

Patient information from BMJ

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Spinal cord compression: what is it?

Spinal cord compression happens when there is too much pressure on the bundle of nerves in the middle of your spine (backbone). This pressure can build up over time because of a long-term condition, or it can happen suddenly, usually because of an injury.

The pressure can sometimes be relieved with treatment. But often there is more serious, permanent damage, which can affect your ability to do many things, including walking.

What is spinal cord compression?

The spinal cord is a long bundle of nerve fibres that connect the brain to other parts of the body. It sits in a fluid-filled sac, and runs through the middle of the bones in your spine (the vertebrae). The bones help protect the delicate nerve fibres.

It might help to think of the spinal column as like a bundle of electrical wires coming out of a main fuse box, which eventually branch off to provide power to different rooms in a building.

Spinal cord compression happens when pressure on the nerves stops them from working properly or stops blood from getting to the nerves.

This damage can be sudden (what doctors call **acute**) or can happen gradually because of a long-term condition (doctors call long-term conditions **chronic**).

Acute spinal cord compression can be caused by many things, including:

- accidents, such as vehicle accidents, falls, and sports injuries
- a slipped disc (herniation). This is when the soft tissue that sits between two vertebrae slips out of place and presses on the nerves
- the bones in the spine slipping out of line with each other
- puncture wounds, such as knife and bullet wounds, and
- damage caused by medical treatment: for example, during surgery.

Chronic spinal cord compression usually happens because of:

- gradual weakening of the bones in the spine. This can happen because of conditions that weaken the spine, or just because of ageing

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- a tumour (cancer) on or near the spine, or
- an infection that causes swelling or an abscess on the spine.

Tumours on the spine usually happen when someone has another type of cancer (such as lung, prostate, or breast cancer), which then spreads to other parts of the body, including the spine.

The damage caused by compression can range from fairly mild to very severe.

For example, a condition called **cauda equina**, where the nerves in the lower back become compressed, causes pain and numbness that can often be treated and relieved. But it does not usually cause severe disability.

This is also often true for the problems caused by a **slipped disc**, which often come and go, causing temporary pain and lack of mobility, without causing permanent disability.

On the other hand, people with **severe compression** from other causes, such as bad accidents and tumours, often cannot walk, control their bladder and bowels, or even breathe without help.

What are the symptoms?

The symptoms of spinal cord compression can vary, depending on which nerves are affected, and on what has caused the compression.

For example, someone who has been in a vehicle accident and is struggling to move normally will have clear symptoms that suggest a spinal cord injury.

But in someone with a chronic condition where compression has taken time to develop, the symptoms could be less clear and very different.

Depending on what has caused your problems, you could have symptoms that could affect:

- your senses
- your muscles, or
- your organs.

Or you could have symptoms that overlap all of these areas.

Symptoms that affect the senses are called **sensory symptoms**. These can include:

- a reduced sense of touch and being less able to feel pain
- being less able to feel vibrations
- being less able to sense changes in temperature, and
- loss of feeling on one side of your body.

Symptoms that affect movement are called **motor symptoms**. They can include:

- being less able to move the limbs on one side of your body

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- weakness on one side of your body
- inability to move your legs
- inability to move any of your limbs
- weakness in your legs or in all of your limbs.

Symptoms that affect your organs are called **autonomic symptoms**. They can include:

- constipation
- being unable to urinate
- dizziness
- feeling cold and shivering
- drowsiness
- being unable to get an erection (if you are a man)
- pain in the abdomen (tummy), and
- fainting.

All people with spinal cord compression, whatever the cause, are likely to be in pain at least some of the time. The pain is usually worse with certain types of movement.

Examinations and tests

If your doctor suspects that you have spinal cord compression of any kind, you will have a scan, usually an MRI (magnetic resonance imaging) or CT (computerised tomography), to make sure.

The scan will check for things like damage and compression of the spinal cord, as well as abscesses (infections) and tumours.

If you are treated in hospital after an accident such as a vehicle accident or a fall, the doctor will always check for a possible spine injury. If it seems likely that your spine is injured, your doctor might also fit you with a neck collar to keep you still and stable while he or she examines you.

If you are conscious and able to answer questions, your doctor will also ask you about your injury. He or she will want to learn as much as possible about what happened, to help them give you the best possible treatment.

Your doctor will ask you things like:

- how your accident happened
- how long ago it happened, and
- what medical treatment, if any, you had at the time.

If you are not able to answer questions, perhaps because you are unconscious, your doctor will ask anyone who was with you and saw the accident, and people who might have helped you, such as paramedics.

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If you have symptoms that suggest a longer-term cause of spinal cord compression, the doctor will ask you:

- about any recent falls or knocks
- about any injuries that you can think of that happened less recently
- about your job and hobbies, such as sports that you play
- about any illnesses or other back problems you have
- whether you inject illegal drugs
- what medications you take
- whether you have had surgery recently.

Your doctor will also want to examine you physically and test your reflexes.

You might also have blood tests and a test called a lumbar puncture, where some of your spinal fluid is taken for testing.

What will happen?

The damage from spinal cord compression varies a great deal:

- In some people, the pressure on the nerves can be relieved with no lasting effects.
- Other people have symptoms that come and go. They might need to do special rehabilitation exercises and avoid some activities, but they don't need surgery.
- Some people have badly damaged nerves that can't be repaired, leaving them with long-term problems ranging from numbness to paralysis.

The outlook often depends on what caused the injury to your spine.

And it's not always possible for doctors to give a clear answer straight away about how much someone might recover. It can take time to understand the extent of the damage, and how much someone is likely to improve.

Many people will need to do rehabilitation, possibly for the rest of their lives. This will probably involve stretching and muscle exercises. Your doctor or physiotherapist will help you to learn an exercise programme that is right for you.

For some people, serious spinal nerve damage means that they can't use the toilet in the way they used to. So they need to learn how to use things like catheters and special bags that collect urine and faeces.

If you need this type of help, your medical team will help you to learn how to use the techniques and equipment you need.

A serious spinal injury is life changing. And it can be hugely difficult to deal with emotionally - especially without help.

Your medical team will, of course, be very supportive. But your doctor should also be able to arrange for you to speak to someone about how you feel, and about coping with the changes in your life.

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He or she might also be able to help you find a group of people with similar experiences in your area or online.

For example, in the UK, charities such as Aspire (aspire.org.uk) and Back Up (backuptrust.org.uk) offer counselling and practical support for people with serious spinal injuries.

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