Spinal manipulation compared with back school and with individually delivered physiotherapy for the treatment of chronic low back pain: A randomized trial with one-year follow-up

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FROM ABSTRACT:

Objective: To compare spinal manipulation, back school and individual physiotherapy in the treatment of chronic low back pain.

Design: Randomized trial, 12-month follow-up.

Participants: 210 patients with chronic, non-specific low back pain, 140/210 women, age 59 ± 14 years.

Interventions: Back school and individual physiotherapy scheduled 15 1-hour-sessions for 3 weeks. Back school included: group exercise, education/ergonomics; individual physiotherapy: exercise, passive mobilization and soft-tissue treatment.

Spinal manipulation, given according to Manual Medicine, scheduled 4 to 6 20-minute sessions once-a-week.

Outcome: Roland Morris Disability Questionnaire (scoring 0-24) and Pain Rating Scale (scoring 0-6) were assessed at baseline, discharge 3, 6, and 12 months.

Spinal manipulation was associated with higher functional improvement and long-term pain relief than back school or individual physiotherapy, but received more further treatment at follow-ups; pain recurrences and drug intake were also reduced compared to back school or individual physiotherapy.

Conclusions: Spinal manipulation provided better short and long-term functional improvement, and more pain relief in the follow-up than either back school or individual physiotherapy.

THESE AUTHORS ALSO NOTE:

"Spinal manipulation and vertebral mobilization are also widely used in clinical practice, and there is evidence of the effectiveness of spinal manipulation both in the acute and in the subacute or chronic phase of low back pain."

The subjects in this study suffered from non-specific low back pain, reported 'often' to 'always' at least for the past six months. Subjects were excluded if they had neurological signs or symptoms, spondylolisthesis greater than grade 2, spinal stenosis, lumbar scoliosis, rheumatoid arthritis or spondylitis, previous vertebral fractures, psychiatric disease, cognitive impairment or pain-related litigation.

GROUP ONE: The back school consisted of 15 one-hour sessions (5 days a week for 3 weeks). The first five hours consisted of group discussions on back physiology and pathology, with reassurance on the benign character of common low back pain, and with education in ergonomics at home and in different occupational settings. The next 10 hours included relaxation techniques, postural and respiratory group exercises, and individually tailored back exercises.

GROUP TWO: The individual physiotherapy groups consisted of 8 patients and two therapists together for 15 one-hour sessions (5 days a week for 3 weeks). These patients were also given individual physiotherapy which included passive and assisted mobilization, active exercise, 2 massage treatments of the soft tissues, and proprioceptive neuromuscular facilitation with emphasis on patient education and active treatment.

GROUP THREE: The spinal manipulation was performed by one of two physicians who were trained in physical medicine [It is unknown if the physician was a chiropractic physician]. The entire spine was assessed statically and dynamically. "Treatment was aimed at restoring the physiological movement in the dysfunctional vertebral segment(s) and consisted of vertebral direct and indirect mobilization and manipulation, with associated soft tissue manipulation, as needed." These patients received 4–6 weekly sessions of 20 minutes each for a total of 4–6 weeks of treatment (80–120 minutes of treatment altogether) [meaning one visit per week for 4-6 weeks]. Manipulations were ended after the physician determined there were "no more dysfunctional vertebral segments to be manipulated."

The functional outcome was measured with the Roland Morris Disability Questionnaire, which is considered to be the 'gold standard' in low back pain trials.

Pain intensity was measured with the Roland Morris Pain Rating Scale, a scale varying from 0 (no pain) to 6 (almost unbearable pain).

Patients were assessed at baseline, on discharge, and at three, six and twelve months after discharge.

RESULTS

"No significant difference in Roland Morris Disability scores was found between back school and individual physiotherapy on discharge and at the three follow-ups. On the contrary, spinal manipulation showed a significantly lower disability score on discharge and at the three follow-ups when compared with either other intervention."

"The reduction in disability score was significantly greater in the spinal manipulation group when compared with both back school and individual physiotherapy groups."

"The reduction in the Roland Morris Disability score was significantly greater in the spinal manipulation group when compared with both back school and individual physiotherapy groups, and also the reduction in the pain rating scale was significantly greater in the spinal manipulation group when compared with both back school and individual physiotherapy groups."

"When compared with back school, spinal manipulation showed a significantly less frequent report of low back pain at 3- and 12-month follow-ups, but not at 6 month follow-up, while when compared with individual physiotherapy, reports of low back pain were significantly less frequent in spinal manipulation at all follow-ups."

"When compared with either other intervention, spinal manipulation showed a significantly less frequent report of low back pain related use of drugs at all three follow-ups."

Of the 70 patients in the manipulation group, 40 (57%) sought further treatment after discharge, which consisted primarily of a short cycle of spinal manipulations.

"In this pragmatic clinical study we compared the short- and long-term effects of three recommended treatments for chronic, non-specific low back pain in a selected outpatient population. Spinal manipulation provided more functional improvement than either physiotherapy intervention, at discharge and all across follow-ups. Further, pain relief at follow-ups was also significantly more relevant in spinal manipulation patients. Low back pain recurrences and reduction of pain-related use of drugs were also most striking for the spinal manipulation group."

The total amount of time devoted to treatment was much less for the manipulation group than either physiotherapy intervention group (80–120 minutes vs. 900 minutes).

The authors were "confident that individual physiotherapy costs were altogether higher than back school's, since duration, frequency and number of sessions were the same, but the therapist:patient ratio was 1:4 in back school and 1:1 in individual physiotherapy."

"Spinal manipulation was associated with best results both in terms of pain and function."

"In chronic non-specific low back pain, spinal manipulation provided more functional improvement and pain relief, reduced drug intake, and reduced recurrence rate than exercise therapy, though with more treatment at follow-up."

KEY POINTS FROM DAN MURPHY

1) This study compared 3 groups in the treatment of chronic low back pain: spinal manipulation, back school and individual physiotherapy. The study used 210 patients that were randomized and followed up at intervals for 12 months.

GROUP ONE: The back school consisted of 15 one-hour sessions (5 days a week for 3 weeks). The first five hours consisted of group discussions on back physiology and pathology, with reassurance on the benign character of common low back pain, and with education in ergonomics at home and in different occupational settings. The next 10 hours included relaxation techniques, postural and respiratory group exercises, and individually tailored back exercises.

GROUP TWO: The individual physiotherapy groups consisted of 8 patients and two therapists together for 15 one-hour sessions (5 days a week for 3 weeks). These patients were also given individual physiotherapy which included passive and assisted mobilization, active exercise, 2 massage treatments of the soft tissues, and proprioceptive neuromuscular facilitation with emphasis on patient education and active treatment.

GROUP THREE: The spinal manipulation was performed by one of two physicians who were trained in physical medicine [It is unknown if the physician was a chiropractic physician]. The entire spine was assessed statically and dynamically. "Treatment was aimed at restoring the physiological movement in the dysfunctional vertebral segment(s) and consisted of vertebral direct and indirect mobilization and manipulation, with associated soft tissue manipulation, as needed." These patients received 4–6 weekly sessions of 20 minutes each for a total of 4–6 weeks of treatment (80–120 minutes of treatment altogether) [meaning one visit per week for 4-6 weeks]. Manipulations were ended after the physician determined there were "no more dysfunctional vertebral segments to be manipulated."

2) "Spinal manipulation and vertebral mobilization are also widely used in clinical practice, and there is evidence of the effectiveness of spinal manipulation both in the acute and in the subacute or chronic phase of low back pain."

3) "No significant difference in Roland Morris Disability scores was found between back school and individual physiotherapy on discharge and at the three follow-ups. On the contrary, spinal manipulation showed a significantly lower disability score on discharge and at the three follow-ups when compared with either other intervention."

4) "The reduction in the Roland Morris Disability scores was significantly greater in the spinal manipulation group when compared with both back school and individual physiotherapy groups, and also the reduction in the pain rating scale was significantly greater in the spinal manipulation group when compared with both back school and individual physiotherapy groups."

5) "When compared with either other intervention, spinal manipulation showed a significantly less frequent report of low back pain related use of drugs at all three follow-ups."

6) **"In this pragmatic clinical study we compared the short- and long-term effects of three recommended treatments for chronic, non-specific low back pain in a selected outpatient population. Spinal manipulation provided more functional improvement than either physiotherapy intervention, at discharge and all across follow-ups. Further, pain relief at follow-ups was also significantly more relevant in spinal manipulation patients. Low back pain recurrences and reduction of pain-related use of drugs were also most striking for the spinal manipulation group."**

7) The total amount of time devoted to treatment was much less for the manipulation group than either physiotherapy intervention group (80–120 minutes vs. 900 minutes).

8) The authors were "confident that individual physiotherapy costs were altogether higher than back school's, since duration, frequency and number of sessions were the same, but the therapist:patient ratio was 1:4 in back school and 1:1 in individual physiotherapy." **[I am confident that the cost of spinal manipulation was significantly less than the costs of either physiotherapy group; there were 900 minutes of therapy time v. 80-120 minutes of manipulation time; therapy used 15 sessions v. manipulation use of 4-6 sessions].**

9) "Spinal manipulation was associated with best results both in terms of pain and function."

10) "Spinal manipulation provided better short and long-term functional improvement, and more pain relief in the follow-up than either back school or individual physiotherapy."