



Abstracts October 2023

Ultrasound guided lavage with corticosteroid injection versus sham lavage with and without corticosteroid injection for calcific tendinopathy of shoulder: randomized double blinded multi-arm study

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Abstract:

Objective: To compare treatment effects between ultrasound guided lavage with corticosteroid injection and sham lavage with and without corticosteroid injection in patients with calcific tendinopathy of the shoulder.

Design: Pragmatic, three arm, parallel group, double blinded, sham controlled, randomized, superiority trial with repeated measurements over 24 months.

Setting: Six hospitals in Norway and Sweden.

Participants: 220 adults with calcific tendinopathy of the shoulder, persistent for at least three months.

Interventions: Ultrasound guided deposit lavage plus subacromial injection of 20 mg triamcinolone acetonide and 9 mL 1% lidocaine hydrochloride (lavage steroid); sham lavage plus subacromial injection of 20 mg triamcinolone acetonide and 9 mL 1% lidocaine hydrochloride (sham lavage steroid); or sham lavage plus subacromial injection of 10 mL 1% lidocaine hydrochloride (sham). All patients received a physiotherapeutic treatment regimen consisting of four home exercises.

Main outcome measures: The primary outcome was the result on the 48-point scale (0=worst; 48=best) of the Oxford Shoulder Score (OSS) at four-month follow-up. Secondary outcomes included measurements on the short form of the Disabilities of the Arm, Shoulder and Hand questionnaire (Quick DASH) and of pain intensity up to 24 months. The influence of the size of the deposit at baseline and of the persistence or disappearance of the deposit was investigated.

Results: Data from 218 (99%) participants were included in the primary analysis. Differences between groups on the OSS at four months were not significant: lavage steroid versus sham 0.2 (95% confidence interval -2.3 to 2.8; $P=1.0$); sham lavage steroid versus sham 2.0 (-0.5 to 4.6; $P=0.35$); lavage steroid versus sham lavage steroid -1.8 (-4.3 to 0.7; $P=0.47$). After four months, 143 patients with insufficient treatment effect received supplementary treatment. At 24 months, none of the study procedures was superior to sham. No serious adverse events were reported.

Conclusions: This study found no benefit for ultrasound guided lavage with a corticosteroid injection or for sham lavage with a corticosteroid injection compared with sham treatment in patients with calcific rotator cuff tendinopathy of the shoulder.

Diagnostic clinical prediction rules for categorizing low back pain: A systematic review.

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Musculoskeletal Care October 09, 2023

<https://doi.org/10.1002/msc.1816>

Abstract:

Background: Low back pain (LBP) is a common complex condition, where specific diagnoses are hard to identify. Diagnostic clinical prediction rules (CPRs) are known to improve clinical decision-making. A review of LBP diagnostic-CPRs by Haskins et al. (2015) identified six diagnostic-CPRs in derivation phases of development, with one tool ready for implementation. Recent progress on these tools is unknown. Therefore, this review aimed to investigate developments in LBP diagnostic-CPRs and evaluate their readiness for implementation.

Methods: A systematic review was performed on five databases (Medline, Amed, Cochrane Library, PsycINFO, and CINAHL) combined with hand-searching and citation-tracking to identify eligible studies. Study and tool quality were appraised for risk of bias (Quality Assessment of Diagnostic Accuracy Studies-2), methodological quality (checklist using accepted CPR methodological standards), and CPR tool appraisal (Grade and Assess Predictive).

Results: Of 5021 studies screened, 11 diagnostic-CPRs were identified. Of the six previously known, three have been externally validated but not yet undergone impact analysis. Five new tools have been identified since Haskin et al. (2015); all are still in derivation stages. The most validated diagnostic-CPRs include the Lumbar-Spinal-Stenosis-Self-Administered-Self-Reported-History-Questionnaire and Diagnosis-Support-Tool-to-Identify-Lumbar-Spinal-Stenosis, and the Step-tool which differentiates radicular from axial-LBP.

Conclusions: This updated review of LBP diagnostic CPRs found five new tools, all in the early stages of development. Three previously known tools have now been externally validated but should be used with caution until impact evaluation studies are undertaken. Future funding should focus on externally validating and assessing the impact of existing CPRs on clinical decision-making.

Effects of hip pain diagnostic labels and their explanations on beliefs about hip pain and how to manage it: An online randomized controlled trial.

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<https://www.jospt.org/doi/10.2519/jospt.2023.11984>

Abstract:

Objectives: To compare the effects of diagnostic labels and their explanations on people's beliefs about managing hip pain.

Design: Online randomized controlled trial involving 626 participants.

Methods: Participants: aged ≥ 45 years with and without hip pain considered a hypothetical scenario (initial doctor consultation for hip pain). They were randomized to receive a diagnostic label and explanation of 1) hip osteoarthritis, 2) persistent hip pain, or 3) hip degeneration. Primary outcomes were the beliefs 1) exercise would damage the hip and 2) surgery is necessary at some stage (scales, 0=would not/unnecessary, 10=would/necessary). Secondary outcomes included beliefs about other treatments and care providers.

Results: Compared to hip degeneration, participants who were allocated to hip osteoarthritis and persistent hip pain believed exercise was less damaging (mean difference -1.3 [95% CI: -1.9, -0.7] and -1.8 [-2.3, -1.2], respectively) and surgery less necessary (-1.5 [-2.1, -1.0] and -2.2 [-2.7, -1.6], respectively). Compared to hip osteoarthritis, participants who were allocated to persistent hip pain believed surgery was less necessary (-0.7 [-1.2, -0.1]), but not that exercise was less damaging (-0.5 [-1.1, 0.1]). Compared to hip degeneration, participants who were allocated to hip osteoarthritis and persistent hip pain were less concerned about their hip and believed exercise and care from an exercise and sports physician, rheumatologist, or physiotherapist would be more helpful, and care from an orthopedic surgeon less helpful.

Conclusions: People who were allocated a diagnostic label and explanation of hip osteoarthritis or persistent hip pain believed exercise was less damaging and surgery less necessary for a hip problem than hip degeneration.

Incidence of lumbar spondylolysis in athletes with low back pain A systematic evaluation and single-arm meta-analysis

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Abstract:

Background: Low back pain (LBP) is a common chief complaint from athletes. Lumbar spondylolysis (LS) is a common sport injury. Severe LS is likely to cause spinal instability, resulting in lumbar spondylolisthesis or lumbar disc herniation, and even damage to the spinal nerve roots. The incidence of LS is approximately 5% in the adult population, and nearly half of young athletes with LBP are diagnosed with LS. This meta-analysis analyzed the incidence of LS in athletes with LBP.

Methods: PubMed, Embase, Cochrane (Cochrane Central Register of Controlled Trials), and Web of Science databases were systematically searched for published case report and retrospective analyses related to the topic from the date of database creation to January 1, 2023. Relevant literature was screened, and information extracted, and risk of bias was assessed for included studies using the methodological index for non-randomized-studies scale. Single-arm Meta-analysis was performed using R4.04 software. Heterogeneity was quantified by Cochran Q test and Higgins I². Funnel plots were used to visualize publication bias, and Egger test and Begg test were used to statistical tests.

Results: A total of 9 studies (835 patients) were included in this study. Meta-analysis revealed that the prevalence of LS in athletes with LBP was estimated at 41.7%,

[95% CI = (0.28–0.55)], but this prevalence varied considerably with the gender and age of the athletes.

Conclusion: The estimated prevalence of LS in athletes with LBP is 41.7%, and future correlations between the prevalence of LS in adolescent athletes worldwide need to be assessed from different perspectives, including biomechanical, hormonal, anatomical, behavioral, and gender differences.

Abbreviations: LBP = low back pain, LS = lumbar spondylolysis.

Living with frozen shoulder. ‘Here are the risks. I want the injection’. An interpretative phenomenological analysis

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Musculoskeletal Science and Practice April 04, 2023

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Abstract:

Background: Frozen shoulder is a disabling condition characterised by severe pain and loss of shoulder movement and may affect up to 5% of the population. Qualitative research documents debilitating pain and how treatment to reduce pain is a priority for people diagnosed with frozen shoulder. Corticosteroid injections are a principal treatment to reduce the pain of frozen shoulder, however little is known about the patient experience.

Objectives: This study aims to address this gap in the knowledge by exploring the lived experience of people with frozen shoulder who have undergone an injection and to highlight other novel findings.

Design: This is a qualitative study using interpretative phenomenological analysis. One-to-one, semi-structured interviews were conducted with seven people diagnosed with frozen shoulder who had received a corticosteroid injection as part of their management.

Methodology: A purposive sample of participants were interviewed via MS Teams™ due to Covid-19 restrictions. Data was collected through semi-structured interviews and analyzed in accordance with interpretive phenomenological analysis methods.

Results: Three group experiential themes were identified: the dilemma surrounding injections; the challenges of understanding the causes of frozen shoulder; the impact on self and others.

Conclusion: Participants conveyed a strong desire in seeking a corticosteroid injection whilst seemingly dismissing the risks. A novel concept was illuminated as frozen shoulder seemed inextricably linked with the ageing process, which negatively impacted body-image. The impact on others is driven by a sense of the unfamiliar nature of illness and it is incumbent on healthcare professionals to seek opportunities to explore the individual's beliefs.

Modernizing patient-centered manual therapy: Findings from a Delphi study on orthopedic manual therapy application

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Abstract:

Background: Recent literature challenges the process by which orthopedic manual therapy (OMT) has traditionally been applied. Progressive understanding of the complexities surrounding OMT analgesia and the decreased reliance on technique specific characteristics in determining treatment effectiveness promotes an update to training paradigms related to OMT.

Objectives: The purpose of this Delphi study was to establish consensus on what trainees should be focusing on when demonstrating OMT techniques and how candidates for OMT should be identified.

Design: An international three-round Delphi study following recommended guidelines for conducting and reporting of Delphi studies (CREDES) was performed.

Methods: One-hundred sixty-four expert manual therapy educators were identified for participation across four countries. Participants were asked to provide what concepts trainees should be focusing on when demonstrating OMT techniques and how candidates for OMT should be identified. Twenty-one themes were identified for each question.

Results: Twenty-eight participants completed all three rounds of the Delphi. Consensus was reached on nineteen themes and eighteen themes respectively. Results from this Delphi stress patient-centered care within a biopsychosocial pain management model. Representation across all pillars of evidence-based practice were represented. Themes reaching consensus within this study favored the importance of neurophysiological, psychological, and biomechanical principles.

Conclusion: This Delphi presents consensus-based recommendations for what manual therapy trainees should focus on when demonstrating OMT techniques and on how candidates for OMT should be identified. These findings in collaboration with previous consensus recommendations on concepts to focus on within OMT education promote restructuring of OMT curriculum to evidence-based patient-centered care models.

Cracking the code: unveiling the specific and shared mechanisms behind musculoskeletal interventions

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Abstract:

Background: Mechanisms reflect the steps or processes through which an intervention unfolds and produces change in a specified outcome variable. Mechanisms are responsible for determining “how treatments work” which has

emerged as a critical question for both developing theory and enhancing treatment efficacy. Studies that evaluate “how” treatments work, not just “if” treatments work are of considerable importance.

Discussion: Specific and shared mechanisms research is a promising approach which aims to improve patient outcomes by tailoring treatments to the specific needs of each patient. Mechanisms research is an underexplored area of research requiring a unique research design.

Conclusion: Although mechanisms research is still in its infancy, prioritizing the study of the mechanisms behind manual therapy interventions can provide valuable insight into optimizing patient outcomes.

One and done? The Effectiveness of a Single Session of Physiotherapy Compared with Multiple Sessions to Reduce Pain and Improve Function and Quality of Life in Patients with a Musculoskeletal Disorder: A Systematic Review With Meta-analyses

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Archives of Physical Medicine and Rehabilitation October 04, 2023
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Abstract:

Objective: To compare single and multiple physiotherapy sessions to improve pain, function, and quality of life (QoL) in patients with musculoskeletal disorders (MSKDs).

Data Sources: AMED, Cinahl, Sports Discus, Medline, Cochrane Register of Clinical Trials, Physiotherapy Evidence Database, and reference lists.

Study Selection: Randomized controlled trials (RCTs) comparing single and multiple physiotherapy sessions for MSKDs.

Data Extraction: Two reviewers extracted data and assessed risk of bias and certainty of evidence using Cochrane Risk of Bias tool 2.0 and Grading of Recommendation Assessment, Development, and Evaluation.

Data Synthesis: Six RCTs (n=2090) were included (conditions studied: osteoporotic vertebral fracture, neck, knee, and shoulder pain). Meta-analyses with low-certainty evidence showed a significant pain improvement at 6 months in favor of multiple sessions compared with single session interventions (3 RCTs; n=1035; standardized mean difference [SMD]: 0.29; 95% CI: 0.05 to 0.53; P=.02) but this significant difference in pain improvement was not observed at 3 months (4 RCTs; n=1312; SMD: 0.39; 95% CI: -0.11 to 0.89; P=.13) and at 12 months (4 RCTs; n=1266; SMD: -0.05; 95% CI: -0.49 to 0.39; P=.82). Meta-analyses with low-certainty evidence showed no significant differences in function at 3 (4 RCTs; n=1583; SMD: 0.05; 95% CI: -0.11 to 0.21; P=.56), 6 (4 RCTs; n=1538; SMD: 0.06; 95% CI: -0.12 to 0.23; P=.53) and 12 months (4 RCTs; n=1528; SMD: 0.08; 95% CI: -0.08 to 0.25; P=.30) and QoL at 3 (4 RCTs; n=1779; SMD: 0.08; 95% CI: -0.02 to 0.17; P=.12), 6 (3 RCTs; n=1206; SMD: 0.03; 95% CI: -0.08 to 0.14; P=.59), and 12 months (4 RCTs; n=1729; SMD: -0.03; 95% CI: -0.12 to 0.07; P=.58).

Conclusions: Low certainty meta-analyses found no clinically significant differences in pain, function, and QoL between single and multiple physiotherapy sessions for

MSKD management for the conditions studied. Future research should compare the cost-effectiveness of those different models of care.

Minimal important change and difference in health outcome: An overview of approaches, concepts, and methods

Joost Dekker, Michiel de Boer, Raymond Ostelo
Osteoarthritis and Cartilage September 07, 2023
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Abstract:

Objective: To provide an overview of approaches, concepts, and methods used to define and assess minimal important change and difference in health outcome.

Method: A narrative review of the literature, guided by a conceptual framework.

Results: We distinguish between (i) interpretation of health outcome in individuals versus groups, (ii) change within individuals or groups versus difference between change within individuals or groups; and (iii) the responder approach (based on the proportion of patients that obtain a defined response) versus the group average approach (based on the average amount of change in a group). We review approaches, concepts, and methods.

Conclusion: By bringing together and juxtaposing various approaches, concepts, and methods, we set a precursory step in the direction of consensus building in the field concerned with defining and assessing minimal important change and difference in health outcome. We emphasize the need for conceptual clarification and terminological standardization. We argue that assessing minimal importance of change and difference in health outcome is essentially a value judgment involving a range of considerations and perspectives.

Patellar Tendon Load Progression during Rehabilitation Exercises: Implications for the Treatment of Patellar Tendon Injuries

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Medicine in Science in Sports and Exercise October 17, 2023
Doi: 10.1249/MSS.0000000000003323

Abstract:

Purpose: To evaluate patellar tendon loading profiles (loading index, based on loading peak, loading impulse, and loading rate) of rehabilitation exercises to develop clinical guidelines to incrementally increase the rate and magnitude of patellar tendon loading during rehabilitation.

Methods: Twenty healthy adults (10 females/10 males, 25.9 ± 5.7 years) performed 35 rehabilitation exercises, including different variations of squats, lunge, jumps, hops, landings, running, and sports specific tasks. Kinematic and kinetic data were collected and a patellar tendon loading index was determined for each exercise using

a weighted sum of loading peak, loading rate, and cumulative loading impulse. Then, the exercises were ranked, according to the loading index, into tier 1 (loading index ≤ 0.33), tier 2 ($0.33 < \text{loading index} < 0.66$), and tier 3 (loading index ≥ 0.66).

Results: The single leg decline squat showed the highest loading index (0.747). Other tier 3 exercises included single-leg forward hop (0.666), single-leg countermovement jump (0.711), and running cut (0.725). The Spanish squat was categorized as a tier 2 exercise (0.563), as was running (0.612), double-leg countermovement jump (0.610), single-leg drop vertical jump (0.599), single-leg full squat (0.580), double-leg drop vertical jump (0.563), lunge (0.471), double-leg full squat (0.428), single-leg 60° squat (0.411), and the Bulgarian squat (0.406). Tier 1 exercises included 20 cm step up (0.187), 20 cm step down (0.288), 30 cm step up (0.321), and double-leg 60 squat (0.224).

Conclusions: Three patellar tendon loading tiers were established based on a combination of loading peak, loading impulse, and loading rate. Clinicians may use these loading tiers as a guide to progressively increase patellar tendon loading during the rehabilitation of patients with patellar tendon disorders and after anterior cruciate ligament reconstruction using the bone patellar tendon bone graft.

The influence of psychological traits and prior experience on treatment expectations

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Comprehensive Psychiatry October 14, 2023

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Abstract:

Background: Placebo and nocebo responses are modulated by the treatment expectations of participants and patients. However, interindividual differences predicting treatment expectations and placebo responses are unclear. In this large-scale pooled analysis, we aim to investigate the influence of psychological traits and prior experiences on treatment expectations.

Methods: This paper analyses data from six different placebo studies (total $n = 748$). In all studies, participants' sociodemographic information, treatment expectations and prior treatment experiences and traits relating to stress, somatization, depression and anxiety, the Big Five and behavioral inhibition and approach tendencies were assessed using the same established questionnaires. Correlation coefficients and structural equation models were calculated to investigate the relationship between trait variables and expectations.

Results: We found small positive correlations between side effect expectations and improvement expectations ($r = 0.187$), perceived stress ($r = 0.154$), somatization ($r = 0.115$), agitation ($r = 0.108$), anhedonia ($r = 0.118$), and dysthymia ($r = 0.118$). In the structural equation model previous experiences emerged as the strongest predictors of improvement ($\beta = 0.32$, $p = .005$), worsening ($\beta = -0.24$, $p = .005$) and side effect expectations ($\beta = 0.47$, $p = .005$). Traits related to positive affect ($\beta = -0.09$; $p = .007$) and negative affect ($\beta = 0.04$; $p = .014$) were associated with side effect expectations.

Discussion: This study is the first large analysis to investigate the relationship between traits, prior experiences and treatment expectations. Exploratory analyses

indicate that experiences of symptom improvement are associated with improvement and worsening expectations, while previous negative experiences are only related to side effect expectations. Additionally, a proneness to experience negative affect may be a predictor for side effect expectation and thus mediate the occurrence of nocebo responses.

The usefulness of the STarT back screening tool and single-item general health measures when predicting future disability in patients with low back pain treated in Danish primary care physiotherapy.

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Musculoskeletal Science and Practice April 23, 2023
<https://doi.org/10.1016/j.msksp.2023.102767>

Abstract:

Introduction: The extent to which disease specific screening tools or other health measures add to the predictive value of common clinical factors (pain, disability and socio-demographics) has been sparsely investigated. The aim of this study was to investigate whether a disease specific screening tool and a single-item general health measure adds predictive value to basic information collected in primary physiotherapy care when predicting future disability in patients with low back pain.

Material and methods: This longitudinal cohort study included 354 patients with low back pain from Danish primary care physiotherapy. Information was collected on socio-demographics, common clinical factors, The STarT Back Screening Tool (SBT) and general health perceptions measured as a single item from the SF-36 (GH1). Disability at 6-month follow-up, measured by the Roland-Morris Disability Questionnaire, was predicted using multiple linear regression models. Results: Clinical factors and baseline disability level explained 28.3% of the variance in 6-month disability scores. With SBT and GH-1 added separately to the baseline model, the explained variance increased by 2.1% ($p = 0.01$) and 3.6% ($p < 0.001$), respectively.

Conclusion: The added value of the disease specific screening tools or the single-item general measure when predicting disability in patients with low back pain was generally small. Moreover, the predictive value of the single-item general measure seems comparable to and slightly better than the disease specific screening tool. Overall, these findings may question the clinical utility of such measures.

Self-administered stretching exercises are as effective as motor control exercises for people with chronic non-specific low back pain: a randomized trial.

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Abstract:

Question: In people with chronic non-specific low back pain, what is the effect of self-administered stretching exercises relative to motor control exercises on pain intensity, disability, fear avoidance, global perceived effect and flexibility?

Design: Randomized trial with concealed allocation, intention-to-treat analysis and blinding of assessors.

Participants: One hundred people with chronic non-specific low back pain.

Interventions: The self-stretching exercise group performed 6 stretches in 40-minute sessions. The motor control exercise group performed trunk stabilizing exercises in 40-minute sessions. Both groups performed weekly supervised sessions for 8 weeks with one or more home sessions/week.

Outcome measures: The primary outcomes were pain intensity (0 to 10 scale) and disability (Oswestry Disability Index). The secondary outcomes were the Fear Avoidance Beliefs Questionnaire, global perceived effect, and the fingertip-to-floor test. Measures were taken at baseline and at 8, 13 and 26 weeks.

Results: On the 0 to 10 scale, the between-group difference in pain intensity was negligible, with a mean difference of roughly 0 (95% CI -1 to 1) at each time point. Similarly, the between-group difference on the 100-point disability scale was negligible: MD -1 (95% CI -3 to 1) at week 8, MD 1 (95% CI -1 to 3) at week 13 and MD 0 (95% CI -1 to 2) at week 26. The two interventions also had similar effects on the secondary outcomes.

Conclusion: In people with chronic non-specific low back pain, self-stretching exercises had very similar effects to motor control exercises on pain intensity, disability, fear avoidance, global perceived effect and flexibility up to 18 weeks beyond the end of an 8-week program. Given the established effectiveness of motor control exercises, either intervention could be recommended to people with chronic low back pain. The choice of intervention might be directed by patient preference.