**Article Full Title**

Two Manual Therapy Techniques for Management of Lumbar Radiculopathy: A Randomized Clinical Trial

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**Paper Abstract**

Context: Evidence has shown that spinal mobilization with leg movement (SMWLM) and progressive inhibition of neuromuscular structures (PINS) are individually effective in the management of lumbar radiculopathy. However, previous evidence reported data for only a short-term study period and did not investigate the effect of the combined manual therapy techniques. Objectives: To compare the combined effects of two manual therapy techniques (SMWLM and PINS) with the individual techniques alone (SMWLM or PINS) in the management of individuals with lumbar radiculopathy. Methods: A total of 60 patients diagnosed with unilateral lumbar radiculopathy secondary to disc herniation were randomly allocated into three groups: 20 participants each in the SMWLM, PINS, and combined SMWLM + PINS groups. Each group attended two treatments per week for 30 min each, for three months. Participants were assessed at baseline, immediately posttreatment, and then at three, six, and nine months follow-up using the Visual Analog Scale (VAS), Rolland-Morris Disability Questionnaire (RMDQ), and Sciatica Bothersomeness Index (SBI). Results: Between-groups analyses using a two-way repeated-measures analysis of variance indicated significant interactions between groups and follow-up times for all outcomes (p=0.001). Participants receiving combined SMWLM + PINS treatment experienced greater improvement in leg pain, back pain, disability, and sciatica at all timelines (immediately posttreatment, and three, six, and nine months follow-up) than the participants receiving SMWLM or PINS alone (p&lt;0.05). However, participants receiving SMWLM alone showed better improvement than the participants receiving PINS alone at all timelines (p&lt;0.05). Conclusions: A combined SMWLM + PINS treatment protocol showed greater improvement than the individual techniques alone in the management of individuals with LR in this study.

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

**Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT**

Yes

**Was the method of randomization adequate (i.e., use of randomly generated assignment)?**

Yes

**Was the treatment allocation concealed (so that assignments could not be predicted)?**

Yes

**Were study participants and providers blinded to treatment group assignment?**

No

**Were the people assessing the outcomes blinded to the participants' group assignments?**

Yes

**Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?**

Yes

**Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?**

Yes

**Was the differential drop-out rate (between treatment groups) at endpoint 15 percentage points or lower?**

Yes

**Was there high adherence to the intervention protocols for each treatment group?**

Yes

**Were other interventions avoided or similar in the groups (e.g., similar background treatments)?**

Yes

**Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?**

Yes

**Did the authors report that the sample size was sufficiently large to be able to detect a difference in the main outcome between groups with at least 80% power?**

Cannot Determine, Not Reported, or Not Applicable

**Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?**

Yes

**Were all randomized participants analyzed in the group to which they were originally assigned, i.e., did they use an intention-to-treat analysis?**

Yes

**Key Finding #1**

Patients receiving the combined treatment of SMWLM and PINS, resulted in improvement in leg pain, back pain, disability and sciatica at all of the timeline assessments.

**Key Finding #2**

Patients receiving only SMWLM showed better improvement than patients receiving only PINS at all of the timeline assessments.

**Key Finding #3**

The addition of the home exercise plan with the combined treatment of SMWLM and PINS showed greater improvements.

**Please provide your summary of the paper**

Low back pain has been determined as one of the most common conditions seen in patients. Previous studies for lumbar radiculopathy have shown that SMWLM relieves nerve compression and PINS relaxes reflex activity in the neuromuscular structures. This study analyzed information achieved from previous studies of SMWLM and PINS treatment for lumbar radiculopathy to determine if the combination of these two treatments and the addition of therapeutic exercise would develop better results initially and long-term. The study was able to prove that the combination SMWLM and PINS with therapeutic exercise had greater improvement in all of the outcomes at all of the different timeline assessments, but also that all three groups showed improvements in general at all timeline assessments. The patients in the combined group with exercise were also categorized to have a higher mean BMI compared to the other group’s patients. They also determined that the SMWLM only group had greater improvement compared to the PINS groups because of the PA glides, proven to relieve pressure off the nerves thus decreasing pain, that was associated with the SMWLM. Additionally, the study concluded that the therapeutic exercises could not be used as a single intervention for lumbar radiculopathy.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

This study will be helpful for clinical approach because lumbar radiculopathy is a very common condition seen among patients. A limitation of this study includes not assessing the psychosocial components that are most associated with low back pain. Additionally, the study assessed therapeutic exercise combined with the different mobilization groups but, stated that the use of therapeutic exercise only would not be beneficial for this patient population and did not state why. Despite their limitations the results achieved from this study helps clinicians to focus their treatment more to improve pain associated with the condition.