

INTRODUCTION

Low back pain (LBP) is one of the most common medical complaints and a leading cause of disability worldwide. This condition leads to greater use of medical resources, lower productivity, and potentially lifelong impairment. Most individuals will experience an episode of acute LBP sometime in their life. Episodic events of acute LBP can eventually develop to chronic LBP.¹

LBP is defined as non-specific, non-radiicular pain with no associated neurological signs or symptoms. The pain is limited to the spine and/or paraspinal muscles of the lumbar region with no radiation to the leg. However, leg pain is a common associated complaint with LBP. The pain is mechanical and not due to an underlying pathology like a neoplasm or infection.² There are several approaches towards treating LBP: patient education and reassurance regarding disease process, physical therapy, spinal manipulation, analgesics, and surgery. One common modality is the McKenzie Method.

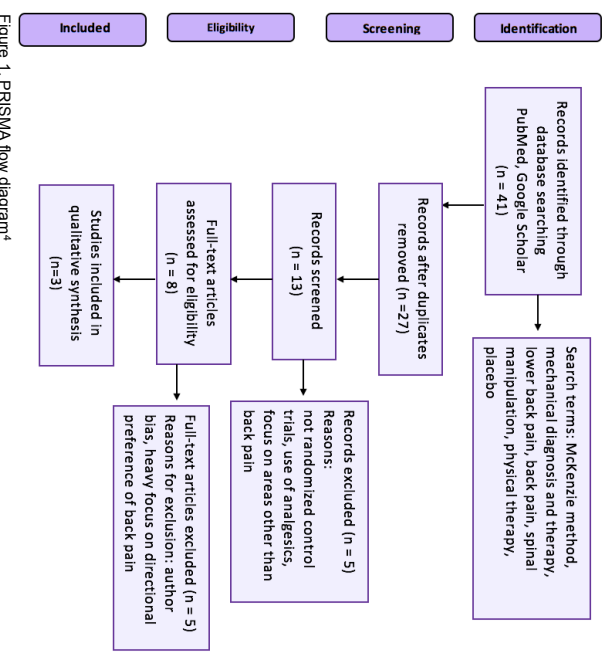
The McKenzie Method of Mechanical Diagnostic Therapy (MDT) approach was developed by Robin McKenzie, a physical therapist from New Zealand in the 1950s to treat back and extremity issues. MDT uses 3 classifications for causes of pain: derangement syndrome, dysfunction syndrome, and postural syndrome. MDT attempts to reduce pain distribution through centralization, remodeling tissue, and/or adopting proper posture. MDT utilizes a set of exercises which can be performed at home by the patient and does not require an extensive course of physical therapy.³

PICO

Population	Adults (>18 years old) with any duration of low back pain
Intervention	McKenzie Method exercise program
Comparison	Other treatments of low back pain
Outcome	Patient's reduction in pain, disability, and improvement of function




CLINICAL QUESTION: Amongst adults with LBP for any duration, does the McKenzie Method exercise program as compared to other treatments of LBP reduce pain, disability, and improve function in these individuals?⁴

METHODS



RESULTS

	Study #1 Peterson, et al. ⁵	Study #2 Machado, et al. ⁶	Study #3 Pateima, et al. ⁷
Objective	Randomized control trial comparing the effects of the McKenzie Method to spinal manipulation in patients with acute LBP in conjunction with clinical advice and information.	Randomized control trial evaluating the short-term effectiveness of adding the McKenzie Method of treatment in patients with acute LBP in addition to first line care of advice, reassurance, and simple care setting.	Randomized control trial comparing the effects of McKenzie Method, orthopedic manual therapy (OMT) and one advice only counseling session with treatment of LBP.
Sample Size	n=259	n=138	n=136
Patient Gender	Males and females	Males and females	Males and females
Patient Age (Years)	18-60	18-80	18-65
Follow-up Periods	- Post-treatment - 2 month - 12 month	- 1 week - 3 week - 3 month	- 3 month - 6 month - 12 month
Pain*	12 months* MDT - 15.0 Manipulation - 12.2	3 weeks** MDT - 2.0 First Line - 2.3	12 months*** MDT - 0.8 OMT - 1.1 Advice Only - 1.6
Global Perceived Effect†	All post-treatment†: MDT - 48% Manipulation - 35%	3 weeks†: MDT - 3.6 First line - 3.3	Did not measure
Disability‡	12 months‡: MDT had 1.5 reduction greater than manipulation	3 weeks‡: MDT - 4.8 First line - 5.1	12 months‡: MDT - 1 OMT - 0 Advice - 0
Conclusion	The McKenzie group showed more improvement in disability at the 2 and 12 month follow-up. The McKenzie group also reported more success with treatment at the 2 month follow-up compared to the manipulation group.	Statistical difference between McKenzie group and first-line care, but no appreciable difference between either groups. Participants receiving McKenzie Method were less likely to seek additional treatment compared to first-line care	No statistically significant difference between OMT and McKenzie Method at any follow-up but slight treatment improvement compared to advice-only group.
Limitations	- High dropout rate - No non-treatment control group - No standardization or patient education	- Small sample size - Only focused on acute problem	- Small sample size - Significant dropout rate

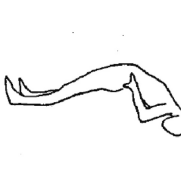






Figure 2. McKenzie Method Exercises*
<https://www.linkedin.com/pulse/mckenzie-method-low-back-pain-dr-calvin-cheung>

DISCUSSION AND CONCLUSION

All the studies demonstrated statistical significance when comparing MDT to either spinal manipulation or first-line care in addressing LBP. All studies utilized the same measuring system for disability with the Roland-Morris Disability Questionnaire. Machado et al. and Pateima et al. studies are similar to each other as both studies used MDT and first-line care or advice only counseling, near equal sample populations, and had follow up at three months. Additionally, Machado et al. demonstrated patients were less likely to seek additional care for their condition when using MDT. Peterson et al. demonstrates the benefit of MDT over spinal manipulation in addressing disability associated with LBP. Global perceived effect (GPE) illustrated patients believing their condition was improving more with MDT than compared to the other interventions in both Peterson et al. and Machado et al.

This review demonstrated some benefit of implementing MDT as opposed to first line care or advice/reassurance only. Patients gained better function, decreased both pain and disability when utilizing MDT. While statistical significance was present in some outcomes, the clinical significance was found to be low. One benefit, illustrated in two of the studies, is patient's perception of their GPE improved with MDT as demonstrated by GPE.

Preventing the development of acute LBP into chronic LBP warrants further study. All the studies were inside in sample size and one year follow-up. Additionally, the studies were conducted outside of the US and MDT may yield appreciable results that are not evident in the locations where the studies were conducted. Further review is warranted to measure both long term outcomes (greater than 1 year) of LBP with MDT intervention and utilizing studies with a more uniformed methodology of conducting research.

ACKNOWLEDGEMENTS

The authors would like to thank Dr. Erika Kancker, Carolyn Schubert, and the JMU Communication Center for their assistance in the writing of this project.

REFERENCES

- Rubin DJ. Epidemiology and Risk Factors for Spine Pain. *Neurologic Clinics* 2007;25(2):353-371. doi:10.1016/j.ncl.2007.01.004. <http://www.sciencedirect.com/science/article/pii/S0882596306001070>
- The benefits of MDT. The McKenzie Institute International Web site. <http://www.mckenzieinstitute.org/databases/benefits-of-mdt/>. Accessed 10/22/2017.
- Mober D, Leardi J, Altman DG. The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 2007;4(7):e159. doi:10.1371/journal.pmed.0040159
- Peterson T, Larsen K, Nordstrom J, Olsen S, Fominer G, Jacobsen S. The McKenzie method compared with manipulation when used adjunctive to information and advice in low back pain patients presenting with centralization or peripheralization: A randomized controlled trial. *Spine* 2011;36(24):1989. <http://www.ncbi.nlm.nih.gov/pubmed/21358492>. doi: 10.1097/BRS.0b013e31820a7ede
- To first-line care than low back pain. A randomized controlled trial. *BMC McKenzie* 2010;9(1):11.
- <http://www.ncbi.nlm.nih.gov/pubmed/20102586>. doi:10.1186/1743-7015-9-10
- Pateima M, Kijakoski S, Simonsen R, Heikonen A, Aho M, Verranen T. OMT versus manual therapy: McKenzie method or advice only for low back pain in working adults. *A randomized controlled trial with one year follow-up. Journal of Rehabilitation Medicine* 2008;40(10):888-893. doi:10.1080/16501970701481111
- Thomas E. Designer P. Pain relief from mckenzie method. Spine Health Web site. <https://www.linkedin.com/pulse/mckenzie-method-low-back-pain-dr-calvin-cheung>. Updated 11/28/ 2017.

Figure 1. PRISMA flow diagram⁴