

Spinal trauma and fracture classification

What you're feeling

After a spinal injury, pain or tenderness can appear anywhere along your spine, from the base of your skull down to your tailbone. Some people feel it in one clear spot. Others feel it across a wider area of the back or neck. Most spine injuries do not cause nerve problems, but pain alone is reason enough to have your spine checked.

Where the injury sits shapes what you notice. Fractures of the middle and lower back often happen around the junction between your chest and lower back, especially after a fall from height. Neck injuries can follow a blow to the head, and they sometimes involve more than one level of the spine. If you have a condition that stiffens the spine, such as ankylosing spondylitis, a fracture can happen after a minor knock and can still be unstable.

The pain usually worsens with movement, lifting, or anything that loads the injured bone. Resting still tends to settle it. Some injuries ache more at night or when you first get up. Bending forward, sitting for long stretches, and getting out of a low chair or bed can be hard. Turning your head to reverse the car may hurt if the injury is in your neck. Carrying shopping, climbing stairs, or getting dressed can all take longer than usual.

If the spinal cord or the nerves coming from it are affected, you may notice weakness, numbness, or changes in bladder or bowel control. These signs matter and should be reported straight away, because nerve function can change over time and needs to be checked and recorded.

Your care team will also look for injuries away from the painful spot. Extra fractures at another level of the spine happen in about 10% of cases, so imaging covers the whole spine rather than just the sore area.

What's actually happening

Your spine is a column of 33 bones stacked one on top of another. Seven sit in your neck, twelve in your chest, five in your lower back, and the rest are joined together at the base. Each bone has a solid block at the front that carries your weight, and a ring of bone at the back that shields the nerves running through the middle. Strong straps of tissue, called ligaments, hold the whole stack together.

The bones and ligaments work like the guy ropes and poles of a tent. The poles hold things upright, the ropes keep the shape steady. If a pole cracks or a rope snaps, the tent can slowly lean or fold, even if it looks fine at

first glance. That is what an unstable spinal injury is: damage that lets the spine lose its shape or press on the nerves it is meant to protect.

Some spots take more of the strain than others. The junction between your chest and lower back sits where a stiff section of spine, braced by the ribs, meets a more flexible one, so it copes with a lot of force and breaks more often there. The chest section is also where the channel carrying the nerves is at its narrowest, so swelling or bone fragments have less room and are more likely to cause nerve trouble.

When the spinal cord itself is injured, doctors describe how much function is lost. A complete injury means no feeling or movement is left below the injury. An incomplete injury means some feeling or movement survives below it, and that preserved function is linked with a better outcome. Where the injury sits matters too: damage in the neck can affect all four limbs, while damage lower down affects the legs.

The pain and stiffness you feel come from the broken bone and strained tissue themselves. Any weakness, numbness, or bladder or bowel changes come from pressure or damage affecting the nerves.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, matches the treatment to your specific injury. Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. A clinic assessment, with your history, an examination and imaging where needed, establishes what kind of injury you have and how stable it is.

Most spinal fractures do not need an operation. If your injury is stable, the nerves are working normally, and the shape of the spine has held, we usually start with non-operative care. That means a brace or cast that holds your back in an extended position for 3 months, with close reviews at 1, 2, 4 and 6 weeks to check the bone has not collapsed further. For stable fractures in the chest and lower back, non-operative care has shown better long-term pain and function than surgery. We will ask you to avoid heavy lifting and anything that loads the injured bone while it heals. Physiotherapy aims to restore your movement and strength once the bone is stable enough.

Some injuries need more than a brace. If the fracture is unstable, if bone has been pushed back into the channel carrying the nerves, or if you have weakness, numbness or bladder or bowel changes, surgery is usually recommended. The operation stabilises the spine so it holds its shape and takes pressure off the nerves. For some people this happens soon after injury, because early stabilisation lets rehabilitation start sooner. If you have injuries at several levels, or you are still being treated for other serious injuries, we may stabilise the spine early and complete the definitive repair later, once you have recovered from the initial shock to your body. If a condition such as ankylosing spondylitis has stiffened your spine, a fracture is often unstable and usually needs surgery, because a brace cannot hold that kind of spine steady. Both surgical and non-surgical treatments have a role, and we will talk through which suits your injury and your health overall. Surgery is a shared decision: we will explain what it involves, what it aims to achieve, and what happens if you wait.

What to expect

The outlook depends on two things: whether the nerves are affected, and whether the injury is stable. Most spine injuries do not cause nerve problems, and for those the usual course is steady healing. A stable fracture in the chest or lower back that is managed without surgery tends to settle over months in a brace, and people report less pain and better function in the long run than those who had an operation for the same kind of injury. The bone knits, the pain eases, and you get back to normal activity in stages.

If nerves are affected, the picture depends on how much function survives below the injury. An incomplete injury, where some feeling or movement is preserved, is linked with a better outcome. A complete injury, where no feeling or movement survives below the injury, has a much harder outlook. Your care team will check and record your nerve function more than once, because it can change over time, and any change needs to be picked up early.

Some things shape the long term even when the fracture itself heals well. The spine can slowly lose its shape over the years after some fractures, so you will have follow-up to watch for that. If you are 70 or older, a new fracture at another level of the spine is more likely than in younger people, so protecting your bone strength matters. If a condition such as ankylosing spondylitis has stiffened your spine, the injury usually needs surgery and a tailored plan.

If you are seriously injured in other ways as well, early stabilisation of the spine within 24 to 36 hours of injury is linked with fewer complications, shorter hospital stays, and fewer days on a breathing machine. That is about the first days after a major accident, not a promise about your own recovery.

Whatever the injury, spinal trauma can affect your quality of life for years. Honest follow-up, sensible activity, and reporting any new weakness or numbness straight away give you the best chance of a steady recovery.

When to see someone

Go to an emergency department straight away if you have new weakness, numbness, or changes in bladder or bowel control after a spinal injury, or if the injury followed a fall from height or a blow to the head. The same applies if you have a condition that stiffens the spine, such as ankylosing spondylitis, because fractures there can happen after a minor knock and can still be unstable. Ask for a specialist review if you have persistent pain after an injury that is not settling, or if pain returns with new weakness or numbness weeks later. If you are 70 or older, mention any new back pain after a minor stumble, because further fractures at another level become more likely with age. Nerve function can change over time, so any new sign needs checking the same day.