



Lumbar Deformity Correction & Fusion

For surgery involving three or more spinal levels

Why you have been given this sheet

This guide explains the proposed operation, expected recovery, alternatives and possible complications in plain language. It supports your discussion with the surgical team and complements - but does not replace - the formal consent process. Your individual plan may differ.

What is multilevel lumbar reconstruction?

Multilevel lumbar reconstruction is an operation designed to relieve pressure on nerves, restore alignment and stabilise several levels of the lower spine. Fusion encourages selected vertebrae to heal together as one stable unit. Screws, rods and interbody cages support the correction while bone healing develops over many months.

Why might it be recommended?

- Spinal deformity, including degenerative scoliosis or loss of normal lumbar alignment.
- Nerve compression causing leg pain, weakness, numbness or reduced walking tolerance.
- Mechanical back pain associated with imbalance, instability or advanced degeneration.
- Progressive symptoms that have not improved sufficiently with non-operative treatment.

The goals of surgery

DECOMPRESS

Create more space for affected nerves.

REALIGN

Restore spinal balance and posture.

STABILISE

Support the corrected spine while fusion develops.

Your operation at a glance

APPROACH

Multilevel OLIF followed by posterior fixation when required.

STAGING

For long reconstructions, the two stages are usually 3-4 days apart.

TECHNOLOGY

Navigation and robotic guidance
Preoperative planning and patient-specific rods

EARLY AND ONGOING CARE

Close postoperative monitoring and early walking
Long-term surgical follow-up

What a successful result may look like

The goals are individual. Depending on your condition, success may mean standing more upright, walking further, reducing leg pain, improving everyday function or preventing further deterioration. Correction is planned to suit your age, anatomy and overall health rather than aiming for one identical alignment in every patient.

Your surgeon and surgical team

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David leads the spinal surgical team and has particular expertise in adult spinal conditions, less-invasive deformity correction, mini-open lateral surgery (OLIF) and posterior robot-guided percutaneous screw placement. He is an active researcher and medical educator and has performed more than 300 deformity correction procedures.

His approach combines contemporary technology with multidisciplinary, evidence-based care and long-term follow-up. As a practical guide, approximately 8 in 10 patients experience a significant improvement in pain, function or quality of life. Improvement is not guaranteed, and longstanding pain, numbness or weakness may persist.

How the operation is performed

We use a technology-assisted approach tailored to each patient. Every reconstruction is planned around the individual's anatomy, age, bone quality and alignment goals, allowing us to select the most appropriate surgical stages, correction and implant strategy.

BEFORE - THE PROBLEM

Loss of lumbar lordosis can move the head and trunk forward of the hips and contribute to fatigue or pain.

AFTER - THE GOAL

Restoring lordosis aims to bring the head and trunk into a more balanced position over the pelvis.



Illustration: simplified sagittal comparison of flat-back imbalance and corrected alignment. It is educational only; your anatomy, implant levels and correction will differ.

1 Stage 1 - OLIF and anterior reconstruction

Through small incisions in the side of the abdomen, the surgeon reaches the lumbar discs using the oblique lumbar interbody fusion (OLIF) approach. OLIF uses a natural tissue corridor beside the abdominal muscles and major structures. This avoids passing through the spinal canal and is designed to reduce disturbance to nerves and major blood vessels compared with approaches that traverse those structures. Damaged disc material is removed and cages containing bone-graft material are inserted to restore disc height, alignment and support fusion.

2 Interval between stages

When several lumbar levels require OLIF, reconstruction is usually divided into two operations. The second stage is generally performed about 3-4 days later, after medical review and recovery from the first stage.

3 Stage 2 - posterior fixation and decompression

From the back, screws and rods are placed to hold the corrected alignment. Additional nerve decompression and bone-graft placement are performed when required. The exact levels and techniques are tailored to your imaging, bone quality, symptoms and alignment goals.

Technology used

AI-assisted preoperative planning and patient-specific rods

Specialised software can simulate different corrections using measurements from your imaging. Planning is adapted to your anatomy, age, spinal alignment and individual surgical goals. When appropriate, patient-specific rods can then be manufactured to reproduce the planned correction as closely as possible. These tools support decision-making; they do not replace surgical judgement or guarantee an outcome.

Navigation and robotic assistance

Computer navigation and robotic guidance support implant placement and help the surgical team follow the preoperative plan.

Blood conservation

Cell salvage may collect and process blood lost during surgery so it can be returned to you. Approximately 1 in 5 patients still requires donor blood; individual need varies.

What to expect before and after surgery

Before admission

- Your general health, imaging, bone health, medications and anaesthetic risks will be reviewed.
- An expert physician will assess blood-thinning medication and provide an individual plan. Do not stop anticoagulants or antiplatelet medication unless instructed.
- If reduced bone density or osteoporosis is identified, you may be asked to commence bone-strengthening medication before surgery. Improving bone quality may reduce fixation, fracture and fusion-related complications.
- Smoking or nicotine significantly impairs fusion and wound healing. Stop as early as possible and ask for support if needed.
- Optimise nutrition, diabetes control and physical conditioning where possible. Arrange practical help at home for the early recovery period.

Personalised preparation

Complex reconstruction places demands on the whole body. Preoperative assessment may involve your surgeon, anaesthetist, physician, physiotherapist and other specialists. This team approach helps identify modifiable risks before admission.

Hospital stay

SURGERY DAY

Early mobilisation and pain control begin when medically appropriate.

FIRST POSTOPERATIVE DAY

The first postoperative day is usually spent in ICU for close monitoring as a precaution, not because a complication is expected.

FOLLOWING DAYS

Walking, breathing exercises, bowel care and gradual transition to oral medication.

DISCHARGE

When pain is manageable, mobility is safe, and the medical and therapy teams are satisfied.

Your recovery timeline

FIRST 2 WEEKS

Walk as much as comfortable, little and often. Keep the wound clean and follow discharge instructions. Wound review at about 2 weeks.

WEEKS 0-6

Light activities only. Avoid heavy lifting, repetitive bending and twisting. No brace is routinely required.

WEEKS 4-6

Driving may resume when cleared, provided you are off sedating pain medication and can safely control the vehicle.

WEEKS 6-8 ONWARD

Surgeon review at about 6 weeks. Physiotherapy usually begins between 6 and 8 weeks and activity then increases gradually.

LONG-TERM FOLLOW-UP

Follow-up with your surgeon continues beyond the six-week review throughout recovery. Once recovery has stabilised, periodic long-term reviews and imaging may be arranged to monitor the reconstruction.

Walking is encouraged

There is no fixed walking limit. Increase distance gradually and rest when needed. Short, frequent walks are usually better tolerated than one long walk early in recovery. Your individual restrictions may differ.

PREPARE YOUR HOME

Before admission, organise transport, frequently used items at waist height, easy meals and help with shopping, pets or heavier household tasks.

PACE YOUR RECOVERY

Progress is rarely linear. A more active day may temporarily increase fatigue or discomfort. Increase one activity at a time and follow the restrictions provided by your team.

Possible complications

Every operation carries risk. The likelihood varies with your age, general health, bone quality, number of levels treated and whether this is revision surgery. Your team will discuss risks that are particularly relevant to you.

More common or expected issues

- Temporary pain, fatigue, stiffness and reduced mobility during the early recovery period.
- Constipation, nausea, urinary difficulty or medication side effects.
- Temporary numbness, tingling or weakness; some pre-existing nerve symptoms may improve slowly or remain.
- Anaemia from blood loss. Cell salvage is used when appropriate; donor transfusion is sometimes required.
- Temporary thigh or hip-flexor discomfort after the OLIF approach.

Uncommon complications

Wound or infection	Superficial or deep infection may require antibiotics, wound treatment or further surgery.
Blood clot or chest complication	A clot in the leg or lung, pneumonia, heart problem or another medical complication can occur despite prevention measures.
Nerve or covering injury	Nerve injury, weakness, altered sensation, leakage of spinal fluid or persistent pain may occur and occasionally need further treatment.
Approach-related injury	Injury to abdominal structures, major blood vessels, ureter or sympathetic nerves is uncommon. In men, retrograde ejaculation can occur after lower anterior approaches.
Implant or fusion problem	Cage movement or subsidence, screw or rod breakage, non-union, adjacent-level degeneration or loss of correction may require monitoring or revision surgery.
Medical or positioning issue	Skin or pressure injury, visual problems, medication reaction or deterioration in an existing medical condition is uncommon but possible during lengthy surgery.

Why further surgery is sometimes considered

Problems such as infection, non-union, implant failure, new nerve compression, progressive adjacent-level degeneration or loss of alignment do not mean another operation will automatically be required. If one develops, further surgery is one of several possible treatments. Your surgeon will explain the options and your individual risk.

Alternatives to surgery

Depending on your condition, alternatives may include continued observation, medication review, physiotherapy or supervised exercise, activity modification, weight and bone-health optimisation, pain-management strategies, or targeted injections. These options may help symptoms but generally do not correct a fixed deformity or instability. Choosing not to have surgery may allow symptoms or deformity to remain stable, fluctuate or progress.

What the evidence tells us

Published studies suggest that selected patients can continue to improve between one and two years after adult spinal deformity surgery, while long-term benefit must be balanced against the possibility of complications or unplanned reoperation. Recovery is gradual, and results differ between individuals.

How risks are reduced

Careful preoperative assessment, bone-health optimisation, infection and clot-prevention measures, blood-conservation strategies, early mobilisation and structured follow-up are used to reduce avoidable risk. These measures cannot remove all risk, which is why individual consent and ongoing monitoring remain essential.

When to seek help

Contact the surgical team promptly if you develop:

- Increasing wound redness, swelling, discharge, wound opening or fever.
- Pain that is rapidly worsening or not controlled by the prescribed plan.
- New or worsening leg weakness, numbness or difficulty walking.

Seek urgent medical attention

Call emergency services or attend the nearest emergency department for chest pain, shortness of breath, collapse, a painful swollen calf, sudden major weakness, new loss of bladder or bowel control, or numbness around the saddle or groin area.

Your follow-up plan

- Wound review: approximately 2 weeks after surgery.
- Surgeon review: approximately 6 weeks after surgery.
- Physiotherapy: generally from 6-8 weeks, unless advised otherwise.
- Ongoing surgeon follow-up through recovery, followed by periodic long-term review and imaging when appropriate.

For each review

Bring an up-to-date medication list and note any changes in pain, walking tolerance, strength, sensation, wound appearance or general health. Complete requested imaging before the appointment where possible.

Questions to discuss with your surgical team

1. What are the main goals of surgery in my case?
2. Which levels and approaches are planned, and will my surgery be staged?
3. What are my individual risks and expected recovery?
4. Do I need treatment to improve my bone health before surgery?
5. What should I do with my regular medicines before admission?

The Victorian Orthopaedic Spine Service approach

ROBOTIC PRECISION + SURGICAL PLANNING Navigation, robot-assisted techniques and individualised alignment planning with patient-specific rods when appropriate.	EXPERIENCED CARE Simple through to complex spinal surgery.	EVIDENCE-BASED Contemporary care pathways and research.
CONNECTED CARE Communication with referring doctors.	MULTIDISCIPLINARY Collaboration across the recovery team.	LONG-TERM FOLLOW-UP Ongoing review beyond early recovery.

Selected references

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 9. Kurland DB, et al. Evaluation of intraoperatively salvaged red blood cells in spinal deformity surgery. Neurosurgery. 2024;95:976-985.
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- Prepared as general patient information. Evidence and practice evolve; your surgical team will provide advice specific to you.*

Victorian Orthopaedic Spine Service

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Consulting locations

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

Surgical hospitals

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