Effectiveness of Mechanical Traction for Lumbar Radiculopathy: A Systematic Review and Meta-Analysis

Carla Vanti[1], Alice Panizzolo[1], Luca Turone[1], Andrew A Guccione[2], Francesco Saverio Violante[3], Paolo Pillastrini[1], Lucia Bertozzi[4]

Affiliations collapse

Affiliations

- [1]Department of Biomedical and Neuromotor Sciences (DIBINEM), Alma Mater Studiorum, University of Bologna, Bologna, Italy.
- [2]Department of Rehabilitation Science, College of Health and Human Services, George Mason University, Fairfax, Virginia, USA.
- [3]Department of Medical and Surgical Sciences (DIMEC), Alma Mater Studiorum, University of Bologna, Bologna, Italy.
- [4]School of Physical Therapy, Alma Mater Studiorum, University of Bologna, Bologna, Italy.
- PMID: 33382419

- DOI: 10.1093/ptj/pzaa231

Abstract

Objective: Lumbar radiculopathy (LR) is a pain syndrome caused by compression/irritation of the lumbar nerve root(s). Traction is a well-known and commonly used conservative treatment for LR, although its effectiveness is disputed. The purpose of this systematic review and meta-analysis of randomized controlled trials was to evaluate the effects of different types of traction added to or compared with conservative treatments on pain and disability.

Methods: Data were obtained from CENTRAL, PUBMED, CINAHL, Scopus, ISI Web of Science, and PEDro from their inception to April 2020. All randomized controlled trials on adults with LR, using mechanical traction, and without any restriction regarding publication time or language were considered. Two reviewers selected the studies, evaluated the quality assessment, and extracted the results. Meta-analysis used a random-effects model. Eight studies met the inclusion criteria, and 5 were meta-analyzed.

Results: Meta-analyses of results from low-quality studies indicated that supine mechanical traction added to physical therapist treatments had significant effects on pain (g = -0.58 [95% confidence interval = -0.87 to -0.29]) and disability (g = -0.78 [95% confidence interval = -1.45 to -0.11]). Analyses of results from high-quality studies of prone mechanical traction added to physical therapist intervention for pain and disability were not significant. These results were also evident at short-term follow-up (up to 3 months after intervention).

Conclusion: The literature suggests that, for pain and disability in LR, there is short-term effectiveness of supine mechanical traction when added to physical therapist intervention.

Impact: This systematic review may be relevant for clinical practice due to its external validity because the treatments and the outcome measures are very similar to those commonly used in a clinical context.

Keywords: Low Back Pain; Radiating Pain; Randomized Controlled Trials; Sciatica; Traction.