

# Post-operative Rehabilitation after Posterior Decompression and Pedical Screw Fixation in Patient with PIVD and Lumbar Canal Stenosis: A Clinical Case Study

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## ABSTRACT

**Introduction:** Low back pain is a major global health concern and one of the leading causes of disability worldwide. Structural pathologies such as Prolapsed Intervertebral Disc (PIVD), lumbar spinal stenosis, and degenerative scoliosis are common contributors. Their coexistence poses a complex clinical challenge requiring surgical and multidisciplinary rehabilitative management.

**Case Description:** A 65-year-old female presented with chronic low back pain radiating to the left lower limb, accompanied by tingling and numbness. Radiological and clinical evaluation confirmed PIVD at L3-S1, lumbar canal stenosis, and degenerative scoliosis with an 18° Cobb angle. Special tests, including straight leg raise and slump, were positive. Surgical management involved posterior decompression with laminectomy, medial facetectomy, discectomy, and pedicle screw fixation at L3-S1.

**Intervention:** A structured, phased physiotherapy rehabilitation programme was initiated. During the inpatient phase (0-7 days),

goals included pain control, breathing exercises, log rolling, gentle limb mobilisation, and early ambulation with a spinal brace. The early outpatient phase (1-3 weeks) emphasised progressive mobility, core activation, and independent ambulation. The later outpatient phase (4-8 weeks) incorporated advanced gait training, trunk and lower-limb strengthening, endurance building, stair climbing, squats, and balance exercises.

**Outcomes:** The patient demonstrated significant reductions in Numeric Pain Rating Scale (NPRS) scores and improvements in Oswestry Disability Index (ODI), highlighting pain reduction, enhanced spinal stability, functional independence, and better quality of life.

**Conclusion:** Individualised, phase-wise rehabilitation following posterior decompression and pedicle screw fixation optimises recovery, restores function, and promotes safe reintegration into daily life.

**Keywords:** Numeric pain rating scale, Oswestry Disability Index, Prolapsed intervertebral disc

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