Mechanical Lumbar Traction

What Is Its Place in Clinical Practice?

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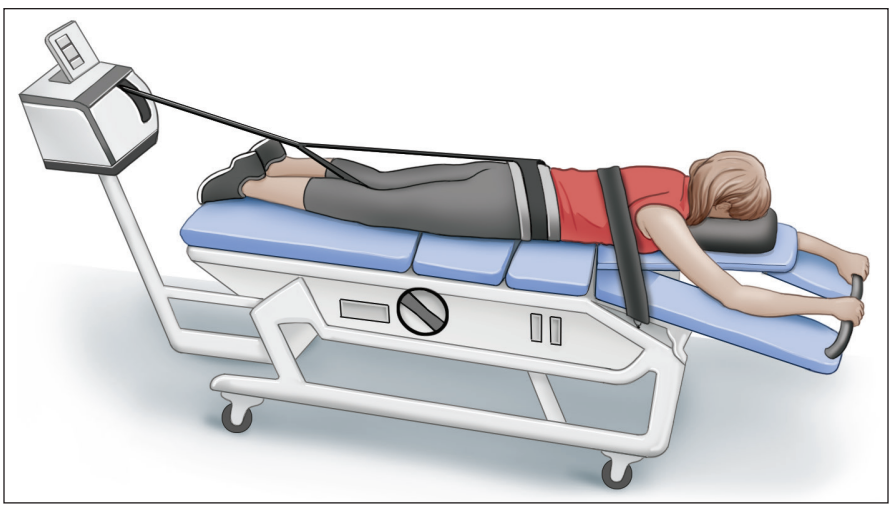
In an effort to maximize conservative treatment in a population with higher rates of progression to costly interventions, such as surgery and injections, a trial of traction could be considered for patients who have a preference for this treatment or who are unresponsive to other physical therapy interventions. Summary evidence in recent systematic reviews and clinical practice guidelines concludes that mechanical lumbar traction is not effective for treating acute or chronic nonspecific low back pain (LBP). However, many physical therapists continue to use it, primarily as an additional modality.[2] Indeed, expert clinical opinion, theoretical models, and some research evidence suggest that certain patients with LBP respond positively to traction. A study published in the March 2016 issue of *JOSPT* investigates the effectiveness of traction in prone as an adjunct to an extension-oriented exercise program in patients with LBP and leg pain and explores whether a previously identified set of patient characteristics is associated with better outcomes from traction.[3] Here, the authors explain the impact of their findings for clinicians treating these patients.



NEITHER HELP NOR HARM. The authors found that although it did not produce greater improvements in pain or disability, the use of mechanical traction also did not harm patients with back pain and sciatica.

BOTTOM LINE FOR PRACTICE

Based on what was known and the results of our study, we cannot recommend adding traction in the treatment of patients with back pain and sciatica. Our results found neither beneficial nor detrimental effects from using mechanical lumbar traction.

WHAT WE KNEW

When we started this project, the literature offered conflicting evidence for the effectiveness of mechanical traction in managing LBP, with positive results characterized by small effect sizes. However, clinicians continue to use traction, in particular to manage patients with sciatica. This pattern and a preliminary study by Fritz et al[1] suggest that some individuals are more likely to respond to traction than others.

WHAT WE DID

We examined the effectiveness of adding mechanical traction to an extension-oriented treatment approach for patients with back pain and sciatica. We further explored the differential effect for patients previously identified as benefiting from traction; these were patients with peripheralization of symptoms upon extension and/or a positive crossed straight leg raise.

WHAT WE FOUND

Changes in pain and disability in both treatment groups were ambiguous, with no effect by treatment or when matching patients by subgroup. All patients had significant improvements in pain and disability over the treatment period of 6 weeks and displayed no evidence of harm after traction was added.

WHAT WE KNOW NOW

After completing this study, we found that the recommended first line of treatment for this patient population—to stay active—seems to be supported, as all participants began physical activity at initial treatment. However, consistent with Cochrane systematic reviews and many previous trials, our results did not support traction's ability to produce greater improvements in pain or disability.

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The following clinical vignettes provide examples of scenarios in which lumbar traction might be used as it was in this clinical trial.[3] *Discuss the clinical decision making in these scenarios, and discuss the extent to which they exemplify the judicious use of the cumulative best-practice evidence (after the contribution of this study) in clinical practice.*

VIGNETTE A

A 41-year-old male construction worker presented with a 9-week history of low back pain and pain in the right thigh and leg. He reported 2 previous episodes of low back pain that limited work and resulted in professional health consultation. Since onset, he had difficulty finding any comfortable position and reported low back pain of 5/10 with leg pain and of 5/10 on average, while taking nonsteroidal anti-inflammatory drugs (NSAIDs), and an Oswestry Disability Index score of 38%.

On examination, he had a positive straight leg raise on the right (48°), a positive crossed straight leg raise, diminished strength of the flexor hallucis longus, and diminished Achilles tendon reflex. Further physical examination revealed no change in pain intensity while lying flat and in peripheralization of pain to the leg with repeated movements in prone. The initial treatment sessions included education on staying active, use of positions to alleviate pain, and an extension-oriented exercise program.

Despite adherence to those interventions, he had no significant change in leg symptoms at his next visit and was unable to progress his extension tolerance past neutral unloaded. At this point, prone traction was added to his physical therapy regimen in an effort to facilitate centralization and tolerance of repeated or sustained movement into extension. The application of mechanical traction continued for 10 more visits.

After 11 visits, he was able to tolerate lying prone on his elbows for 6 minutes and complete 3 sets of 10 repetitions of prone press-up exercises. He reported low back pain of 3/10 and leg pain of 2/10, and his Oswestry Disability Index score was reduced to 22%. These indicated clinically significant reductions in both disability and pain at his 6-week reassessment. At 6-month follow-up, he reported continuing low back pain of 6/10 and leg pain of 6/10, on average. He described similar nonsignificant change at 1-year follow-up, reporting low back pain of 5/10 and leg pain of 4/10.

COMMENTARY: This scenario typified the presentation and course of symptoms of participants in this trial, and did not differ significantly from the presentation and course of symptoms of participants who received the extension-oriented treatment approach without mechanical lumbar traction. On average, the addition of mechanical lumbar traction to an extension-oriented treatment approach did not result in any appreciably increased benefit or harm, even in a subgroup previously identified as potentially being more likely to respond to mechanical lumbar traction treatment.

VIGNETTE B

A 37-year-old female office worker presented with a 3-week history of low back pain and pain into the right leg. Since onset, she had difficulty finding any comfortable position and reported low back pain of 2/10 with leg pain and of 6/10 on average, and an Oswestry Disability Index score of 44%.

On examination, she had a positive straight leg raise on the right (52°) and diminished strength of the extensor hallucis longus. Further physical examination revealed a decrease in pain intensity while lying flat, but an inability to centralize pain or tolerate repeated movements without aggravating leg pain.

The initial treatment sessions included education on staying active, use of positions to alleviate pain, and an extension-oriented exercise program. Despite adherence to her treatment program, she had no significant change in leg symptoms after 3 visits and was unable to progress her extension tolerance past neutral unloaded. The therapist decided to apply prone traction at this point, in an effort to facilitate centralization and tolerance of repeated or sustained movement into extension. Application of mechanical traction over 3 more visits accompanied progression into repeated prone extension, centralization of symptoms, and significant reduction in both disability and pain. After 7 visits, the patient reported low back pain of 1/10 and leg pain of 2/10, and her Oswestry Disability Index score was reduced to 24%.

COMMENTARY: This scenario represented a subset of patients with low back pain who were unresponsive to the first-line treatment of an extension-oriented treatment approach. The therapist opted to use lumbar mechanical traction as an adjunct to the established effective interventions for low back pain, on the basis that lumbar mechanical traction might provide an important additional benefit without additional risk of harm. ◉

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