**Article Full Title**

Regional manual therapy and motor control exercise for chronic low back pain: A randomized clinical trial

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**Paper Abstract**

Objectives: Clinical practice guidelines recommend a focus on regional interdependence for the management of chronic low back pain (CLBP). This study investigated the additive effect of regional manual therapy (RMT) when combined with standard physical therapy (SPT) in a subgroup with CLBP. Methods: Forty-six participants with CLBP and movement coordination impairments were randomly assigned to receive SPT consisting of a motor control exercise program and lumbar spine manual therapy, or SPT with the addition of RMT to the hips, pelvis, and thoracic spine. Outcome measures included disability level, pain intensity, pain catastrophizing, fear avoidance beliefs, and perceived effect of treatment. Appropriate parametric and non-parametric testing was used for analysis. Results: Both groups demonstrated improvements in disability level, pain intensity, pain catastrophizing, and fear avoidance beliefs across time (P &lt; .001). There was no difference between groups for any variable over 12 weeks, although a significantly greater proportion of participants in the RMT group exceeded the minimal clinically important difference (MCID) for disability. The perceived effect of treatment also was significantly higher in the group receiving RMT at two weeks and four weeks, but not 12 weeks. Discussion: SPT with or without RMT resulted in significant improvements in disability level, pain intensity, pain catastrophizing, and fear avoidance beliefs over 12 weeks in persons with CLBP and movement coordination impairments. RMT resulted in greater perceived effect of treatment, and a clinically meaningful improvement in disability, across four weeks compared to SPT alone.

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

1. **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?**

Yes

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

Yes

1. **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**

Manual therapy, including thrust manipulation, applied to the thoracic spine, pelvis, and hips may provide some additional short-term benefits over localized lumbar treatment alone for patients with CLBP and movement coordination impairments.

**Key Finding #2**

The addition of RMT resulted in a significantly greater magnitude of change in disability level, and a significantly higher perceived change due to treatment, at two weeks and four weeks from the start of care.

**Key Finding #3**

**Key Finding #4**

**Please provide your summary of the paper**

This study shows both standard PT and manual therapy improves disability level, pain intensity, pain catastrophizing and fear avoidance beliefs across 12 weeks in patients with chronic LBP. New research shows that doing both manual therapy and exercise has significant benefits in the same outcomes as stated previously. When comparing the application of the 2 different groups (regional manual therapy and standard physical therapy), disability level, fear avoidance beliefs at work, and pain catastrophizing saw more of a decrease in scores in the manual therapy group across each time point (2 weeks, 4 weeks, and 12 weeks). Further, pain intensity saw more of a decrease in the manual therapy group at the 2-week point that then plateaued across 4 weeks and 12 weeks, where then the PT group saw more of a decrease in scores at the 4-week and 12-week mark. The fear avoidance beliefs with physical activity outcome saw more of a decrease in the PT group at the 2-week mark that then plateaued across 4 weeks and 12 weeks, where then the manual therapy group saw more of a decrease in scores at the 4-week and 12-week mark. Lastly, the manual therapy group reported higher perceived levels of effect of treatment when compared to the PT group.

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

The use of standard PT or manual therapy can provide short-term benefits when assessing disability level, pain intensity, fear avoidance at work and doing physical activity, and pain catastrophizing. Both cause decreases in these outcome measures, but manual therapy seems to decrease levels of these outcome measures more than standard PT. However, assessing the use of both would be beneficial to explore whether additional decreases in scores could be made.