However….

AJNR Am J Neuroradiol. 2015 Dec;36(12):2394-9. doi: 10.3174/ajnr.A4498. Epub 2015 Sep 10.

MRI Findings of Disc Degeneration are More Prevalent in Adults with Low Back Pain than in Asymptomatic Controls: A Systematic Review and Meta-Analysis.

Brinjikji W[1], Diehn FE[2], Jarvik JG[3], Carr CM[2], Kallmes DF[2], Murad MH[4], Luetmer PH[2].

Author information

Abstract

BACKGROUND AND PURPOSE: Imaging features of spine degeneration are common in symptomatic and asymptomatic individuals. We compared the prevalence of MR imaging features of lumbar spine degeneration in adults 50 years of age and younger with and without self-reported low back pain.

MATERIALS AND METHODS: We performed a meta-analysis of studies reporting the prevalence of degenerative lumbar spine MR imaging findings in asymptomatic and symptomatic adults 50 years of age or younger. Symptomatic individuals had axial low back pain with or without radicular symptoms. Two reviewers evaluated each article for the following outcomes: disc bulge, disc degeneration, disc extrusion, disc protrusion, annular fissures, Modic 1 changes, any Modic changes, central canal stenosis, spondylolisthesis, and spondylolysis. The meta-analysis was performed by using a random-effects model.

RESULTS: An initial search yielded 280 unique studies. Fourteen (5.0%) met the inclusion criteria (3097 individuals; 1193, 38.6%, asymptomatic; 1904, 61.4%, symptomatic). Imaging findings with a higher prevalence in symptomatic individuals 50 years of age or younger included disc bulge (OR, 7.54; 95% CI, 1.28-44.56; P = .03), spondylolysis (OR, 5.06; 95% CI, 1.65-15.53; P < .01), disc extrusion (OR, 4.38; 95% CI, 1.98-9.68; P < .01), Modic 1 changes (OR, 4.01; 95% CI, 1.10-14.55; P = .04), disc protrusion (OR, 2.65; 95% CI, 1.52-4.62; P < .01), and disc degeneration (OR, 2.24; 95% CI, 1.21-4.15, P = .01). Imaging findings not associated with low back pain included any Modic change (OR, 1.62; 95% CI, 0.48-5.41, P = .43), central canal stenosis (OR, 20.58; 95% CI, 0.05-798.77; P = .32), high-intensity zone (OR = 2.10; 95% CI, 0.73-6.02; P = .17), annular fissures (OR = 1.79; 95% CI, 0.97-3.31; P = .06), and spondylolisthesis (OR = 1.59; 95% CI, 0.78-3.24; P = .20).

CONCLUSIONS: Meta-analysis demonstrates that MR imaging evidence of disc bulge, degeneration, extrusion, protrusion, Modic 1 changes, and spondylolysis are more prevalent in adults 50 years of age or younger with back pain compared with asymptomatic individuals.

Spine (Phila Pa 1976). 2009 Nov 1;34(23):2545-50. doi: 10.1097/BRS.0b013e3181b32998.

Dynamic bulging of intervertebral discs in the degenerative lumbar spine.

Zou J[1], Yang H, Miyazaki M, Morishita Y, Wei F, McGovern S, Wang JC.

Author information

Abstract

STUDY DESIGN: The effect of postural change on degenerative lumbar discs was quantified using novel kinematic magnetic resonance imaging (kMRI).

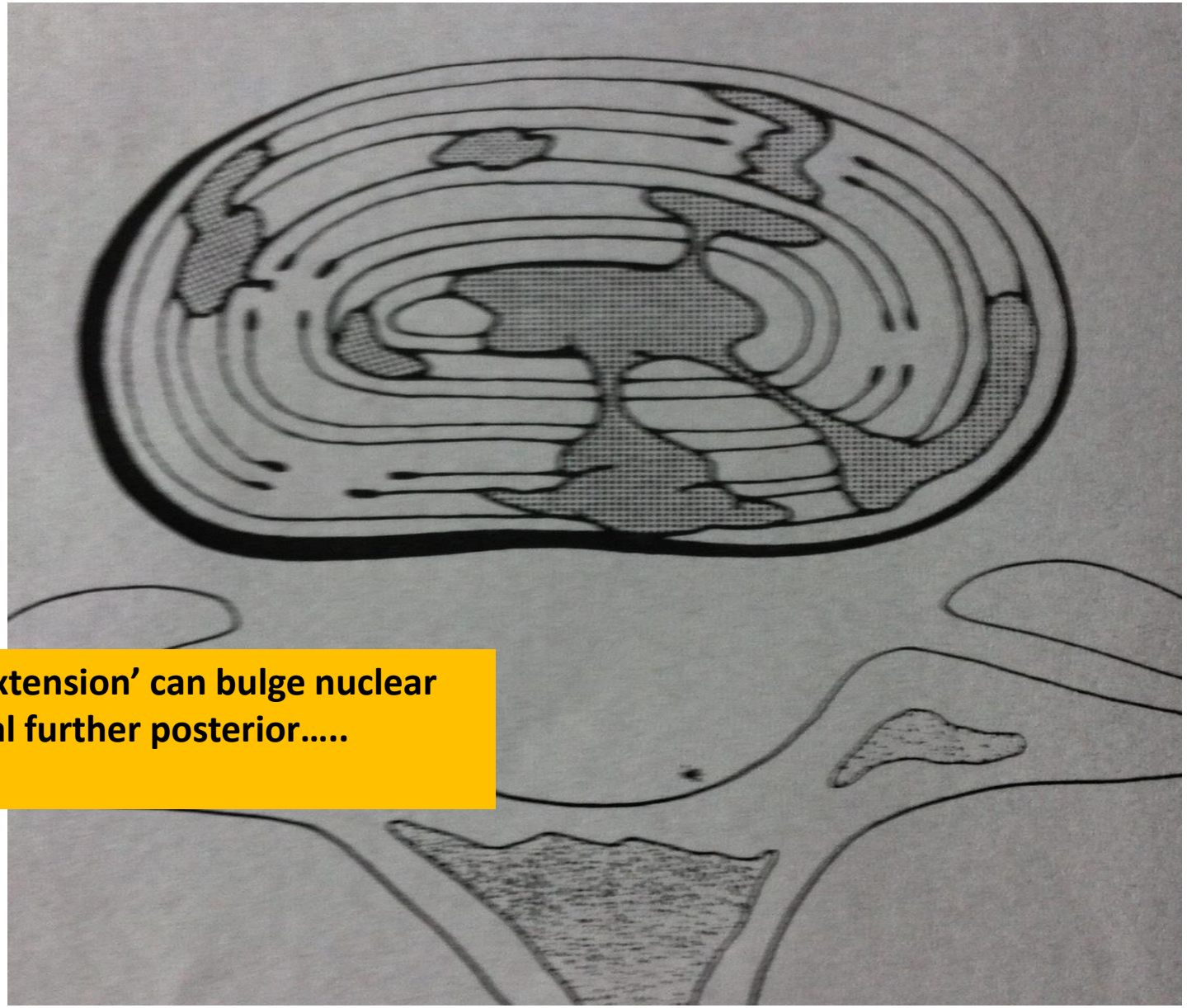
OBJECTIVE: The purpose is to describe the bulging of degenerative intervertebral lumbar discs in vivo subjected to different postural loads using a novel kMRI.

SUMMARY OF BACKGROUND DATA: Symptomatic lumbar disc degeneration is a leading cause of pain and disability throughout the world. Over 70% of US citizens will experience a debilitating episode of low back pain. Earlier reports of degenerative disc changes are cadaver studies or are performed with recumbent MRI that eliminates the functional effects of gravity and muscle power. Little data are available on the behavior of degenerative intervertebral discs in vivo under physiologic loads.

METHODS: A total of 513 patients obtained kMRI. Disc bulging beyond the intervertebral space was quantified during upright neutral, flexion, and extension imaging. The degree of intervertebral disc degeneration was correlated using the Pfirrmann Classification.

RESULTS: Moderately degenerated intervertebral discs (grade III and IV) demonstrated greater bulging than mildly degenerated discs (grade II). Severely degenerated discs (grade V) also showed a trend toward greater bulging, but this was not significant. Grade I discs at all levels moved posteriorly in flexion and anteriorly in extension when compared to neutral posture. However, mild to severe (grade II-V) degenerative discs behaved differently in response to postural loads. Extension resulted in significant posterior bulging, while flexion did not demonstrate obvious anterior derangement.

CONCLUSION: Disc bulging increases with the severity of disc degeneration. Grade I discs demonstrate the expected sagittal migration in response to postural load. However, more degenerative discs behave less predictably, and spine extension may result in significant posterior disc bulging. Degenerative changes in the intervertebral disc significantly affect the kinematic patterns under postural load in vivo. kMRI is a useful tool to quantify the kinematic behavior of degenerative intervertertebral discs.



Why ‘extension’ can bulge nuclear material further posterior…..

Schneider et al JMPT 2014

Another exploratory subgroup analysis compared the various clinical patterns of the two treatment groups, including frequency/duration of treatment, diagnostic imaging usage, and physical examination findings. The results of this analysis are displayed in Table 3. There was a significant difference between the two cohorts with respect to the number of patients in each group that required the maximum number of treatment sessions (8 visits); 70% in the Activator group compared to only 15% in the manual manipulation group. 78% of the Activator patients continued with additional chiropractic care after study termination whereas only 18% in the manual manipulation groups received additional chiropractic treatment. The mean number of visits at 4 weeks also was significantly different between the two cohorts, with the Activator group having a mean of 9.2 visits as compared with the manual manipulation group mean of 4.5 visits.

J Orthop Sports Phys Ther. 2010 May;40(5):256-64. doi: 10.2519/jospt.2010.3284.

The immediate reduction in low back pain intensity following lumbar joint mobilization and prone press-ups is associated with increased diffusion of water in the L5-S1 intervertebral disc.

Beattie PF[1], Arnot CF, Donley JW, Noda H, Bailey L.

Author information

Abstract

STUDY DESIGN: Single-group, prospective, repeated-measures design.

OBJECTIVES: To determine differences in the changes of diffusion of water in the L5-S1 intervertebral disc between subjects with nonspecific low back pain (LBP) who reported an immediate reduction in pain intensity of 2 or greater on an 11-point (0-10) numeric rating scale after a 10-minute session of lumbar joint mobilization, followed by prone press-up exercises, compared to those who did not report an immediate reduction in pain intensity of 2 or greater on the pain scale.

BACKGROUND: Combining lumbar joint mobilization and prone press-up exercises is a common intervention for patients with LBP; however, there is conflicting evidence regarding the effectiveness and efficacy of this approach. Increased knowledge of the physiologic effects of the combined use of these treatments, and the relationship to pain reports, can lead to refinement of their clinical application.

METHODS: Twenty adults, aged 22 to 54, participated in this study. All subjects reported LBP of at least 2 on an 11-point (0-10) verbally administered numeric rating scale at the time of enrollment in the study and were classified as being candidates for the combination of joint mobilization and prone press-ups. Subjects underwent T2- and diffusion-weighted lumbar magnetic resonance imaging scans before and immediately after receiving a 10-minute session of lumbar pressures in a posterior-to-anterior direction and prone press-up exercises. Subjects who reported a decrease in current pain intensity of 2 or greater immediately following treatment were classified as immediate responders, while the remainder were classified as not-immediate responders. The apparent diffusion coefficient, representing the diffusion of water in the nucleus pulposis, was calculated from the midsagittal diffusion-weighted images.

RESULTS: Following treatment, immediate responders (n = 10) had a mean increase in the apparent diffusion coefficient in the middle portion of the L5-S1 intervertebral disc of 4.2% compared to a mean decrease of 1.6% for the not-immediate responders (P<.005).

CONCLUSION: In a group of subjects with LBP, who were classified as being candidates for extension-based treatment, the report of an immediate reduction in pain intensity of 2/10 of greater after a treatment of posterior-to-anterior-directed pressures, followed by prone press-up exercises, was associated with an increase in diffusion of water in the nuclear region of the L5-S1 intervertebral disc. Subjects who did not report a pain reduction of at least 2/10 did not have a change in diffusion. J Orthop Sports Phys Ther 2010;40(5):256-264, Epub 12 March 2010. doi:10.2519/jospt.2010.3284.

Spine J. 2005 Jan-Feb;5(1):24-35.

Discographic, MRI and psychosocial determinants of low back pain disability and remission: a prospective study in subjects with benign persistent back pain.

Carragee EJ[1], Alamin TF, Miller JL, Carragee JM.
Author information

Distress **R**isk **A**ssessment **M**ethod

RESULTS:
Psychosocial variables strongly predicted both long- and short-term disability events, duration and health-care visits for LBP problems ($p<0.0001$-0.004). The likelihood of a sustained remission from the baseline persistent (subclinical) LBP appeared to be linked to occupation factors (leaving a heavy labor occupation; $p=0.0001$), neurophysiologic variables (chronic nonlumbar pain; $p=0.0002$) and psychometric profiles at baseline (DRAM and FABQ-PA; $p=0.003$-0.002). Of the structural findings measured only moderate or severe Modic changes of the vertebral end plate were weakly associated with an adverse outcome. A positive provocative discogram at baseline did not predict any future adverse event.

CONCLUSION:
The development of serious LBP disability in a cohort of subjects with both structural and psychosocial risk factors was strongly predicted by baseline psychosocial variables. Structural variables on both MRI and discography testing at baseline had only weak association with back pain episodes and no association with disability or future medical care.

COMPLEMENTARY AND ALTERNATIVE MEDICINE SERIES
Series Editors: David M. Eisenberg, MD, and Ted J. Kaptchuk, OMD

A Review of the Evidence for the Effectiveness, Safety, and Cost of Acupuncture, Massage Therapy, and Spinal Manipulation for Back Pain

Daniel C. Cherkin, PhD; Karen J. Sherman, PhD; Richard A. Deyo, MD, MPH; and Paul G. Shekelle, MD, PhD

Background: Few treatments for back pain are supported by strong scientific evidence. Conventional treatments, although widely used, have had limited success. Dissatisfied patients have, therefore, turned to complementary and alternative medical therapies and providers for care for back pain.

Purpose: To provide a rigorous and balanced summary of the best available evidence about the effectiveness, safety, and costs of the most popular complementary and alternative medical therapies used to treat back pain.

Data Sources: MEDLINE, EMBASE, and the Cochrane Controlled Trials Register.

Study Selection: Systematic reviews of randomized, controlled trials (RCTs) that were published since 1995 and that evaluated acupuncture, massage therapy, or spinal manipulation for nonspecific back pain and RCTs published since the reviews were conducted.

Data Extraction: Two authors independently extracted data from the reviews (including number of RCTs, type of back pain, quality assessment, and conclusions) and original articles (including type of pain, comparison treatments, sample size, outcomes, follow-up intervals, loss to follow-up, and authors' conclusions).

Data Synthesis: Because the quality of the 20 RCTs that evaluated acupuncture was generally poor, the effectiveness of acupuncture for treating acute or chronic back pain is unclear. The three RCTs that evaluated massage reported that this therapy is effective for subacute and chronic back pain. A meta-regression analysis of the results of 26 RCTs evaluating spinal manipulation for acute and chronic back pain reported that spinal manipulation was superior to sham therapies and therapies judged to have no evidence of a benefit but was not superior to effective conventional treatments.

Conclusions: Initial studies have found massage to be effective for persistent back pain. Spinal manipulation has small clinical benefits that are equivalent to those of other commonly used therapies. The effectiveness of acupuncture remains unclear. All of these treatments seem to be relatively safe. Preliminary evidence suggests that massage, but not acupuncture or spinal manipulation, may reduce the costs of care after an initial course of therapy.

Ann Intern Med. 2003;138:898-906. www.annals.org
For author affiliations, see end of text.
See related article on pp 871-881.

Therapeutics

Chiropractic manipulation and McKenzie physiotherapy were not effective for low back pain

ACP J Club. 1999 Mar-April;130:42. doi:10.7326/ACPJC-1999-130-2-042

Source Citation

Cherkin DC, Deyo RA, Battié M, Street J, Barlow W. **A comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain.** N Engl J Med. 1998 Oct 8;339:1021-9.

Abstract

Question

In patients with low back pain (LBP), what are the relative effectiveness and cost of physical therapy, chiropractic manipulation, and education?

Design

Randomized controlled trial with 2-year follow-up.

Setting

2 primary care clinics in Seattle, Washington, USA.

Patients

321 patients (mean age 41 y, 52% men) with LBP who were between 20 and 64 years of age and had sought care from their primary physician. Exclusion criteria were minimal pain or dysfunction within 7 days of seeing the physician, history of back surgery, sciatica, osteoporosis, vertebral fracture or dislocation, or spondylolisthesis; concurrent illness; steroid therapy; pregnancy; involvement in claims or litigation; and current physical therapy or chiropractic or osteopathic treatment. Follow-up was between 89% and 96%.

Intervention

122 patients were allocated to chiropractic manipulation from 4 experienced chiropractors; manipulation included stretching and strengthening but not extension exercises. 133 patients were allocated to treatment by McKenzie Institute faculty-trained physiotherapists, were taught exercises, and received McKenzie's *Treat Your Own Back* book and a lumbar roll. Patients in both

BMC Med. 2010 Jan 26;8:10. doi: 10.1186/1741-7015-8-10.

The effectiveness of the McKenzie method in addition to first-line care for acute low back pain: a randomized controlled trial.

Machado LA[1], Maher CG, Herbert RD, Clare H, McAuley JH.

Author information

Abstract

BACKGROUND: Low back pain is a highly prevalent and disabling condition worldwide. Clinical guidelines for the management of patients with acute low back pain recommend first-line treatment consisting of advice, reassurance and simple analgesics. Exercise is also commonly prescribed to these patients. The primary aim of this study was to evaluate the short-term effect of adding the McKenzie method to the first-line care of patients with acute low back pain.

METHODS: A multi-centre randomized controlled trial with a 3-month follow-up was conducted between September 2005 and June 2008. Patients seeking care for acute non-specific low back pain from primary care medical practices were screened. Eligible participants were assigned to receive a treatment programme based on the McKenzie method and first-line care (advice, reassurance and time-contingent acetaminophen) or first-line care alone, for 3 weeks. Primary outcome measures included pain (0-10 Numeric Rating Scale) over the first seven days, pain at 1 week, pain at 3 weeks and global perceived effect (-5 to 5 scale) at 3 weeks. Treatment effects were estimated using linear mixed models.

RESULTS: One hundred and forty-eight participants were randomized into study groups, of whom 138 (93%) completed the last follow-up. The addition of the McKenzie method to first-line care produced statistically significant but small reductions in pain when compared to first-line care alone: mean of -0.4 points (95% confidence interval, -0.8 to -0.1) at 1 week, -0.7 points (95% confidence interval, -1.2 to -0.1) at 3 weeks, and -0.3 points (95% confidence interval, -0.5 to -0.0) over the first 7 days. Patients receiving the McKenzie method did not show additional effects on global perceived effect, disability, function or on the risk of persistent symptoms. These patients sought less additional health care than those receiving only first-line care (P = 0.002).

CONCLUSIONS: When added to the currently recommended first-line care of acute low back pain, a treatment programme based on the McKenzie method does not produce appreciable additional short-term improvements in pain, disability, function or global perceived effect. However, the McKenzie method seems to reduce health utilization although it does not reduce patient's risk of developing persistent symptoms.

The pelvis can be stabilized either "force closure" or "form closure"[4]. Snijders et al. coined the term form closure to describe how the joint's shape contributes to stability, whereas "force closure" refers to other forces acting across the joint to create stability[5]. According to theoretical modeling of force closure, the anterior attachment of the transverse and internal oblique abdominal muscles to the iliac crest places the muscle ideally to act on the ilium

From Snijers, Vleeming & Lee

Active recruitment alteration with a ‘stabilizing belt’

Abstract

Go to:

[Purpose] This study investigated the effects of a pelvic belt on the electromyography (EMG) activity of the abdominal muscles during a single-leg hold in the hook-lying position on a round foam roll. [Subjects] Seventeen healthy female volunteers were recruited for this study. [Methods] The participants performed single-leg-hold exercises on a round foam roll with and without a pelvic belt. Surface EMG was recorded from the rectus abdominis (RA), internal oblique (IO), and external oblique (EO) bilaterally. [Results] The EMG activity of the bilateral RA, EO, and IO was significantly lower when the pelvic belt applied. [Conclusions] Our finding that the bilateral EO, IO, and RA muscles were less active with a pelvic belt during trunk-stabilizing exercises on an unstable surface suggests that the pelvic belt provided “form closure”.

Effects of external pelvic compression on form closure, force closure, and neuromotor control of the lumbopelvic spine – A systematic review

Ashokan Arumugam, Stephan Milosavljevic, Stephanie Woodley, Gisela Sole

Received 8 August 2011; received in revised form 27 January 2012; accepted 31 January 2012. published online 05 March 2012.

Abstract

Optimal lumbopelvic stability is a function of form closure (joint anatomy), force closure (additional compressive forces acting across the joints) and neuromotor control. Impairment of any of these mechanisms can result in pain, instability, altered lumbopelvic kinematics, and changes in muscle strength and motor control. External pelvic compression (EPC) has been hypothesised to have an effect on force closure and neuromotor control. However, the specific application parameters (type, location and force) and hypothesized effects of EPC are unclear. Thus, a systematic review was conducted to summarize the *in vivo* and *in vitro* effects of EPC. Eighteen articles met the eligibility criteria, with quality ranging from 33% to 72% based on a modified Downs and Black index. A modified van Tulder's rating system was used to ascertain the level of evidence synthesised from this review. There is moderate evidence to support the role of EPC in decreasing laxity of the sacroiliac joint, changing lumbopelvic kinematics, altering selective recruitment of stabilizing musculature, and reducing pain. There is limited evidence for effects of EPC on decreasing sacral mobility, and affecting strength of muscles surrounding the SIJ, factors which require further investigation.

Upper vs. Lower pelvis compression

J Phys Ther Sci. 2014 Jul;26(7):1023-4. doi: 10.1589/jpts.26.1023. Epub 2014 Jul 30.

Effects of Pelvic Belt on Hip Extensor Muscle EMG Activity during Prone Hip Extension in Females with Chronic Low Back Pain.

Oh JS[1].

⊕ Author information

Abstract

[Purpose] This study assessed the effects of a pelvic belt (PB) on the electromyography (EMG) activity of the elector spinae (ES), gluteus maximus (GM), and biceps femoris (BF) in females with chronic low back pain (CLBP) during prone hip extension (PHE). [Subjects] Twenty female with CLBP were recruited. Surface EMG data were collected from the ES, GM, and BF muscles during a PHE task. [Results] The EMG activity in the ES bilaterally, and the right GM decreased significantly when a PB was applied compared with when a PB was not applied. [Conclusion] This suggests that a PB is effective for altering the activation pattern of the hip extensor muscles in females with CLBP during PHE.

Man Ther. 2014 Oct;19(5):467-71. doi: 10.1016/j.math.2014.04.016. Epub 2014 May 14.

Effects of external pelvic compression on trunk and hip muscle EMG activity during prone hip extension in females with chronic low back pain.

Kim JW[1], Kwon OY[2], Kim TH[3], An DH[4], Oh JS[5].

⊕ Author information

Abstract

Many studies have reported higher trunk and hip muscle activity in patients with chronic low back pain (CLBP). Increased tr and hip muscle activity could contribute to pain. Previous studies have shown that external pelvic compression (EPC) decreased back and hip muscle activity during physical tasks. In this study, we assessed the effects of EPC on the electromyography (EMG) activity of the latissimus dorsi (LD), elector spinae (ES), gluteus maximus (GM), and biceps femo (BF) in a CLBP group and a healthy group during prone hip extension (PHE). Forty female volunteers (20 non-specific CLBP 20 healthy) were recruited. Surface EMG data were collected from the LD, ES, GM, and BF muscles during a PHE task. Normalized EMG values were analyzed by separate repeated-measures analysis of variance (ANOVA) for each muscle. The normalized EMG activity in the left LD, bilateral ES, and right GM was significantly higher in the CLBP group than in the healthy group during PHE. In the CLBP group, the normalized EMG activity in the left LD, bilateral ES, and right GM was significantly lower with EPC than without ($p < 0.05$). This suggests that the application of EPC decreased trunk and hip extensor EMG activity in the CLBP group during PHE.

J Electromyogr Kinesiol. 2015 Apr;25(2):387-91. doi: 10.1016/j.jelekin.2014.12.005. Epub 2014 Dec 26.

Effects of augmented trunk stabilization with external compression support on shoulder and scapular muscle activity and maximum strength during isometric shoulder abduction.

Jang HJ[1], Kim SY[1], Oh DW[2].

Author information

Abstract

The aim of the present study was to investigate the effects of augmented trunk stabilization with external compression suppor (ECS) on the electromyography (EMG) activity of shoulder and scapular muscles and shoulder abductor strength during isometric shoulder abduction. Twenty-six women volunteered for the study. Surface EMG was used to monitor the activity of the upper trapezius (UT), lower trapezius (LT), serratus anterior (SA), and middle deltoid (MD), and shoulder abductor strength was measured using a dynamometer during three experimental conditions: (1) no external support (condition-1), (2) pelvic support (condition-2), and (3) pelvic and thoracic supports (condition-3) in an active therapeutic movement device. EMG activities were significantly lower for UT and higher for MD during condition 3 than during condition 1 ($p < 0.05$). The MD/UT ratio was significantly higher during condition 3 than during conditions 1 and 2, and higher during condition 2 than during condition 1 ($p < 0.05$). Shoulder abductor strength was significantly higher during condition 3 than during condition 1 ($p < 0.05$). These findings suggest that augmented trunk stabilization with the ECS may be advantageous with regard to reducing the compensatory muscle effort of the UT during isometric shoulder abduction and increasing shoulder abductor strength.

J Orthop Sports Phys Ther. 2016 Jan 26:1-31. [Epub ahead of print]

The Effectiveness of Mechanical Traction Among Subgroups of Patients With Low Back and Leg Pain: A Randomized Trial.

Thackeray A[1,2], Fritz JM[1], Childs JD[1], Brennan GP[1].

⊕ Author information

Abstract

Study Design Randomized clinical trial. Background The recommended initial management strategy for these patients with low back pain and signs of nerve root compression is conservative treatment but there is little evidence to guide the most appropriate management strategy. Preliminary research suggests a treatment protocol of mechanical traction and extension-oriented exercises may be effective management, particularly in a specific sub-group of patients. Objective To examine the effectiveness of mechanical traction in patients with lumbar nerve root compression and within a pre-defined sub-group. Methods 120 patients with low back pain with nerve root compression were recruited from physical therapy clinics. Using pre-defined sub-grouping criteria, patients were stratified at baseline and randomized to receive an extension-oriented treatment approach (EOTA) with or without the addition of mechanical traction. During a 6-week period, patients received up to 12 treatment visits. Primary outcomes of pain and disability were collected at 6 weeks, 6 months and 1 year by assessors blinded to group allocation. Outcomes were examined using linear mixed model analyses examining change over time by treatment and the interaction between treatment and sub-grouping status. Results The mean age of participants was 41.1 (SD 11.3) years, median duration of symptoms was 62 days, and 57% were male. No significant differences in disability or pain outcomes were noted between treatment groups at any time point, nor was any interaction found between subgroup status and treatment. Conclusion Patients with lumbar nerve root compression presenting for physical can expect significant changes in disability and pain over a 6-week treatment period. There is no evidence mechanical lumbar traction in combination with an extension-oriented treatment is superior to extension-oriented exercises in management of these patients, nor within a predefined subgroups of patients. Level of Evidence Therapy, level 2b. J Orthop Sports Phys Ther. Epub 26 Jan 2016. doi:10.2519/jospt.2016.6238.

Digression:

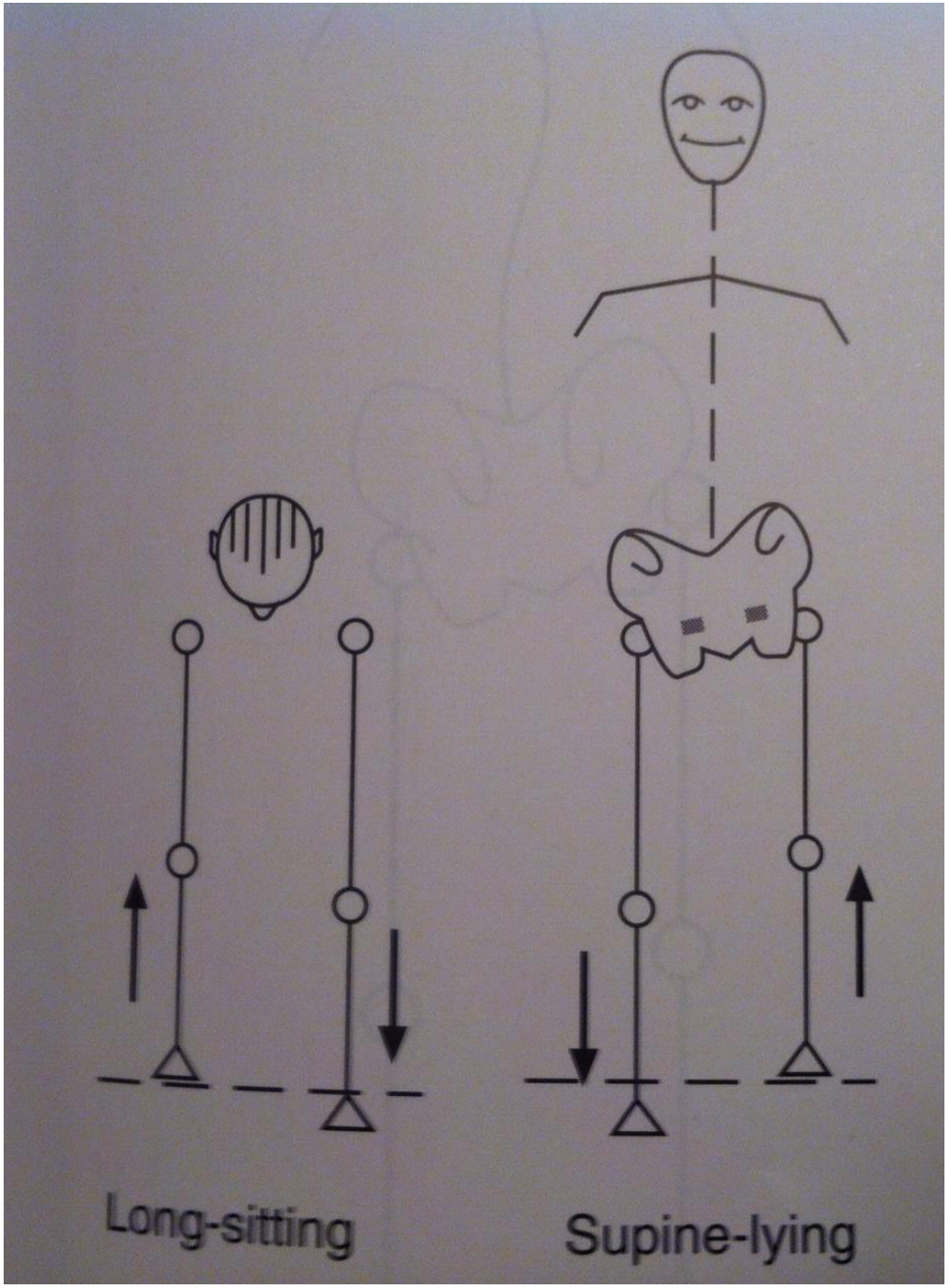
Adding drop-pelvic adjustment

- Pelvic asymmetry & LLD (not anatomical).
- *Sit-to-supine* leg check alteration
  (**3L**: **l**eg **l**engthens on **l**ying)
- Pelvic rotation (PI/AS)
- Less patient 'flipping'

Motor/muscle-control problem with Trendelenburg's/Gillet tests

Illustration of ‘long-sitting’ (legs out) to supine leg length assessment.

Length alteration suggests ‘**asymmetrical posterior rotation**’ of that side innominate.



2. Simple passive & active extension…

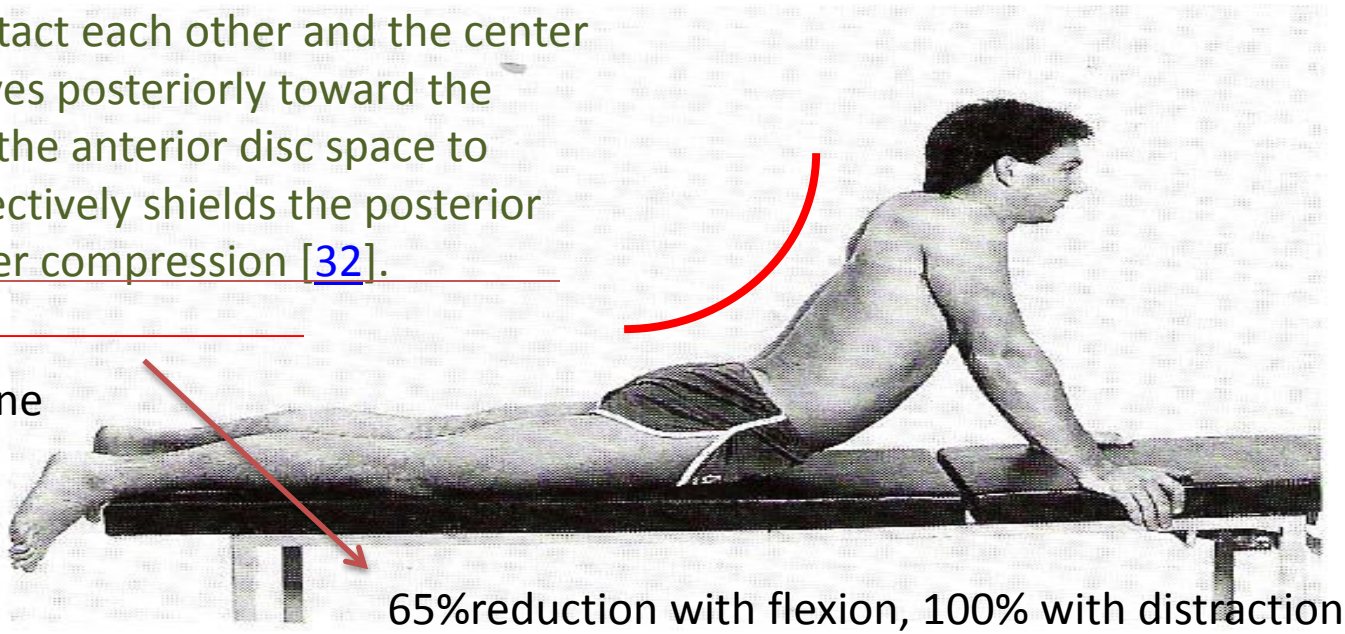
Pain or relief

Fig. 15.26A Prone resting position

Can reveal an intact posterior disc with an extension directional preference…

When the motion segment is extended the facet joints contact each other and the center of rotation moves posteriorly toward the facets, causing the anterior disc space to widen. This effectively shields the posterior disc from further compression [32].

Gay et al Spine 2008



65%reduction with flexion, 100% with distraction

3.

Painful Peripheralizing extension can reveal a less-responsive, complex disc or nerve-involved condition…

INTERVENTIONAL

Prone Lumbar Mechanical Traction in Patients with Signs of Nerve Root Compression[1]

Predictor Variables

1. Peripheralization with repeated lumbar extension
2. Positive crossed SLR

Clinical Bottom Line

The presence of one or more predictor variable helps to identify patients with signs of nerve root compression who have a higher likelihood of experiencing a 50% reduction in disability after 6 weeks of manual therapy, extension exercises, lumbar traction, and education. The methodological quality of the derivation study was acceptable; therefore, it is appropriate to use this CPR as a component of the best available evidence.

Examination

- Peripheralization with repeated lumbar extension (Figure 7.18)
  - Standing, the patient repeatedly bent backward for 10 repetitions to assess the change in lower extremity symptoms. If symptoms moved distally it was considered peripheralizaton.

For non-centeralizers Traction is often the ONLY viable treatment option initially…

Pain Med. 2012 Jun;13(6):754-61. doi: 10.1111/j.1526-4637.2012.01397.x. Epub 2012 May 23.

Is spinal manipulation effective for pain? An overview of systematic reviews.

Posadzki P[1].

Author information

Abstract

OBJECTIVE: This article is aimed at critically evaluating the evidence from systematic reviews (SRs) of spinal manipulation in patients with pain.

DESIGN: The study was designed as a SR of SRs.

METHODS: Four electronic databases were searched to identify all relevant articles of the effectiveness of spinal manipulation for pain. SRs were defined as articles employing a repeatable methods section.

RESULTS: Twenty-two SRs relating to the following pain conditions: low back pain (N = 6), headache (N = 5), neck pain (N = 4), any medical problem (N = 1), carpal tunnel syndrome (N = 1), dysmenorrhea (N = 1), fibromyalgia (N = 1), lateral epicondylitis (N = 1), musculoskeletal conditions (N = 1) and nonspinal pain (N = 1), were included. Positive or, for multiple SR, unanimously positive conclusions were drawn for none of the conditions mentioned earlier.

LIMITATION: Publication bias as a well-known phenomenon may have been inherited in this article.

CONCLUSION: Collectively, these data fail to demonstrate that spinal manipulation is an effective intervention for pain management.

At least one recent study by individual academic chiropractors has concluded that “No supportive evidence is found for the chiropractic subluxation being associated with any disease process or of creating suboptimal health conditions requiring intervention.” (Mirtz, *et al.* An epidemiological examination of the subluxation construct using Hill’s criteria of causation. *Chiropractic and Manual Therapies*. 2009;17:13)

Another independent study by academic chiropractors revealed that “Despite the controversies and paucity of evidence the term subluxation is still found often within the chiropractic curricula of most North American chiropractic programs.” (Mirtz & Perle. The

Exercise only, exercise with mechanical traction, or exercise with over-door traction for patients with cervical radiculopathy, with or without consideration of status on a previously described subgrouping rule: a randomized clinical trial.

Fritz JM1, Thackeray A, Brennan GP, Childs JD.
Author information

Abstract
STUDY DESIGN:
Randomized clinical trial.

CONCLUSION:
Adding mechanical traction to exercise for patients with cervical radiculopathy resulted in lower disability and pain, particularly at long-term follow-ups. The study protocol was registered at http://clinicaltrials.gov (NCT00979108).