

# Spinal Trauma

Spinal trauma in pets may include fractures, dislocations, and subluxations of the vertebrae, the bones that make up the spinal column.

A **spinal fracture** refers to a break in one or more of the vertebrae. These injuries can vary widely, from minor cracks to complete breaks that displace the vertebrae.

In addition to fractured vertebrae, we can also see **dislocations** or **subluxations** of the vertebrae, which are connected to each other by joints. Sometimes a traumatic event will cause the vertebrae to separate from each other.

Because the spine surrounds the spinal cord, spinal trauma can lead to nerve damage and result in neurological symptoms like pain, weakness, and paralysis in pets.

## Signs

Signs of a spinal trauma can vary, but typically include:

- Pain
- Weakness
- Paralysis
- Incontinence
- Loss of sensation

In many cases, pets with spinal trauma also sustain other injuries such as open wounds, additional fractures, internal organ damage, or difficulty breathing if there's been trauma to the chest.

## Causes

Trauma might result from road traffic accidents, falling from height, collisions like running into a glass door, or depending on where you live, perhaps a kick from a horse. Injuries can range from mild to severe, depending on the force and location of the trauma.

## Diagnosis

When a spinal injury is suspected, pets are often stabilized on a rigid surface to prevent further injury. The next priority is stabilizing the pet's vital signs by addressing shock, airway, circulation, dysfunction of other organs, and other life-threatening conditions.

Once stabilized, the focus shifts to evaluating the spinal injury. A careful neurological exam will assess motor function and pain sensation. Following that, X-rays will evaluate the bones and alignment of the spine for any abnormalities. However, X-rays will only identify about two-thirds of spinal fractures, and they do not provide enough detail to detect spinal cord involvement. For a more precise diagnosis, advanced imaging techniques like CT or MRI may be required.

CT and MRI can reveal subtle fractures, disc herniations, bone fragments within the spinal canal, and spinal cord compression. They are invaluable for surgical planning, allowing for more accurate implant placement and helping surgeons decide if additional procedures are needed alongside stabilization.

## Treatment

Treatment for spinal trauma is often surgical, but choosing the right approach involves considering several key factors including:

- The type and severity of any additional injuries
- The specific location of the spinal damage
- How much the vertebrae have shifted out of place
- The degree of neurological impairment
- Owner preference and financial situation

Cases with minimal nerve damage and stable spinal alignment may be treated conservatively. This is also true for neck fractures, cases where a properly fitted brace can stabilize the injury effectively, and situations where surgical stabilization carries a high risk. Treatment often involves 8-12 weeks of strict crate rest, pain management, and follow-up imaging to monitor healing. Strict confinement is critical to prevent further injury.

Unstable, displaced fractures, or those causing significant spinal cord compression typically require surgery right away. Stabilization involves realigning the spine and securing it with screws, pins, or plates. This not only prevents further damage, but also allows for better recovery of nerve function. Pets with severe injuries who retain deep pain sensation in their limbs have the best chances of recovery through surgery, especially if performed promptly.

In any case, regular checkups ensure the fracture is healing properly and allow for adjustments to the care plan if needed, while physical rehabilitation can help pets regain strength and mobility.

## Prognosis

The chances of recovery for pets with spinal trauma are influenced by the injury's location and severity, particularly whether or not the spinal cord is affected. A key predictor of neurological recovery is the presence of nociception, which is the ability to sense pain.

Pets with mild symptoms, preserved motor function, and pain sensation often recover fully with prompt and proper treatment. Pets with motor impairments but preserved pain sensation can regain mobility, although some weakness or incoordination may persist. Pets that lose pain sensation have a more guarded outlook, as this may be suggestive of irreversible spinal cord damage, even with surgery.

