

Degenerative Lumbosacral Disease (DLSS) in Dogs

aka degenerative lumbosacral stenosis, cauda equina syndrome, or lumbosacral instability

Degenerative lumbosacral disease (DLSS) is a painful condition affecting the lower back where the spine meets the pelvis (L7–S1 junction).

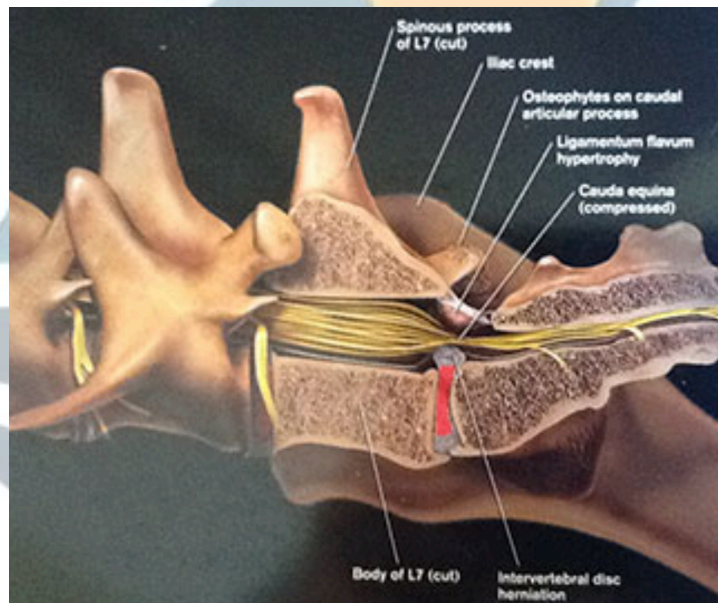
In this disease:

- the disc degenerates,
- the joint becomes unstable,
- surrounding tissues thicken,
- and the nerves of the cauda equina become compressed.

This causes:

- severe lower back pain,
- hindlimb weakness,
- difficulty rising or jumping,
- reluctance to work or exercise,
- and sometimes urinary or faecal incontinence.

DLSS is especially common in: German Shepherd Dogs, working dogs, large active breeds



While some **mild cases** can be managed medically, **surgery is the gold-standard treatment for dogs with significant pain, neurologic deficits, or persistent disease.**

Modern surgery can provide major pain relief, improved mobility and return to athletic or working activity in many dogs.



1) What's going on inside?

The lumbosacral joint is where the last lumbar vertebra (L7) meets the sacrum (S1)
This area is heavily stressed during: jumping, running, twisting, working activity.

What degenerates?

1. Intervertebral disc degeneration

The L7–S1 disc dries out and collapses.
This leads to: disc bulging, instability, reduced disc height

2. Bone and ligament thickening

As the body tries to stabilise the area, ligaments enlarge, bone spurs form, facet joints enlarge.
Unfortunately this narrows the spaces where nerves travel.

3. Nerve compression

The nerves of the cauda equina become compressed.

These nerves control:

- hindlimb function
- tail movement

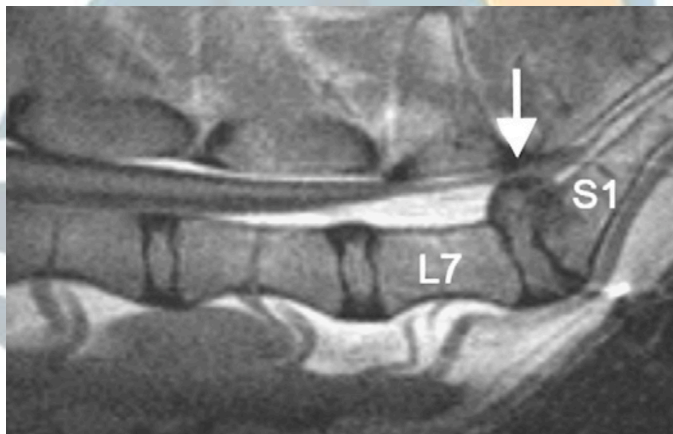
- bladder control
- bowel function

Compression causes: pain, weakness, neurologic dysfunction

4. Dynamic instability

One important feature of DLSS: compression worsens during movement.

Dogs may appear worse when jumping, worse after exercise, painful when extending the hips or tail.



2) What owners typically notice

Common signs

- Difficulty jumping into cars
- Reluctance to climb stairs
- Trouble rising
- Bunny-hopping gait
- Hindlimb weakness



- Lower back pain
- Crying when touched near tail base
- Reduced tail wagging

Advanced signs

- Muscle loss in hind limbs
- Knuckling or stumbling
- Urinary incontinence
- Fecal incontinence
- Tail weakness
- Lameness shifting between hind legs

Working dogs often show:

- sudden decline in performance
- refusal to jump
- inability to track or work

3) Diagnosis

A) Physical examination

Veterinarians often detect:

- pain on lumbosacral palpation
- pain when lifting tail
- pain on hip extension
- neurologic deficits
- weak withdrawal reflexes

B) X-rays

May show:

- narrowed L7–S1 disc space
- bone spurs
- spondylosis

- instability

BUT: X-rays alone often underestimate disease severity.

C) MRI — Gold standard imaging

MRI best shows nerve compression, disc protrusion, ligament hypertrophy, foraminal stenosis, nerve root inflammation. Stressed views reveal a possible instability
CT scan may also help assess bone changes, however it will not reveal the inflammatory changes to the nerve roots or the cord. At best, it can in severe cases reveal a nerve root enlargement.

4) Treatment Overview

Treatment depends on severity of pain, neurologic deficits, duration and athletic demands.

5) Medical Management

May help mild cases:

- anti-inflammatory medications



- gabapentin
- weight control
- physiotherapy
- exercise restriction
- epidural steroid injections are occasionally used.

Limitations

Medical treatment often **controls symptoms temporarily, but does not stop progression.**

Many dogs worsen over time. Recurring DLSS or working dogs which cannot be put at strict rest will benefit of surgical treatment instead.

6) Surgical Treatment

Surgery is recommended when:

- pain is severe,
- medical therapy fails,
- neurologic deficits develop,
- urinary dysfunction occurs,
- or working dogs need reliable function.

Goals:

- decompress nerves,
- restore stability,
- reduce pain,
- improve long-term function.
- Resume a working duty (police, army, etc...)

7) Main Surgical Options

A) Dorsal Laminectomy

Most common decompressive surgery

The roof of the spinal canal is removed over L7–S1.

This enlarges the spinal canal, relieves nerve pressure. And removes compressive tissue. On its own, this surgery will address only a certain type of degenerative changes causing static compression, in the vertebral canal rather than the foramen.

Often combined with: disc fenestration, foraminotomy, stabilisation.

Advantages

- Excellent nerve decompression, widely available, good long-term pain relief, no implants left hence a cheaper procedure.

Limitations

- If instability is severe, dynamic or the compression is lateralised, the decompression alone may not fully solve the problem.

B) Foraminotomy

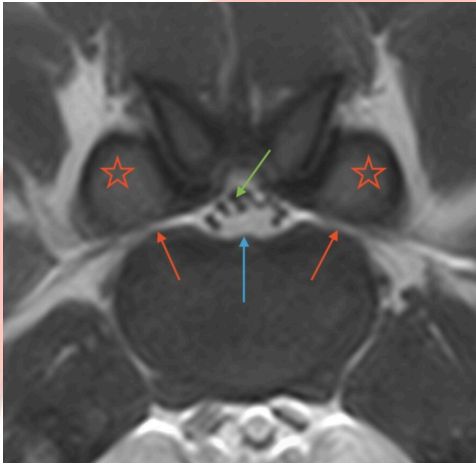
Important for **lateralised nerve root compression** as they do not respond to dorsal decompression only. The openings where nerves exit the spine (foramina) are enlarged.

This is especially helpful when **hindlimb lameness dominates**, nerve root compression is severe and “root signature pain” exists.



Such patients are often missed and assessed for orthopaedic lameness. The lameness typically fluctuates and gets worse with exercise, with waxing and waning intensity of the clinical signs.

Can be used alone (see separate pathophysiology sheet), or combined with laminectomy. On the left side, bilateral narrowing of the foramen. The transverse view on the right shows a normal lumbosacral joint without any significant compression



C) Stabilisation / Fusion procedures

Increasingly important in modern surgery
Because instability contributes to DLSS: many surgeons now add stabilisation.

Techniques include:

- pins and polymethylmethacrylate (PMMA)
- screws and rods
- plates
- transarticular fixation
- interbody cages/spacers

Goals: eliminate abnormal motion, maintain disc space and reduce recurrent compression. This approach is more costly as it requires specific implants. They are useful to address **combined central and lateral compressive lesions.**

Advantages

- Better stability
- May improve working-dog outcomes
- Reduces dynamic compression

Limitations

More technically demanding.

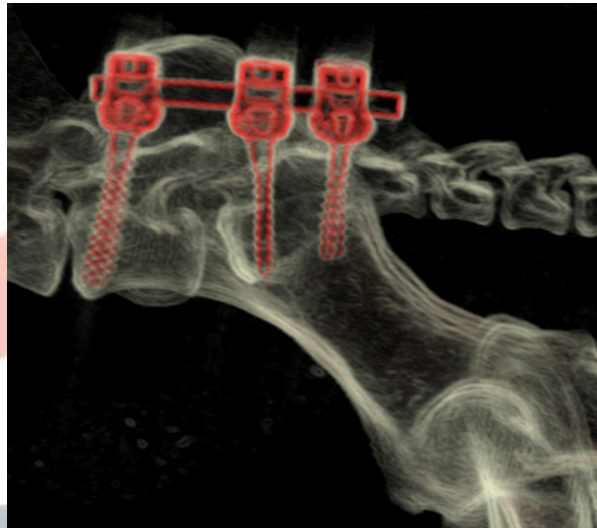


D)
techniques

Modern
option
The disc
(opened)

Benefits:
relieves
indirectly,

Increasingly
dogs,
recurrent



Distraction–Fusion

advanced stabilisation

space is distracted
slightly) and fused.

enlarges foramina,
nerve pressure
restores alignment.

popular in: working
severe instability,
cases.

8) Which dogs benefit most from surgery?

Best surgical candidates:

- severe pain
- neurologic deficits
- failed medical management
- athletic or working dogs
- recurrent episodes

Dogs with urinary dysfunction may still improve, but prognosis is more guarded if nerve damage is longstanding.

9) Outcomes and prognosis

Overall prognosis after surgery: **GOOD TO EXCELLENT** provided the adequate procedure is used. Lateral foraminal compression do not respond to dorsal laminectomy only.

Most studies report: 70–90% significant improvement

Many dogs:

- return to comfortable pet life,
- regain athletic ability,
- return to working duty.

Working dogs

Police and military dogs often improve dramatically after stabilisation surgery. Some studies show: 60–80% return to work rates.

Prognosis factors

- Better prognosis: early surgery, pain-only cases, minimal neurologic deficits
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- More guarded prognosis: urinary incontinence, chronic nerve damage, severe muscle atrophy.

10) Complications and realistic rates



Complication	Approximate rate	Notes
Persistent pain	10-25%	Most improve partially
Recurrence	5-20%	Higher with decompression alone
Implant failure	5-15%	Stabilisation procedures only
Seroma infection	<5-10%	Usually manageable
Nerve injury	Rare	Serious but uncommon
Persistence of urinary dysfunction	Variable	Depends on chronicity
Revision surgery	5-15%	More common in working dogs

Dogs treated with decompression + stabilisation often have lower recurrence than decompression alone.

Dogs diagnosed with lateral foraminal compression, treated with lateral foraminotomy (direct decompression) have a better prognosis.

11) Recovery and rehabilitation

Recovery is critical.

First 6–8 weeks

- Strict activity restriction
- Controlled leash walks only
- Pain medications

Physical rehabilitation begins gradually: very important for outcome

- hydrotherapy
- core strengthening
- proprioception exercises
- muscle rebuilding

Return to activity

Pet dogs: often normal by **2–4 months**

Working dogs: may require **4–6 months** rehabilitation.

12) Long-term expectations

Most dogs: regain excellent quality of life, walk comfortably and exercise normally.

Some may require: intermittent anti-inflammatory medication, long-term weight management and ongoing rehabilitation.

13) Selected Veterinary References

- ACVS — Degenerative Lumbosacral Stenosis
- Fossum TW — Small Animal Surgery
- De Risio & Sharp — Canine DLSS



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- Jeffery et al. — Surgical outcomes in lumbosacral disease
- Meij & Bergknut — Degenerative lumbosacral stenosis reviews
- Suwankong et al. — MRI findings and prognosis
- Worth et al. — Stabilisation techniques in working dogs

Degenerative lumbosacral disease is a painful compressive disorder affecting the lower spine and cauda equina.

While mild cases may improve medically, many dogs eventually require surgery.

Modern surgery focuses on: decompression + stabilisation to relieve nerve pressure and restore spinal stability.

Most dogs experience major improvement after surgery, especially when treated before severe nerve damage develops.

Working and athletic dogs often benefit greatly from advanced stabilisation procedures.

