Klaber Moffett J, Jackson D, Gardiner E, et al. Randomized Trial of Two Physiotherapy Interventions for Primary Care Neck and Back Pain Patients: 'McKenzie' vs Brief Physiotherapy Pain Management. Rheumatology 2006; 45:1514-1521.

Design: Randomized clinical trial

Objective: To compare the effects of the McKenzie method (McK) of physical therapy to a brief physiotherapy pain management approach using cognitive-behavioral principles (Solution-Finding Approach—SFA) in patients with neck or back pain lasting at least 2 weeks.

Population /sample size/setting/interventions:

- 315 participants (60% women, mean age 45) with neck or back pain of at least 2 weeks duration, considered to be of non-systemic origin, who were referred to National Health Service physiotherapy departments by general practitioners in West and East Yorkshire in the United Kingdom. All participants were randomized to one of two interventions; 1) McKenzie method (n=161), or 2) cognitive-behavioral intervention using a solution – finding approach (n=154). Included were 219 with back pain, and 96 with neck pain.
- The McKenzie treatment intervention consisted of an initial physical assessment followed by an individual treatment plan with prescribed direction-specific exercises. The therapist identified specific spinal movements that abolished the symptoms or shifted the pain centrally away from the peripheral parts of the body helping the patient overcome their fear of physical activity by demonstrating to the patient that movement can relieve pain. This enables the individual to cope better and return to their normal activities sooner.
- The Solution-Finding Approach (SFA) used cognitive-behavioral principles guiding patients to manage their pain. Patients received an initial 1 hour assessment which included a physical examination, explanation about the condition, reassurance, and goal setting. One or two follow-up sessions were offered to guide progress. The emphasis was on helping patients identify the main problems, and work out solutions and realistic goals in order to attain what they wanted to achieve.
- In both intervention groups, patients were also randomized to receive either an educational booklet (The Back Book or The Neck Book) or no booklet. Patients attended on average 3-5 sessions of McK or SFA.
- Eligibility criteria included 1) back or neck pain for at least 2 weeks, 2) adults aged 18 years or older, and 3) pain considered of non-systemic origin.
- Exclusion criteria included a score of less than 4 on the Roland Disability Questionnaire (RDQ), a score of less than 10 on the Northwick Park Neck Pain Questionnaire (NPQ), history of any physical therapy within the previous 3 months, plans to use private physical therapy alongside the NHS physiotherapy, referral from a hospital consultant, and possibility of serious pathology or pregnancy.

Main outcome measures:

- The primary outcome measure was the Physical Activity-Avoidance subscale of the Tampa Scale of Kinesiophobia. Secondary outcome measures included the Multidimensional Health Locus of Control Powerful Others subscale, RDQ, Northwick Park Neck Pain Questionnaire, patient satisfaction (VAS), SF-12 general quality of life,

Pain Self Efficacy Questionnaire, Chronic Pain and Coping Inventory, and the Hospital Anxiety and Depression Scale.

- Outcome measures were recorded at 6 weeks, and again at 6 and 12 months after randomization.
- Baseline characteristics were similar for the 2 groups except that more participants were women (60%).
- The 12-month follow-up rate for McK was 88% and for the SFA 77%. The patients lost to analysis were similar to the completers in terms of gender, but were slightly younger (40 vs. 46.5 years old), and this age difference was significant (P=0.001).
- There were no statistically significant differences in outcomes between the groups, except:
    - SFA patients supported by an educational booklet reported less reliance on health professionals (Multidimensional Health Locus of Control Powerful Others Scale) at all follow-up times (P=0.023); This small 4% difference is not deemed clinically important.
    - McK was slightly more effective in reducing fear and avoidance of activity (TSK) at the 6-month follow-up time (P=0.032).This small 4% difference is also not deemed clinically important.
    - At 6 weeks follow-up, McK patients reported significantly higher levels of patient satisfaction (VAS median 90%) compared to SFA patients (70%) P=0.008.

Authors' conclusions:

- Both interventions resulted in modest, but clinically important improvements over time on the Roland Disability Questionnaire Scores and Northwick Park Neck Pain Scores.
- The McK approach resulted in higher patient satisfaction overall compared to the SFA.
- The SFA could be more cost-effective, as slightly fewer (three) sessions were needed compared with four or five sessions for McK.
- An intervention, such as SFA, which is designed to help patients find out how to cope with their pain may be as effective as conventional physiotherapy, such as McK, which uses a biomechanical approach.

Comments:

- This is a well-designed and documented study.
- Patients' expectations and experience of having a hands-on treatment rather than a hands-off intervention may have been an important influencing factor resulting in increased patient satisfaction for the McK approach.
- The difference in withdrawal rates was also in favor of the McK group.
- A brief physiotherapy intervention using cognitive-behavioral principles may be more cost-effective than McK physical therapy.
- Including patients with both neck and back pain could be considered a weakness of the study, but it is understandable that the authors wanted to increase the generalizability of their findings.
- Even though statistically significant differences were reported favoring SFA patients who were given an educational booklet reporting less reliance on health professionals and

favoring McK patients with reduced fear and avoidance of activity, a clinically important difference was not observable**.**

- There is an 11% difference in the withdrawal rates during intervention between the two groups. The 12-month follow-up rate for McK was 88% and for the SFA 77%. A limitation of the study is not only the high attrition rate, but the authors' failure to address this issue.
- Blinding of the physical therapists performing the interventions was not possible, however assessing the blinding success was not done. Biases arising from practitioner and patient expectations could occur.
- A lack of a nontreatment control group means that definitive conclusions cannot be drawn as to whether the results occurred due to the natural history of back and neck pain, nonspecific effects, or the 2 treatment interventions of the study.
- The study is made more difficult than necessary by a complex design and analysis, accompanied by numerous subscales for the varied outcomes, needlessly reported to three decimal places.
- In spite of the less than satisfactory presentation of data, the study is adequate to support some evidence that the McKenzie intervention and the solution-finding approach intervention both reduced back disability and neck disability on previously validated and commonly used disability scales.

Assessment*:*

- This study is adequate to support some evidence that the McKenzie method is as effective as cognitive-behavioral training in improving neck and back and function, including ability to carry out work activities.