibility and fitness
- a short-term (less than 12 week) trial of massage, spinal mobilisation or manual therapy
- non-steroidal anti-inflammatory drugs (NSAIDs) or steroids
- pain-relieving medications, such as paracetamol.

Sciatica pain may be treated with an injection of anti-inflammatory steroids into the area of the affected spinal nerve. In severe cases of sciatica caused by a large disc protrusion, pain may be relieved by surgery to trim the protruding disc. This may be done to relieve pressure on the affected spinal nerve.

In severe cases of degenerative disc disease, surgery may be considered to remove the disc and fuse together the two vertebrae on either side.

However, severe cases of both sciatica and degenerative disc disease are uncommon.

**Remember, most disc problems resolve without specific treatment.**

**Self-help for disc problems**

With time, most disc protrusions heal themselves and reduce in size. Ongoing self-management strategies may help reduce the future risk of further disc problems. Be guided by your doctor or health professional, but general suggestions include:

- try to avoid a sedentary lifestyle
- avoid lifting objects that are too heavy for you
- remember that movements such as bending and twisting (especially at the same time) can increase pressure on discs
- if you find that certain postures bring on your pain, you may need to address issues related to your posture while sitting, standing and walking
- try to maintain good overall physical fitness. This means staying physically active and maintaining good levels of muscle strength in your arms, legs and trunk. Regular exercise to improve flexibility can improve mobility and help reduce muscle tension and back pain
- do a program of back-strengthening exercises
- doing Pilates, walking regularly, or doing tai chi or yoga may help improve strength and flexibility in people with back problems. So, find an exercise that you enjoy and can do regularly.

**Other causes of back pain**

There are other causes of back pain, so see your doctor if pain is strong, persistent or continues throughout the night. Other reasons for back pain include:

- **muscular pain** – this is common, and usually does not spread into the legs. It is very likely to resolve on its own without the need for specific treatment
- **fractures** – occur more commonly in:
  - older people
• **cancer** – some cancers can cause back pain. See your doctor if you have:
  ○ strong pain
  ○ persistent pain
  ○ night pain
  ○ unexpected weight or appetite loss
  ○ a history of a cancer diagnosis in another part of your body
  ○ any other symptoms that concern you

• **infection** – can occur after invasive procedures (such as surgery or dental work). It may also arise in people who are immune suppressed, or inject illicit drugs. Symptoms that should be promptly assessed by a doctor include:
  ○ strong pain
  ○ night pain
  ○ fevers
  ○ sweats
  ○ fatigue
  ○ unexpected weight and appetite loss

• **ankylosing spondylitis** – causes gradual onset of persistent back pain and stiffness that is worse in the morning. It usually affects young men more than women. Pain is typically relieved by movement or activity, not rest. It often causes overnight pain and sleep disturbance. If you have this pattern of back pain, see your doctor for a referral to a rheumatologist

• **scoliosis** – is increased curvature of the spine. Children and adolescents with scoliosis should see their doctor for a referral to see a spinal surgeon experienced in assessing and managing scoliosis (particularly if it is getting worse). These specialists usually work in children's hospitals.

  Scoliosis may:
  ○ be present from birth
  ○ develop due to a person having increased soft tissue elasticity ('hypermobility')
  ○ develop with increasing age.

### Where to get help

- Your doctor (GP)
- Physiotherapist
- Rheumatologist
- Sports medicine doctor
- Spinal surgeon (if the main problem is sciatica or referred lower limb pain which is not settling)