



Lumbar Spondylolisthesis

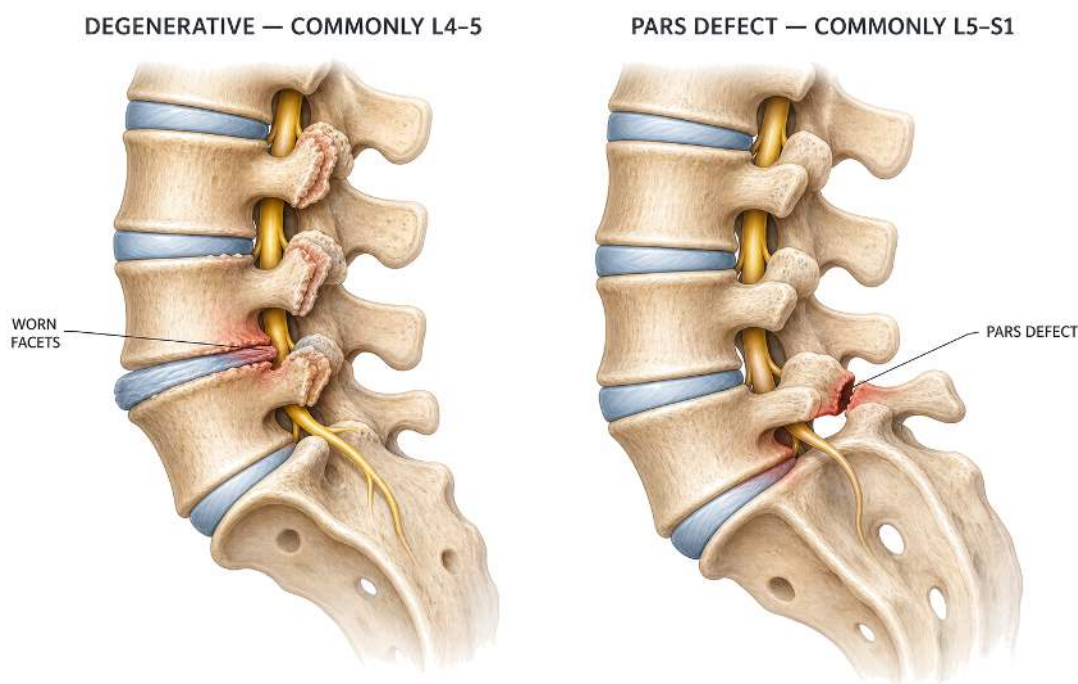
Understanding vertebral slip, nerve narrowing and reconstructive surgery

Why you have been given this sheet

This guide explains lumbar spondylolisthesis, how it can affect the nerves and spinal balance, and how reduction, an OLIF approach using an Aerofoil anatomical cage, fixation and decompression may be used. It supports your discussion with the surgical team and complements - but does not replace - the formal consent process. Your operation will be tailored to your symptoms, examination and imaging.

What is spondylolisthesis?

Spondylolisthesis means that one vertebra has moved forwards or backwards relative to the vertebra below. The slip can disturb lumbar alignment, narrow the central canal or neural foramina, and alter loading through the disc and facet joints. This may cause mechanical low-back pain, sciatica, numbness, weakness or reduced walking tolerance.



The two principal adult patterns. Degenerative slip most often affects L4-5; a pars defect most often produces an isthmic slip at L5-S1.

Two common types

- Degenerative: wear of the disc, facet joints and supporting tissues allows translation, usually at L4-5. It becomes more common with age and is more frequent in women.
- Pars defect (isthmic): a defect or stress fracture in the pars interarticularis can allow L5 to slip over S1. It may begin earlier in life and become symptomatic when the disc later degenerates.

Does it always worsen?

No. Many adult slips remain stable on serial imaging. Some progress over time, but symptoms and slip percentage do not always change together. Decisions are therefore based on pain, nerve function, walking, instability, alignment and serial imaging - not the X-ray alone.

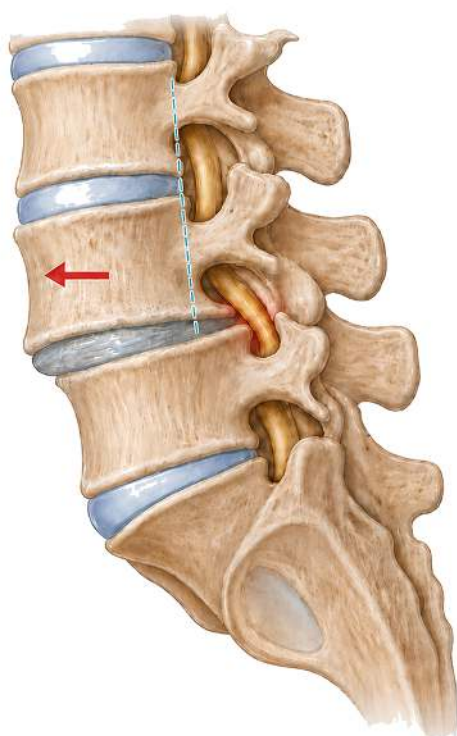
Restoring alignment and space for the nerves

The operation is designed to address instability, nerve compression and loss of segmental alignment together. The exact correction and decompression are individualised.

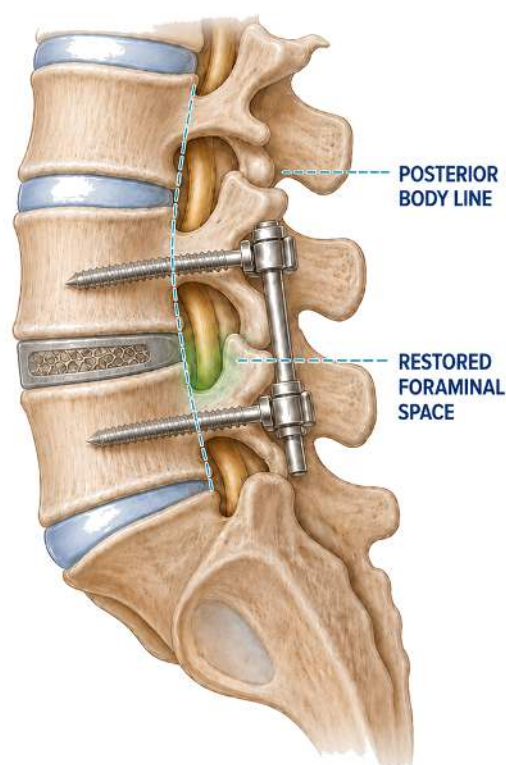
How the slip causes symptoms

- Central stenosis can crowd several nerves, causing heaviness, pain or altered sensation when standing and walking.
- Foraminal stenosis can pinch an exiting nerve as disc height is lost and the vertebra translates, producing sciatica, numbness or weakness.
- Abnormal movement and loading of the disc and facets may cause mechanical low-back pain.
- Loss of segmental lordosis may contribute to sagittal imbalance and increased muscular effort to remain upright.

BEFORE — SLIP AND NERVE NARROWING



AFTER — ALIGNMENT AND SPACE RESTORED



Simplified sagittal illustration. Reduction restores lordosis and the posterior vertebral body line; the Aerofoil cage restores disc and foraminal height while pedicle screws and rods maintain alignment as fusion develops.

How the operation is performed

- Reduction: the slipped segment is brought towards a safer and more balanced alignment. Complete reduction is not always necessary or appropriate; correction is individualised.
- OLIF approach using an Aerofoil anatomical cage: damaged disc material is removed through a natural oblique corridor between the abdominal muscles and the psoas. This avoids direct entry through the spinal canal and aims to reduce manipulation of neural and major arterial or venous structures compared with other approaches. The cage restores disc height, lordosis and foraminal space.
- Navigated fixation: pedicle screws and rods stabilise the corrected level while fusion develops. Navigation and robotic guidance support accurate implant placement.
- Direct decompression if required: additional bone or thickened ligament is removed posteriorly when indirect decompression alone is unlikely to provide sufficient space.

Typical operating time

A single-level reconstruction is commonly completed in one stage and takes approximately 2 hours. This is a guide only; anatomy, the number of levels and whether direct decompression is required may alter the duration.

What the reconstruction is designed to achieve

Potential benefits

NERVE SPACE Restoring disc and foraminal height can relieve nerve compression; direct decompression is added when needed.	STABILITY Screws, rods, cage and fusion control abnormal movement at the slipped segment.
ALIGNMENT Reduction restores the posterior vertebral body line, segmental lordosis and a more normal load pathway.	FUNCTION The aim is improved leg pain, walking tolerance and mechanical back pain, recognising that longstanding symptoms may recover slowly.

Expected improvement

The main aims are to relieve nerve-related leg symptoms, improve walking and reduce back pain arising from instability. Improvement in nerve and back pain is generally more predictable than complete relief of longstanding numbness or weakness. Fusion develops gradually over months even though the implants provide immediate support.

Hospital stay and early activity

A stay of approximately two nights is usual, depending on mobility, pain control and medical recovery. You will normally stand and walk within hours of surgery. A brace is not routinely required.

Recovery guide

WITHIN HOURS	Stand and walk with assistance, then walk little and often, increasing distance as comfort allows.
FIRST 2 WEEKS	Daily light activities are encouraged. Keep the wound clean and follow discharge instructions. Wound review is usually at 2 weeks.
DRIVING	Usually after about 3-4 weeks, when cleared, provided you are no longer taking sedating medication and can safely control the vehicle and perform an emergency stop.
AROUND 6 WEEKS	Surgeon review and physiotherapy. Physiotherapy rebuilds spinal and core muscle function. Routine activities then increase progressively.
LONG-TERM FOLLOW-UP	Follow-up with your surgeon continues beyond six weeks until recovery is complete. Periodic long-term clinical review or imaging may then be arranged.

Before admission and bone health

We will review your medications, general health and imaging before surgery. Avoid nicotine and follow instructions about medicines that affect bleeding. If bone density is reduced, additional assessment and treatment - including anti-osteoporosis medication in selected patients - may be recommended before surgery to improve bone quality and reduce fixation or fusion-related complications.

Fusion is a biological process

The cage, screws and rods hold the segment while new bone grows across it. Avoid nicotine, follow bone-health advice and attend planned imaging and reviews, because symptoms alone cannot confirm that fusion has developed.

Possible complications, alternatives and follow-up

Possible complications

Most patients recover without a major problem, but no operation is risk-free. Your personal risk depends on your health, anatomy and the procedure performed.

MORE COMMON OR USUALLY MANAGEABLE

Temporary wound pain; nausea or constipation; temporary increase in nerve symptoms; residual numbness or back pain; minor wound problems; urinary retention.

LESS COMMON

Dural tear and spinal-fluid leak; infection; bleeding or haematoma; nerve injury or weakness; blood clot; recurrent or residual stenosis; non-union; implant-related problems; adjacent-level degeneration or further surgery.

Seek urgent medical advice

Seek urgent assessment for new or worsening weakness, loss of bladder or bowel control, numbness around the saddle area, fever, wound drainage, chest pain or shortness of breath.

Alternatives to surgery

- Education, activity modification and structured exercise or physiotherapy.
- Medication selected with your GP or treating physician.
- Image-guided injections for temporary symptom control or diagnostic information in selected patients.
- Continued observation with clinical and radiographic review when symptoms are tolerable and there is no progressive neurological deficit.

Non-operative care can reduce symptoms but does not correct the slip, restore foraminal height or fuse an unstable segment. Surgery is usually considered when pain or walking remain substantially limiting, neurological function deteriorates, instability or alignment is clinically important, or appropriate non-operative care has not provided durable relief.

Your surgeon

Dr David Edis | Orthopaedic and Spine Surgeon | MBBS, FAOrthA, GradDipHealthAdmin

David leads the spinal surgical team and has particular expertise in adult lumbar conditions, minimally invasive OLIF, indirect and direct nerve decompression, and posterior robot-guided fixation. We aim to restore alignment and stability while using the least disruptive approach appropriate to each patient's anatomy.

Aerofoil disclosure

Dr David Edis co-designed the Aerofoil anatomical lumbar interbody cage used in selected fusion procedures. The device has received TGA approval and is listed for use in Australia. Dr Edis holds associated intellectual property and may receive a financial benefit related to its use. The clinical study of the Aerofoil cage has been published.

Selected references

1. Atalay B, et al. Natural history of degenerative spondylolisthesis: systematic review and meta-analysis. *World Neurosurg.* 2023;176:e634-e643.
2. Atalay B, Varthi A. Natural history of lumbar spondylolisthesis. *Neurosurg Clin N Am.* 2026;37:27-37.
3. Enyo Y, et al. Radiographic natural course of lumbar degenerative spondylolisthesis. *J Orthop Sci.* 2015;20:978-984.
4. Floman Y. Progression of lumbosacral isthmic spondylolisthesis in adults. *Spine.* 2000;25:342-347.
5. Bydon M, et al. Degenerative lumbar spondylolisthesis: natural history and management. *Neurosurg Clin N Am.* 2019;30:299-304.
6. Austevoll IM, et al. Decompression with or without fusion in degenerative lumbar spondylolisthesis. *N Engl J Med.* 2021;385:526-538.
7. Kgomotso EL, et al. Five-year follow-up of the Nordsten-DS trial. *BMJ.* 2024;386:e079771.
8. Rangwalla K, et al. Degenerative lumbar spondylolisthesis: current classifications. *Eur Spine J.* 2023;32:4072-4085.
9. Lambrechts MJ, et al. Sagittal alignment in operative degenerative lumbar spondylolisthesis. *J Spine Surg.* 2023;9:398-417.
10. Saremi A, et al. Evolution of lumbar degenerative spondylolisthesis with key radiographic features. *Spine J.* 2024;24:1004-1016.

Victorian Orthopaedic Spine Service

☎ 03 8683 9039 | Fax 03 8679 0389
✉ reception@vicorthospine.com.au

Consulting locations

Langwarrin Main Rooms • Mulgrave
Maryvale • Warragul • Peninsula • Rosebud

Surgical hospitals

Peninsula Private Hospital
Mulgrave Private Hospital
Maryvale Private Hospital
The Bays Hospital