

Comprehensive Physical Therapy Management of Chronic Low Back Pain with Associated Remote Right Hamstring Injury: A Case Report



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Background

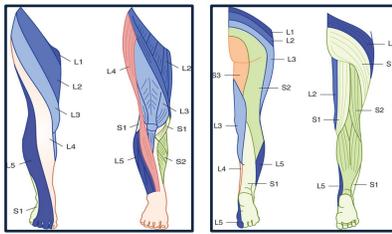
- Low back pain (LBP) is a health condition associated with back, core, and hip muscle dysfunction as well as reduced lumbar range of motion¹
- Core muscle stabilization, hip abductor strengthening, and lumbar range of motion are all effective techniques for treating patients with chronic LBP¹
- Lumbar muscular imbalance can lead to hamstring injury because of change in the functional load²

Purpose

- The purpose of this case report was to review a therapeutic exercise approach to the treatment of chronic low back pain after a remote hamstring injury, including a focus on lumbar and core stabilization, lumbar and hamstring stretching and hamstring strengthening, and a comprehensive home exercise program

Case Description

- 31-year-old male Navy veteran who was an avid runner
- Diagnosis of chronic LBP and reported a history of remote right hamstring injury
- Symptoms: constant ache in the low back with occasional sharp bilateral pain in the paraspinal muscles right greater than left from L3 to S1 spinal levels
- Subjective pain reported with repetitive forward flexion and left rotation and occasional paresthesia's in the right lower extremity (LE) in the L4 dermatome distribution
- Initial deficits in strength, pain with range of motion, running form, and muscular tightness
- Unrelated diagnosis of mild traumatic brain injury due to indirect blast exposures and a fall from a ladder well in 2012 with minimal residual effects



L4 Dermatome: <https://doctorlib.info/anatomy/clinical-neuroanatomy-28/28.html>

Timeline



Tests and Measures

Test	Result
SLUMP	Negative on the left, Positive on the right (possible hamstring involvement)
Quadrant Test	Positive on the right
Straight Let Raise (SLR)	Left negative to 60 degrees, right negative to 45 degrees due to hamstring tightness
FAIR	Positive on the right, Painful
Manual Muscle Testing	Hip Extension: 4+/5 Right Knee Flexion: 4+/5 Right
Range of Motion	Left rotation painful but unrestricted
Palpation	Mild to moderate paraspinal tightness noted at L4-S2 left greater than right
Oswestry Disability Index	22%: Moderate Disability
Numeric Pain Rating Scale	3-4/10

Interventions

- Lumbar, Hamstring, Gastrocnemius/Soleus Stretching
- Lumbar and Core Stabilization
- Hip Abductor and Hamstring Strengthening



Lumbar Stretch: Double Knee to Chest: www.hep2go.com

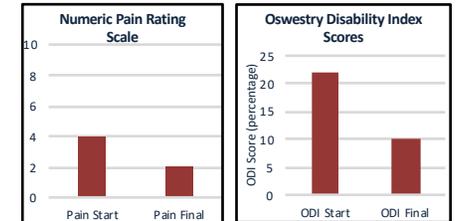
Supine Active Hamstring Stretch with towel: www.hep2go.com



Side step with Black TheraBand: www.hep2go.com

Supine Dead Bug: www.hep2go.com

Results



- Increase in hip extension and knee flexion strength from 4+/5 to 5/5
- Subjective report of decreased pain with forward flexion and rotation to the left and increased ability to run further distances at a faster speed without an increase in LBP

Discussion

- Over the treatment course the patient demonstrated improvements in LE strength, patient reported outcome measures, and lumbar spine range of motion
- Discharge ODI suggests the combination plan of care contributed to the patients perceived decrease in disability level from LBP
- Limiting factor: one treatment per week with heavy reliance on the home exercise program
- Outcomes suggest combination plan of care used in this patient were beneficial in helping decrease subjective level of pain and improving his running ability
- Patient ODI score improved from moderate to minimal disability but did not surpass the MCID level of 12.88
- Findings are similar to those found by Kumar et al¹, who stated that a combination POC involving core/lumbar stabilization, lumbar/hamstring stretching, and hip strengthening can result in decrease ODI scores

Conclusion

- A therapeutic exercise protocol focused on stabilizing and improving muscle imbalances was beneficial in reducing LBP during running and forward flexion in an active male Navy veteran with a remote right hamstring injury which aligns with the intended purpose of this case report

Acknowledgements and References

The author acknowledges Matthew Somma, PT, DPT, MTC, CSCS for assistance with case report conceptualization as well as Brian Rennie, PT, PMRS, TBI-PT, for supervision and assistance with video footage, and the patient for his willingness to participate.

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