

Understanding a Lumbar Fracture

Treatment, Recovery and Rehabilitation

A lumbar fracture is a break in one or more of the five vertebrae forming the lower part of the spine. Injuries range from relatively stable compression fractures to more complex fractures that may affect spinal stability or the nerves within the spinal canal. The severity of the injury, neurological findings and associated injuries all influence treatment and recovery.

This guide explains how lumbar fractures are diagnosed and treated, what rehabilitation involves, and what to expect throughout recovery.

Key message — recovery from a lumbar fracture depends on both fracture healing and restoration of function. Once the spine is sufficiently stable, appropriate mobilisation and progressive rehabilitation are important for rebuilding movement, strength and confidence while limiting the effects of prolonged inactivity.

Injury at a Glance

Injury	Fracture of one or more lumbar vertebrae
Common causes	Falls from height, road traffic collisions, sporting injuries, workplace accidents and other high-energy trauma; lower-energy injury may cause fractures in weakened bone
Typical symptoms	Lower-back pain, tenderness, muscle spasm and difficulty standing, walking or changing position; neurological symptoms may occur with more severe injuries
Diagnosis	Clinical and neurological assessment with X-rays and/or CT; MRI may be required where ligament, spinal cord or nerve injury is suspected
Treatment options	Pain relief and progressive mobilisation, sometimes with spinal bracing; surgical stabilisation or decompression for selected injuries
Rehabilitation	Progressive mobility, physiotherapy, strengthening, functional rehabilitation and graded return to daily activities and work
Expected recovery	Initial fracture healing commonly progresses over approximately 8–12 weeks, with functional improvement continuing for several months
Possible complications	Persistent pain, reduced mobility, spinal deformity, neurological impairment, deconditioning and complications following surgery



Understanding the Injury

The lumbar spine consists of five large vertebrae between the thoracic spine and pelvis. It supports substantial loads during standing, walking and lifting while allowing movement of the trunk. A lumbar fracture can involve the main vertebral body or other parts of the vertebra and varies considerably in severity.

Some fractures remain mechanically stable, while more complex injuries can disrupt the structures maintaining spinal alignment. Fracture fragments or associated swelling can occasionally affect nerves within the spinal canal, potentially causing neurological symptoms.

High-energy trauma, particularly falls from height and road traffic collisions, is a common cause in otherwise healthy bone. In people with osteoporosis or other conditions affecting bone strength, considerably less force may cause a vertebral fracture. The principal implications for treatment and rehabilitation are the stability of the fracture, the presence of neurological injury and the resulting effect on mobility and function.

Symptoms and Diagnosis

Localised lower-back pain is the most common symptom and may be accompanied by tenderness, muscle spasm and difficulty moving, standing or walking. Pain can be severe immediately after injury. More significant fractures may cause numbness, altered sensation or weakness in the legs if neurological structures are affected.

Assessment includes the mechanism of injury, examination of the spine and neurological testing. Imaging is used to identify the fracture and assess its characteristics and stability. X-rays or CT scanning may be required, particularly following significant trauma, while MRI can provide additional information where neurological symptoms or injury to supporting soft tissues is suspected.

Accurate assessment of stability and neurological involvement is important because these findings determine treatment and establish how quickly mobilisation and rehabilitation can safely progress.

Treatment Options

Treatment depends on fracture stability, alignment, neurological findings, associated injuries and the individual's general health and functional requirements.

Many stable fractures without neurological impairment can be managed without surgery. Treatment typically involves appropriate pain relief and progressive mobilisation, with a spinal brace sometimes prescribed for additional support or symptom control. Evidence regarding routine bracing of stable thoracolumbar fractures is mixed, and it is not necessary for every patient.

Surgical treatment may be required where the injury produces significant instability, unacceptable deformity or neurological compromise. Surgery aims to stabilise the injured spinal segment and, where necessary, relieve pressure on neural structures.

When a vertebral fracture follows relatively minor trauma, assessment of underlying bone health may also be appropriate to identify osteoporosis and reduce the risk of future fragility fractures.

Rehabilitation and Recovery

Rehabilitation should begin as soon as the fracture and the person's wider clinical condition allow. In the early stages, priorities include controlling pain, maintaining safe movement and preventing unnecessary loss of physical capacity. Once mobilisation is permitted, getting out of bed, transferring, standing and progressively walking become important functional goals.

If a spinal brace has been prescribed, rehabilitation includes learning how to use it correctly and understanding any temporary restrictions on movement or lifting. Prolonged inactivity is generally undesirable once the fracture is sufficiently stable because it contributes to muscle weakness, reduced cardiovascular fitness and loss of confidence.

Physiotherapy progressively addresses walking, spinal and lower-limb movement, trunk and lower-limb strength, balance and physical endurance. Rehabilitation should be guided by symptoms, function and clinical assessment rather than by time alone. As healing progresses, normal daily activities are gradually reintroduced and unnecessary avoidance of movement reduced.

Occupational therapy may help where the injury affects washing, dressing, domestic activities or employment. More severe injuries, particularly those involving neurological impairment or multiple trauma, may require coordinated multidisciplinary rehabilitation.

Return to work should reflect the demands of the individual role. Sedentary or modified duties may be possible before unrestricted manual work involving lifting, repetitive bending or prolonged physical activity. Return to sport and strenuous recreation should similarly progress as healing, strength, movement and confidence permit.

Recovery Timeline

First week

Pain management, neurological monitoring, fracture protection and safe mobilisation when appropriate

2 to 6 weeks

Progressive walking and everyday activity; brace management where prescribed; maintaining general mobility and conditioning

6 to 12 weeks

Progression of fracture healing; increasing movement, daily activity and appropriate strengthening

3 to 6 months

Improving trunk and lower-limb strength, endurance and confidence; progressive return towards usual work and recreation

6 to 12 months

Continued higher-level functional recovery; reassessment and management of persistent pain, weakness or functional limitations where required

Some people recover considerably sooner, while complex fractures, neurological injuries or multiple trauma can require substantially longer rehabilitation.

Factors Affecting Recovery

Fracture severity and stability, neurological involvement and associated injuries are major determinants of recovery. Age, bone quality, smoking, general health and physical conditioning can also influence healing and rehabilitation.

Pain, fear of movement and prolonged inactivity may contribute to persistent functional limitation. Psychological wellbeing, engagement with rehabilitation, social support and occupational demands can also influence the return to independence and work.

Where reduced bone strength contributed to the fracture, assessment and appropriate management of osteoporosis can be important for reducing future fracture risk.

Possible Complications and Red Flags

Possible complications

- Persistent or chronic back pain
- Reduced spinal movement and physical conditioning
- Progressive vertebral collapse or spinal deformity
- Delayed fracture healing
- Persistent numbness, weakness or other neurological symptoms
- Reduced mobility and functional independence
- Complications following surgery, including infection or implant problems
- Ongoing difficulty returning to work or recreation

Seek urgent medical advice if...

- New or increasing weakness develops in either leg.
- Numbness or altered sensation is progressively worsening.
- New numbness develops around the buttocks, genitals or inner thighs.
- There is new difficulty controlling or emptying the bladder or bowel.
- Walking becomes progressively more difficult.
- Severe pain suddenly worsens after previously improving.
- A surgical wound becomes increasingly red, swollen or painful, produces discharge, or fever develops. ecomes progressively more difficult.

Frequently Asked Questions

How long does a lumbar fracture take to heal?

Initial bone healing commonly progresses over approximately 8–12 weeks, although this varies with fracture severity and individual health. Strength, endurance and functional recovery may continue improving for several months.

Will I need surgery?

Many stable fractures without neurological impairment can be managed without surgery. Surgery is more likely where the fracture causes significant instability, deformity or neurological compromise.

Will I need a spinal brace?

Not necessarily. Bracing may be used for selected fractures, but evidence does not support its routine use for every stable lumbar fracture. Follow the advice of the treating spinal **team**.

Will I need physiotherapy?

Many people benefit from physiotherapy, particularly where pain, weakness or reduced mobility restrict normal function. Rehabilitation is progressively adapted as healing and physical capacity improve.

When can I drive?

There is no universal timetable. Driving should resume when you can safely enter and exit the vehicle, sit comfortably, control the vehicle fully and perform an emergency stop without significant pain or restriction, subject to relevant medical and insurer advice.

When can I return to work?

This depends on the fracture and your occupation. Sedentary or modified duties may be possible earlier, while heavy manual work generally requires greater healing, strength and functional recovery.

Can I exercise while the fracture is healing?

Walking and appropriate general activity commonly form part of rehabilitation once mobilisation is permitted. More demanding exercise and spinal loading should be introduced progressively according to healing, symptoms and clinical guidance.

Medicess Clinical Insight

Successful recovery from a lumbar fracture should be judged by restoration of meaningful function rather than fracture healing alone. Once appropriate spinal stability has been achieved, progressive rehabilitation helps restore mobility, strength, endurance and confidence.

Where recovery plateaus, reassessment should consider persistent pain, neurological symptoms, physical deconditioning, fear of movement, psychological factors and occupational barriers. Identifying these factors allows rehabilitation to be adjusted to the individual's needs and supports the best achievable return to independence, work and recreation.

References and Further Reading

- National Institute for Health and Care Excellence (NICE): Spinal injury: assessment and initial management (NG41).
- National Institute for Health and Care Excellence (NICE): Rehabilitation after traumatic injury (NG211).
- National Institute for Health and Care Excellence (NICE): Major trauma: assessment and initial management (NG39).
- National Institute for Health and Care Excellence (NICE): Osteoporosis: assessing the risk of fragility fracture (CG146).
- British Society of Rehabilitation Medicine (BSRM): Specialist rehabilitation guidance and standards following major trauma.
- Chartered Society of Physiotherapy (CSP): Rehabilitation and physiotherapy guidance following injury and trauma.
- AO Foundation / AO Spine: Principles of assessment and management of thoracolumbar spinal fractures.
- Chou TY et al. Surgical versus non-surgical treatment for thoracolumbar burst fractures without neurological deficit 2024
- Karimi MT, Fallahzadeh Abarghuei A. Evaluating the efficacy of orthoses in the conservative treatment of thoracolumbar Frts.

Disclaimer

This guide is intended for general educational purposes only and does not constitute individual medical advice. Treatment, rehabilitation and recovery vary between individuals. Readers should follow the advice of their treating healthcare professional.