



ABSTRACTS September 2025

Published Rehabilitation Programs for Patients With Anterior Cruciate Ligament Reconstruction Are Poorly Reported and Not Reproducible in Clinical Practice: A Scoping Review

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Abstract:

Objective: To evaluate the clinical reproducibility of published rehabilitation programs for patients with anterior cruciate ligament reconstruction (ACLR).

Design: Scoping review.

Literature Search: The PubMed, Web of Science, Cochrane Library, and Scopus databases were searched on July 8, 2024, from inception to the latest record.

Study Selection Criteria: We included randomized and nonrandomized intervention studies (prospective and retrospective) that were published in the English language and that included a minimum of 20 patients with ACLR.

Data Synthesis: Domains to categorize rehabilitation were developed and evaluated for clinical reproducibility using the TIDieR (template for intervention description and replication) checklist.

RESULTS: Two hundred ninety-six studies were included, 185 of which were randomized controlled trials (63%). The total number of participants included was 22 564. To describe rehabilitation programs, 28 domains emerged. None of the studies included all the identified domains. Forty-three studies (15%) included 1 domain, and 1 study reported on 21 domains. Three quarters of the studies (78%) reported on whether the implemented interventions were based on time (87.5%) or criteria (12.5%). There was substantial heterogeneity in the thoroughness of reporting rehabilitation programs. Most studies did not describe fundamental details

of the rehabilitation interventions and associated progression parameters. All studies lacked sufficient detail to enable clinical reproducibility.

Conclusion: Published rehabilitation programs for patients with ACLR lacked sufficient detail to enable clinicians to reproduce the programs in practice. Greater reporting consistency is needed on all aspects of rehabilitation, including program structure, specific intervention details, progression criteria, and return-to-sport decision making

Biochemical and clinical effects of McKenzie therapy versus muscle endurance exercises in chronic low-back pain

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Arch Physiother. 2025 Sep 17:15:229-249.

doi: 10.33393/aop.2025.3331.

Abstract:

Background and objective: Apart from mechanical dysfunction, low back pain (LBP) is also associated with underlying inflammatory and muscle-related biochemical changes. An increase in certain biomarkers, such as IL-10, a key anti-inflammatory cytokine, provides a positive objective indicator of underlying physiological responses to interventions in LBP beyond subjective clinical measures. This study assessed the effects of McKenzie Extension Protocol (MEP), Static Back Extension Endurance (SBEE), and Dynamic Back Extension Endurance (DBEE) on selected clinical outcomes and biomarkers of muscle status [creatine kinase (CK)] and inflammation (IL-4 and IL-10) in LBP.

Methods: A randomized controlled trial involving 76 patients with chronic LBP who were randomly assigned to MEP, SBEE, or DBEE groups was conducted. MEP involved a specific sequence of lumbosacral repeated movements in extension. SBEE involved five different back extensor muscle endurance protocols of increasing difficulty level. DBEE was a dynamic replica of the SBEE. Pain, CK, IL-4, and IL-10 were the primary outcomes. Functional disability and health-related quality of life were the secondary outcomes. Assessments were conducted at baseline, 3rd, and 6th week of the study.

Results: MEP and SBEE caused significant effects in all clinical and biochemical variables ($p < 0.05$) except IL-4 and IL-10 ($p > 0.05$). DBEE yielded no significant effects on IL-4 and IL-10 ($p > 0.05$). MEP had a significantly higher effect on pain ($p < 0.05$). SBEE had a greater impact on



IL-4 ($p < 0.05$) and IL-10 ($p < 0.05$) at week 3. SBEE led to a higher impact on IL-4 ($p < 0.05$) and IL-10 ($p < 0.05$) at week 6. All interventions had comparable effects on other clinical parameters at week 6 ($p > 0.05$).

Conclusion: MEP reduced pain more, while SBEE led to higher changes in IL-4 and IL-10 inflammatory biomarker levels. Serum CK levels rose in all groups without indicating muscle damage. The results suggest that these exercises show potential benefits in modulating inflammation and enhancing muscle status, potentially supporting tissue repair and reducing chronic LBP, and therefore should be incorporated as part of strategies targeting underlying inflammatory processes in the management of chronic LBP.

Conservative Treatments of Carpal Tunnel Syndrome: A Systematic Review and Network Meta-analysis

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Arch Phys Med Rehabil. 2025 Sep;106(9):1447-1458.

doi: 10.1016/j.apmr.2025.04.002.

Abstract:

Objective: To evaluate the comparative efficacy of various conservative treatments for carpal tunnel syndrome (CTS), including manual therapy (MT), local steroid injections, platelet-rich plasma (PRP) injections, extracorporeal shock wave therapy, and low-level laser therapy, through a comprehensive network meta-analysis.

Data sources: PubMed, Web of Science, Cochrane Library, Embase, SPORTDiscus, and China National Knowledge Infrastructure databases were searched to identify published studies until April 2024.

Study selection: Randomized controlled trials comparing the efficacy of conservative CTS treatments in individuals with CTS were included.

Data extraction: Data from the included articles were extracted independently by 2 researchers, with any disagreements resolved through consultation with a third author. The extracted data included the first author's name, country/region, publication year, sample size, participants' age, disease severity, symptom duration, intervention parameters, follow-up period, and reported outcomes.

Data synthesis: A total of 49 randomized controlled trials involving 11 conservative treatments and 3323 participants were included. The network meta-analysis showed that MT demonstrated the highest efficacy in both



short-term and medium-term pain relief with surface under the cumulative ranking curve values of 87.6% and 99.3%, respectively. Dextrose 5% in water and PRP were closely followed in terms of efficacy. Compared to control groups, low-level laser therapy (standardized mean difference=-1.45; 95% CI, -2.16 to -0.74) and extracorporeal shock wave therapy (standardized mean difference=-1.03; 95% CI, -1.86 to -0.20) also showed significant benefits.

Conclusions: This study provides robust evidence that MT and dextrose 5% in water injections are the most effective conservative treatments for CTS which offer valuable insights for clinical decision-making. Further research is needed to assess the long-term efficacy and cost-effectiveness of these interventions.

Efficacy of Therapeutic Patient Education for Managing Subacute and Chronic Musculoskeletal Conditions: A Systematic Review With Meta-Analysis

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J Orthop Sports Phys Ther. 2025 Oct;55(10):1-26.
doi: 10.2519/jospt.2025.13247.

Abstract:

Objective: To evaluate the efficacy of therapeutic patient education delivered by a health care provider, either alone or in combination with other rehabilitation interventions, for reducing pain and disability in adults with subacute and chronic musculoskeletal conditions.

Design: Intervention systematic review with meta-analysis.

Literature Search: Five databases were searched from 2005 to 2025.

Study Selection Criteria: Randomized clinical trials (RCTs) evaluating the efficacy of therapeutic patient education in adults with subacute and chronic musculoskeletal conditions, compared to other interventions such as exercise programs. Outcomes included pain, disability, quality of life, kinesiophobia, and catastrophizing.

Data Synthesis: Treatment effects were estimated using random-effects models with standardized mean differences. Risk of bias was assessed using the Cochrane RoB 2.0 tool. Certainty of evidence was evaluated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework.



Results: Sixty-nine RCTs were included, and 56 contributed data to meta-analyses (n = 6773 participants; mean age, 43.1 ± 10.3 years; 63% female). Adding therapeutic patient education to other interventions likely reduced pain, disability, and catastrophizing in the short term (moderate-certainty evidence), may reduce pain and disability in the medium term (low-certainty evidence), and likely resulted in a large reduction in kinesiophobia in the short and medium terms (moderate-certainty evidence). The efficacy of therapeutic patient education as a stand-alone intervention was uncertain.

Conclusion: Evidence supports using therapeutic patient education, in combination with other rehabilitation interventions, to reduce pain, disability, kinesiophobia, and catastrophizing in adults with subacute and chronic musculoskeletal conditions. The magnitude of the effects may vary from small to large.

Mechanisms and management of self-resolving lumbar disc herniation: bridging molecular pathways to non-surgical clinical success

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J Orthop Surg Res. 2025 May 27;20(1):528.

doi: 10.1186/s13018-025-05959-x.

Abstract:

Spontaneous resorption of lumbar disk herniation (LDH) presents a promising avenue for the non-surgical management of herniated disks. Here we present a 40-year-old female with severe L5/S1 herniation who experienced spontaneous resorption confirmed by MRI. The patient adhered to a comprehensive non-operative treatment regimen comprising NSAIDs, heat therapy, massage therapy, acupuncture, and kinesitherapy. Over two years, the patient showed substantial clinical improvement, with significant pain reduction and MRI evidence of disk resorption, resulting in a marked decrease in their visual analog scale (VAS) pain scores. Through a systematic review of existing literature, we identify that spontaneous resorption is associated with mechanisms such as inflammation, neovascularization, macrophage infiltration, matrix degradation, disruption of immune privilege, apoptosis and autophagy, and disc dehydration. Clinical predictors for spontaneous resorption of LDH include the size, type and composition of the herniation, rim enhancement on contrast-enhanced MRI, and involvement of the posterior longitudinal ligament (PLL). Future research should focus on elucidating the molecular



mechanisms of resorption, regulation of inflammatory response, macrophage polarization, matrix degradation, immune privilege and neovascularization, developing advanced imaging techniques to predict resorption potential, and exploring personalized treatment strategies based on machine learning and deep learning prediction models.

Concurrent validity of the directional preference phenomenon compared to controlled lumbar discography: A supplementary analysis of a diagnostic accuracy study

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Musculoskelet Sci Pract. 2025 Sep 10:80:103413.

doi: 10.1016/j.msksp.2025.103413.

Abstract:

Background: Persistent low back pain (LBP) is a symptom with many potential causes. Centralisation phenomenon (CP) has emerged as promising diagnostic tools for identifying a subset of discogenic pain. CP represents a subgroup of patients demonstrating Directional Preference (DP) and to date the diagnostic accuracy of DP has never been assessed. To bridge this gap, this study evaluates the diagnostic accuracy of DP for discogenic pain, compares its properties to CP, and explores the development of clinical diagnostic rules (CDRs) for patients with negative testing for DP, or inability to undergo repeated movement testing.

Methods: 103 persistent low back pain patients were assessed by a physiotherapist to collect clinical data and determine DP status. Subsequently, a radiologist performed controlled discography to determine the discogenic pain status. Both the physiotherapist and the radiologist were blinded to each other's findings.

Results: DP demonstrated high diagnostic accuracy (specificity: 0.94; Positive Likelihood Ratio (LR⁺): 7.65) but low screening properties (sensitivity: 0.48; Negative Likelihood Ratio (LR⁻): 0.56). CP showed similar diagnostic properties (specificity: 0.94; LR⁺: 5.57). A CDR for untestable DP yielded low predictive power (Area Under the Curve (AUC): 0.57). Due to limited sample size and missing data, no valid CDR could be established to assist diagnostic decision when DP is negative.

Conclusions: DP is a valid diagnostic tool for mechanical discogenic pain but has limited screening utility. Further studies are needed to refine diagnostic approaches and explore subgroups, such as those with Modic changes/inflammation-driven discogenic pain.



The EMU manipulation study: A randomized trial investigating the efficacy of matched or unmatched cervical/thoracic manipulations on neck pain

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Musculoskelet Sci Pract. 2025 Oct;79:103382.

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Abstract:

Introduction: Neck pain is common, and cervical and thoracic thrust joint manipulation are recommended treatments. The Cervical Thoracic Differentiation Test (CTDT) is proposed to differentiate pain of cervical or thoracic origin, but its value in guiding choice of manipulation remains unclear. This study aimed to evaluate the utility of the CTDT in selecting treatment for non-specific mechanical neck pain.

Methods: A quadruple-blinded, two-arm randomized trial enrolled adults aged 18-65 with neck pain $\geq 3/10$. Forty participants completed the Neck Disability Index (NDI), cervical ROM (ROM), VAS for pain (rest and movement), and CTDT. They were equally allocated to a single session of either matched or unmatched manipulation based on CTDT results. Pain and ROM were assessed immediately post-manipulation and 38 participants were assessed at a one-week follow-up.

Results: Forty participants (mean age 24.8 ± 9.9 years, 51.2 % female) were included. Significant differences in the primary outcome of pain with movement were found across all time points ($F_{2, 72} = 60.455$, $p < 0.001$). Significant pain reductions were observed from pre-manipulation to immediately post-manipulation and continued at one-week. There were no differences between matched/unmatched manipulations at either time point ($p > 0.05$). There were no significant differences in pain at rest, NDI scores, or ROM changes between groups.

Conclusions: Both matched and unmatched manipulations significantly reduced pain with movement, with no differences based on CTDT results. In the context of a rigorously blinded trial, cervical and thoracic manipulations appear to be equally efficacious for managing neck pain regardless of CTDT outcomes, although clinical outcomes may differ.



"I Cannot Recognize My Body": Experiences and Perceptions of Patients Living With Frozen Shoulder: A Qualitative Systematic Review With Meta-synthesis and Meta-summary

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J Orthop Sports Phys Ther. 2025 Sep;55(9):1-16.

doi: 10.2519/jospt.2025.13432.

Abstract:

Obejective: To systematically synthesize and summarize findings from qualitative studies exploring the perceptions and experiences of individuals living with frozen shoulder.

Design: Systematic review of qualitative studies.

Literature Search: The search strategy was conducted in June and updated in November 2024. We searched the following databases: CINAHL (Cumulative Index to Nursing and Allied Health Literature), Cochrane Library, EMBASE, PEDro (Physiotherapy Evidence Database), PsycINFO, MEDLINE (Medical Literature Analysis and Retrieval System Online), Scopus, SPORTDiscus, and Web of Science.

Study Selection Criteria: We included qualitative primary studies or mixed-methods studies that (1) clearly identified qualitative data; (2) were published in English or Italian; (3) involved participants aged ≥ 16 years; and (4) investigated participants' experiences living with frozen shoulder, regardless of phase, intervention type, or publication date.

Data Synthesis: Sandelowski and Barroso's methodology was followed for meta-synthesis and meta-summary. The Confidence in the Evidence from Reviews of Qualitative Research approach evaluated the certainty of the results.

Results: Nine studies, comprising 116 participants, were included. One hundred fifty-seven target findings were extracted, analyzed, synthesized, and grouped into 12 categories and 5 main themes: (1) "I cannot recognize my body," (2) "Frozen shoulder is hindering my life," (3) "Frozen shoulder is affecting my psychological well-being," (4) "Navigating recovery," and (5) "Regaining control of my life after frozen shoulder." The critical appraisal indicated moderate methodological quality, and there was a moderate level of confidence that the findings effectively captured the patient experience of frozen shoulder. **Conclusion:** Frozen shoulder affects people's physical



function, emotional well-being, and daily life, underscoring the need for a patient-centered approach. Integrating these perspectives into clinical practice can enhance health care strategies and support recovery.

Association between cervical MRI findings and patient-reported severity of headache in patients with persistent neck pain: a cross-sectional study

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Chiropr Man Therap. 2025 Sep 1;33(1):38.

doi: 10.1186/s12998-025-00600-4.

Abstract:

Background: Neck pain and headaches often co-occur, and the presence of degenerative cervical Magnetic Resonance Imaging (MRI) findings has been associated with the presence of headaches. However, previous studies have not provided conclusive evidence about their association, and imaging studies examining the associations between headache severity and MRI findings have been suggested. This study aims to investigate the associations between independent variables, single MRI findings, and an aggregate score of MRI findings, and the outcome variable, headache severity.

Methods: This cross-sectional study examined patients with neck pain and headaches in specialist care. MRI findings and outcome measures were collected at the time of clinical entrance between 2011 and 2014. The headache severity was assessed using the Neck Disability Index questionnaire. Ten degenerative MRI findings were routinely evaluated, and an overall score was derived by aggregating single findings across levels C2-C7. Univariate and multivariable ordinal logistic regression analyses assessed the associations expressed as odds ratios (OR) and 95% confidence interval (95% CI).

Results: A total of 574 patients were included. Higher headache severity was significantly associated with female sex and younger age. The presence of single cervical MRI findings was linked to lower odds of severe headaches (ORs < 1), and having two or three findings further decreased the likelihood (OR 0.40, 95% CI 0.23-0.68) compared to having none. A sensitivity analysis assessed the OR estimates for the aggregate score as robust.



Conclusions: This study showed that, among patients with persistent neck pain referred to secondary care, degenerative MRI findings in the cervical spine were inversely associated with headache severity. The association between an aggregated score of MRI findings and headache severity was stronger than that of single findings. These findings reflect associations observed within a selected clinical population and warrant further investigation in populations with differing symptom profiles.

Efficacy of Heel Lifts for Managing Midportion Achilles Tendinopathy (The LIFT Trial): A Participant- and Outcome Assessor-Blinded Randomized Controlled Trial

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J Orthop Sports Phys Ther. 2025 Sep;55(9):1-10.
doi: 10.2519/jospt.2025.13422.

Abstract:

Objective: To evaluate the efficacy of heel lifts in people with midportion Achilles tendinopathy.

Design: This was a parallel-group randomized, sham-controlled, participant- and assessor-blinded trial conducted at a single center (Victoria University, Institute for Health and Sport, Melbourne, Australia).

Methods: One hundred and eight participants (38 females and 70 males; mean age, 48 years; standard deviation, 10 years) with midportion Achilles tendinopathy, diagnosed clinically and confirmed by ultrasound, were randomly allocated to either a heel lift (n = 54) or sham intervention (n = 54) group. The primary outcome was pain intensity (11-point numerical rating scale) at 12 weeks. Differences between groups were analyzed using an intention-to-treat approach with analysis of covariance.

Results: There was 100% follow-up of participants at 12 weeks. Pain intensity reduced by a mean of 3.7 points in the heel lifts group and 2.5 points in the sham intervention group. On average, there was a significant between-group difference in favor of heel lifts for reducing pain intensity (adjusted mean difference, -0.9; 95% confidence interval [CI]: -1.7, -0.2; $P = .02$), which approximated, but did not meet the predetermined minimum important difference of 1.5 points. The primary analysis was not robust to sensitivity analysis when controlling for expectation (adjusted mean difference -0.7; 95% CI: -1.5, 0.0; $P = .06$).

Conclusion: In adults with midportion Achilles tendinopathy, heel lifts demonstrated greater efficacy than a sham intervention for reducing pain



intensity at 12 weeks, but this benefit was small and may not be clinically meaningful. These results do not support the use of heel lifts for the primary management of Achilles tendinopathy.

"Do I need an imaging?" exploring why patients with non-specific chronic low back pain request diagnostic instrumental evaluation: a phenomenological qualitative study

Graziana Lullo, Gabriele Giannotta, Andrea Tamborrino, Firas Mourad, Massimo Esposto, Giuseppe Giovannico, Morten Hoegh, Matteo Cioeta
Musculoskelet Sci Pract. 2025 Sep 15:80:103416.
doi: 10.1016/j.msksp.2025.103416.

Abstract:

Objective: This study aims to investigate patient beliefs surrounding imaging for chronic non-specific low back pain (cLBP) when it is not clinically indicated.

Methods: Semi-structured interviews were conducted with patients diagnosed with cLBP, and thematic analysis was used to identify recurring themes from the interviews.

Results: Eleven patients (6 females, 5 males, mean age 53 ± 15.66 years) participated in the study. Three main themes emerged: (1) cognitive dissonance: need to 'know the cause,' but recognition of multifactorial dimension of pain; (2) imaging as a treatment guide: seen as useful post-conservative treatment failure and (3) imaging has different consequences: reassuring for some; anxiety-inducing and misleading for others.

Conclusion: This study highlights the importance of patient education regarding the limitations of diagnostic imaging for non-specific cLBP and the need for healthcare providers to communicate more effectively about alternative pain management strategies.

An international consensus on the etiology, risk factors, diagnosis and Management for individuals with Frozen Shoulder: a Delphi study

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J Man Manip Ther. 2025 Aug;33(4):309-320.
doi: 10.1080/10669817.2025.2470461.



Abstract:

Introduction: There has been an emergence of evidence in the area of frozen shoulder (FS) within the past decade related to risk factors, etiology, diagnosis, and management. It has become increasingly challenging for clinicians and researchers to stay up to date in these areas, particularly with the clinical practice guidelines that are available being few and outdated. To this end, the aim of this study was to produce an international consensus on the risk factors, etiology, diagnosis and management for individuals with FS.

Methods: During phase one a steering committee was formed in order to identify experts in the area of FS, examine the current evidence related to FS and identify key areas lacking consensus. Phase two consisted of inviting experts to participate in a three-round survey with a priori consensus level set at 80%. Descriptive statistics were utilized to determine the characteristics of the expert panel, response rate, and level of consensus.

Results: A total of 14 international experts responded to all three rounds of the Delphi survey with 100% response rate following round one. Consensus was reached for 101 items (57 in the first round, 37 in the second round and 7 in the third and final round). Specific to key topic areas, the following number of items reached consensus; etiology 9 items (diabetes mellitus, trauma, shoulder arthroscopy, thyroid disease, prolonged immobilization, adrenocorticotrophic hormone deficiency, metabolic syndrome, connective tissue disorders, and hyperlipidemia), risk factors 40 items (including biophysical factors for developing FS and biophysical and psychosocial factors influencing the Management and course of outcomes related to FS), diagnosis 19 items (4 confounding the diagnosis and 15 signs and symptoms associated with FS), Management 33 items overall and categorized into effectiveness for early and later stages of FS).

Conclusion: The results of this international Delphi study help to provide a consensus on key elements to consider in clinical practice related to etiology, risk factors, diagnosis, and management for those with FS.



People Strongly Value Physical Therapies for Low Back Pain Over Doing Nothing, Even When Effects Are Very Small: A Discrete Choice Experiment

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J Orthop Sports Phys Ther. 2025 Sep;55(9):602-610.
doi: 10.2519/jospt.2025.13409.

Abstract:

Objective: To explore factors that influence patient preferences for recommended physical therapies for low back pain.

Design: Discrete choice experiment.

Methods: Respondents were randomized to a block of 12 choice tasks and asked to choose between two physical therapies or no treatment. Characteristics of the physical therapies varied between choice tasks and included type (exercise, advice and education, or clinician-directed treatment), effectiveness, time for symptoms to improve, costs, risk of side effects, and treatment duration. Choices were analyzed using a mixed logit model. Latent class analysis examined preference heterogeneity. To measure decision trade-offs, we estimated the smallest worthwhile effect and the "willingness to pay" value.

Results: A total of 697 Australians reporting a history of low back in the last year completed all choice tasks. Respondents showed a strong preference for taking any nonpharmacologic care option over no treatment ($OR = 17.24$; 95% CI [12.89, 22.58]). This preference was present at any level of effectiveness (smallest worthwhile effect = 0%). Respondents preferred physical therapies with higher effectiveness, quicker symptom improvement, lower out-of-pocket expenses, reduced side effects, and shorter duration. Respondents were willing to pay up to A\$355 per month for physical therapies over no treatment. Older and less-educated respondents had weaker preferences for physical therapies.

Conclusion: Respondents had a strong preference for any recommended physical therapies over no treatment for low back pain, even when effects were very small. Clinicians should discuss likely effectiveness, time for improvement, side effects, and treatment duration when supporting patients to choose between recommended physical therapies.



Manual therapy and neuroplasticity: central mechanisms and clinical implications for pain relief

Roberto Tedeschi

J Man Manip Ther. 2025 Aug;33(4):283-285.

doi: 10.1080/10669817.2025.2527532.

Abstract:

Introduction: Manual therapy (MT) has long been a cornerstone in the treatment of musculoskeletal pain, offering clinicians an effective tool for managing both acute and chronic conditions. Recent advancements in neuroimaging and pain science have revealed that the effects of MT extend beyond peripheral tissues, influencing central nervous system mechanisms such as cortical activity, connectivity, and neuroplasticity. However, to fully integrate these insights into clinical practice, clinicians should address practical considerations, including identifying responders to MT, understanding the longevity of its neuroplastic effects, and optimizing its application through complementary strategies.

Physiotherapists' beliefs of the working mechanisms of manual therapeutic techniques for spinal pain relief: a quantitative content analysis

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Musculoskelet Sci Pract. 2025 Oct;79:103387.

doi: 10.1016/j.msksp.2025.103387.

Abstract:

Background: Manual therapeutic techniques (MTTs), including high velocity thrust manipulation (HVT) and spinal mobilization (MOB), are used to reduce spinal pain. Physiotherapists' beliefs on their working mechanisms to relieve pain are unknown.

Objectives: To explore the prevalence of physiotherapists' beliefs regarding the working mechanisms of MTTs on pain relief and their associated factors.

Design: Quantitative content analysis.

Method: The results of the verbal and online survey were analyzed based on a theory-driven coding framework (categories and depth). Ordinal, linear, and nominal regression analyses were used to analyze the secondary aim.



Results: A total of 541 physiotherapists were included (survey, n = 383, 70.8 %; verbal surveys, n = 158, 29.2 %), resulting in 759 HVT and 713 MOB responses. Six categories were present: biomechanical (39.3 % HVT, 50.9 % MOB), neurophysiological (39.4 % HVT, 31.4 % MOB), immunological (2.0 % HVT, 1.1 % MOB), non-specific (13.4 % HVT, 14.2 % MOB), unknown (4.3 % HVT, 1.3 % MOB), and not categorizable (1.6 % HVT, 1.1 % MOB). Levels of depth were low (65.1 % HVT, 64.1 % MOB), moderate (17.3 % HVT, 19.0 % MOB), and high (17.4 % HVT, 16.8 % MOB). Having a Master degree, network participation and work experience were associated with the category of working mechanism, level of depth and number of working mechanisms.

Conclusion: The beliefs of physiotherapists in the Netherlands regarding the working mechanisms of MTTs for spinal-related pain reduction are mainly biomechanical and neurophysiological. The working mechanisms were dominantly explained in an unifactorial manner and with a low level of depth. Having a Master of Science degree was strongly associated with more evidence-consistent beliefs and deeper understanding.

Effectiveness of an active behavioural physiotherapy intervention (ABPI) for chronic non-specific neck pain: an internal pilot cluster-randomised double-blind clinical trial

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Musculoskelet Sci Pract. 2025 Oct;79:103389.
doi: 10.1016/j.msksp.2025.103389.

Abstract:

Background: Chronic non-specific neck pain (CNSNP) causes pain and disability, contributing to a serious public health problem. An active behavioural physiotherapy intervention (ABPI) may be an effective intervention to manage patients with CNSNP based on our previous trial data. To date, a CNSNP population has not been investigated with an ABPI.

Objectives: To preliminarily evaluate the potential effectiveness and feasibility of the ABPI for the management of patients with CNSNP.

Design: An internal pilot cluster-randomised double-blind, parallel 2-arm (ABPI vs standard physiotherapy intervention: SPI) clinical trial across 4 Thai public hospitals.

Methods: Forty participants (20 each arm) were recruited and face-to-face assessed at baseline and 3-month follow-up post baseline using the neck disability index (NDI), numerical pain rating scale (NPRS), cervical range of



motion, fear-avoidance beliefs questionnaire, central sensitisation inventory (CSI) and short form-36.

Results: The mean (standard deviation) age of participants was 38.1 (7.8) years. The ABPI demonstrated significant within group improvement in all outcome measures and the NDI, NPRS and CSI illustrated significant improvement for the SPI ($p \leq 0.05$). For the comparison between groups, all outcome measures were significantly better in the ABPI arm compared to the SPI ($p \leq 0.05$), except the CSI. Finally, the number of fully recovered participants (considering the $NDI \leq 4/50$) was greater for the ABPI (15/20 participants, 75 %) than the SPI (7/20 participants, 35 %).

Conclusion: These promising findings from an internal pilot study support continued data collection to conduct the definitive phase III trial ($n = 120$) to evaluate the effectiveness of the ABPI for the CNSNP management.

Are baseline clinical tests associated with the relative effectiveness of manual therapy and neck-specific exercise for people with chronic non-specific neck pain? Secondary analysis of a randomized controlled trial

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Musculoskelet Sci Pract. 2025 Sep 3:80:103393.

doi: 10.1016/j.msksp.2025.103393.

Abstract:

Objective: To evaluate whether baseline clinical tests are associated with the relative effectiveness of manual therapy versus neck-specific exercise for people with chronic non-specific neck pain (NSNP).

Design: Pre-planned secondary analysis of a single-blind, parallel, randomized clinical trial with two treatment arms, adhering to CONSORT guidelines.

Methods: 65 participants with NSNP were randomly allocated with a 1:1 allocation ratio to a programme of either manual therapy or neck-specific exercise. A battery of clinical tests was performed pre-treatment. The manual therapy group had four 30-min sessions, while the exercise group followed a four-week program with physiotherapist-led sessions and daily home exercises. Outcomes measured at baseline, two weeks, four weeks, and 12 weeks post-treatment included pain intensity, disability, patient-perceived improvement, quality of life, and kinesiophobia. Patients were



categorized into either responders or non-responders according to pain intensity, disability and patient-perceived improvement.

Results: Patients with NSNP that reported bilateral pain, no blocking sensation and greater pain at end of range, showed side flexion or rotation range of movement asymmetry, and whose symptoms could be reproduced during the specific neck movements, were more likely to be classified as responders if they received manual therapy when compared to neck-specific exercise. Adjusted odds ratios (Prob >0.95) varied considerably (range 7.01xe-14 to 0.32) depending on clinical tests and the follow up time point.

Conclusion: A battery of clinical tests showed significant associations with the relative effectiveness of manual therapy versus neck-specific exercise in patients with NSNP.

Pain Science in Practice (Part 8): Nociceptive, Neuropathic, and Nociplastic Pain

Morten Hoegh, Paul Hodges

J Orthop Sports Phys Ther. 2025 Sep;55(9):1-6.

doi: 10.2519/jospt.2025.13335.

Abstract:

Synopsis: Identifying pain descriptors provides a way to tailor pain management based on presumed underlying mechanisms. The aim is to use mechanistic pain descriptors (nociceptive, neuropathic, and nociplastic pain) to guide clinical practice into an era of personalized medicine for people with pain. Clinicians should understand the concept of descriptors to improve their understanding of a mechanism-based management of chronic pain. Nonetheless, all treatment of individuals suffering from chronic pain should be holistic (ie, person-centered). Nociplastic pain already serves as an evidence-based explanation that can help make sense of pain without any known pathology, but is not ready to be considered as a target for treatment in itself, based on the current level of evidence. To summarize, treatment outcomes may improve when treatments are matched to patients according to mechanistic descriptors. Current research initiatives are working on bring this closer to the clinic.



Iliotibial band syndrome, “runner’s knee

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Abstract:

The iliotibial band syndrome (ITBS) is one of the most common overuse problems in runners. It is the most common running injury affecting the lateral side of the knee. The underlying pathological mechanism has not yet been consistently defined. However, it appears to be a combination of friction of the iliotibial tract on the lateral femoral epicondyle during repeated flexion and compression of the highly innervated fat pad between the iliotibial ligament (ITL) and the lateral epicondyle. There are numerous causes of ITBS, ranging from anatomical changes and muscular imbalances to functional factors such as running technique. The aim of all measures should be to improve muscle tonus and alignment to minimize compression of the tissue between the ITB and the epicondyle. Strength endurance training of the hip muscles in combination with running technique training is recommended. The integration of stretching exercises seems to be beneficial.

Running improves mental health symptoms and pain catastrophising in adults with chronic low back pain: a secondary analysis of the ASTERIOD randomised controlled trial

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J Sci Med Sport. 2025 Aug 8:S1440-2440(25)00374-3.

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Abstract:

Objectives: This pre-planned secondary analysis examined the effects of a running intervention on mental health symptoms and pain catastrophising in adults with chronic low back pain.

Design: Two-arm parallel individual randomised (1:1) controlled trial.

Methods: This study randomised 40 adults (mean [standard deviation] age: 33 [6] years, female: 50 %) with non-specific chronic low back pain to a 12-week running (progressive run-walk interval exercise training) intervention



(n = 20) or waitlist control (n = 20). Outcomes were mental health symptoms (21-item Depression, Anxiety, and Stress Scale) and pain catastrophising (Pain Catastrophising Scale). Data were collected at baseline, six, and 12 weeks post-baseline. Separate linear mixed models with random effects (participants) evaluated within- and between-group changes.

Results: At 12 weeks post-baseline, running improved overall mental health symptoms (estimated marginal mean net difference [95 % confidence interval] points: -4.35 [-7.73, -0.97], $P = 0.012$), depression symptoms (-1.75 [-3.42, -0.08], $P = 0.040$), stress symptoms (-1.65 [-3.01, -0.29], $P = 0.017$), and pain catastrophising (-7.85 [-11.98, -3.72], $P < 0.001$), yet not anxiety symptoms (-0.95 [-2.16, 0.26], $P = 0.122$), compared with control.

Conclusions: Running improved mental health symptoms and pain catastrophising among adults with non-specific chronic low back pain when compared to waitlist control. Differences in pain catastrophising, yet not mental health symptoms, were clinically meaningful. Running appears to be an efficacious treatment for psychological comorbidities common among adults with non-specific chronic low back pain.

Shoulder pain: to image or not to image?

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Abstract:

Introduction: Imaging findings should be interpreted within the broader context of an individual's shoulder symptoms. While imaging is valuable in identifying specific structural pathologies, findings are often equivocal. Defining what imaging changes constitute “normal”, “abnormal”, “unrelated”, “solely causative” findings, and which are, “contributory”, or “associated” with symptoms is a clinical minefield.

Although a naive interpretation might equate “normal” with the absence of pathological features (e.g., no rotator cuff tears, calcification, or labral lesions), this is an oversimplification. For example, rotator cuff tendon tears are frequently observed in individuals without symptoms, who function for years at a very high level of performance. Rotator cuff tendon tears increase asymptotically with increasing age, suggesting, like wrinkles and grey hair, the tears are likely to be a normal non-noxious senescent change.



Furthermore, individuals may exhibit full mobility, exceptional muscle performance, no symptoms, and above average function despite observable labral tears, tendon irregularities commonly termed tendinosis, or partial/full-thickness rotator cuff tears. Moreover, non-sinister and non-traumatic soft tissue imaging considered to be abnormal cannot reliably distinguish currently symptomatic shoulders, previously symptomatic, or those that have never been symptomatic, as the prevalence of “abnormal” findings is often similar across these groups. It is arguable that many so called “abnormalities” have been labeled as such because they represent deviations in structure from idealized and flawless anatomical drawings. The equivocal association between imaging changes and symptoms has lead researchers and clinicians, to question a biomechanical role in symptom causation and/or perpetuation. This is evident in the arguments such as nociception is not needed to experience pain, and that pain should be considered a perception and not a sensation. These arguments, commonplace in pain science, are not supported by definitive research and should still be regarded as hypotheses and not “fait accompli”. Without doubt, psychosocial factors and the social determinants of health play a seismic role in the experience, perpetuation, and prognosis of symptoms for those living with shoulder pain. However, arguments have been made to reframe the relevance of “bio” in shoulder symptoms, and recently a strong case has been made to consider *bio*-chemical factors in the development and perpetuation of rotator cuff related shoulder pain.

The appropriate utilization and necessity of shoulder imaging is also equivocal. Guidelines offer inconsistent recommendations and conflicting advice concerning the prescription of radiographs for diagnosing rotator cuff tendinopathy, as some guidelines recommend radiographs during the initial evaluation (e.g., routinely), although others suggest that radiographs *might* be considered, especially when conservative treatment fails. Notably, one high-quality guideline did not recommend radiographs for the initial management. Lastly, International Consensus suggests using certain *dynamic* imaging techniques as complementary to medical history and physical examination for the clinical assessment of dysfunctional disorders (e.g., subluxation, instability). This approach could aid clinicians in perceiving “functional” disorders rather than solely anatomical or structural injuries. As a consequence of this ambiguity, a significant number of clinicians were responsible for referrals for “low-value” imaging, especially for those without a traumatic onset.

To promote consideration for the role of “bio” in shoulder symptoms and encourage debate among clinicians and researchers, this opinion paper aims to stimulate discussion on the value of imaging in management of



musculoskeletal shoulder pain. We sought to capture diverse perspectives from various health disciplines by incorporating input from clinicians, researchers, educators, physiotherapists, physicians, and nurses working within the musculoskeletal field, aimed at providing a comprehensive perspective to our manuscript.

The Rumpelstiltskin effect: therapeutic repercussions of clinical diagnosis

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BJPsych Bull. 2025 Aug 22:1-5.

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Abstract:

Clinicians across medical disciplines are intimately familiar with an unusual feature of descriptive diagnoses. The diagnostic terms, despite their non-aetiological nature, seem to offer an explanatory lens to many patients, at times with profound effects. These experiences highlight a striking, neglected and unchristened medical phenomenon: the therapeutic effect of a clinical diagnosis, independent of any other intervention, where clinical diagnosis refers to situating the person's experiences into a clinical category by either a clinician or the patient. We call this the Rumpelstiltskin effect. This article describes this phenomenon and highlights its importance as a topic of empirical investigation.

The Efficacy of Education as an Intervention for Improving Core Outcome Domains in People With Tendinopathy: A Systematic Review With Meta-analysis

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J Orthop Sports Phys Ther. 2025 Aug;55(8):1-15.

doi: 10.2519/jospt.2025.13196.

Abstract:

Objective: To evaluate the efficacy of standalone education for people with tendinopathy.



Design: Intervention systematic review with meta-analysis. **Literature Search:** MEDLINE, CINAHL, SPORTDiscus, and EMBASE (from inception to June 2024).

Study Selection Criteria: Randomized controlled trials (RCTs) comparing standalone education to another intervention for adults with tendinopathy.

Data Synthesis: Outcome (success/no success), pain, and function data were extracted in the short (≤ 3 months), medium (3-6 months), and long term (≥ 12 months). Homogeneous data were pooled using random effects and subgrouped by tendinopathy. Continuous and dichotomous data were used to calculate standardized mean differences and odds ratios (ORs) with 95% confidence intervals (CIs), respectively.

Results: Eleven RCTs involving 2094 people with tendinopathy were included. Education delivery mode and content varied substantially. There was very low- to low-certainty evidence that education was equivalent to physiotherapy management for short- (OR, 0.56; 95% CI: 0.31, 1.01), medium- (OR, 0.42; 95% CI: 0.12, 1.53), and long-term (OR, 0.56; 95% CI: 0.21, 1.51) treatment success. There was very low- to low-certainty evidence that education was equivalent to corticosteroid injection for short- (OR, 0.32; 95% CI: 0.14, 2.31), medium- (OR, 1.76; 95% CI: 0.18, 17.54), and long-term (OR, 1.86; 95% CI: 0.71, 4.84) treatment success. There was very low-certainty evidence that education combined with physiotherapy management offered no additional benefit for short- (OR, 0.54; 95% CI: 0.07, 4.16), medium- (OR, 0.47; 95% CI: 0.12, 1.81), and long-term (OR, 0.56; 95% CI: 0.21, 1.46) treatment success.

Conclusion: The short-term benefits of additional treatment to standalone education were not carried through into the medium- and long-term. Education as a standalone treatment could be considered as part of shared decision making for adults with tendinopathy.

Effect of a Walking Plus Education Program on the Duration and Severity of Recurrences of Low Back Pain: A Secondary Exploratory Analysis of the WalkBack Trial

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J Orthop Sports Phys Ther. 2025 Sep;55(9):1-6.
doi: 10.2519/jospt.2025.13361.

Abstract:



Objective: To explore the effect of the WalkBack intervention on the duration and severity of low back pain in participants who reported a recurrence.

Design: Secondary exploratory analysis of the WalkBack randomized controlled trial.

Methods: The WalkBack trial compared an individualized and progressive walking plus education program delivered by physiotherapists, to a no-treatment control group for preventing new recurrences of low back pain. In this study, we analyzed the first recurrence of low back pain ($n = 596$). The primary outcome for this analysis was the duration of the recurrence (time to recovery in days). The secondary outcomes were the level of interference with daily activity caused by the recurrence, and pain intensity (average and worst). Survival analysis, linear, and ordinal regression were used to compare outcomes between groups.

Results: Walking plus education was associated with a shorter duration of pain recurrence compared to control: median time to recovery 3 days (95% confidence interval [CI]: 3, 4) versus 4 days (95% CI: 4, 5); hazard ratio 1.30 (95% CI: 1.10, 1.53; $P = .002$). There was no between-group difference in interference with daily activity or average pain intensity. The intervention group reported lower worst pain intensity on average than the control group (-0.34 on a numerical pain-rating scale from 0 to 10; 95% CI: -0.65 , -0.03 ; $P = .03$).

Conclusion: Participants who received a tailored and progressive walking plus education program reported shorter and milder back pain recurrences than participants in the control group. However, the benefits were small and of uncertain clinical relevance.

