



## Abstracts December 2023

### **Feasibility, Reliability, and Validity of the Modified Forward Hop Test After Anterior Cruciate Ligament Reconstruction: Double-Instead of Single-legged Landing is Reliable and Results in Greater Hopping Distance**

*Eduard Kurz, PhD, Matthias Keller, BA, Wolfgang Schoch, MSc, Thomas Stein, MD, PhD, Anja Hirschmüller, MD, Daniel Niederer, PhD*  
Archives of Physical Medicine and Rehabilitation November 26, 2023  
<https://doi.org/10.1016/j.apmr.2023.11.008>

#### **Abstract:**

**Objective:** To investigate the feasibility, reliability, and validity of the Modified forward hop (MFH) test in participants after ACL reconstruction (ACLR).

**Setting:** Assessments were administered at different clinical locations in Germany and Switzerland by the same 2 investigators.

**Participants:** Forty-eight active individuals participated in this study (N=48).

**Main Outcome Measures:** The participants performed MFHs and Forward hops for distance in a predetermined order. The feasibility of the MFH was quantified with proportions of successfully executed attempts and Pearson's  $\chi^2$  test. Its reliability was estimated using intraclass correlation coefficient (ICC) and standard error of measurement (SEM). Test validity was explored using Pearson's product moment correlation analyses.

**Results:** Fewer failed attempts were recorded among the participants (age: 30 [Standard deviation 11] years; 22 women, 26 (13) months post-surgery) when compared with the Forward hop for distance test (25/288 trials; 9% vs 72/288 trials; 25%). Within-session ICC values were excellent ( $>0.95$ ) for both types of Forward hop tests, independent of the side examined. The SEM values were comparable between the Modified (injured: 5.6 cm, uninjured: 5.9 cm) and the classic Forward hop (injured: 4.3 cm, uninjured: 7.2 cm).

**Conclusion:** The MFH is a feasible, reliable, and valid tool for judging neuromuscular performance after ACLR. If the aim of a hop for distance incorporates enhanced perceived or real landing safety, landing on both feet should be used.

## Active discopathy: a clinical reality

Margaux Boisson, Marie-Martine Lefèvre-Colau, François Rannou, Christelle Nguyen  
Rheumatic & Musculoskeletal Diseases March 26, 2018  
<https://doi.org/10.1136/rmdopen-2018-000660>

### Abstract:

In the late 1980s, the description by Modic and colleagues of elementary disc vertebral changes detected on MRI (Modic classification) suggested for the first time a possible correlation between anatomical and clinical features in a subgroup of patients with non-specific chronic low back pain. Degenerative disc disease is frequent and usually asymptomatic, but Modic 1 changes in the vertebral endplates adjacent to a degenerated disc are associated with inflammatory-like chronic low back pain and low-grade local and systemic inflammation, which led to the concept of 'active discopathy'. Active discopathy shares some similarities with acute flares of peripheral osteoarthritis. Likewise, what triggers disc activation and how it self-limits remain unknown. A better understanding of mechanisms underlying disc activation and its self-limitation is of clinical relevance because it may enable the design of more targeted pharmacological and non-pharmacological interventions for the subgroup of patients with chronic low back pain and active discopathy. Here, we narratively review current disc-centered biomechanical and biochemical hypotheses of disc activation and discuss evidence of interactions with adverse personal and environmental factors.

## The value of Clinical signs in the diagnosis of Degenerative Cervical Myelopathy - A Systematic review and Meta-analysis

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Global Spine Journal October 30, 2023

<https://doi.org/10.1177/21925682231209869>

### Abstract:

**Study Design:** Delayed diagnosis of degenerative cervical myelopathy (DCM) is likely due to a combination of its subtle symptoms, incomplete neurological assessments by clinicians and a lack of public and professional awareness. Diagnostic criteria for DCM will likely facilitate earlier referral for definitive management.

**Objectives:** This systematic review aims to determine (i) the diagnostic accuracy of various clinical signs and (ii) the association between clinical signs and disease severity in DCM?

**Methods:** A search was performed to identify studies on adult patients that evaluated the diagnostic accuracy of a clinical sign used for diagnosing DCM. Studies were also included if they assessed the association between the presence of a clinical sign and disease severity. The QUADAS-2 tool was used to evaluate the risk of bias of individual studies.

**Results:** This review identified eleven studies that used a control group to evaluate the diagnostic accuracy of various signs. An additional 61 articles reported on the frequency of clinical signs in a cohort of DCM patients. The most sensitive clinical tests for diagnosing DCM were the Tromner and hyperreflexia, whereas the most specific tests were the Babinski, Tromner, clonus and inverted supinator sign. Five studies evaluated the association between the presence of various clinical signs and disease severity. There was no definite association between Hoffmann sign, Babinski sign or hyperreflexia and disease severity.

**Conclusion:** The presence of clinical signs suggesting spinal cord compression should encourage health care professionals to pursue further investigation, such as neuroimaging to either confirm or refute a diagnosis of DCM.

## Musculoskeletal physiotherapists' discharge practices for people treated with low back pain: A United Kingdom survey.

*Toby Smith, Gurpreet Singh, George McNamee, Christopher Newton*

Musculoskeletal Care November 30, 2023

<https://doi.org/10.1002/msc.1851>

### Abstract:

**Background:** Persistent low back pain (LBP) is the leading cause of disability, and a major burden on the healthcare system globally. Many people with LBP experience recurrent pain flares and receive repeated appointments and re-referrals to services such as physiotherapy. However, it is not clear what the criteria are for discharging people with LBP from physiotherapy services. This study aims to describe the current practices for discharging people from physiotherapy for LBP in the United Kingdom (UK).

**Methods:** A cross-sectional study using an anonymous online national (UK) survey was conducted among qualified physiotherapists who treat people with LBP in UK musculoskeletal out-patient services.

**Results:** A total of 104 surveys were completed. The majority of respondents reported using (i) a shared decision-making (77%) and (ii) person-physiotherapist goal attainment (74%) approach to discharging people with LBP. Sixty-three percent of respondents reported using a patient-initiated follow-up (PIFU) approach. Only 8% of respondents reported using a graded discharge approach with 'booster' appointments. A PIFU or graded discharge approach was considered most pertinent for people at higher risk of a pain flare (97%; 86%) and with low self-efficacy to self-manage their LBP.

**Conclusions:** This UK survey established that discharge practices for people with LBP after physiotherapy vary. Whilst the majority of people are currently discharged with a PIFU appointment, a graded discharge approach may be more beneficial for people who are less likely to initiate a PIFU appointment. Further consideration on the development of such a pathway is now required.

# Effectiveness of Exercise Interventions for Preventing Neck Pain: A Systematic Review with Meta-analysis of Randomized Controlled Trials

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Journal of Orthopedic & Sports Physical Therapy September 28, 2023  
<https://www.jospt.org/doi/10.2519/jospt.2023.12063>

## Abstract:

**Objective:** To update the evidence on the effectiveness of exercise interventions to prevent episodes of neck pain.

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

**Literature Search:** MEDLINE, Embase, CENTRAL, CINAHL, SPORT Discus, PEDro, and trial registries from inception to December 2, 2022. Forward and backward citation searches.

**Study Selection Criteria:** Randomized controlled trials (RCTs) that enrolled adults without neck pain at baseline and compared exercise interventions to no intervention, placebo/sham, attention control, or minimal intervention. Military populations and astronauts were excluded.

**Data Synthesis:** Random-effects meta-analysis. Risk of bias was assessed using the Cochrane RoB 2 tool. The certainty of evidence was judged according to the GRADE approach.

**Results:** Of 4703 records screened, 5 trials (1722 participants at baseline) were included and eligible for meta-analysis. Most (80%) participants were office workers. Risk of bias was rated as some concerns for 2 trials and high for 3 trials. There was moderate-certainty evidence that exercise interventions probably reduce the risk of a new episode of neck pain (OR, 0.49; 95% confidence interval: 0.31, 0.76) compared to no or minimal intervention in the short-term ( $\leq 12$  months). The results were not robust to sensitivity analyses for missing outcome data.

**Conclusions:** There was moderate-certainty evidence supporting exercise interventions for reducing the risk for an episode of neck pain in the next 12 months. The clinical significance of the effect is unclear.

# Elements of exercise prescription in Randomized controlled trials of musculoskeletal rehabilitation in a one-on-one setting. A scoping reviews.

Samantha S. Smith, Suzanne J. Snodgrass, Peter G. Osmotherly  
Musculoskeletal Science and Practice December 15, 2023  
<https://doi.org/10.1016/j.msksp.2023.102901>

## Abstract:

**Background:** Randomized controlled trials (RCTs) are used by clinicians to inform evidence-based practice including when providing exercise programs. They should sufficiently report exercise interventions to permit accurate replication and incorporation into clinical practice.

**Objectives:** The aim of this scoping review was to describe the elements used within the exercise prescription process for musculoskeletal rehabilitation in a one-on-one setting reported in RCTs including their methods and prescription in intervention or control groups.

**Methods:** The databases CINAHL, COCHRANE, EMBASE, MEDLINE and PUBMED were searched using a predefined strategy. Articles were reviewed according to detailed inclusion/exclusion criteria which included whether they were RCTs prescribing exercises for musculoskeletal rehabilitation in a one-on-one setting published within the last 5 years. For studies retained following screening, data extracted included year of publication, musculoskeletal condition and interventions studied. A pre-determined checklist ascertained the elements of the exercise prescription process reported in each study. Data obtained were analyzed descriptively and summarized.

**Results:** After screening, 153 studies were retained for data extraction. The two most reported items included 'specific dosages provided' (75%, n = 115), and 'observe the patient performing the exercises' (71%, n = 108). Over half of studies reported basing their exercise intervention on existing evidence-based protocols (61%, n = 93). Elements considering biomechanical principles were the most 'unclear'. Most of the checklist items received an 'unclear' score due to inadequate descriptions of interventions.

**Conclusion:** Many RCTs under report the development and prescription of exercise interventions, limiting replication of findings in clinical practice. A comprehensive framework is needed to ensure exercise prescription is adequately reported.

## **“Restoring That Faith in My Shoulder”: A Qualitative Investigation of How and Why Exercise Therapy Influenced the Clinical Outcomes of Individuals with Rotator Cuff–Related Shoulder Pain**

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Physical Therapy & Rehabilitation Journal July 13, 2023

<https://doi.org/10.1093/ptj/pzad088>

### **Abstract:**

**Objective:** Rotator cuff–related shoulder pain (RCRSP) is the most common form of shoulder pain. Exercise therapy is a first-line recommended treatment for RCRSP. However, the causal mechanisms underpinning the benefits of exercise for RCRSP are not well understood. Moreover, how individuals with lived experience of RCRSP believe exercise helped or did not help them is unknown. This study aimed to gain insights into how individuals with RCRSP believe exercise influenced their shoulder pain and identify the clinical conditions that promoted or inhibited their beliefs.

**Methods:** This qualitative study was underpinned by a critical realist approach to thematic analysis. Participants were recruited using hybrid purposive and convenience sampling techniques. Each participant attended an online semi-structured interview. The data were coded by 2 members of the research team (J.K.P. and N.C.) and verified by a third (B.S.). Recruitment continued until theoretical

sufficiency was achieved. Participants reviewed and validated preliminary causal explanations.

**Results:** Three causal explanations were consistently expressed by 11 participants to explain the benefits of exercise therapy: (1) shoulder strength; (2) changes to psych emotional status; and (3) exercise has widespread health effects. However, the activation of these causal mechanisms depended on (1) the presence of a strong therapeutic relationship; (2) the provision of a structured and tailored exercise program; and (3) experiencing timely clinical progress.

**Conclusion:** Participants believed exercise improved their shoulder pain through associated health benefits, improved shoulder strength, and psych emotional variables. Whether an exercise program was able to cause a clinical improvement for an individual with RCRSP was contingent on clinical contextual features. Thus, the clinical context that an exercise program is delivered within may be just as important as the exercise program itself.

**Impact:** Exercise is a recommended first-line intervention to manage RCRSP. The results of this study suggest that a positive experience and outcome with exercise for RCRSP is contingent on several clinical contextual features, such as a strong therapeutic relationship. The clinical context that an exercise program is prescribed and delivered within should be considered by clinicians.

### **Immediate neck hypoalgesic effects of craniometrical flexion exercises and cervical retraction exercises among individuals with non-acute neck pain and a directional preference for retraction or extension: preliminary pretest-posttest randomized experimental design.**

*Hiroshi Takasaki, Chisato Yamasaki*

Journal of Manual & Manipulative Therapy April 05, 2023

<https://doi.org/10.1080/10669817.2023.2201918>

#### **Abstract:**

**Background:** Selective deep neck flexor muscle activation through craniometrical flexion exercises has been considered to be different from cervical retraction exercises.

**Objective:** To compare the immediate analgesic effect of craniometrical flexion versus cervical retraction exercises in individuals with nonacute, directional preference (DP) for cervical retraction or extension

**Methods:** A two-arm, assessor-blinded, pretest-posttest randomized experiment was conducted. Participants were randomly assigned to either craniometrical flexion or cervical retraction exercises and those who were confirmed at the post-intervention examination to have a DP for cervical retraction or extension were analyzed. The primary outcome measure was pressure pain thresholds at the C2 and C5-C6 levels.

**Results:** A total of 10 (mean age = 20.6 years) and nine participants (mean age = 19.4 years) undertook craniometrical flexion and retraction exercises, respectively. One-way analysis of variance demonstrated not statistically significant ( $p > 0.05$ ) interaction effect regardless of the neck level. In the pre-post change percentages, retraction exercises provided greater analgesic effects compared to craniometrical flexion exercises at the C2 (Hedges'  $g = 0.679$ ) and C5-C6 levels ( $g = 0.637$ ).

**Conclusion:** This study showed a comparable or greater immediate neck analgesic effect from cervical retraction exercises compared to craniometrical flexion exercises in individuals with a DP for cervical retraction or extension.

## Manual therapy and exercise for adhesive capsulitis: a systematic review with meta-analysis.

*Kaitlin Kirker, Melanie O'Connell, Lisa Bradley, Rosa Elena Torres-Panchame and Michael Masaracchio*

Journal of Manual & Manipulative Therapy March 02, 2023

<https://doi.org/10.1080/10669817.2023.2180702>

### Abstract:

**Background:** Adhesive capsulitis (AC) affects approximately 1% of the general population. Current research lacks clear guidance on the dosage of manual therapy and exercise interventions.

**Objective:** The purpose of this systematic review was to assess the effectiveness of manual therapy and exercise in the management of AC, with a secondary aim of describing the available literature present on the dosage of interventions.

**Methods:** Eligible studies were randomized clinical/quasi-experimental trials with complete data analysis and no limits on date of publication, published in English, recruited participants >18 years of age with primary adhesive capsulitis, that had at least two groups with one group receiving manual therapy (MT) alone, exercise alone, or MT and exercise, that included at least one outcome measure of pain, disability, or external rotation range of motion, and that had dosage of visits clearly defined. An electronic search was conducted using PubMed, Embase, Cochrane, Pedro, and clinicaltrials.gov. Risk of bias was assessed using the Cochrane Collaboration Risk of Bias 2 Tool. The Grading of Recommendations Assessment, Development, and Evaluation was used to provide an overall assessment of the quality of evidence. Meta-analyses were conducted when possible, and dosage was discussed in narrative form.

**Results:** Sixteen studies were included. All meta-analyses revealed non-significant effects of pain, disability, and external rotation range of motion at short- and long-term follow-up, with an overall level of evidence ranging from very low to low.

**Conclusion:** Non-significant findings with low-to-very-low-quality of evidence were found across meta-analyses, preventing seamless transition of research evidence to clinical practice. Lack of consistency in study designs, manual therapy techniques, dosing parameters, and duration of care impedes the ability to make strong recommendations regarding optimal dosage of physical therapy for individuals with AC.

## Can you be a manual therapist without using your hands?

*Bruno T. Saragiotto, Louise F. Sandal and Jan Hartvigsen*

Chiropractic & Manual Therapies November 14, 2022

<https://doi.org/10.1186/s12998-022-00457-x>

### Abstract:

**Background:** To align with current best practices, manual therapists have refined their treatment options to include exercise and pain education for people with chronic musculoskeletal pain. In this commentary, we suggest that manual therapists should also add telehealth to their toolbox. Thus, we aim to discuss the use of telehealth by manual therapists caring for patients with musculoskeletal disorders.

**Main body:** Telehealth can be delivered to the patient in different modes, such as real-time clinical contact or asynchronously. Platforms vary from websites and smartphone apps to virtual reality systems. Telehealth may be an effective approach, especially for improving pain and function in people with musculoskeletal pain, and it has the potential to reduce the individual and socioeconomic burden of musculoskeletal conditions. However, the certainty of evidence reported in systematic reviews is often low. Factors such as convenience, flexibility, undivided attention from the clinician, user-friendly platforms, goal setting, and use of evidence-based information are all enablers for telehealth use and improving patients' knowledge, self-efficacy, and self-management. Barriers to widening the use of telehealth in musculoskeletal care include the reliability of technology, data privacy issues, difficult to build therapeutic alliance, one-size-fits-all approaches, digital health literacy, and payment models.

**Conclusion:** We suggest that practitioners of manual medicine make telehealth part of their clinical toolbox where it makes sense and where there is evidence that it is beneficial for people who seek their care.

## Effects of matched vs. unmatched physical therapy interventions on pain or disability in patients with neck pain – a systematic review and meta-analysis

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Physiotherapy Theory and Practice December 01, 2023

<https://doi.org/10.1080/09593985.2023.2285892>

### Abstract:

**Background:** The interventions performed in most randomized controlled trials (RCTs) on neck pain patients are standardized, irrespective of the high heterogeneity of patients. However, clinicians tend to choose an intervention based on the patients' clinical characteristics, and thus match the treatment to the patient.

**Objectives:** To investigate the effectiveness of interventions matched to the clinical characteristics of patients with neck pain versus the same, but unmatched treatment for improving pain or disability.



**Design:** A systematic review and meta-analysis conducted following Cochrane guidelines

**Methods:** Databases searches were performed from inception to September 2023. RCTs were included if the patients in the experimental group received a treatment matched to clinical presentation or to clinicians' assessment, if the patients in the control group received a similar but unmatched treatment, and if pain or disability were reported as outcome measures.

**Results:** The literature search produced 9516 records of which 27 met the inclusion criteria. Matched exercise therapy was superior to unmatched exercise for pain (SMD  $-0.57$ ; 95% CI  $-0.95, -0.18$ ) and for disability (SMD  $-0.69$ ; 95% CI  $-1.14, -0.23$ ) at short term, but not at intermediate-term follow-up. Matched manual treatment was not superior to unmatched manual therapy for pain or for disability at short or intermediate-term follow-up.

**Conclusions:** Results suggest that matching exercise to movement limitation, trapezius myalgia, or forward head position may lead to better outcomes in the short term, but not in the intermediate term. Matched manual therapy was not superior to unmatched treatment either short or intermediate term. Further research is warranted to verify if those criteria are potentially useful matching criteria.

## Two-year MRI-defined structural damage and patient-reported outcomes following surgery or exercise for meniscal tears in young adults.

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Dimitar Ivanov Radev, Engin Yeter Kurt, et.al.*

British Journal of Sports Medicine October 25, 2023

<https://doi.org/10.1136/bjsports-2023-107352>

### Abstract:

**Objective:** To investigate potential differences in structural knee joint damage assessed by MRI and patient-reported outcomes (PROMs) at 2-year follow-up between young adults randomized to early surgery or exercise and education with optional delayed surgery for a meniscal tear.

**Methods:** A secondary analysis of a multicenter randomized controlled trial including 121 patients (18–40 years) with an MRI-verified meniscal tear. For this study, only patients with 2-year follow-up were included. The main outcomes were the difference in worsening of structural knee damage, assessed by MRI using the Anterior Cruciate Ligament Osteoarthritis Score, and the difference in change in the mean score of four Knee Injury and Osteoarthritis Outcome Score (KOOS4) subscales covering pain, symptoms, function in sport and recreation, and quality of life, from baseline to 2 years.

**Results:** In total, 82/121 (68%) patients completed the 2-year follow-up (39 from the surgical group and 43 from the exercise group). MRI-defined cartilage damage had developed or progressed in seven (9.1%) patients and osteophytes developed in two (2.6%) patients. The worsening of structural damage from baseline to 2-year follow-up was similar between groups. The mean (95% CI) adjusted differences in change in KOOS4 between intervention groups from baseline to 2 years was  $-1.4$  ( $-9.1, 6.2$ ) points. The mean improvement in KOOS4 was  $16.4$  ( $10.4, 22.4$ ) in the surgical group

and 21.5 (15.0, 28.0) in the exercise group. No between group differences in improvement were found in the KOOS subscales.

**Conclusions:** The 2-year worsening of MRI-defined structural damage was limited and similar in young adult patients with a meniscal tear treated with surgery or exercise with optional delayed surgery. Both groups had similar clinically relevant improvements in KOOS4, suggesting the choice of treatment strategy does not impact 2-year structural knee damage or PROMs.

## Telemedicine for Patients with Musculoskeletal Pain Lacks High-Quality Evidence on Delivery Modes and Effectiveness: An Umbrella Review

*Svenja Kaczorowski, Lars Donath, Patrick J. Owen, Tobias Saueressig, Moritz Topp, Niamh L. Mundell, Claire L. Samanna, Rebekka Döding, and Daniel L. Belavy*  
Telemedicine and e-Health 21 December 2023

<https://doi.org/10.1089/tmj.2023.0255>

### Abstract:

**Background:** Musculoskeletal (MSK) pain is the leading cause of disability worldwide. Telemedicine is of growing importance, yet impacts on treatment efficacy remain unclear.

**Objective:** This umbrella review (CRD42022298047) examined the effectiveness of telemedicine interventions on pain intensity, disability, psychological function, quality of life, self-efficacy, and adverse events in MSK pain.

**Methods:** PubMed, SPORT Discus, Cochrane Library, EMBASE, and CINAHL were searched from inception to August 9, 2022, for systematic reviews with meta-analysis, including telemedicine-delivered exercise, education, and psychological interventions, in randomized controlled trials (RCTs). AMSTAR-2 was implemented. Standardized mean differences (SMDs; negative favors telemedicine) were extracted as effect estimates.

**Results:** Of 1,135 records, 20 reviews (RCTs:  $n = 97$ , participants:  $n = 15,872$ ) were included. Pain intensity SMDs were  $-0.66$  to  $0.10$  for mixed pain (estimates:  $n = 16$ ),  $-0.64$  to  $-0.01$  for low-back pain ( $n = 9$ ),  $-0.31$  to  $-0.15$  for osteoarthritis ( $n = 7$ ),  $-0.29$  for knee pain ( $n = 1$ ),  $-0.66$  to  $-0.58$  for fibromyalgia ( $n = 2$ ),  $-0.16$  for back pain ( $n = 1$ ), and  $-0.09$  for rheumatic disorders ( $n = 1$ ). Disability SMDs were  $-0.50$  to  $0.10$  for mixed pain ( $n = 14$ ),  $-0.39$  to  $0.00$  for low-back pain ( $n = 8$ ),  $-0.41$  to  $-0.04$  for osteoarthritis ( $n = 7$ ),  $-0.22$  for knee pain ( $n = 1$ ), and  $-0.56$  for fibromyalgia ( $n = 1$ ). Methodological quality was “critically low” for 17 reviews. Effectiveness tended to favor telemedicine for all secondary outcomes.

**Conclusions:** Primary RCTs are required that compare telemedicine interventions with in-person delivery of the intervention (noninferiority trials), consider safety, assess videoconferencing, and combine different treatment approaches.

# The importance of context (placebo effects) in conservative interventions for musculoskeletal pain: A systematic review and meta-analysis of randomized controlled trials

Tobias Saueressig, Patrick J. Owen, Hugo Pedder, Scott Tagliaferri, Clint T. Miller, Svenja Kaczorowski, Adina Altrichter, Antonia Richard, Lars Donath, Daniel L. Belavy

European Journal of Pain December 20, 2023

<https://doi.org/10.1002/ejp.2222>

## Abstract:

**Background and Objective:** Contextual effects (e.g. patient expectations) may play a role in treatment effectiveness. This study aimed to estimate the magnitude of contextual effects for conservative, non-pharmacological interventions for musculoskeletal pain conditions. A systematic review and meta-analysis of randomized controlled trials (RCTs) that compared placebo conservative non-pharmacological interventions to no treatment for musculoskeletal pain. The outcomes assessed included pain intensity, physical functioning, health-related quality of life, global rating of change, depression, anxiety and sleep at immediate, short-, medium- and/or long-term follow-up.

**Databases and Data Treatment:** MEDLINE, EMBASE, CINAHL, Web of Science Core Collection, CENTRAL and SPORT Discus were searched from inception to September 2021. Trial registry searches, backward and forward citation tracking and searches for prior systematic reviews were completed. The Cochrane risk of bias 2 tool was implemented.

**Results:** The study included 64 RCTs (N = 4314) out of 8898 records. For pain intensity, a mean difference of (MD: -5.32, 95% confidence interval (CI): -7.20, -3.44, N = 57 studies with 74 outcomes, GRADE: very low) was estimated for placebo interventions. A small effect in favor of the placebo interventions for physical function was estimated (SMD: -0.22, 95% CI: -0.35, -0.09; N = 37 with 48 outcomes, GRADE: very low). Similar results were found for a broad range of patient-reported outcomes. Meta-regression analyses did not explain heterogeneity among analyses.

**Conclusion:** The study found that the contextual effect of non-pharmacological conservative interventions for musculoskeletal conditions is likely to be small. However, given the known effect sizes of recommended evidence-based treatments for musculoskeletal conditions, it may still contribute an important component.

**Significance:** Contextual effects of non-pharmacological conservative interventions for musculoskeletal conditions are likely to be small for a broad range of patient-reported outcomes (pain intensity, physical function, quality of life, global rating of change and depression). Contextual effects are unlikely, in isolation, to offer much clinical care. But these factors do have relevance in an overall treatment context as they provide almost 30% of the minimally clinically important difference.

## Heel Pain – Plantar Fasciitis: Revision 2023

*Thomas A. Koc Jr., PT, PHD, DPT, OCS, Christopher G. Bise, PT, DPT, PHD, OCS, Christopher Neville, PT, PHD, Dominic Carreira, MD, Robroy L. Martin, PT, PHD, Christine M. McDonough, PT, PHD*

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<https://www.jospt.org/doi/10.2519/jospt.2023.0303>

### Abstract:

The Orthopedic Section of the American Physical Therapy Association (APTA) has an ongoing effort to create evidence-based practice guidelines for orthopedic physical therapy management of patients with musculoskeletal impairments described in the World Health Organization's International Classification of Functioning, Disability, and Health (ICF). The purpose of these revised clinical practice guidelines is to review recent peer-reviewed literature and make recommendations related to nonarthritic heel pain.

## Red flags to screen for vertebral fracture in patients presenting with low-back pain (Review)

*Christopher M. Williams, Nicholas Henschke, Christopher G. Maher Bart W. Koes, Maurits W. van Tulder, Petra Macaskill, Les Irwig*

Cochrane Library November 28, 2023

<https://doi.org/10.1002/14651858.CD008643.pub3>

### Abstract:

**Background:** Low-back pain (LBP) is a common condition seen in primary care. A principal aim during a clinical examination is to identify patients with a higher likelihood of underlying serious pathology, such as vertebral fracture, who may require additional investigation and specific treatment. All 'evidence-based' clinical practice guidelines recommend the use of red flags to screen for serious causes of back pain. However, it remains unclear if the diagnostic accuracy of red flags is sufficient to support this recommendation.

**Objectives:** To assess the diagnostic accuracy of red flags obtained in a clinical history or physical examination to screen for vertebral fracture in patients presenting with LBP.

**Search methods:** Electronic databases were searched for primary studies between the earliest date and 7 March 2012. Forward and backward citation searching of eligible studies was also conducted.

**Selection criteria:** Studies were considered if they compared the results of any aspect of the history or test conducted in the physical examination of patients presenting for LBP or examination of the lumbar spine, with a reference standard (diagnostic imaging). The selection criteria were independently applied by two review authors.

**Data collection and analysis:** Three review authors independently conducted 'Risk of bias's assessment and data extraction. Risk of bias was assessed using the 11-item QUADAS tool. Characteristics of studies, patients, index tests and reference standards were extracted. Where available, raw data were used to calculate

sensitivity and specificity with 95% confidence intervals (CI). Due to the heterogeneity of studies and tests, statistical pooling was not appropriate and the analysis for the review was descriptive only. Likelihood ratios for each test were calculated and used as an indication of clinical usefulness.

**Main results:** Eight studies set in primary (four), secondary (one) and tertiary care (accident and emergency = three) were included in the review. Overall, the risk of bias of studies was moderate with high risk of selection and verification bias the predominant flaws. Reporting of index and reference tests was poor. The prevalence of vertebral fracture in accident and emergency settings ranged from 6.5% to 11% and in primary care from 0.7% to 4.5%. There were 29 groups of index tests investigated however, only two featured in more than two studies. Descriptive analyses revealed that three red flags in primary care were potentially useful with meaningful positive likelihood ratios (LR+) but mostly imprecise estimates (significant trauma, older age, corticosteroid use; LR+ point estimate ranging 3.42 to 12.85, 3.69 to 9.39, 3.97 to 48.50 respectively). One red flag in tertiary care appeared informative (contusion/abrasion; LR+ 31.09, 95% CI 18.25 to 52.96). The results of combined tests appeared more informative than individual red flags with LR+ estimates generally greater in magnitude and precision.

**Authors' conclusions:** The available evidence does not support the use of many red flags to specifically screen for vertebral fracture in patients presenting for LBP. Based on evidence from single studies, few individual red flags appear informative as most have poor diagnostic accuracy as indicated by imprecise estimates of likelihood ratios. When combinations of red flags were used the performance appeared to improve. From the limited evidence, the findings give rise to a weak recommendation that a combination of a small subset of red flags may be useful to screen for vertebral fracture. It should also be noted that many red flags have high false positive rates; and if acted upon uncritically there would be consequences for the cost of management and outcomes of patients with LBP. Further research should focus on appropriate sets of red flags and adequate reporting of both index and reference tests.

## **Sustained versus repetitive standing trunk extension results in greater spinal growth and pain improvement in back pain: A randomized clinical trial.**

*Jeremy J. Harrison, Jean-Michel Brismée, Phillip S. Sizer Jr., Brent K. Denny and Stéphane Sobczak*

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### **Abstract:**

**Background:** McKenzie standing trunk extension exercises have been used for the management of low back pain (LBP). However, no study to date has investigated the effect of standing trunk extension postures on spinal height and clinical outcomes.

**Objective:** To evaluate in subjects with LBP following a period of trunk loading how spinal height, pain, symptoms' centralization and function outcome measures respond to two standing postures interventions: (1) repetitive trunk extension (RTE) and (2) sustained trunk extension (STE).

**Methods:** A consecutive sample of convenience of people with LBP were recruited to participate in 2-session physical therapy using either RTE or STE in standing.

**Results:** Thirty participants (18 women) with a mean age of  $53 \pm 17.5$  years completed the study. The first session resulted in spinal height increase (spinal growth) of  $2.07 \pm 1.32$  mm for the RTE intervention and  $4.54 \pm 1.61$  mm for the STE group ( $p < 0.001$ ; ES = 1.67), while the second session (2-week following the first session) resulted in spinal growth of  $2.39 \pm 1.46$  mm for the RTE group and  $3.91 \pm 2.06$  mm for the STE group ( $p = 0.027$ ; ES = 0.85). The STE group presented with the larger reduction in most pain from 6 to 2 as compared to the RTE group from 6 to 4 between Session 1 and Session 2 ( $p < 0.001$ ). There was no difference between the groups in Modified Oswestry score and symptoms centralization ( $p = 0.88$  and  $p = 0.77$ , respectively).

**Conclusion:** People with LBP experienced greater spine growth and improvements of pain during standing STE as compared to RTE. People with LBP could use such postures and movements to alleviate their LBP and improve spine height while in a weight bearing position.

## What do we mean by ‘self-management’ for chronic low back pain? A narrative review

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### Abstract:

**Background:** Chronic low back pain (CLBP) is a highly prevalent musculoskeletal condition affecting 60–80% of the general population within their lifetime. Given the large numbers of people affected, self-management approaches have been, introduced as a way to manage this condition with endorsement by the national institute for health and care excellence. Interventions are often termed self-management without defining either content or goals. Our study sought to determine the content, characteristics, and evidence for self-management of CLBP.

**Methods:** This narrative review was conducted using a systematic approach to search journal articles in English that focused on CLBP self-management. MEDLINE, EMBASE, CINAHL, and PsycINFO databases were used to identify publications with terms relating to back pain and self-management from January 2016 until January 2022.

**Results:** In total, 15 studies were found suitable for inclusion in the review. Core components of self-management strategies include exercise, education, and psychological interventions, but there was a lack of consistency with respect to content. Intervention characteristics were either under-reported or varied. Furthermore, outcome measures used to assess these self-management programs were diverse, mainly focusing on functional disability and pain intensity.

**Conclusions:** Inconsistencies in the content of self-management interventions, intervention characteristics, and outcome measures used for assessing self-management programs were found across the literature. Current self-management approaches do not consider the complex biopsychosocial nature of CLBP.

A consensus on the key components of self-management interventions, and how they should be evaluated, will pave the way for research to determine whether self-management can effectively manage CLBP.

## **WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings Executive summary**

World Health Organization 2023

**Introduction:** Low back pain (LBP) is a very common condition experienced by most people across their life course. In 2020, approximately one in 13 people globally experienced LBP, equating to an estimated 619 million people; this represents a 60% increase in cases since 1990. Within this same period, absolute global disability estimates attributed to LBP have increased by about the same amount, being largely ascribed to population growth and ageing, with the largest increases observed in low- and middle-income countries. LBP is currently the leading cause of disability globally across all ages and in both sexes, while prevalence and disability estimates are consistently higher in females and older people. Among health conditions that may benefit from rehabilitation, LBP is the condition which represents the greatest number of people for whom benefits may be experienced. For these reasons, among others, LBP is an important global public health issue. The prevalence, health burden and economic cost associated with LBP care and participation restriction continue to rise, care variation and critical knowledge and skills gaps among health workers persist, and delivery of care that is not evidence-based remains commonplace. No guideline has been produced that considers management of chronic LBP in adults, and in particular for older people, from a global public health perspective that takes into account universal health coverage (UHC) and the different levels of economic development across countries. The present guideline fills this gap, supports other activities undertaken by WHO in improving outcomes for adults with LBP and supports the WHO Integrated care for older people (ICOPE) approach in primary care – one of the action areas of the UN Decade of Healthy Ageing (2021–2030). Most people who experience an episode of acute LBP experience time-limited, low-to-moderate levels of disability and a favorable clinical course. Often, the experience of LBP is recurrent, and acute episodes become more frequent in older age. In some people, concurrent spine-related leg pain may also be experienced. There is a group of people who experience persisting symptoms beyond three months, which is defined as chronic LBP. Chronic LBP is often associated with a reduced ability to participate in family, social and work roles, and incurs major costs to families, communities and health systems. People who experience chronic LBP, particularly older people, are more likely to experience poverty, prematurely exit the workforce and accumulate less retirement wealth. In all settings, disabling LBP and early retirement owing to chronic symptoms are more common among people with lower socioeconomic status, thus contributing to poverty and inequity. Optimizing the clinical management of people with chronic LBP is therefore a current priority for Member States. Among older people, an experience of LBP is common and often gives rise to loss of physical and mental capacities (i.e. intrinsic capacity). For many older people, LBP is particularly burdensome because it restricts mobility and thus the ability to participate in society, thereby leading to psychosocial impacts. It is also

associated with significant comorbidities and higher mortality, and is strongly related to a decrease in health-related quality of life, particularly when spine-related leg pain is also present. Concurrent musculoskeletal pain, loss of mobility, frailty, falls, urinary incontinence and poor sleep are important adverse health outcomes associated with chronic LBP in older people. Five classes of interventions for the management of CPLBP in adults were considered for the guideline: A) standardized and structured education; B) physical interventions; C) psychological interventions; D) medicines; and E) multicomponent interventions.