Abstract Title:	The therapeutic efficacy of McKenzie concept in the management of low back pain.
	Retrospective case note review of 27 patients treated with McKenzie; 74% made rapid recovery.
Abstract Content:	Proceedings 12th International Congress World Confederation Physical Therapists
	Fowler B, Oyekoya O
Journal:	
Biblio:	June 25-30
Year Published:	1995
Category:	Lumbar: Trials
Abstract Title:	McKenzie Treatment of Low back Pain: a correlation of Significant Factors in Determining Prognosis
Summary:	In a large patient population, categorisation and treatment according to the McKenzie system is found to have definite prognostic value.
Abstract Content:	Annual meeting of International Society for the Study of the Lumbar Spine, Dallas Texas, USA
Abstract Author:	Fredrickson BE, Murphy K, Donelson R, Yuan H
Journal:	
Biblio:	1986
Year Published:	
Category:	Lumbar: Trials
Abstract Title:	A randomised controlled trial comparing the McKenzie method of mechanical diagnosis and therapy with a non-prescriptive exercise regime in the conservative treatment of chronic low back pain.
Abstract Content:	Proceedings 4th McKenzie Institute International Conference, Cambridge, England
Abstract Author:	Goldby L
Journal:	
Biblio:	Sept. 16-17
Year Published:	1995
Category:	Lumbar: Trials
Abstract Title:	The conservative treatment of low back pain.
Summary:	At 7 weeks post onset of LBP, Roberts showed that the group receiving McKenzie treatment produced significant disability reduction compared with those treated with a NSAID (Ketoprofen).
Abstract Content:	(Thesis) Nottingham
Abstract Author:	Roberts AP
Journal:	
Biblio:	
Year Published:	1990
Category:	Lumbar: Trials
Abstract Title:	A randomised clinical trial comparing therapeutic interventions for low back pain.
Abstract Content:	Proceedings McKenzie North American Conference, Orlando, Florida
Abstract Author:	Schenk R
Journal:	
	June 2-4
Year Published:	
Category:	Lumbar: Trials
Abstract Title:	Comparison of McKenzie Exercises, Back Trac and Back School in Lumbar Syndrome; Preliminary Results.
Summary:	138 patients allocated to McKenzie, traction, or back school; 97% of McKenzie group improved at one week, compared to less than 50%, with a significant difference at one month.
	Annual Meeting of International Society for the Study of the Lumbar Spine, Dallas,TX
Abstract Author:	Vanharanta H, Viedman T, Mooney V

Journal:	
Biblio:	
Year Published:	1986
Category:	Lumbar: Trials
Abstract Title:	Effects of a McKenzie spinal therapy and rehabilitation programme: preliminary findings
Abstract Content:	The Society for Back Pain Research (UK). Annual Scientific Meeting. (Abstract),
Abstract Author:	Williams M, Grant R
Journal:	
Biblio:	
Year Published:	1992
Category:	Lumbar: Trials
Abstract Title:	A comparison of low-back and referred pain responses to end-range lumbar movement and position.
Abstract Content:	Conference Proceedings of the International Society for the Study of the Lumbar Spine, Chicago, USA
Abstract Author:	Williams MM, Grant RN
Journal:	
Biblio:	May 20-24
Year Published:	1992
Category:	Lumbar: Trials
Abstract Title:	ACC chronic backs study. Report of the evaluation of four treatment programmes
Abstract Author:	Borrows J, Herbison P
Journal:	(ACC), New Zealand
Biblio:	
Year Published:	1994
Category:	Lumbar: Trials
Abstract Title:	Mechanical physiotherapeutic diagnosis and therapy in patients with lumbar disc disease.
Summary:	Uncontrolled study of 21 patients with confirmed disc prolapse treated with repeated active and passive movements selected according to symptom response; all patients were discharged improved, and most continued to improve.
Abstract Author:	Weller M, Brotz D, Kuker W, Dichgans J, Gotz A
Journal:	Aktuelle Neurologie
Biblio:	28;74-81
Year Published:	2001
Category:	Lumbar: Trials
Abstract Title:	Comparison between primary care physiotherapy education/advice clinics and traditional hospital based physiotherapy treatment: a randomized trial.
Summary:	Spinal and non-spinal musculoskeletal problems managed in primary care with advice and exercise, which included exercises from Treat Your Own Back / Neck, were seen more efficiently than hospital physiotherapy (3 sessions compared to 5), and had better outcomes, though only a few were significant.

Abstract Content:	BACKGROUND: Studies have shown that patients prefer to received physiotherapy services in the primary care setting, but none has made direct comparisons between hospital and primary care based physiotherapy. AIM: This pragmatic randomized trial set out to compare general-practice-based physiotherapy education and advice clinics with traditional physiotherapy treatment in an acute hospital setting. METHOD: The study involved 130 patients referred to physiotherapy services by 43 general practitioners over a one-year period. Patients were included in the study if they were at work, independent in all activities of daily living and would have routinely been referred to the hospital physiotherapy department for treatment. Patients were randomly allocated to one of two intervention groups: general practice education/advice, or treatment and education/advice at the local hospital. Patients completed a questionnaire prior to their first physiotherapy appointment and again 6 weeks later. RESULTS: A disappointing number of patients failed to attend either the first or subsequent appointments. The post-intervention scores revealed improvements in patients' problems, with the advice group exhibiting a slightly better outcome than the hospital group, as measured by the Nottingham health profile, the anxiety component of the hospital anxiety and depression rating scale, pain and problem size visual analogue scales, and measures of patient satisfaction. Advice group patients also had less attendances than the hospital treatment group. The general practitioners surveyed commented favourably on the advice clinics. CONCLUSIONS: The findings of this study justify the concept of general-practice-based physiotherapy education and advice clinics.
Abstract Author:	Worsfold C, Langridge J, Spalding A, Mullee MA.
Journal:	Br J Gen Practice
Biblio:	Mar;46(404):165-8
Year Published:	1996
Category:	Lumbar: Trials
Abstract Title:	Clinical trial of common treatments for low back pain in family practice.
Summary:	Bed rest, flexion exercise group with advice, and control group all had similar outcomes.
Abstract Content:	The results of a multicentered randomised clinical trial are reported of bed rest and of a physiotherapy and education programme for patients who presented in family practice with an acute episode of low back pain. No beneficial effect of either treatment was observed on several clinical outcome measures, including straight leg raising, lumbar flexion, activities of daily living, and pain. In fact the results favoured early mobilisation over bed rest and suggested that the physiotherapy and education programme was doing more harm than good. Moreover, additional analyses, which focused on clinically interesting patient subgroups, discovered no subset of patients who benefited from either of the treatments under study. Having failed to identify any clinically important benefits, or other explanations for these negative results, we can only conclude that family doctors have little reason to prescribe either bed rest or isometric exercises to patients who suffer from low back pain.
Abstract Author:	Gilbert JR, Taylor DW, Hildebrand A, Evans C.
Journal:	Br Med J (Clin Res Ed)
Biblio:	Sep 21;291(6498):791-4
Year Published:	1985
Category:	Lumbar: Trials
Abstract Title:	Evaluering af de reumatologiske rygambulatorier i Nordjyllands Amt - med fokus pa behandlingen af diskusprolaps.
Summary:	Report on surgery rate in local hospital for disc prolapse since introduction of McKenzie assessment method. When introduced in 1996-7 surgery rate was 85 per 100,000 population; by 2001-2 this had fallen to 40 per 100,000 compared to national average which remained at about 80 per 100,000.
Abstract Author:	Rasmussen C, Hansen VK, Larsen RJ, Olsen J
Journal:	Center for Evaluering og Medicinsk
Biblio:	
Year Published:	2004
Category:	Lumbar: Trials
Abstract Title:	The use of lumbar extension in the evaluation and treatment of patients with acute herniated nucleus pulposus. A preliminary report.

Summary:	67 patients with disc herniations and nerve root signs were given extension exercises. Of those who improved, 34/35 (97%) achieved full extension. 32 came to surgery, of which only 2 (6%) were able to extend. The ability to achieve full passive extension correlated with good response to conservative treatment, and this was mostly achieved in a few days. Sequestrations were found in 56% of those who came to surgery.
Abstract Content:	Many patients with acute herniated nucleus pulposus can be expected to resolve their conditions with conservative management. To date, however, no reliable sign has been described in the literature that can predict which patient will respond. This report shows that the ability to achieve normal lumbar extension represents such a sign. Of 67 patients who met the criteria for inclusion in the study, 35 patients were treated without operation; 97% were able to achieve normal lumbar extension within three days of admission to the hospital. Thirty-two patients underwent laminotomy and discectomy because they failed to improve with conservative measures. Of these patients, only two (6%) were able to achieve normal lumbar extension preoperatively. Furthermore, some of these patients responded so dramatically to extension therapy that the use of extension exercises as a therapeutic modality is recommended.
Abstract Author:	Kopp JR, Alexander AH, Turocy RH, Levrini MG, Lichtman DM.
Journal:	Clin Orthop
Biblio:	Jan;(202):211-8
Year Published:	1986
Category:	Lumbar: Trials
Abstract Title:	The natural history of trunk list, its associated disability and the influence of McKenzie management.
Summary:	Patients with a trunk list were randomised to McKenzie protocol or non-specific back care. At 90 days there was a significantly greater reduction of list in the McKenzie group, but no clinical difference. List and functional disability were poorly correlated.
Abstract Content:	Lumbosacral list is a clinical sign that is frequently associated with low back pain and intervertebral disc lesions. This study examines the influence of McKenzie management on the natural history of trunk list. Patients with trunk list and low back pain were randomised into two groups: a control group receiving non-specific back massage and general back care advice, and a group treated according to the McKenzie protocol. Trunk list was measured over a period of 90 days and patients completed Oswestry Disability Questionnaires. There was a significantly greater resolution of list after 90 days in the group receiving McKenzie treatment compared to the control group. There was poor correlation between list magnitude and Oswestry scores. These data support previous observations that trunk list is not necessarily related to the degree of physical disability. The McKenzie method of assessment and treatment may assist in the resolution of trunk list, but it was ineffective in improving clinical condition.
Abstract Author:	Gillan MG, Ross JC, McLean IP, Porter RW
Journal:	Eur Spine J
Biblio:	7(6):480-3
Year Published:	1998
Category:	Lumbar: Trials
Abstract Title:	The use of a back class teaching extension exercises in the treatment of acute low back pain in primary care.
	In an acute group of patients randomised to usual GP care or a one off back class according to McKenzie principles there were no significant differences in outcome, except one difference at one year, when more of the back class group reported 'back pain no problem in previous 6 months'.

Abstract Content:	BACKGROUND: Back extension exercises are commonly recommended to treat acute low back pain. Evidence of their beneficial effect is, however, weak. OBJECTIVES: We aimed to demonstrate a benefit of teaching back extension exercises in addition to usual GP care for acute low back pain. METHODS: Patients with acute simple low back pain of less than 28 days duration, presenting to a GP, were randomized either to attend a back class or to receive conventional management. Outcome was measured using changes in the Oswestry disability score and visual analogue pain scale (VAS) on six occasions during 1 year and also a VAS and patient assessment of degree of disability during the previous 6 months at 1 year. RESULTS: Seventy-five patients were recruited. The principal outcome measures showed no difference between the two groups. The treatment group reported less chronic disability at 1 year (50% versus 14%, P < 0.007). CONCLUSIONS: A treatment effect has not been demonstrated, but some patients who would otherwise have reported mild pain were pain free after 1 year. This approach to treating back pain has not been shown to be effective. More much larger studies, with more intensive treatment, are required in order to decide whether physical therapy in primary care is beneficial as treatment for acute back pain.
Abstract Author:	Underwood MR, Morgan J.
Journal:	Fam Pract
Biblio:	Feb;15(1):9-15
Year Published:	1998
Category:	Lumbar: Trials
Abstract Title:	Can an educational booklet change behaviour and pain in chronic low back pain patients?
Summary:	Nine months after reading Treat Your Own Back 81% of 62 recruits with chronic back pain of average 10 years duration were available. About 90% were still using posture and exercise advice from the book, 60% were free of pain, and another 22% had had less pain. Pain severity and number of episodes had significantly improved. Most attributed improvements to what they had learnt in the book.
Abstract Author:	Udermann B, Tillotson J, Donelson R, Mayer J, Graves J.
Journal:	ISSLS, Adelaide
Biblio:	April
Year Published:	2000
Category:	Lumbar: Trials
Abstract Title:	Can an educational booklet change behavior and pain in low back pain patients?
Summary:	Eighteen month follow-up to Udermann et al 2000, involving 54 patients. Over 90% still exercising and using posture. Showing long-term maintenance of symptom improvement.
Abstract Author:	Udermann B, Spratt K, Donelson R, Tillotson J, Mayer J, Graves J
Journal:	ISSLS, Edinburgh
Biblio:	April
Year Published:	2001
Category:	Lumbar: Trials
Abstract Title:	A randomised trial comparing interventions in patients with lumbar posterior derangement.
Summary:	25 patients with lumbar radiculopathy classified as derangement then randomised to McKenzie or mobilisation therapy. Significantly better outcomes pain and function for McKenzie group short-term.
Abstract Author:	Schenk R, Jozefczyk, Kopf A
Journal:	J Man & Manip Ther
Biblio:	11:95-102
Year Published:	2003
Category:	Lumbar: Trials
Abstract Title:	A randomized-control study of active and passive treatments for chronic low back pain following L5 laminectomy.
Summary:	250 post-surgical patients with chronic back and thigh pain were randomised to 1) physical modalities, 2) manipulation and mobilisation, 3) EIS, EIL and spinal stabilisation exercises, 4) exercise machines and isokinetic training, 5) control group for 8-week period of treatment. In groups 3 & 4 there was a 20% improvement in Oswestry score, but no change in the other groups. Re-entry into treatment was at an average of 91 weeks (3) and 53 weeks (4), but 2-6 weeks in the other groups. Group 3 was most cost effective.

Abstract Content:	The professional literature contains relatively few randomized-control studies that have assessed the efficacy of physical therapy approached to the management of patients with chronic low back pain (CLBP). The purposes of this study were: 1) to investigate the effects of physical agents, joint manipulation, low-tech exercise, and high-tech exercise on objective measures of CLBP; 2) to track length of CLBP relief; and 3) to determine treatment cost-effectiveness. Two-hundred-fifty subjects (68 females, 182 males; ages 34-51 years) with CLBP following an L5 laminectomy were randomly assigned into five seperate groups for a treatment period of 8 weeks. Chronic low back pain status was measured by modified-modified Schober, Cybex Liftask, and Lswestry procedures. Results revealed that: 1) only low-tech and high-tech exercise produced significant improvements (p < .05) in CLBP, 2) the mean period of CLBP relief ranged from 1.6 weeks (control) to 91.4 weeks (low-tech exercise), and 3) low-tech exercise was most cost-effective. It was concluded that: 1) low-tech and high-tech exercise were the only effective treatments for CLBP, 2) low-tech exercise produced the longest period of CLBP relief, and 3) low-tech exercise was the most cost-effective form of treatment. Clinically, low-tech exercise may be the treatment method of choice for the effective management of chronic low back pain.
Abstract Author:	Timm KE
Journal:	J Orth & Sports Phys Ther
Biblio:	20(6):276-286
Year Published:	
Category:	Lumbar: Trials
	Very early McKenzie protocol intervention for back pain in hospital workers.
	Following introduction of a McKenzie trained therapist to manage hospital employees days lost due to back pain fell be 52%, number of staff off due to back pain fell by 27%, and number of episodes of absenteeism due to back pain fell by 30%.
Abstract Author:	Owen JE, Orpen N, Ayris K, Birch NC
Journal:	JBJS
Biblio:	82B. Supp III. 212 (abstract)
Year Published:	2000
	Lumbar: Trials
	A Preliminary Report on the use of the McKenzie protocol versus Williams Protocol in the treatment of Low Back Pain.
Summary:	In LBP patients, the McKenzie protocol was superior to the Williams protocol in decreasing pain and hastening the return of pain free range of motion.
	Ponte DJ, Jensen GJ, Kent BE
	Journ Orthop & Sports Phys Ther
	Vol. 6:2; 130-139
Year Published:	
	Lumbar: Trials
Abstract Title:	The treatment of acute low back pain - bed rest, exercises, or ordinary activity? Ordinary activity group had significantly better outcomes then these prescribed had rest, or extension and
Summary:	Ordinary activity group had significantly better outcomes than those prescribed bed rest, or extension and lateral bending exercises.
Abstract Author:	Malmivaara A, Hakkinen U, Aro T, Heinrichs M-L, Koskenniemi L, Kuosma E, Lappi S, Paloheimo R, Servo C, Vaaranen V, Hernerg S
	N Engl J Med
	332(6):351-355
Year Published:	
Category:	Lumbar: Trials
Abstract Title:	A comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain.
Summary:	McKenzie therapy and chiropractic manipulation are equally effective and both are slightly superior to the booklet in terms of patient satisfaction and short-term symptom reduction. The long-term outcome measures were the same in all 3 groups, including recurrences and care-seeking. The cost of the booklet group was considerably less than the 2 other groups.

	BACKGROUND AND METHODS: There are few data on the relative effectiveness and costs of treatments for low back pain. We randomly assigned 321 adults with low back pain that persisted for seven days after a primary care visit to the McKenzie method of physical therapy, chiropractic manipulation, or a minimal intervention (provision of an educational booklet). Patients with sciatica were excluded. Physical therapy or chiropractic manipulation was provided for one month (the number of visits was determined by the practitioner but was limited to a maximum of nine); patients were followed for a total of two years. The bothersomeness of symptoms was measured on an 11-point scale, and the level of dysfunction was measured on the 24-point Roland Disability Scale. RESULTS: After adjustment for base-line differences, the chiropractic group had less severe symptoms than the booklet group at four weeks (P=0.02), and there was a trend toward less severe symptoms in the physical therapy group (P=0.06). However, these differences were small and not significant after transformations of the data to adjust for their non-normal distribution. Differences in the extent of dysfunction among the groups were small and approached significance only at one year, with greater dysfunction in the booklet group than in the other two groups (P=0.05). For all outcomes, there were no significant differences between the physical-therapy and chiropractic groups and no significant differences among the groups in the numbers of days of reduced activity or missed work or in recurrences of back pain. About 75 percent of the subjects in the therapy groups rated their care as very good or excellent, as compared with about 30 percent of the subjects in the booklet group (P<0.001). Over a two-year period, the mean costs of care were \$437 for the physical-therapy group, \$429 for the chiropractic group, and \$153 for the booklet group. CONCLUSIONS: For patients with low back pain, the McKenzie method of physical therapy and chiropractic manipulation had simi
Abstract Author:	Cherkin DC, Deyo RA, Battie M, Street J, Barlow W.
Journal:	N Engl J Med
Biblio:	Oct 8;339(15):1021-9
Year Published:	1998
Category:	Lumbar: Trials
Abstract Title:	Low back pain: a comparison of two treatments
Summary:	Patients were treated by extension or flexion protocols, both produced significant improvements in patient outcomes, with no difference between the 2 groups.
Abstract Author:	Buswell J
Journal:	NZ J of Physiotherapy
Biblio:	Aug 13-17
Year Published:	1982
Category:	Lumbar: Trials
Abstract Title:	Nonoperative Management of Herniated Nucleus Pulposus: Patient Selection by the Extension Sign-Long term Follow-up.
Summary:	Follow-up study of 33/73 patients with acute disc herniation treated conservatively. Those unable to gain extension by 5 days were treated surgically. Ability to regain extension was a better predictor of outcome than a variety of other clinical and neurological signs and symptoms.
Abstract Author:	Alexander AH, Jones AM, Rosenbaum Jr D H:
Journal:	Orthopaedic Review
	21;181-188
Biblio:	
Biblio: Year Published:	
Year Published:	
Year Published:	1992

Abstract Content:	The relative effectiveness of an extension program and a manipulation program with flexion and extension was examined in patients with low back syndrome. Forty-nine patients with less than a 3-month history of low back pain were seen at physical therapy clinics in western Pennsylvania, southern Mississippi and eastern Missouri during a 6-month period. Twenty-seven of the 49 patients were classified a priori into a treatment-oriented category of extension/mobilization and were than randomly assigned to participate in an extension program or a program of manipulation followed by hand-heel rocks (flexion and extension). Two patients dropped out of the study (1 patient returned to work, and the other patient was unable to comply with the treatment schedule), and 1 patient was eliminated from the study because of magnified illness behavior. The remaining 24 patients (15 male, 9 female; mean age = 44 years, SD = 15, range = 14-73) were assigned randomly and equally to the two groups. Eight physical therapists participated in the study. A randomized clinical trial comparing the two regimens was conducted for a 1-week period. Outcome was assessed using an Oswestry Low Back Pain Questionnaire initially (before treatment) and at 3 and 5 days posttreatment, and data were analyzed using a 2x3 (group x time) analysis of variance. A significant interaction of the group and time variables was demonstrated, indicating that the rate of positive response was greater in the manipulation/hand-heel rock group than in the extension group. In this category of patients with low back pain, the use of manipulation as an adjunct to an ongoing exercise program appears to be warranted.
Abstract Author:	Erhard RE, Delitto A, Cibulka MT
	Phys Ther
	74:(12)1093-1100
Year Published:	
	Lumbar: Trials
	Evidence for use of an extension-mobilization category in acute low back syndrome: a prescriptive validation
Abstract Title:	pilot study.
Summary:	Delitto suggests that treatment strategy based on signs and symptoms and response to movement may result in a more effective outcome compared with an unmatched non-specific treatment. Patients classified as extension-responders did better with an extension, than a flexion oriented programme.
Abstract Content:	BACKGROUND AND PURPOSE. The prescriptive validity of a treatment-oriented extension-mobilization category for patients with low back syndrome (LBS) was examined. SUBJECTS. Of a total of 39 patients with LBS referred for physical therapy, 24 patients (14 male, 10 female), aged 14 to 50 years (means = 31.3, SD = 11.6), were classified as having signs and symptoms indicating treatment with an extension-mobilization approach. The remaining subjects were dismissed from the study. Patients in the extension-mobilization category were randomly assigned to either an experimental (treatment) group (n = 14) or a comparison group (n = 10). METHODS. The experimental and comparison group subjects were treated with either mobilization and extension (a treatment matched to the category) or a flexion exercise regimen (an unmatched treatment). Outcome was assessed with a modified Oswestry Low Back Pain Questionnaire administered initially and at 3 and 5 days after initiation of treatment. Data were analyzed with a 2 x 3 (treatment group x treatment period) analysis of variance. RESULTS. The subjects' rate of improvement, as indicated by the Oswestry questionnaire scores, was dependent on the treatment group to which they were assigned. Subjects treated with extension and mobilization positively responded at a faster rate than did those treated with a flexion-oriented program. CONCLUSION AND DISCUSSION. This study illustrates that a priori classification of selected patients with LBS into a treatment category of extension and mobilization and subsequently treating the patients accordingly with specified interventions can be an effective approach to conservative management of selected patients.
Abstract Author:	Delitto A, Cibulka MT, Erhard RE, Bowling RW, Tenhula JA
Journal:	Phys Ther
Biblio:	Apr;73(4):216-22
Year Published:	1993
Category:	Lumbar: Trials
Abstract Title:	The effects of Maitland and McKenzie techniques in the musculoskeletal management of low back pain: A pilot study
Summary:	12 acute back pain patients randomly assigned to one of 2 treatment groups. At 3 weeks there were significant differences between the groups in pain, but not in mobility or disability. The McKenzie group improved by 18 units on a pain visual analogue scale, the Maitland group deteriorated by 16 units.

Abstract Author:	Kay MA, Helewa A
Journal:	Physical Therapy
Biblio:	74.5.S59
Year Published:	1994
Category:	Lumbar: Trials
Abstract Title:	McKenzie method and functional training in back pain rehabilitation. A brief review including results from a four-week rehabilitation programme.
Summary:	Uncontrolled study of 40 patients treated with McKenzie and functional rehabilitation; 14 pain free afterwards. 36 /40 derangements; 18 / 36 demonstrated centralisation.
Abstract Author:	Gard G, Gille KA, Degerfeldt L
Journal:	Physical Therapy Reviews
Biblio:	5; 107-115
Year Published:	2000
Category:	Lumbar: Trials
Abstract Title:	Psychophysiological and Neurochemical Substrates of Chronic Low Back Pain and Modulation by Treatment
Summary:	Chronic low back pain patients had decreased pain scale readings, increased lumbar range of motion, reduced EMG activity, and elevated levels of substance P following a 6 week treatment programme of McKenzie extension procedures.
Abstract Author:	Adams N.
Journal:	Physiotherapy
Biblio:	79:2;86
Year Published:	1996
Category:	Lumbar: Trials
Abstract Title:	Relative therapeutic efficacy of the Williams and McKenzie protocols in back pain management.
Summary:	A treatment trial of McKenzie versus Williams protocol favours the McKenzie approach in patients with a diagnosis of disc prolapse.
Abstract Author:	Nwuga G, Nwuga V
Journal:	Physiotherapy Practice
Biblio:	1:99-105
Year Published:	1985
Category:	Lumbar: Trials
Abstract Title:	Efficacy of flexion and extension treatments incorporating braces for low-back pain patients with retrodisplacement, spondylolisthesis, or normal sagittal translation
Summary:	Improvement in the extension group was significantly greater, regardless of type of radiographic abnormality, than flexion or control group.

Abstract Content:	Radiographic instability seemingly enjoys the status of a well-defined clinical syndrome. The concept is widely used, and specific treatments, usually spinal fusion, are routinely performed based on the diagnosis. The minimum standards necessary to establish radiographic instability as a legitimate clinical syndrome have not been established, however. The primary purpose of this study was to determine if treatment involving bracing, exercise, and education controlling either felxion or extension postures, would result in a distinctive pattern of favorable or unfavorable results, depending on the type of radiographic instability (retrodisplacement or spondylolisthesis). Fifty-six patients meeting strict study inclusion and radiographic evaluation criteria were assigned to a bracing treatment (flexion, extension, placebo-control) according to a randomized scheme, designed to ensure equal representation of translation categories (retro, normal, spondy) across treatment groups, and assessed at admission and 1-month follow-up. The sample was relatively evenly divided between men (46%) and women (54%), and by age. Translation classification was related to both gender and age, with men more likely classified as retro and women more likely spondy, and patients in their 20s having lower incidence of spondy and higher incidence of normal translation. Translation classification was not related to selected indices of low-back pain history. Brace treatments were not shown to reduce patient range of motion or lessen trunk strength. A significant treatment by time interaction for the modified pain interference (VAS) scale indicated improvement for patients in extension compared with patients in flexion and control-placebo treatments. In conjunction with no significant three-way interaction between treatment, translation classification, and time, it was hypothesized that radiographic instability might more appropriately be considered a corroborative sign of advanced discogenic problems. Improvement in extension treatment, rega
Abstract Author:	Spratt KF, Weinstein JN, Lehmann TR, Woody J, Sayre H
Journal:	Spine
Biblio:	18(13):1839-1849
Year Published:	1993
Category:	Lumbar: Trials
Abstract Title:	The effects of spinal flexion and extension exercises and their associated postures in patients with acute low back pain
Summary:	In the first week both exercise groups improved more than the control group. Subsequent to that there was no significant difference between the groups. Recovery of all groups was generally rapid, but recurrence was frequent.
Abstract Content:	A prospective randomized clinical trial compared the effects of flexion and extension back exercises and postures among soldiers with acute low back pain. One-hundred-forty-nine subjects with acute low back pain received flexion exercise and posture (n = 57), extension exercise and posture (n = 62), or no exercise or posture (n = 30) for 8 weeks. Outcomes were assessed 1, 2, 4, and 8 weeks after treatment onset. A questionnaire assessed the recurrence of low back pain 6 - 12 months after study entry. Flexion and extension exercise groups did not differ in any outcome over 8 weeks. After 1 week, both exercise groups had reduced disability scores, a higher proportion returning to work, and fewer subjects with a positive straigh-leg raise compared with the control group. There was no difference among groups regarding recurrence of low back pain after 6-12 months. There was no difference for any outcomes between the flexion or extension exercise groups. However, either exercise was slightly more effective than no exercise when patients with acute low back pain were treated.
Abstract Author:	Dettori JR, Bullock SH, Sutlive TG, Franklin RJ, Patience T
Journal:	Spine
Biblio:	20(21):2303-2312
Year Published:	1995
Category:	Lumbar: Trials
Abstract Title:	Conservative treatment of acute low back pain. A 5-year follow-up study of two methods of treatment
Summary:	Difference between 2 treatments at 5 years was much less, however McKenzie group had significantly less recurrences of pain and episodes of sick leave.

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Abstract Content:	Prospective, randomized trail. To compare the McKnezie method of treatment of acute low back pain with patient education in "mini back school" after 5 years; the 1-year results have already been published. The 5-year results after the initial treatment are presented in this study of 89 subjects. Included in the study were 22 women and 67 men with an average age of 39.6 +/- 10.5 years (range 22-66 years). Sixty-two subjects (70%) were interviewed by telephone, while the remaining 27 subjects (30%) were examined and interviewed personally. Information of sick leave was obtained from the Swedish Natinal Health Insurance Office. The results showed that subjects who received treatment according to the McKenzie principle 5 years earlier had significantly less recurrences of pain and fewer were on sick leave compared with the subjects who received education in mini back school. The other variables did not show any statistically significant differences. The difference between the two treatments was much less after 5 years compared with the 1-year results.
Abstract Author:	Stankovic R, Johnell O
Journal:	Spine
Biblio:	20(4):469-472
Year Published:	1995
Category:	Lumbar: Trials
Abstract Title:	The reduction of chronic nonspecific low back pain through the control of early morning lumbar flexion. A randomized controlled trial.
Summary:	Education in the control of early morning flexion produced significant reductions in pain intensity, days in pain, disability and medication use. High drop-out rates show the difficulty of getting people to make such behavioural changes.
Abstract Content:	STUDY DESIGN: Eighteen-month, randomized controlled trial with partial crossover. OBJECTIVES: To test the hypothesis that the control of lumbar flexion in the early morning will significantly reduce chronic, nonspecific low back pain. SUMMARY OF BACKGROUND DATA: Previous studies have indicated an increased risk of low back pain with bending forward in the early morning, primarily because of increased fluid content in the intervertebral discs at that time. METHODS: After 6 months of recording baseline data, 85 subjects with persistent or recurring low back pain were randomly assigned to treatment and control groups. The treatment group received instruction in the control of early morning lumbar flexion. The control group received a sham treatment of six exercises shown to be ineffective in reducing low back pain. Six months later, the control group received the experimental treatment, Diaries were used to record daily levels of pain intensity, disability, impairment, and medication usage. RESULTS: Significant reductions in pain intensity (P < 0.01) were recorded for the treatment group, but not for the control group (point estimate, 33%; 95% confidence interval, 11-55%). After receiving the experimental treatment, the control group responded with similar reductions (P < 0.05). Significant reductions also were observed in total days in pain, disability, impairment, and medication usage. CONCLUSIONS: Controlling lumbar flexion in the early morning is a form of self-care with potential for reducing pain and costs associated with chronic, nonspecific low back pain.
Abstract Author:	Snook SH, Webster BS, McGorry RW, Fogleman MT, McCann KB
Journal:	Spine
Biblio:	Dec 1;23(23):2601-7
Year Published:	1998
Category:	Lumbar: Trials
Abstract Title:	Effects of spinal flexion and extension exercises on low-back pain and spinal mobility in chronic mechanical low-back pain patients.
Summary:	Flexion and Extension exercises in a chronic low back pain population decreased pain levels and increased sagittal movement with no obvious preference to direction.

Abstract Content:	It has been estimated that one fourth to one half of all patients treated in physical therapy clinics suffer from low-back pain. The purpose of this study was to compare the effects of spinal flexion (Group I) and extension (Group II) exercises on low-back pain severity and thoracolumbar spinal mobility in chronic mechanical low-back pain patients. Both groups had significantly less low-back pain after treatment (P less than .10). There was no significant difference, however, between the spinal flexion and extension exercises in reduction of low-back pain severity. The results indicated a significant difference between the groups in increasing the sagittal mobility (P less than .10). The results did not indicate any significant difference between and within groups in increasing the coronal and transverse mobility of the thoracolumbar spine. Either the spinal flexion or extension exercises could be used to reduce chronic mechanical low-back pain severity, but the flexion exercises had an advantage in increasing the sagittal mobility within a short period of time.
Abstract Author:	Elnaggar IM, Nordin M, Sheikhzadeh A, Parnianpour M, Kahanovitz N.
Journal:	Spine
Biblio:	Aug;16(8):967-72
Year Published:	1991
Category:	Lumbar: Trials
Abstract Title:	A randomized, placebo-controlled trial of exercise therapy in patients with acute low back pain.
Summary:	No differences in outcomes were found between groups receiving flexion exercises and advice, placebo ultrasound, or usual GP care.
Abstract Content:	To assess the efficacy of exercise therapy for acute low back pain, a randomized, placebo-controlled trial was performed in 40 Dutch general practices. Patients received either exercise instruction with advice for daily life by a physiotherapist; placebo ultrasound therapy by a physiotherapist; or usual care by the general practitioner. All patients received analgesic agents and information on low back pain before randomization. Four hundred seventy-three patients were included. No differences in number of recurrences, functional health status, or medical care usage could be found among the three groups. In the exercise group, duration of recurrences was shorter and patients were less tired during the first 3 months than in the usual care group, but no differences were found between the exercise and placebo groups. It was concluded that exercise therapy for patients with acute low back pain has no advantage over usual care from the general practitioner.
Abstract Author:	Faas A, Chavannes AW, van Eijk JT, Gubbels JW.
Journal:	Spine
Biblio:	Sep 1;18(11):1388-95
Year Published:	1993
Category:	Lumbar: Trials
Abstract Title:	Nonoperative treatment of herniated lumbar intervertebral disc with radiculopathy. An outcome study.
Summary:	64 patients with herniated nucleus pulposus, including those with extrusions, were treated conservatively with a regime that included extension exercises, injections, lumbar stabilisation exercises, and a general exercise programme. The majority of patients had good or excellent outcomes, with failure to respond associated with stenosis.

Abstract Content:	The functional outcome of patients with lumbar herniated nucleus pulposus without significant stenosis was analyzed in a retrospective cohort study. Inclusion criteria were as follows: 1) a chief complaint of leg pain, primarily; 2) a positive straight leg raising (SLR) at less than 60 degrees reproducing the leg pain; 3) a computed tomography (CT) scan demonstrating a herniated nucleus pulposus without significant stenosis by a radiologist's reading, which was also confirmed by the authors; 4) a positive electromyogram (EMG) demonstrating evidence of radiculopathy; and 5) response to a follow-up questionnaire. All patients had undergone an aggressive physical rehabilitation program consisting of back school and stabilization exercise training. Of a total of 347 consecutively identified patients, 64 patients with an average follow-up time of 31.1 months met the inclusion criteria and constituted the study population. They were sent questionnaires that inquired about activity level, pain level, work status, and further medical care. The patients with neurologic loss, extruded discs, and those seeking a second opinion regarding surgery were identified and subgrouped. Results for the total group included 90% good or excellent outcome with a 92% return to work rate. For the subgroups with extruded discs and second opinions, 87% and 83% had good or excellent outcomes, respectively, all (100%) of whom returned to work. Sick leave time for these subgroups was 2.9 months (+/-1.4 months) and 3.4 months (+/- 1.7 months), respectively. These results compared favorably with previously published surgical studies. Four of six patients who required surgery were found to have stenosis at operation.
Abstract Author:	Saal JA, Saal JS.
Journal:	
Biblio:	Apr;14(4):431-7
Year Published:	1989
Category:	Lumbar: Trials
Abstract Title:	Conservative treatment of acute low-back pain. A prospective randomized trial: McKenzie method of treatment versus patient education in "mini back school".
Summary:	100 acute back patients randomised to McKenzie or back school; significantly better outcomes in McKenzie group in pain, function, sick leave, recurrences, and further health care.
Abstract Content:	The purpose of this study was to compare the effect of the McKenzie method of treatment with patient education in "mini back school" in patients with acute low-back pain. The study included 100 patients, 23 women and 77 men with the average age 34.4 +/- 9.7 (range 18-61) years. The study included only those who were employed. The patients were randomly allocated to two groups, one group receiving treatment according to the McKenzie technique and the other group receiving education in a "mini back school." Assessments were made after 3 weeks by an independent observer and after 52 weeks they were seen by one of the authors. Patients were assessed on seven variables: return to work, sick-leave during the initial episode, sick-leave during recurrences, recurrences of pain during the year of observation, patients' ability to self-help, pain and movement. Although the effect of attention placebo cannot be ruled out, the results demonstrated that the McKenzie method of treatment for patients with acute low-back pain was superior for five out of seven variables studied. The only variables that did not show any statistically significant differences were sick-leave during recurring episodes of pain and patients' ability to self-help.
Abstract Author:	Stankovic R, Johnell O.
Journal:	Spine
Biblio:	Feb;15(2):120-3
Year Published:	1990
Category:	Lumbar: Trials
Abstract Title:	The effect of McKenzie therapy as compared with that of intensive strengthening training for the treatment of patients with subacute or chronic low back pain: A randomized controlled trial.
Summary:	260 patients with chronic back pain followed up at 2 and 8 months after 8 week treatment period. With intention to treat analysis both groups improved modestly, McKenzie group favoured at 2 months. Outcomes were better and differences favouring McKenzie group were more significant in those who actually completed treatment.

STUDY DESIGN: A randomized controlled comparative trial with an 8-month follow-up period was conducted. OBJECTIVE: To compare the effect of the McKenzie treatment method with that of intensive dynamic strengthening training in patients with subacute or chronic low back pain. SUMMARY OF BACKGROUND DATA: Randomized studies indicate that the efficacy of the McKenzie method in the treatment of patients with acute or subacute low back pain is debatable. Currently, no randomized studies examining the effects of this method for patients with chronic low back pain have been published. METHODS: For this study, 260 consecutive patients with low back pain and at least 8 weeks duration of symptoms (85% of the patients had more than 3 months duration of symptoms) were randomized into two groups: Group A was treated with the McKenzie method (n = 132), and Group B was treated with intensive dynamic strengthening training (n = 128). The treatment period for both groups was 8 weeks at an outpatient clinic, followed by 2 months of self-training at home. Treatment results were recorded at the end of the treatment period at the clinic, then 2 and 8 months after. In both groups, 30% of the patients were lost to Abstract Content: follow-up evaluation. An intention-to-treat analysis of the main effect variables, disability, and pain was performed for all the patients included in the study. A supplementary analysis of the 180 patients who completed the full treatment program also was undertaken. RESULTS: Intention-to-treat analysis showed a tendency toward a difference in reduction of disability in favor of the McKenzie group at the 2-month followup assessment (P = 0.04), but no differences at the end of treatment and at the 8-month follow-up evaluation. No differences in reduction of pain were observed at any time between the groups. The supplementary analysis of the patients who had completed the full intervention showed a tendency toward a difference in favor of the McKenzie method in reduction of pain at the end of treatment (P = 0.02). This difference reached statistical significance at the 2-month follow-up assessment (P = 0.01), but no difference was found after 8 months. The supplementary analysis showed no differences between the groups with regard to reduction of disability. CONCLUSION: The McKenzie method and intensive dynamic strengthening training seem to be equally effective in the treatment of patients with subacute or chronic low back pain. **Abstract Author:** Petersen T, Kryger P, Ekdahl C, Olsen S, Jacobsen S. Journal: Spine Biblio: Aug 15;27(16):1702-9 Year Published: Lumbar: Trials Category: Can passive prone extensions of the back prevent back problems?: a randomized, controlled intervention Abstract Title: trial of 314 military conscripts. 314 male conscripts randomised into 2 groups: one group received theory session based on TYOB, disc model, tape to back, and instructed to do 15 EIL X 2 a day for period of military duty. 214 (68%) completed Summary follow-up at 12 months. 1-year prevalence LBP in experimental group 33%, compared to 51% in control. Numbers seeking medical help for LBP also significantly less (9% to 25%). In those who had reported LBP at baseline 1-year prevalence 45% to 80%. SUMMARY OF BACKGROUND DATA Back schools may be effective in treating back problems, but there is conflicting evidence of the effect on prevention.OBJECTIVES To investigate if passive prone extensions of the back can prevent back problems.STUDY DESIGN Prospective, randomized controlled intervention trial.METHODS In total, 314 male conscripts were randomized into two groups. After randomization, 65 conscripts dropped out for administrative reasons, leaving 249 conscripts to participate fully in the study. Data were collected through questionnaires at the start of military duty and after 10 months. All conscripts in the intervention group had one 40-minute theoretical lesson on back problems and ergonomics and had to perform passive prone extensions of the back daily during the rest of their military duty. The control group had no intervention. Outcome variables were as follows: 1) number of persons with self-reported back Abstract Content problems during the last 3 weeks; 2) number of persons with self-reported back problems during the last year; and 3) number of persons who reported having consulted the regiment medical physician with back problems during their military service.RESULTS In an intention-to-treat analysis, significantly fewer persons in the intervention group those in the control group reported back problems during the last year (33% 51%), and the number needed to prevent was 6. Significantly fewer persons in the intervention group those in the control group consulted the regiment infirmary (9% 25%), and the number needed to prevent was 6.CONCLUSION It may be possible to reduce the prevalence rate of back problems and the use of health care services during military service, at a low cost, using passive prone extensions of the back motivated by a back school approach, including the theory of the disc as a pain generator and ergonomic instructions. Abstract Author: Larsen K, Weidick F, Leboeuf-Yde C.

Journal:	Spine
Biblio:	Dec 15;27(24):2747-52
Year Published:	2002
Category:	Lumbar: Trials
I Anstract Little-1	Comparison of classification-based physical therapy with therapy based on clinical practice guidelines for patients with acute low back pain. A RCT.
Summary:	78 patients with acute back pain randomised to AHCPR guidelines or care based on classification by therapist. Patients in classification group had significantly better functional outcomes at 4 weeks, and less work loss in follow-up year.
Abstract Author:	Fritz JM, Delitto A, Erhard RE
Journal:	Spine
Biblio:	28:1363-1372
Year Published:	2003
Category:	Lumbar: Trials
Abstract Title:	Does it matter which exercise? A randomized control trial of exercises for low back pain.
Summary:	Following a mechanical evaluation all patients who demonstrated directional preference (DP) (230/312, 74%) were randomised to receive exercise matched to DP (1), exercise opposite to DP (2) or evidence-based management (3). Over 30% of groups 2 and 3 withdrew because of failure to improve or worsening, compared to none in group 1. Over 90% of group 1 rated themselves better or resolved at 2 weeks, compared to just over 20% (group 2) and just over 40% (group 3). There were further significant differences between the groups in back and leg pain, functional disability, depression and QTF category.
Abstract Author:	Long A, Donelson R, Fung T
Journal:	Spine
Biblio:	29:2593-2602
Year Published:	2004
Category:	Lumbar: Trials
Abstract Title:	Can a patient educational book change behavior and reduce pain in chronic back pain patients?
S	Long-term (18 month) uncontrolled cohort study of effect of TYOB on 48 of 62 chronic back pain volunteers. There were significant differences in reductions in pain and pain episodes and perceived benefit over time. Significant differences remained even with a worst-case model to account for those lost to follow-up. Compliance with exercise and posture advice was reported by about 80% long-term.
Abstract Author:	Udermann BE, Spratt KF, Donelson RG, Mayer J, Graves JE, Tillotson J
Journal:	Spine Journal
Biblio:	4.425-435
Year Published:	2004
Category:	Lumbar: Trials