



## ABSTRACTS April 2025

---

### **A nerve root decompression position identified by 3D CT scan: the modified reversed contralateral axial rotation position for patients with lumbar disc prolapse**

---

*Ahmed Raffet, Mark Laslett, Raymond Lee, Noha Khaled, Ghada Abdel Moneim Mohamed, Hossam Y Sayed, Ahmed H Omar, Maged M Hawana, Mahmoud M Ali, Salam M Elhafez, Mohamed M ElMeligie, Hossam Eddein Fawaz*

J Orthop Surg Res. 2025 Apr 17;20(1):386.

doi: 10.1186/s13018-025-05762-8.

#### **Abstract:**

**Background:** Nerve root compression in the lumbar intervertebral foramen (LIVF) is a consistent feature of radicular syndrome. There is debate about movements and positions that may reduce compression for possible use in conservative treatment.

**Purpose:** To investigate real-time effects of specific 3 dimensional positioning of the trunk on the cross sectional area (CSA) of the LIVF in patients with lumbar disc prolapse and radiculopathy using 3D-CT scan imaging.

**Methods:** Ninety males aged between 20 and 40 years with unilateral lumbar disc prolapse and radiculopathy were separated into three equal groups based on the level of disc prolapse. Group (A): L3/L4, group (B): L4/L5, and group (C): L5/S1. All underwent three separate imaging sessions; first in the supine position to establish baseline data (Baseline-Image 1), followed by a modified reversed contralateral axial rotation position (Image 2), and finally the same position as Image 2 but after 48 h of using the position as a therapeutic intervention (Image 3). The CSA of LIVF at L3/L4, L4/L5, and L5/S1 levels and the angles of straight leg raising (SLR) test were measured following each imaging session.

**Results:** Two-way mixed MANOVA analysis revealed that the mean values of the CSA of LIVF and the angle of SLR test were significantly increased in Image 2 compared with Baseline-Image 1 across all tested groups ( $P = 0.001$ ). Moreover, the measured outcome variables were significantly

---

---

increased in Image 3 compared with Image 2 and Baseline-Image 1 across all tested groups ( $P = 0.001$ ).

**Conclusion:** The modified reversed contralateral axial rotation position of the trunk had a real-time decompression effect on the impinged nerve roots in patients with unilateral lumbar disc prolapse and radiculopathy.

---

### **Cervical Spine Screening Based on Movement Strategies Improves Shoulder Physical Variables in Neck-Related Shoulder Pain Patients: A Secondary Analysis from an Observational Study**

---

*Alberto Roldán-Ruiz, Javier Bailón-Cerezo, Deborah Falla, María Torres-Lacomba*

J Clin Med. 2025 Apr 2;14(7):2433. doi: 10.3390/jcm14072433.

#### **Abstract:**

**Background:** It is important to consider the cervical spine as a potential contributor to shoulder pain, indicating the paramount importance of screening the cervical spine in patients with shoulder pain.

**Objectives:** To study the immediate effects of cervical spine screening (CSS) on the shoulder active range of motion, isometric strength and self-reported function in patients with neck-related shoulder pain.

**Methods:** A secondary analysis was conducted on data from a previous study. A cervical contribution was considered if a  $\geq 30\%$  shoulder symptom modification of pain intensity (Numeric Pain Rating Scales) was recorded during the most painful shoulder movement after CSS. Pre-post measurements of the shoulder active range of motion (inclinometer) and shoulder isometric strength (dynamometer) were recorded in a single session. Self-reported shoulder function (Shoulder Pain and Disability Index) was assessed at a 1-week follow-up.

**Results:** Among 60 participants, statistically significant changes were found for those with a cervical contribution ( $n = 30$ ) for shoulder flexion and the abduction range of motion ( $p < 0.001$ ), with a medium size effect ( $r = 0.55$ ), and in internal rotation ( $p = 0.02$ ) and external rotation at  $0^\circ$  abduction ( $p = 0.008$ ), with a small size effect ( $r = 0.3$  and  $0.34$ , respectively). The self-reported shoulder function in those without a cervical contribution significantly declined from the pre to post measurements ( $p = 0.002$ ), with a small size effect ( $r = 0.4$ ). No statistically significant changes were found for the isometric strength in either group.



---

**Conclusions:** In patients with shoulder pain classified as having a cervical contribution, CSS produces intrasession improvements in the active shoulder range of motion but not in the shoulder isometric strength or self-reported shoulder function.

---

### **Does sedentary behaviour cause spinal pain in children and adolescents? A systematic review with meta-analysis**

---

*Laura R C Montgomery, Michael Swain, Amabile B Dario, Mary O'Keeffe, Tie P Yamato, Jan Hartvigsen, Simon French, Christopher Williams, Steve Kamper*

Br J Sports Med. 2025 Mar 3;59(6):409-422.

doi: 10.1136/bjsports-2024-108648.

#### **Abstract:**

**Objective:** To evaluate whether sedentary behaviour is a risk or prognostic factor for spinal pain in children and adolescents. Specifically, to estimate the (1) direction and strength of the association; (2) risk of spinal pain onset and (3) effect on spinal pain prognosis.

**Design:** Systematic review with meta-analysis.

**Data sources:** Electronic searches of MEDLINE, Embase, CINAHL and Web of Science up to 23 March 2023.

**Eligibility criteria for selecting studies:** Reports estimating the effect of sedentary behaviour on spinal pain in young people ( $\leq 19$  years).

**Results:** We included 129 reports, 14 were longitudinal ( $n = 8\,433$ ) and 115 were cross-sectional ( $n > 697\,590$ ). We incorporated 86 studies into meta-analyses. (1) From cross-sectional data, we found low certainty evidence of a small positive association between sedentary behaviour and spinal pain (adjusted odds ratio 1.25 (95% CI 1.17 to 1.33),  $k = 44$ ,  $n > 92\,617$ ). (2) From longitudinal data, we found low certainty evidence of no increased risk for the onset of spinal pain due to sedentary behaviour (adjusted risk ratio 1.07 (95% CI 0.84 to 1.35),  $k = 4$ ,  $n = 1\,292$ ). (3) No studies assessed prognosis.

**Conclusion:** Cross-sectional data suggest minimally higher odds of spinal pain for children and adolescents who engage in greater sedentary behaviours. However, longitudinal data do not support a causal relationship, indicating that sedentary behaviour does not increase the risk for onset of spinal pain. Due to the low certainty of evidence, these findings must be interpreted with caution. We found no evidence of the effect sedentary behaviour has on spinal pain prognosis in children and adolescents, highlighting a considerable gap in the literature.



---

## Effectiveness of Manual Joint Mobilization Techniques in the Treatment of Nonspecific Neck Pain: Systematic Review With Meta-Analysis and Meta-Regression of Randomized Controlled Trials

---

Alessia Benetton, Simone Battista, Gianluca Bertoni, Giacomo Rossetti, Luca Falsiroli Maistrello

J Orthop Sports Phys Ther. 2025 Mar;55(3):1-20.

doi: 10.2519/jospt.2025.12836.

### Abstract:

**Objective:** The purpose of this study was to investigate the effects of cervical joint mobilization techniques (JMTs) on pain and disability in adults with nonspecific neck pain.

**Design:** This study is an intervention systematic review with meta-analysis and meta-regression of randomized controlled trials (RCTs).

**Literature Search:** We searched MEDLINE, Cochrane CENTRAL, EMBASE, Cumulative Index to Nursing and Allied Health Literature, Physiotherapy Evidence Database, and Web of Science databases, including references from other reviews or clinical practice guidelines up to October 16, 2024.

**Study Selection Criteria:** Eligible RCTs evaluated JMTs compared to routine physiotherapy, minimally active interventions, or no treatment. The primary outcome was pain; secondary outcomes were disability, Global Perceived Effect (GPE), quality of life, psychosocial status, and adverse events.

**Data Synthesis:** Meta-analyses and meta-regression were conducted for pain, disability, and GPE. The risk of bias was assessed with Cochrane RoB 2.0 Tool; the certainty of the evidence was assessed with the Grading of Recommendations, Assessment, Development, and Evaluations approach. We used The Template for the Intervention Description and Replication checklist to evaluate the quality of reporting of interventions delivered.

**Results:** Results from 16 RCTs were pooled ( $n = 1,157$  participants), reporting nonclinically positive results on pain reduction (mean difference [MD] =  $-0.86$  (95% confidence interval [ $-1.35, -0.36$ ])), disability (MD =  $-2.11$  [ $-3.31, -0.91$ ]), and GPE (standardized mean difference =  $0.11$  [ $-0.15, 0.37$ ]) and high heterogeneity. The meta-regressions did not identify any covariates associated with the treatment effects. Minor side effects (increased neck pain and headache) were reported.

**Conclusion:** There was very low certainty evidence supporting the efficacy of JMTs for reducing pain and improving disability in people with NSNP.



---

## The Effectiveness of Spinal Manipulative Therapy in Treating Spinal Pain Does Not Depend on the Application Procedures: A Systematic Review and Network Meta-analysis

---

Casper Nim, Sasha L Aspinall, Chad E Cook, Leticia A Corrêa, Megan Donaldson, Aron S Downie, Steen Harsted, Simone Hansen, Hazel J Jenkins, David McNaughton, Luana Nyirö, Stephen M Perle, Eric J Roseen, James J Young, Anika Young, Gong-He Zhao, Jan Hartvigsen, Carsten B Juhl  
Journal of Orthopaedic & Sports Physical Therapy. 2025 Feb;55(2):109-122.  
doi: 10.2519/jospt.2025.12707.

### Abstract:

**Objective:** To assess whether spinal manipulative therapy (SMT) application procedures (ie, target, thrust, and region) impacted changes in pain and disability for adults with spine pain.

**Design:** Systematic review with network meta-analysis.

**Literature Search:** We searched PubMed and Epistemonikos for systematic reviews indexed up to February 2022 and conducted a systematic search of 5 databases (MEDLINE, EMBASE, CENTRAL [Cochrane Central Register of Controlled Trials], PEDro [Physiotherapy Evidence Database], and Index to Chiropractic Literature) from January 1, 2018, to September 12, 2023. We included randomized controlled trials (RCTs) from recent systematic reviews and newly identified RCTs published during the review process and employed artificial intelligence to identify potentially relevant articles not retrieved through our electronic database searches.

**Study Selection Criteria:** We included RCTs of the effects of high-velocity, low-amplitude SMT, compared to other SMT approaches, interventions, or controls, in adults with spine pain.

**Data Synthesis:** The outcomes were spinal pain intensity and disability measured at short-term (end of treatment) and long-term (closest to 12 months) follow-ups. Risk of bias (RoB) was assessed using version 2 of the Cochrane RoB tool. Results were presented as network plots, evidence rankings, and league tables.

**Results:** We included 161 RCTs (11 849 participants). Most SMT procedures were equal to clinical guideline interventions and were slightly more effective than other treatments. When comparing inter-SMT procedures, effects were small and not clinically relevant. A general and nonspecific rather than a specific and targeted SMT approach had the highest probability of achieving the largest effects. Results were based on very low-



---

to low-certainty evidence, mainly downgraded owing to large within-study heterogeneity, high RoB, and an absence of direct comparisons.

**Conclusion:** There was low-certainty evidence that clinicians could apply SMT according to their preferences and the patients' preferences and comfort. Differences between SMT approaches appear small and likely not clinically relevant.

---

### **Exercise adherence is associated with improvements in pain intensity and functional limitations in adults with chronic non-specific low back pain: a secondary analysis of a Cochrane review**

---

*Matthew D Jones, Harrison J Hansford, Andrew Bastianon, Mitchell T Gibbs, Yannick L Gilanyi, Nadine E Foster, Sarah G Dean, Rachel Ogilvie, Jill A Hayden, Lianne Wood*

*J Physiother. 2025 Apr;71(2):91-99. doi: 10.1016/j.jphys.2025.03.004.*

#### **Abstract:**

**Question:** What is the association between exercise adherence and the effects of exercise on pain intensity and functional limitations in adults with chronic non-specific low back pain (CNSLBP)?

**Design:** Systematic review with meta-analysis.

**Participants:** Adults with CNSLBP.

**Intervention:** Randomised controlled trials of exercise compared with no exercise (eg, usual care, placebo/sham or another conservative treatment). Adherence to exercise must have been reported.

**Outcome measures:** Pain intensity and functional limitations.

**Results:** This study included 46 trials with 56 exercise groups. High exercise adherence (80 to 100%) was associated with reduced pain intensity (0 to 100 scale) (MD -14.32, 95% CI -18.61 to -10.03, low certainty) and functional limitations (0 to 100 scale) (MD -8.08, 95% CI -10.68 to -5.49, low certainty). Moderate exercise adherence (60 to 79%) was not associated with reduced pain intensity (MD -4.53, 95% CI -9.39 to 0.34, very low certainty) or functional limitations (MD -2.75, 95% CI -6.00 to 0.51, very low certainty). Low exercise adherence (< 59%) was associated with reduced pain intensity (MD -5.33, 95% CI -10.00 to -0.66, low certainty) and functional limitations (MD -4.43, 95% CI -7.14 to -1.72, moderate certainty). Compared with low adherence, additional differences in outcomes for moderate and high adherence were mostly negligible.

**Conclusion:** Higher exercise adherence is associated with larger improvements in clinical outcomes in adults with CNSLBP, although overall





---

differences are small compared with lower adherence. Other factors besides adherence between the trials and exercise programs could explain these results. Further research is needed to determine the causal effect of exercise adherence on outcomes in adults with CNSLBP.

---

### **Gluteal tendinopathy masterclass: Refuting the myths and engaging with the evidence**

---

*Alison Grimaldi, Charlotte Ganderton, Anthony Nasser*

Musculoskelet Sci Pract. 2025 Apr;76:103253.

doi: 10.1016/j.msksp.2025.103253.

#### **Abstract:**

**Introduction:** Gluteal tendinopathy is a prevalent and impactful condition. For many decades clinical practice has been guided by 'myths' that developed around clinical beliefs. It's time to examine these myths and engage with the substantial evidence base.

**Purpose:** This masterclass aims to: (i) engage with the evidence to refute the most common myths associated with gluteal tendinopathy and trochanteric pain, and (ii) provide clinicians with guidance around contemporary, evidence-based clinical practice.

**Implications:** It is time to put aside traditional beliefs that focused on anti-inflammatory treatments, including rest and corticosteroid injections as first line management for trochanteric pain. Contemporary management of tendinopathy takes an active approach that empowers the individual to manage their own condition through education, load management, progressive exercise and optimisation of their general health. The body of evidence for gluteal tendinopathy supports health professionals in employing such principles with greater confidence.

---

### **Incidence of knee surgeries over 5 years among patients with knee osteoarthritis treated with a non-invasive, home-based, biomechanical intervention**

---

*Asude N. Hasanoglu, Ganit Segal, Audree Hsu, Sandeep Yerra, Natnael Aklile, Daniel Huang, Robby Manatt, Danilo Regala, Stephanie Rand, Matthew N. Bartels*

J. Musculoskelet. Res. 2024; 27(02):2350020

doi: 10.1142/S0218957723500203



---

## Abstract:

**Methods:** This is a retrospective registry review done at the Department of Rehabilitation Medicine of Albert Einstein College of Medicine, Montefiore Medical Center. Between September 2015 and December 2018, 95 patients (81% females, mean age  $62.6 \pm 8.3$  years) diagnosed with primary knee OA were referred to receive a new non-invasive biomechanical foot-worn device after exhausting other non-surgical care. Patients were personally fitted with a non-invasive, biomechanical device, that alters the foot's pressure points to reduce loads, minimize symptoms, and promote neuromuscular control training using adjustable, convex pods under the sole. Patients used the device for short periods during regular home/work activities. The primary outcome was the occurrence of knee surgery during an average follow-up time of 5.6 years. TKA incidence was compared to that of a reference group of patients with knee OA who were referred to receive traditional physical therapy (PT).

**Results:** Of the patients who were treated with the biomechanical intervention, 12/95 patients (12.6%) had a TKA, compared to 23/67 patients (34.3%) who received traditional PT and had a TKA.

**Conclusion:** The use of the biomechanical intervention was associated with avoiding TKA in more than 87% of patients at five years. Increased use of biomechanical intervention to treat knee OA may help reduce some of the burden on healthcare and society associated with end-stage knee OA by delaying or avoiding surgery.

---

## Benefits and harms of exercise therapy and physical activity for low back pain: An umbrella review

---

*Josielli Comachio, Paula R Beckenkamp, Emma Kwan-Yee Ho, Christina Abdel Shaheed, Emmanuel Stamatakis, Manuela Loureiro Ferreira, Qianwen Lan, Paul Jarle Mork, Andreas Holtermann, Daniel Xin Mo Wang, Paulo H Ferreira*

J Sport Health Sci. 2025 Apr 2:101038.

doi: 10.1016/j.jshs.2025.101038.

## Abstract:

**Purpose:** The purpose of this umbrella review is to synthesize the evidence from systematic reviews on the benefits and harms of exercise therapy and physical activity (PA) for the secondary prevention and management of low back pain (LBP).





---

**Methods:** An umbrella review was conducted to evaluate the effectiveness of exercise therapy and PA in the management and secondary prevention of LBP. A systematic search was performed in Medline via Ovid, CINAHL, Scopus, Web of Science, Cochrane Database of Systematic Reviews, and Physiotherapy Evidence Database (PEDro), including reference lists of relevant reviews, covering studies published between January 2010 and May 20, 2024. Eligible studies were systematic reviews of randomized controlled trials and observational studies, with or without meta-analyses. The primary outcome for secondary prevention was LBP recurrence, while for management, primary outcomes included pain intensity and disability, with adverse events as secondary outcomes. Data were extracted across immediate, short-term, intermediate, and long-term follow-up periods. The GRADE framework was used to assess the certainty of evidence, and the AMSTAR tool was applied by 2 independent reviewers (JC, QL, and/or DXMW) to evaluate the quality of the included reviews. The study was prospectively registered on the Open Science Framework (OSF) (registration DOI: <https://doi.org/10.17605/OSF.IO/9P>).

**Results:** A total of 70 systematic reviews were included, 43 with meta-analyses, 7 with network meta-analyses, and 20 without meta-analyses. Six (out of 10) reviews with meta-analyses for secondary prevention indicated a small benefit from general exercises and leisure-time PA (low-to-moderate certainty). For LBP management, 35 (out of 36) reviews reported that exercise therapies such as Pilates, motor control, mixed exercise, Tai Chi, water-based exercises, and yoga showed small beneficial effects on pain and disability compared to minimal intervention mainly in the short-term (low-to-moderate certainty). Seven network meta-analyses favored motor control and Pilates over other forms of exercise to reduce pain (low certainty). Adverse events were reported in less than 31% of the reviews, predominantly involving post-exercise soreness and temporary increases in pain, mainly in yoga-related studies. Adverse events were considered minor, and no serious adverse events were reported.

**Conclusion:** There is low-to-moderate certainty that exercise therapy and leisure-time PA are beneficial for improving pain and preventing the recurrence of LBP. However, evidence on the potential harms of these interventions is limited, and adverse events related to exercise and PA remain under-investigated.



---

## ***It May Not Be the Smartest Thing to Do, but Sometimes It's the Only Option: A Longitudinal Mixed-Methods Study of Analgesic Use in Youth Elite Athletes***

*Julie Rønne Pedersen, Louise Kamuk Storm, Anders Christer Larsen, Merete Møller, Bart Koes, Afsaneh Mohammednejad, Jonas Bloch Thorlund*

*J Orthop Sports Phys Ther.* 2025 May;55(5):366-376.

doi: 10.2519/jospt.2025.13015.

### **Abstract:**

**Objectives:** To (1) compare analgesic use over 36 weeks between endurance athletes, technical athletes, and team athletes, and (2) explore experiences and sociocultural factors impacting analgesic use.

**Design:** Longitudinal mixed-methods study **METHODS:** Six hundred eighty-nine youth elite athletes (44% girls/women, 15-20 years) provided weekly reports on number of days with analgesic use, reasons for use, and types of analgesics used for 36 weeks. Prevalence and frequency of analgesic use was compared between athletes from team sports, endurance sports, and technical sports using mixed-effects logistic and Poisson regression models. Reasons and types of analgesics used were compared between groups using Chi-square tests. Nine focus group interviews with 32 participants were conducted and analyzed using thematic analysis.

**Results:** There were no differences in odds of analgesic use between endurance athletes (reference group), technical athletes (odds ratio [OR], 0.94; 95% confidence interval [CI]: 0.65, 1.37), and team athletes (OR, 0.88; 95% CI: 0.62, 1.25). Similarly, there were no differences in rate of analgesic use between endurance athletes (reference group), technical athletes (incidence rate ratio [IRR], 0.97; 95% CI: 0.87, 1.07), or team athletes (IRR, 1.03; 95% CI: 0.94, 1.14). Reasons for use varied between groups, while the types of analgesics used were similar. Sociocultural factors impacting analgesic use included considering the potential consequences of using analgesics for pain and injury, and feeling responsible for team performance.

**Conclusion:** Analgesics were commonly used among youth elite athletes in Denmark. Analgesic use generally did not vary between team athletes, endurance athletes, and technical athletes. Several norms, values, and structures in sports environments impacted analgesic use.



---

## The mechanisms of manual therapy: A living review of systematic, narrative, and scoping reviews

---

*Damian L Keter, Joel E Bialosky, Kevin Brochetti, Carol A Courtney, Martha Funabashi, Steve Karas, Kenneth Learman, Chad E Cook*

PLoS One. 2025 Mar 18;20(3):e0319586.

doi: 10.1371/journal.pone.0319586.

### Abstract:

**Introduction:** Treatment mechanisms are the underlying process or pathway through which a treatment influences the body. This includes molecular, cellular and physiological processes or pathways contributing to treatment effect. Manual therapy (MT) evokes complex mechanistic responses across body systems, interacting with the individual patient and context to promote a treatment response. Challenges arise as mechanistic studies are spread across multiple professions, settings and populations. The purpose of this review is to summarize treatment mechanisms that have been reported to occur with MT application.

**Methods:** Four electronic databases were searched (Medline, CINAHL, Cochrane Library, and PEDro) for reviews investigating mechanistic responses which occur during/post application of MT. This review was registered a priori with PROSPERO (CRD42023444839). Methodological quality (AMSTAR-2) and risk of bias (ROBIS) were assessed for systematic and scoping reviews. Data were synthesized by mechanistic domain.

**Results:** Sixty-two reviews were included. Systematic reviews (n = 35), narrative reviews (n = 24), and scoping reviews (n = 4) of asymptomatic (n = 37), symptomatic (n = 43), non-specified human subjects (n = 7) and animals (n = 7) were included. Reviews of moderate quality supported neurovascular, neurological, and neurotransmitter/neuropeptide changes. Reviews of low quality supported neuroimmune, neuromuscular, and neuroendocrine changes. Reviews of critically low quality support biomechanical changes.

**Conclusions:** Findings support critically low to moderate quality evidence of complex multisystem mechanistic responses occurring with the application of MT. Results support peripheral, segmental spinal, and supraspinal mechanisms occurring with the application of MT, which can be measured directly or indirectly. The clinical value of these findings has not been well established. While MT has proven to be an effective intervention to treat conditions such as pain, the current body of literature leaves uncertainty as to 'why' MT interventions work, and future research



---

should look to better define which mechanisms (or combinations of mechanisms) are mediators of clinical response.

---

### **Efficacy of open-label placebos for premenstrual syndrome: a randomised controlled trial**

---

*Antje Frey Nascimento, Jens Gaab, Bojana Degen, Mareike Rytz, Anja Holder, Dilan Sezer, Sarah Buerger, Andrea H Meyer, Irving Kirsch, Joe Kossowsky, Cosima Locher*

BMJ Evid Based Med. 2025 Mar 25;bmjebm-2024-112875.

doi: 10.1136/bmjebm-2024-112875.

#### **Abstract:**

**Objective:** To investigate the efficacy and safety of open-label placebos (OLP) in premenstrual syndrome (PMS).

**Design:** Randomised controlled trial.

**Setting:** Switzerland, 2018-2020.

**Participants:** 150 women (18-45 years of age) with PMS or premenstrual dysphoric disorder.

**Intervention:** Random assignment (1:1:1) to treatment as usual (TAU), OLP without treatment rationale (OLP-), or OLP with treatment rationale (OLP+). OLP consisted of two placebo pills per day for 6 weeks.

**Main outcome measures:** Primary outcomes were PMS symptom intensity and interference between groups across three menstrual cycles (MC1-MC3); adverse events (ie, safety) were measured at weeks 3 and 6 after the start of the intervention. Secondary outcomes were psychological and somatic subscales of PMS symptom intensity, and adherence.

**Results:** From 2 August 2018 to 3 December 2020, 150 women were randomly allocated to TAU (n=50), OLP- (n=50), and OLP+ (n=50), of whom 145 (96.7%) completed trial participation. Groups differed in symptom intensity ( $F(4)=4.419$ ,  $p=0.002$ ,  $r^2=0.16$ ) and interference ( $F(4)=3.159$ ,  $p=0.014$ ,  $r^2=0.13$ ) across three MCs. Mean symptom intensity at MC3 was lower for OLP+ compared to TAU ( $b=-9.97$ ,  $SE=2.85$ ,  $t(412)=3.50$ ,  $p<0.001$ ,  $d=0.90$ ) and to OLP- ( $b=-6.10$ ,  $SE=2.89$ ,  $t(411)=2.11$ ,  $p=0.036$ ,  $d=0.55$ ), but OLP- and TAU did not differ ( $b=-3.87$ ,  $SE=2.87$ ,  $t(411)=1.35$ ,  $p=0.177$ ,  $d=0.35$ ). Mean interference at MC3 was lower for OLP+ compared to TAU ( $b=-1.23$ ,  $SE=0.54$ ,  $t(443)=2.30$ ,  $p=0.022$ ,  $d=0.55$ ) and to OLP- ( $b=-1.10$ ,  $SE=0.54$ ,  $t(442)=2.02$ ,  $p=0.044$ ,  $d=0.48$ ), but OLP- and TAU did not differ ( $b=-0.14$ ,  $SE=0.54$ ,  $t(442)=0.26$ ,  $p=0.799$ ,  $d=0.06$ ). Four non-serious adverse events were reported in OLP- (n=1) and OLP+ (n=3). Improvement in



---

psychological and somatic symptom intensity was comparable to primary outcomes. Adherence to the OLP intervention was high (93.18±18.95%), with no difference between groups.

**Conclusions:** The results of our clinical trial indicate that OLP provided with a treatment rationale is an effective, safe, and acceptable treatment for PMS.

---

### **Physiotherapists' delivery of cognitive functional therapy in clinical practice: perceived facilitators and barriers from a socioecological perspective**

---

*P Simpson, R Holopainen, R Schutze, P O'Sullivan, P Kent, N-R Klem, A Smith*

Disabil Rehabil. 2025 Apr 29:1-13.

doi: 10.1080/09638288.2025.2495199.

#### **Abstract:**

**Purpose:** Cognitive functional therapy (CFT) is a person-centred biopsychosocial intervention for chronic low back pain, with large sustained clinical and economic benefits. This study explored the experiences of physiotherapists delivering CFT in their usual clinical practice after being trained to competency for the RESTORE clinical trial.

**Materials and methods:** A qualitative study design was used. Fifteen primary care physiotherapists were interviewed (seven female, clinical experience 3-25 years). An inductive-deductive content analysis was used, including the Theoretical Domains Framework and socioecological model.

**Results:** Facilitators and barriers were identified within and between individual, micro (clinical interface), meso (health service), and macro (health system) levels. Physiotherapists reported feeling competent and skilled delivering CFT. At the microsystem, this was influenced by time and their evolving professional identity. At the mesosystem, social support within the clinical community and positive patient outcomes facilitated CFT, while disunity in pain management across the health system and inadequate remuneration were barriers. Societal beliefs about pain, shifts in professional identity, and funding models influenced delivery at the macrosystem.

**Conclusions:** This study highlights multilevel facilitators and barriers that physiotherapists perceive when implementing CFT. Targeting these may help to optimise the implementation of this promising intervention, thereby contributing to better patient outcomes.



---

## **Rotator Cuff Tendinopathy Diagnosis, Nonsurgical Medical Care, and Rehabilitation: A Clinical Practice Guideline**

---

*François Desmeules, Jean-Sébastien Roy, Simon Lafrance, Maxime Charron, Marc-Olivier Dubé, Frédérique Dupuis, Jason M Beneciuk, Jason Grimes, H Mike Kim, Martin Lamontagne, Karen McCreesh, Ellen Shanley, Tatiana Vukobrat, Lori A Michener*

J Orthop Sports Phys Ther. 2025 Apr;55(4):235-274.

doi: 10.2519/jospt.2025.13182.

### **Abstract:**

**Synopsis:** This evidence-based clinical practice guideline (CPG) aims to guide clinicians with recommendations covering the assessment, treatment, and prognosis of adults with shoulder pain with suspected rotator cuff (RC) tendinopathy, the nonsurgical medical care and rehabilitation of adults with RC tendinopathy, as well as the return to function and sport for elite and recreational athletes. This CPG includes recommendations for managing RC tendinopathy with or without calcifications and partial-thickness RC tears.

---

## **Measurement Properties for a Sequential Test Battery in Low Back Pain Assessment of Directional Preference**

---

*Michael D. Post, Won Sung, Nicholas Bertsch, Ronald Schenk*

Orthopaedic Practice. 2025 Apr;37(2):33-38.

### **Abstract:**

**Background and Purpose:** Directional preference (DP) exercises and the centralization (CEN) phenomenon are associated with favorable outcomes in people experiencing low back pain (LBP). The determination of a DP is based on changes in baseline findings (often within-session), such as pain, range of motion, and neurological signs, including tension. This investigation aimed to identify the minimum detectable change (MDC) and standard error of measure (SEM) cutoff values to detect clinically meaningful within-session change in patients with LBP treated in accordance with the DP.

**Methods:** Lumbar flexion (FLEX) and extension (EXT) active range of motion (ROM), handheld dynamometric (HHD) isometric manual strength testing (MT) of L1-S1 myotomes, and Slump Test (SLUMP) and straight leg raise





---

(SLR) ROM were assessed in 38 patients with LBP. Values were used to calculate a reliability coefficient (ICC2,1) and determine the MDC and SEM. **Results:** FLEX (ICC=.84) and EXT ROM (ICC=.91) MDC values were 14.9 and 7.0° with SEM of 5.4 and 2.5, respectively. Handheld dynamometric MT (ICC=.85-.97) had MDC values of 2.2-15.4 pounds, with SEM ranging between 0.8-5.6. SLUMP (ICC=.95) and SLR (ICC=.98) had MDC values of 6.0-7.4° with an SEM of 2.3-2.7 and 2.2- 2.4, respectively.

**Clinical Relevance and Conclusions:** Items' within-session change values demonstrated reliable clinometrics to support test-retest applications in patients with LBP. Using objective cutpoints such as MDC and SEM may guide the detection of clinical change used in the selection process of interventions for those with signs of DP and CEN.

---

## The Movement System and Diagnosis: Are We There Yet?

---

*Philip McClure*

Phys Ther. 2025 Mar 3;105(3):pzaf011. doi: 10.1093/ptj/pzaf011.

### Abstract:

In the 29th Maley lecture, Phil McClure PT, PhD, FAPTA, shares a Perspective regarding the movement system and diagnosis. Despite declarations from the House of Delegates >10 years ago, the concept of a movement system has not been widely embraced in either education or practice. In this perspective, he offers critical analysis and 3 proposals that could potentially make the concept of a movement system more relevant and meaningful. The first is to operationally define the movement system, arguing that the current definition is too vague and not operational, and therefore not meaningful. The second is to intentionally separate the movement system from any specific diagnostic classification scheme which would allow the focus to remain on movement and movement analysis. He argues that diagnostic classification schemes require a biopsychosocial framework and that movement, while important, cannot be the only consideration. The third proposal is that diagnostic schemes must be developed by clinical scientists through appropriate research guided by sound theory, not by administrative or political process. He further argues that a greater focus on determining which patients are likely to be helped by physical therapists is necessary and offered the example of developing "appropriateness criteria" as a tool toward promoting value-based care. Achieving broad consensus around these proposals could unify



---

our professional focus and assist toward the vision of optimizing movement to enhance the human experience.

---

### **The Worst Pain Is an Unexplained Pain**

---

*Paul E Mintken, Amy W McDevitt, Jeremy Lewis*

J Orthop Sports Phys Ther. 2025 May;55(5):307-311.

doi: 10.2519/jospt.2025.13167.

#### **Abstract:**

**Synopsis:** Musculoskeletal (MSK) pain, especially when the reason for the pain is unexplained, is often associated with distress, fear, reduced self-efficacy, and cycles of medicalization. Pathoanatomical diagnoses, based on clinical tests and imaging, have a weak correlation between structural findings and pain, and fail to explain why something hurts. This Viewpoint advocates for nonpathoanatomical functional diagnoses or classifications and practical, relatable explanations for patients with pain without a definitive pathoanatomical cause—what some might call a person-centered model of care. Using an example of low back pain, we explore how functional terminology, and empathetic communication can foster better understanding of pain, reduce fear, and support people to engage with treatment. We encourage clinicians to integrate lifestyle factors in a shared decision-making framework. By supporting patients to understand their pain, we suggest an approach that improves both physical and psychological well-being.

---

### **Editorial: The role of expectations on treatment outcomes: from the experimental context to the clinical practice**

---

*Eleonora Maria Camerone, Giacomo Rossettini, Joel E Bialosky, Elisa Carlino*

Front Psychol. 2025 Mar 27;16:1585791.

doi: 10.3389/fpsyg.2025.1585791.

#### **Abstract:**

**Conclusion:** The insights from this Research Topic suggest that clinicians, researchers, and healthcare organizations need to consider expectations as modifiable and measurable variables in treatment protocols. Managing these expectations—whether to harness placebo effects or prevent nocebo



---

effects—has the potential to improve patient outcomes across a wide range of medical fields. As more attention is directed toward expectation-based interventions, the future of patient care will likely see a greater focus on psychological factors as a complement to traditional medical approaches. These articles collectively pave the way for innovative practices that enhance the efficacy of treatments by addressing the psychological underpinnings of patient experience.

---

### **Clinical Outcomes of a New Foot-Worn Non-Invasive Biomechanical Intervention Compared to Traditional Physical Therapy in Patients With Chronic Low Back Pain. A Randomized Clinical Trial**

---

*Ratnakar Veeramachaneni, Andrew Gitkind, Sandeep Yerra, Michael Hagan, Asude N Hasanoglu, Natnael Akile, Hannah Kareff, Derek Ho, Matthew N Bartels*

Global Spine J. 2025 Jan 15:21925682251314823.

doi: 10.1177/21925682251314823.

#### **Abstract:**

**Study design:** Randomized Controlled Trial.

**Objective:** Chronic low back pain (CLBP) is a major public health concern that will continue to grow with the expected aging of the population. The purpose of this study was to examine the clinical effect of a personalized, home-based biomechanical intervention compared to traditional physical therapy in patients with CLBP.

**Methods:** This was a randomized controlled trial. One-hundred and sixty-two patients were randomized in a 2:1 ratio to a home-based biomechanical intervention (HBBI, AposHealth) or traditional physical therapy (TPT), respectively. Patients were assessed at baseline and after 12 weeks and 52 weeks. The primary outcome measure was pain at 52 weeks, using a standard Numeric Rating Scale (NRS). Secondary outcomes included pain and function metrics, quality of life and objective spatio-temporal gait test. A Linear Mixed Model assessed changes over time across all study visits.

**Results:** A significant reduction in NRS was found after 52 weeks with a superiority effect of the HBBI arm compared to TPT ( $F = 13.82$ ,  $P < 0.001$ ). Patients in the HBBI arm demonstrated a marginal mean reduction of 3.5 points, from 6.2 to 2.7 (a 56% reduction), while patients in the TPT arm reported a mean decrease of 1.8 points from 6.9 to 5.1 (a 26% reduction).



---

**Conclusions:** A new foot-worn, home-based, biomechanical intervention for patients with chronic non-specific back pain was found to be clinically effective. Given the lack of non-surgical, non-pharmacological interventions for this populations, this treatment might serve as an adjunct to the current standard of care.

