

Postoperative Rehabilitation Following Posterior Lumbar Fusion at L4-L5 with Radiculopathy: A Retrospective Case Report

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Background and purpose:¹

Radiculopathy post lumbar fusion is a prevalent diagnosis that is treated by physical therapists. The range of symptoms produced by the pinched nerve root within the spinal column can impair tolerance of tasks related to daily and occupational activities. Therefore, the purpose of this retrospective case report is to determine the impact of physical therapy on improving functional activity tolerance and participation in a 38-year-old patient status post L4-L5 posterior lumbar fusion with radiculopathy.

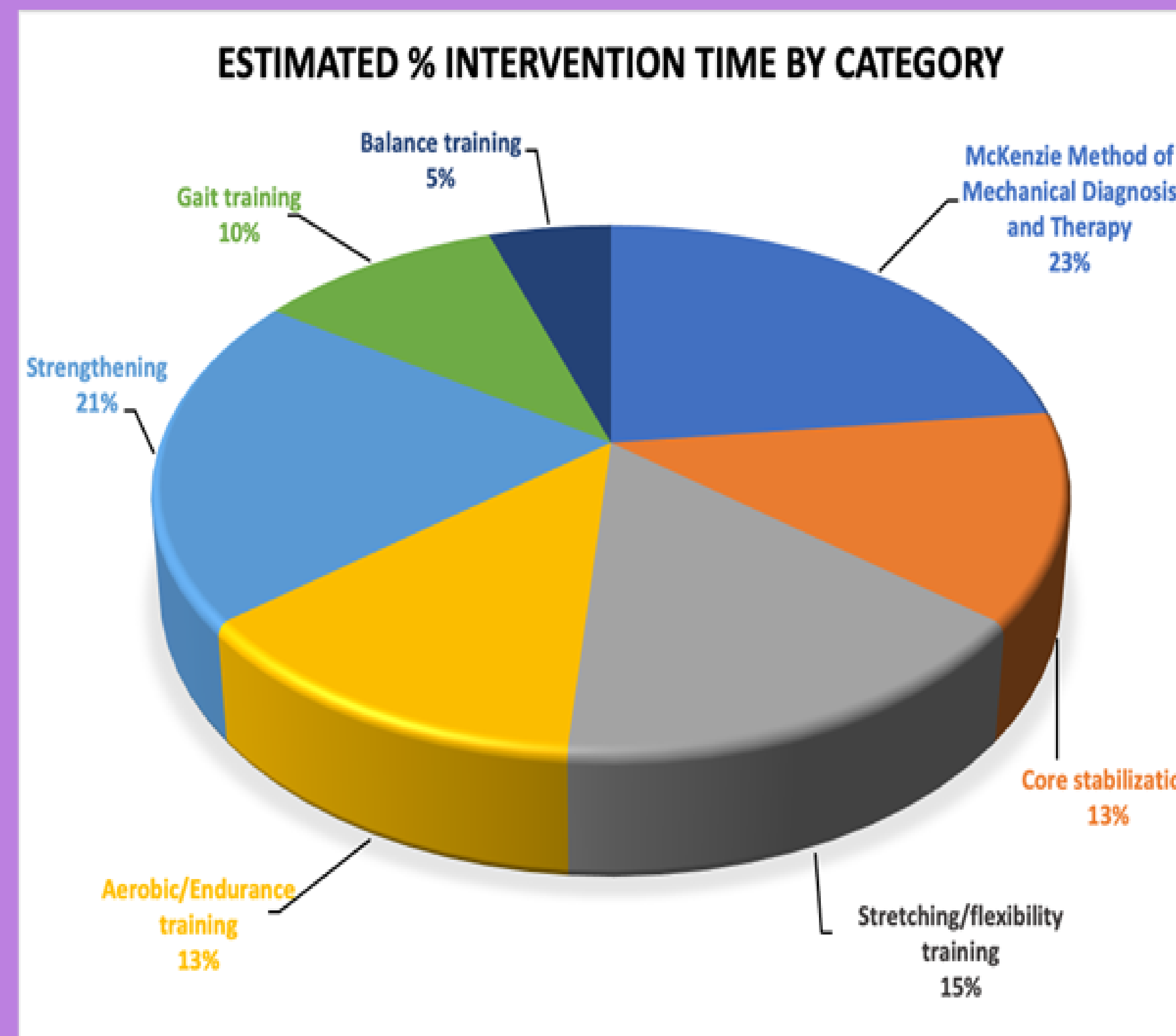
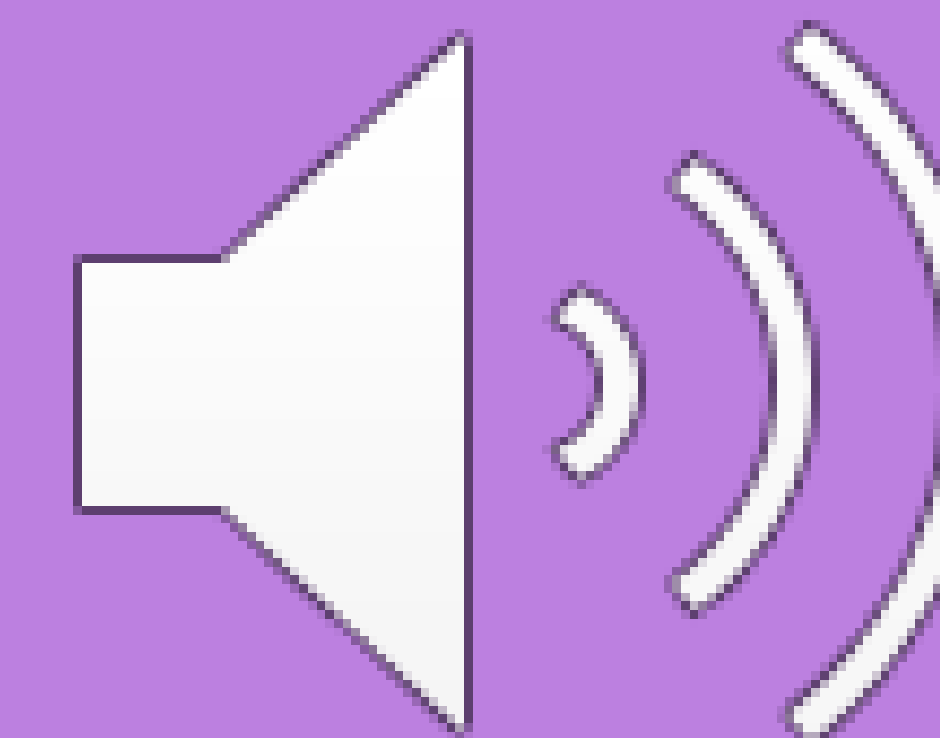
Case Description:

The patient was a 38-year-old female who presented to physical therapy status post L4-L5 posterior lumbar fusion with radiculopathy; she was placed on restrictions. The patient was treated for lower back pain and pulling sensation radiating to bilateral thighs and into groin region (mostly right side), decreased lumbar mobility, muscle weakness and tightness, decreased light touch sensation, postural and gait deficits with McKenzie Method of Mechanical Diagnosis and Therapy, core stabilization, strengthening, and cardiovascular endurance training.

Interventions:^{2,3,4}

McKenzie Method of Mechanical Diagnosis and Therapy, core stabilization, strength training, cardiovascular endurance training, balance training, flexibility training, and gait training for 7 weeks.

Implementation of evidenced based interventions of MDT and stabilization elicit Improvements in motor and sensory recovery, lumbar mobility, form and posture, gait, and tolerance of ADLs status post L4-L5 posterior lumbar fusion.



Outcomes:

After a 7-week period of physical therapy 2 days a week and each session lasting 45 minutes, the patient demonstrated improvement in lumbar mobility, muscle strength, sensory recovery, tolerance of functional activities and participation.

Tests and Measures	Pre-treatment Right	Post treatment Right	Pre-treatment Left	Post treatment Left
ROM - Lumbar Spine	Extension: Severe lim Sideglide: Mod lim	Extension: WNL Sideglide: Mild lim	Extension: Severe lim Sideglide: Mod lim	Extension: WNL Sideglide: Mild lim
MMT - Lower Extremity	Glute med: 3-/5 Glute max: 3-/5 Psoas: 4-/5 Anterior tibialis: n/t (ankle fracture) Extensor Hallucis longus: 3+/5	Glute med: 4-/5 Glute max: 4/5 Psoas: 4/5 Anterior tibialis: 5/5 Extensor Hallucis longus: 4/5	Glute med: 5-/5 Glute max: 3-/5 Psoas: 4-/5 Extensor Hallucis longus: 4+/5	Glute med: 5-/5 Glute max: 4/5 Psoas: 4+/5 Extensor Hallucis longus: 4+/5
Dermatom es	Decreased at L2 to S1 to light touch	Light touch intact at L2, L3, L4, S1 Light touch still decreased at L5	Intact	Intact

Conclusion:

Research supports the use of McKenzie Method of Mechanical Diagnosis and Therapy, core stabilization, strengthening, and cardiovascular endurance training in patients with radiculopathy status post L4-L5 posterior lumbar fusion. Though the patient demonstrated progress in impairments and tolerance of functional activities, further research is needed to confirm the results.

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References:
 1. Berry JA, Elia C, Saini HS, Miulli DE. A review of lumbar radiculopathy, diagnosis, and treatment. *Cureus*. 2019;11(10):e5934. doi:10.7759/cureus.5934.
 2. Lam OT, Strenger DM, Chan-Fee M, Pham PT, Preuss RA, Robbins SM. Effectiveness of the McKenzie Method of Mechanical Diagnosis and Therapy for treating low back pain: literature review with meta-analysis. *J Orthop Sports Phys Ther*. 2018;48(6):476-490. doi:10.2519/jospt.2018.7562.
 3. Bhaduria EA, Gurudut P. Comparative effectiveness of lumbar stabilization, dynamic strengthening, and Pilates on chronic low back pain: randomized clinical trial. *Journal of Exercise Rehabilitation*. 2017;43(4):477-485. doi:10.12965/jer.1734972.486.
 4. Madera M, Brady J, Deily S, et al. The role of physical therapy and rehabilitation after lumbar fusion surgery for degenerative disease: a systematic review. *Journal of Neurosurgery: Spine*. 2017;26(6):694-704. doi:10.3171/2016.10.spine16627.