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Does McKenzie Therapy Improve Outcomes for Back Pain?

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Clinical Question: What is the clinical evidence base for McKenzie therapy in management of back pain?

Data Sources: Studies were identified using a computer-based literature search of 7 databases: MEDLINE, EMBASE, DARE, CINAHL, PEDro, the Cochrane Register of Clinical Trials (CENTRAL), and the Cochrane Database of Systematic Reviews. Search terms included *McKenzie therapy, McKenzie treatment,* and *McKenzie method.* Studies published before September 2003 were eligible.

Study Selection: To be included in the review, each study had to fulfill the following criteria: (1) the study was a randomized or quasi-randomized controlled trial, (2) the subjects' primary complaint was nonspecific low back pain or neck pain with or without radiation to the extremities, (3) the authors investigated the efficacy of the McKenzie method/McKenzie treatment in comparison with no treatment, sham treatment, or another treatment, (4) individualized patient treatment and treatment were specified according to McKenzie principles, and (5) the authors reported at least one of the outcome measures of pain, disability, quality of life, work status, global perceived effect, medication use, medical visits, or recurrence. Studies were included with no language restriction and with subjects of all age groups, of either sex, and with any duration of symptoms. Studies were excluded if subjects had any of the following spinal conditions: cauda equina syndrome, cord compression, infection, fracture, neoplasm, inflammatory disease, pregnancy, any form of headache, whiplash-associated disorders, vertigo/dizziness, or vertebrobasilar insufficiency.

Data Extraction: Data were independently extracted from each study by 2 investigators using a standardized data extraction form. The standardized data extraction form and experience level of the investigators were not included in the review. In studies with more than 2 treatment groups, the treatment contrast of more relevance to current Australian physiotherapy was selected.

Data were also extracted for short-, intermediate-, and long-term follow-up based on the criteria suggested by the Cochrane Back Review Group. Short-term follow-up was defined as less than 3 months from onset of treatment. Intermediate-term follow-up was defined as at least 3 months and less than 12 months from onset of treatment. Long-term follow-up was defined as equal to or greater than 12 months.

All eligible studies were rated for methodologic quality using the PEDro scale. The PEDro scale is a checklist that examines the ''believability and the interpretability of trial quality.''[1] The 11-item checklist yields a maximum score of 10 if all criteria are satisfied. The first item on the scale (Eligibility Criteria) is not scored. The PEDro scores were extracted from the PEDro database. If a study had not been entered into the database and scored, it was reviewed and scored by an experienced PEDro rater.

Main Results: Normalized data for pain and disability were given possible total scores of 100. The article's scores on the PEDro scale were average, ranging from 4 to 8 of 10. The most common flaw in the methods, which occurred in all 6 studies, was the failure to blind both the patient and therapist. Four of the 6 did not blind the researcher interpreting the data. For both pain and disability at short-term ($<$3 months) follow-up, individual study results for low back pain favored McKenzie therapy compared with the following: nonsteroidal anti-inflammatory drugs, educational booklet, back massage with back care advice, strength training with therapist supervision, spinal mobilization, or general mobility exercises. Trends favored McKenzie therapy at intermediate-term (3–12 months) follow-up for pain and disability, as well as work absences. The McKenzie treatment group in the cervical spine study had less pain and disability at both short- and intermediate-term follow-up than did the exercise group, although the effect sizes were small. The same McKenzie treatment group tended to have fewer health care contacts in the ensuing 12 months than the comparison exercise group.

The results suggest that McKenzie therapy provides a reduction in short-term pain (mean reduction of 8.6 on a 100-point scale) compared with the therapies mentioned above. A second (sensitivity) analysis was conducted to include data from 3 studies that were initially excluded because of lack of individualized treatment. The sensitivity analysis was used to determine if the exclusion of these studies would significantly alter the conclusion of the review. Instead, the sensitivity analysis strengthened the evidence supporting the notion that McKenzie therapy is more effective in short-term pain relief than other therapies (reduction of 11.4 on a 100-point scale).

Conclusions: This review provides evidence that McKenzie therapy results in a decrease in short-term ($<$3 months) pain and disability for low back pain patients compared with other standard treatments, such as nonsteroidal anti-inflammatory drugs, educational booklet, back massage with back care ad-

vice, strength training with therapist supervision, and spinal mobilization. No statistical differences were found between McKenzie therapy and other therapies at intermediate-term (3–12 months) follow-up. Data are insufficient on long-term (>12 months) outcomes or outcomes other than pain and disability (eg, quality of life). To date, no authors have compared McKenzie therapy with placebo or no treatment. Also, few data are available on the McKenzie method and its effect on neck pain. Future researchers should focus on these issues.

Key Words: spine, rehabilitation

DISCUSSION

The McKenzie method is widely considered to be a highly effective program for patients with nonspecific spinal pain.[1–4] This therapy uses assessment techniques to categorize patients into specific clinical subgroups. Each subgroup is identified as a syndrome with historical and mechanical properties that differentiate it from other syndromes. These syndromes are described as postural, dysfunction, and derangements,[2–4] but the details of each syndrome are beyond the scope of this review. Once a patient's dysfunction is classified into one of these subgroups, treatment is directed accordingly.[2–4] The McKenzie paradigm was founded on the premise that mechanical forces are not accepted properly by certain tissues, such as paraspinal musculature, spinal joint articulations, intervertebral discs, and neural tissue, leading to tissue damage and subsequent injury. If normal function is not restored, tissue healing will not occur and the problem will persist.[4] Symptom relief is the goal, accomplished through an individualized treatment program in which the patient performs specific exercises approximately 10 times per day at home, as opposed to 1 or 2 clinical visits per week.[4] Although specialized training is needed to ensure proper evaluation and appropriate treatment, McKenzie therapy seems to be an effective technique in alleviating back pain compared with other conservative treatment options.[1–4]

Of the studies accepted into the current review, only 2 groups compared the return-to-work status of patients treated with McKenzie therapy with other treatments (an educational booklet and dynamic strength training), and these studies scored 8 and 6 of 10 on the PEDro scale, respectively.[1] Although both slightly favored McKenzie therapy at intermediate-term follow-up (3–12 months), the effect of McKenzie therapy on work absence is not clear for several reasons. First, only 2 groups reported on such data. Coincidentally, both measured outcomes only at intermediate-term follow-up. Also, the individual studies and pooled results do not provide enough evidence to suggest McKenzie therapy improves return-to-work status over other treatments.[1]

The studies included in the review suggest that McKenzie therapy is more effective than most comparison treatments at short-term follow-up. Comparison treatments included nonsteroidal anti-inflammatory drugs, educational booklet, back massage with back care advice, strength training with therapist supervision, spinal mobilization, and general mobility exercises. Only 1 of the 6 groups found the comparison treatment (massage/back care advice) to be more effective on both short-term and intermediate-term disability than McKenzie therapy. No other comparative treatment was more effective than McKenzie therapy at any identified point in time. Another group, not included in this review, found that manipulative/chiropractic therapy was more effective than McKenzie therapy in the acute phase of low back pain,[5] whereas in another excluded study, exercise was more effective for chronic symptoms.[6] These 2 studies were excluded from the review because the philosophy of McKenzie therapy is focused on the current symptoms, regardless of the stage of inflammation (acute, subacute, chronic).

To date, no authors have addressed the long-term effects of McKenzie therapy. This seems to be a rather large gap in the literature, considering the emphasis of McKenzie therapy on individualized programs and long-term prevention of recurrence. Most authors focus on short-term effects of McKenzie therapy or report outcomes within 3 months of treatment. Researchers have also failed to compare McKenzie therapy with placebo or no treatment.

The current review[1] has several limitations. Limited data make it difficult to determine whether the reduction in pain associated with McKenzie therapy is clinically meaningful, compared with other therapies (difference of 10 points on a 100-point scale). Studies that scored well on the PEDro scale (7–10) do not exist in great numbers. The most common flaw in those studies scoring less than 7 is lack of randomization and blinding. However, blinding patients and therapists may be impossible to achieve with McKenzie therapy because both the patient and the therapist know whether McKenzie therapy is being performed. Patient populations should also be better defined, as the review failed to identify the subjects' age, sex, activity level, and specific injury. These generalizations make it difficult to determine if McKenzie therapy is applicable to athletes and the demands of their sport.

Clare et al[1] indicated that the methodologic quality of randomized controlled trials of McKenzie therapy needs improvement. Although it may be impossible to achieve a perfect score of 10 on the PEDro scale, scores higher than 6 should be attained. Studies rating lower than 7 on the PEDro scale are at risk for biased results.[7]

Future researchers should also delve into the effectiveness of McKenzie therapy when radicular symptoms are present. It is unclear whether patients with neurologic compromise require different treatment than those patients with nonspecific back pain. It may also be of equal importance to survey certified McKenzie therapists to determine which conditions are most commonly treated with McKenzie therapy, based on the concept that therapists receive referrals as a result of high success rates.

Clinical evidence suggests that McKenzie therapy is an effective method for managing back pain in the short term (<3 months) compared with other therapies, but only through sound randomized controlled trials will we be able to determine the exact efficacy of McKenzie therapy. A clinician might take this information into consideration before making the significant time and financial commitment necessary to become a certified McKenzie therapist.

REFERENCES

1. Clare HA, Adams R, Maher CG. A systematic review of efficacy of McKenzie therapy for spinal pain. *Aust J Physiother*. 2004;50:209–216.
2. Simonsen RJ. Principle-centered spine care: McKenzie principles. *Occup Med*. 1998;13:167–183.
3. Donelson R. The McKenzie approach to evaluating and treating low back pain. *Orthop Rev*. 1990;19:681–686.

4. Miller J, Herbowy S. The McKenzie approach. *Rehab Manage.* 2002;15: 40–44.
5. Ferreira ML, Ferreira PH, Latimer J, Herbert R, Maher CG. Does spinal manipulative therapy help people with chronic low back pain? *Aust J Physiother.* 2003;48:277–283.
6. van Tulder M, Furlan A, Bombardier C, Bouter L; Editorial Board of the Cochrane Collaboration Back Review Group. Updated method guidelines for systematic reviews in the Cochrane Collaboration Back Review Group. *Spine.* 2003;28:1290–1299.
7. Maher CG, Sherrington C, Herbert RD, Moseley AM, Elkins M. Reliability of the PEDro scale for rating quality of randomized controlled trials. *Phys Ther.* 2003;83:713–721.