The Efficacy of the McKenzie Method for Management of Extremity Joint Conditions

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PURPOSE

Does the literature support the use of the McKenzie Method in treating patients with musculoskeletal conditions in the extremities?

WHAT IS THE McKENZIE METHOD?

The McKenzie Method of Mechanical Diagnosis and Therapy (MDT) is a comprehensive, evidence-based system of assessment, diagnosis, and treatment of musculoskeletal disorders. The classification schemes include a derangement syndrome, dysfunction syndrome, postural syndrome, and other. The McKenzie Method is named after Robin McKenzie, a New Zealand physiotherapist. MDT is based on active patient involvement and education that uses repeated movements or sustained postures in a single direction to elicit centralization of symptoms. The evaluation to determine a directional preference incorporates the location of symptoms, the classification you believe the patient to be in, the direction that decreases the concordant symptoms, and the force at which is applied to the patient. Additionally, the McKenzie Method emphasizes the patient's ability to independently improve his or her symptoms.

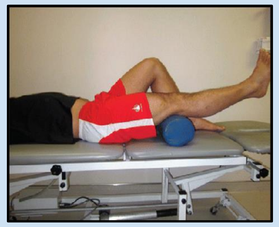
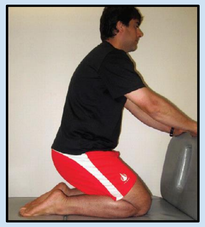
AGREEMENT FINDINGS FOR OST[1]

Table 2. Agreement findings for Empty Can test by MDT classification

MDT Classification	*Kappa*	Standard Error	*P*-Value
Articular Dysfunction	0.84	0.19	<0.0001
Contractile Dysfunction	0.49	0.17	0.0023
Overall agreement	**0.28**	**0.07**	**<0.0001**
Spinal	0.13	0.12	0.13*
Derangement	0.02	0.10	0.44*
Dysfunction (AD+CD)	0.67	0.13	<0.0001

Abbreviations: MDT, Mechanical Diagnosis and Therapy; AD, Articular Dysfunction; CD, Contractile Dysfunction.*, not significant

This information represents data regarding the consistency of orthopedic special tests (OST) administered to patients based on MDT classifications. This information specifically pertains to the Empty Can special test.

McKENZIE & MAITLAND ROM OUTCOMES[2]

	Group A (MDT)			Group B (Maitland)		
	Pre	Post	% change	Pre	Post	% change
Flexion	97.00°±10.31°	140.95°±12.68°	45.31%#, p=0.0001*	97.00°±10.31°	138.60°±18.16°	42.89%#, p=0.0001*
Abduction	75.25°±16.66°	122.60° ± 13.06°	62.92%#, p=0.0001*	80.75° ± 19.75°	118.85° ± 15.36°	47.18%#, p=0.0001*
Extension	22.70° ± 6.04°	33.00 ± 4.87	45.37%#, p=0.0001*	21.95° ± 7.24°	35.10° ± 9.64°	59.91%#, p=0.0001*
IR	24.80° ± 7.78°	33.55° ± 6.71°	35.28%#, p=0.0001*	27.60° ± 10.63°	36.25° ± 13.22°	31.34%#, p=0.0001*
ER	42.85° ± 3.80°	60.10° ± 4.99°	40.26%#, p=0.0001*	41.00° ± 6.43°	56.70° ± 5.72°	38.29%#, p=0.0001*

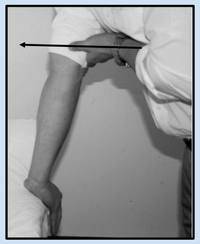
This information indicates that shoulder ROM for flexion, abduction and external rotation was highly significant in group A (MDT) as compared to group B (Maitland). Shoulder extension and internal rotation ROM was highly significant in group B as compared to group A

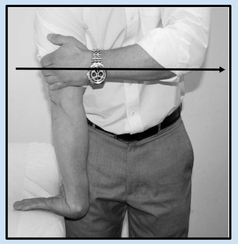
LITERATURE REVIEW

Title & Author	Subjects	Method	Results
Consistency of commonly used orthopedic special tests of the shoulder when used with the McKenzie system of mechanical diagnosis and therapy Abady A. et al, 2017	105 patients Inclusion Criteria: • Over the age of 18 • English speaking • Shoulder disorder requiring PT services Exclusion criteria: • Shoulder surgery within the last 6 months	Patients classified into 1 of 5 subgroups: • Derangement • Articular Dysfunction • Contractile Dysfunction • Other • Radiating symptoms from cervical spine Patients assessed with: • Empty Can Test • Hawkins-Kennedy Test • Speed's Test Data collection at sessions 1, 3, 5, and 8	• Patients in the Derangement classification demonstrated a lack of agreement with consecutive special testing • Highest level of agreement in dysfunction categories: 0.84 (SE=0.19) for articular and 0.49 (SE=0.17) for contractile • There was no agreement with spinal and derangement categories (zero) (P=0.13 and P=0.44 respectively)
Effect of McKenzie method of mechanical diagnosis and therapy (MDT) versus Maitland mobilization in individuals with stage II adhesive capsulitis: A randomized clinical trial Naik et al, 2017	40 patients with stage 2 Adhesive Capsulitis • 40-60 years old • Randomized using the envelope method into the • McKenzie intervention group or Maitland mobilization group	• Maitland (n=20) • McKenzie (n=20) • Physical Therapy protocol was given for both groups and conservative therapy (hot pack and electrical stimulation) for 5 consecutive sessions • MDT technique included: hand behind the back with overpressure, repeated shoulder extension with overpressure, or shoulder flexion with overpressure • Maitland mobilization technique included: caudal, anterior, or posterior glides.	• Patients treated in both groups displayed a statistical significant difference in shoulder range of motion (ROM), reduction of pain, and shoulder function. • Maitland demonstrated a greater change in reduction of pain, shoulder extension, and internal rotation ROM. • MDT exhibited a greater change in the Penn shoulder function scale and shoulder ROM in flexion, abduction, and external rotation.
The application of mechanical diagnosis and therapy in lateral epicondylalgia Maccio et al, 2016	3 patients with lateral elbow pain • Classified by MDT methodology • Fit inclusion criteria of LE	Patients evaluated using a MDT-based assessment Tests to confirm LE diagnosis: • Pain at a level 3/10 on the numeric pain rating scale (NPRS) • Lateral elbow pain provoked by at least two orthopaedic special tests Repeated self-joint end-range elbow mobilization techniques performed Outcome measures administered upon initial evaluation, discharge, and 3 months and 1 year following discharge: • Average pain via a NPRS • Patient's perceived percent improvement • Upper extremity functional scale (UEFS)	Excellent short- and long-term (one year) outcomes • Demonstrated rapid abolishment of symptoms and return to prior levels of function in 3–6 visits between 11–59 days • Patients demonstrated the ability to prevent and manage reoccurrence of symptoms independently without seeking further health care
Efficacy of exercise intervention as determined by the McKenzie system of mechanical diagnosis and therapy for knee osteoarthritis: a randomized controlled trial Rosedale et al, 2014	180 patients with diagnosed knee OA • Randomized into an exercise intervention group or a control group	• Exercise intervention group participants were classified as ○ MDT derangements ○ MDT nonresponders and compared to the control group at baseline, 2 weeks, and 3 months • MDT derangements received MDT directional exercises • MDT non responders received evidence-based exercises • Control group received no exercise intervention	• Rosedale et al reported significantly improved P4 scores (mean difference, -6; 95% CI: -8, -3) KOOS pain scores (mean difference, 9; 95% CI: 5, 13) and KOOS function scores (mean difference, 11; 95% CI: 7, 15) compared to the control group at 2 weeks • Rosedale et al reported the exercise intervention group had significantly improved KOOS pain scores (mean difference, 7; 95% CI: 3, 11) and KOOS function scores (mean difference, 5; 95% CI: 1, 9) compared to control the control group at 3 months

ANALYSIS

1. Abady et al confirmed that classifying patients through the McKenzie method affected the consistency of orthopedic special tests. For the derangement groups specifically, little agreement was demonstrated between consecutive testing. This information suggests that classifying patients prior to administering special tests may produce a more predictable presentation of symptoms and anticipated outcomes.
2. Naik et al concluded that MDT intervention can be a useful approach in reducing pain, improving range of motion, and functional ability with the use of the Penn shoulder scale in individuals with stage 2 adhesive capsulitis.
3. Maccio et al provided preliminary evidence that MDT may be capable of producing effective short- and long-term outcomes in the management of LE and raises questions regarding the utility of special tests typically utilized to identify pathologies traditionally associated with the aetiology of LE.
4. Rosedale et al reported that patients diagnosed with knee OA who were treated with exercises based on an MDT assessment had superior outcomes compared to those of the control group. The MDT subgroup of knee derangement may require further investigation in patients with knee OA.





CONCLUSION

According to existing literature, classifying patients through an MDT approach increases the effectiveness of treatment for patients with upper extremity conditions. The McKenzie classification scheme affected outcomes as measured by special testing, suggesting that, without the use of this method, special tests independently are unreliable. The research supports the use of McKenzie method for extremity symptoms; however, no statistical difference is shown when compared to Maitland. Rosedale et al reported that MDT treatment is effective at treating patients with knee OA. Although the selected studies support the efficacy of McKenzie method, efficacious long-term outcomes are yet to be reported by any studies.

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