

THE MCKENZIE CLASSIFICATION SYSTEM IN THE EXTREMITIES: A RELIABILITY STUDY USING MCKENZIE ASSESSMENT FORMS AND EXPERIENCED CLINICIANS

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ABSTRACT

Objective: This study investigated the reliability of experienced physiotherapists in classifying patients in McKenzie nonspecific mechanical syndromes from extremity McKenzie assessment forms.

Methods: Real patient vignettes (N = 25) were collected during clinical practice; all identifying information was removed to make the assessment form anonymous, and the mechanical classification chosen by the treating therapist was also deleted. The forms were saved in an electronic format. Forms and a sheet to be filled in for classification for each vignette and demographic details were sent electronically to McKenzie Institute International Diploma holders worldwide. Three repeat mailings were undertaken to maximize response rates.

Results: Of a sample frame of 126 therapists, 97 responded and provided classification for the patient vignettes. Overall agreement was 92% and the κ value was 0.83.

Conclusion: This reliability analysis of McKenzie extremity assessment forms showed a good level of reliability among the participating experienced therapists. (*J Manipulative Physiol Ther* 2009;32:556-563)

Key Indexing Terms: *Reproducibility of Results; Classification; Musculoskeletal System; Extremities; Physical Therapy*

The McKenzie system of mechanical diagnosis and therapy (MDT) was first described in 1981 as it related to the classification and management of back pain.¹ The system uses nonspecific mechanical syndrome classifications that are derived from an assessment that uses repeated movements while symptoms are monitored. Findings from the history and physical examination and the classification are recorded on a standardized McKenzie assessment form that has been derived for this purpose and has been amended over time. Each syndrome requires a different management approach. A number of systematic reviews, which relate to MDT for low back pain, attest to its evidence base. There is evidence supporting the efficacy of

MDT in acute to chronic low back pain²⁻⁷; the prognostic validity of a key feature of the system, which is centralization⁸; and the greater reliability of the MDT assessment process compared to other methods.⁹

The application of the system to extremity as opposed to spinal musculoskeletal symptoms was published more recently.¹⁰ A McKenzie assessment form was also derived for the assessment of extremity problems, which is a generic form, used for all extremity problems (Appendix A).

The mechanical syndromes are nonspecific and do not seek to apply specific pathologic labels to musculoskeletal symptoms.^{10,11} In extremity problems, the syndromes are:

- derangement, identified by the abolition or decrease of symptoms, and/or an increase in restricted range of movement in response to repeated movements
- articular dysfunction, which is identified by intermittent pain consistently produced at a restricted end range with no rapid change of symptoms or range
- contractile dysfunction, which is identified by intermittent pain, consistently produced by loading the musculotendinous unit, for instance, with an isometric contraction against resistance
- postural syndrome is only produced by sustained loading that, once avoided, the rest of the physical examination would be normal

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- “other” refers to failure to classify as one of the above mechanical syndromes and considered to be nonmechanical, such as recent trauma, postsurgery, or chronic pain state.

Although there is a substantial body of literature providing information about the use of the McKenzie system of classification and management for spinal, especially lumbar problems,²⁻⁹ there is very limited scientific literature about its use with extremity musculoskeletal problems. Two case studies, one of a shoulder derangement and one of a shoulder contractile dysfunction, have been published.^{12,13} In a survey of McKenzie-trained therapists, the classification system has demonstrated reasonable clinical utility with mechanical syndrome classification being made in 69% of 242 extremity patients.¹⁴ A pilot study with small numbers has looked at reliability using 11 patient vignettes and 3 therapists, as proposed in this study.¹⁵ The reliability of syndrome classification was reasonably good (82% agreement, κ 0.7), but only a small number of therapists and vignettes were used.

Reliability addresses the issue of whether different clinicians come to the same conclusion about a patient. This is a key aspect of any classification system and indeed of any examination procedure being used to make management decisions about a patient. The reliability of the McKenzie system has been investigated in patients with back and neck pain, and reasonable levels of reliability have been demonstrated among those who are experienced with the system.¹⁶⁻²⁰ These have been conducted either using 50 and 45 real patients with one clinician observing and one assessing,^{18,19} or 2 adjacent examinations of 39 patients,¹⁶ or 50 clinicians assessing 50 paper vignettes on standard assessment forms,¹⁷ or 54 clinicians assessing 20 videotaped examinations.²⁰ Different study designs have relative strengths. Using real patients allows interpretation of clinical interactions more easily than paper vignettes, but this latter method of testing reliability allows worldwide delivery to a large number of clinicians more easily. The aim of this study was to investigate the interexaminer reliability of experienced MDT clinicians in classifying patients from information presented on McKenzie extremity assessment forms using a large number of paper vignettes and a large number of therapists.

METHODS

Patient Vignettes

The vignettes (N = 25) were provided by consecutive, consenting patients attending routinely for normal physiotherapy treatment in a private physiotherapy clinic. Treatment was provided as normal whether the patient consented to have their data used or not. Permission was given by the patients to use these for research purposes. Patient vignettes were stored electronically (eg, see Appendix A) with identifying personal patient details, except sex and age, and the MDT classification removed. Ethical approval for

Table 1. Demographic detail of 96 participating clinicians^a

Variable	Distribution	
Sex	60 male	36 female
Age, mean (range)	45.4 (31-61)	
Years since qualifying as a therapist, mean (range)	17.4 (2-44)	
Years since gaining Diploma in MDT, mean (range)	8.2 (1-21)	
Participants' country	UK (9), Denmark (8), USA (31), Sweden (3), Brazil, Australia (4), Germany (4), NZ (8), Japan (2), Greece (3), Poland (2), France, Canada (4), Netherlands (3), Belgium, Finland, Czech republic, Italy (4), Switzerland (2), Sudan, Austria, Slovenia	
Extremity patients as proportion of workload (n)	<25%	41
	25%-50%	42
	50%-75%	11
Use of MDT with extremity patients (n)	All the time	59
	Most of the time	32
	Some of the time	4
Practice setting	Private	64
	Hospital outpatients	24
	GP practice	5
	Specialist clinic	6
	Rehabilitation center	8
	Other	7
Referral base	Self-referral	47
	GP	63
	Orthopedics	49
	Rheumatology	15
	Other	12

^a Missing information = 1.

the study was obtained from Sheffield Hallam University Faculty of Health and Wellbeing Ethical Review Board.

Therapists

Participating therapists were all holders of the International McKenzie Institute Diploma, which is the highest education award in the institute; these are experienced clinicians familiar with MDT concepts and based in over 20 countries worldwide. Furthermore, therapists had to be contactable by e-mail and consenting to participate. There were 303 diploma holders; e-mail addresses were available for 186 of these. However, 25 of these e-mail addresses failed to work and 35 therapists declined to participate, so our potential recruitment sample frame was 126 therapists worldwide.

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