



ABSTRACTS May 2024

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

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

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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 nonpharmacological 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 SPORTDiscus were searched from inception to September 2021. Trialregistry 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 favour 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.

Development of a patient decision aid for children and adolescents following anterior cruciate ligament rupture: an international mixed-methods study

Andrew R Gamble, Marnee J McKay, David B Anderson, Evangelos Pappas, Ignatius Alvarez Cooper, Sophie Macpherson, Ian A Harris, Stephanie R Filbay, Kirsten McCaffery, Rachel Thompson, Tammy C Hoffmann, Christopher G Maher, Joshua R Zadro

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doi: 10.1136/bmjopen-2023-081421

Abstract:

Aim: To develop and user test an evidence-based patient decision aid for children and adolescents who are considering anterior cruciate ligament (ACL) reconstruction.

Design: Mixed-methods study describing the development of a patient decision aid.

Setting: A draft decision aid was developed by a multidisciplinary steering group (including various types of health professionals and researchers, and consumers) informed by the best available evidence and existing patient decision aids.

Participants: People who ruptured their ACL when they were under 18 years old (ie, adolescents), their parents, and health professionals who manage these patients. Participants were recruited through social media and the network outreach of the steering group.

Primary and secondary outcomes: Semistructured interviews and questionnaires were used to gather feedback on the decision aid. The feedback was used to refine the decision aid and assess acceptability. An iterative cycle of interviews, refining the aid according to feedback and further interviews, was used. Interviews were analysed using reflexive thematic analysis.

Results: We conducted 32 interviews; 16 health professionals (12 physiotherapists, 4 orthopaedic surgeons) and 16 people who ruptured their ACL when they were under 18 years old (7 were adolescents and 9 were adults at the time of the interview). Parents participated in 8 interviews. Most health professionals, patients and parents rated the aid's acceptability as good-to-excellent. Health professionals and patients



agreed on most aspects of the decision aid, but some health professionals had differing views on non-surgical management, risk of harms, treatment protocols and evidence on benefits and harms.

Conclusion: Our patient decision aid is an acceptable tool to help children and adolescents choose an appropriate management option following ACL rupture with their parents and health professionals. A clinical trial evaluating the potential benefit of this tool for children and adolescents considering ACL reconstruction is warranted

Shoulder specific exercise therapy is effective in reducing chronic shoulder pain: A network meta-analysis

Anelise Silveiral, Camila Lima, Lauren Beaupre, Judy Chepeha, Allyson Jones

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doi: 10.1371/journal.pone.0294014. eCollection 2024.

Abstract:

Abstract

Background: Exercise therapy (ET) is frequently an early treatment of choice when managing shoulder pain, yet evidence on its efficacy to expedite recovery is inconsistent. Moreover, the value of adding adjunct therapies (i.e. injections, manual therapy, electrotherapy) to ET is currently unclear. This study combined both direct and indirect evidence across studies on the effectiveness of ET with/without adjunct therapies compared to usual medical care for adults with chronic shoulder pain.

Methods and findings: Using a network meta-analysis, randomized control trials comparing ET along with adjunct therapies were identified in MEDLINE, Embase, CINAHL, Sportdiscus, CENTRAL, Conference Proceedings Citation Index-Science, clinicaltrials.gov, and association websites. Outcomes included pain, range of motion (ROM), and health-related quality of life (HRQL) measures in adult patients with chronic shoulder pain. Data analysis used a Frequentist hierarchical model. CINeMA tool assessed the confidence in the results and Cochrane Risk of Bias tool assessed quality of studies. 54 studies primarily from Europe (40.38%) included 3,893 participants who were followed up to 52 weeks. Shoulder-specific ET (Mean difference (MD) = -2.1; 95% confidence interval (CI) = -3.5 to -0.7) or in combination with electro-physical agents (MD = -2.5; 95% CI = -4.2 to -0.7), injections (MD = -2.4; 95% CI = -3.9 to -1.04) or manual therapy (MD = -2.3; 95% CI = -3.7 to -0.8) decreased pain compared to usual medical care. Trends with ROM and HRQL scores were seen;



however, only Manual Therapy (MD = -12.7 and 95% CI = -24.4 to -1.0) achieved meaningfully important changes. Sensitivity analysis excluding studies with high risk of bias showed similar results, with exception of injections that did not reach significance (MD = -1.3; 95% CI = -4.3 to 1.7).

Conclusion(s): Shoulder-specific ET provided pain relief up to 52 weeks. Adjunct therapies to shoulder-specific ET added little value in reducing pain. The quality of evidence varied between moderate and very low.

The Influence of Exercise on Cancer Risk, the Tumor Microenvironment and the Treatment of Cancer

Anqi He, Yamin Pu, Chengsen Jia, Mengling Wu, Hongchen He, Yong Xia

Sports Medicine 2024 April 30

doi: 10.1007/s40279-024-02031-2

Abstract:

There are several modifiable factors that can be targeted to prevent and manage the occurrence and progression of cancer, and maintaining adequate exercise is a crucial one. Regular physical exercise has been shown to be a beneficial strategy in preventing cancer, potentially amplifying the effectiveness of established cancer therapies, alleviating certain cancer-related symptoms, and possibly mitigating side effects resulting from treatment. Nevertheless, the exact mechanisms by which exercise affects tumors, especially its impact on the tumor microenvironment (TME), remain uncertain. This review aims to present an overview of the beneficial effects of exercise in the context of cancer management, followed by a summary of the exercise parameters, especially exercise intensity, that need to be considered when prescribing exercise for cancer patients. Finally, we discuss the influence of exercise on the TME, including its effects on crucial immune cells (e.g., T cells, macrophages, neutrophils, natural killer cells, myeloid-derived suppressor cells, B cells), intratumor angiogenesis, and cancer metabolism. This comprehensive review provides up-to-date scientific evidence on the effects of exercise training on cancer and offers guidance to clinicians for the development of safe and feasible exercise training programs for cancer patients in clinical practice.

First Contact Physiotherapy: An evaluation of clinical effectiveness and costs

Walsh, Nicola; Halls, Serena; Thomas, Rachel; Berry, Alice; Liddiard, Cathy; Cupples, Margaret; Gage, Heather; Jackson, Dan; Cramp, Fiona; Stott, Hannah; Kersten, Paula; Jagosh, Justin; Foster, Dave; Williams, Peter



British Journal of General Practice

DOI: <https://doi.org/10.3399/BJGP.2023.0560>

Abstract:

Background: First Contact Physiotherapy Practitioners (FCPPs) are embedded within general practice, providing expert assessment, diagnosis and management plans for patients with musculoskeletal disorders (MSKDs), without the prior need for GP consultation.

Aim: To determine the clinical effectiveness and costs of FCPP-led compared to GP-led models of care.

Design and Setting: Multiple site case study design. UK GP practices.

Method: General Practice sites were recruited representing three models: 1. GP-led care; 2. FCPPs who could not prescribe/inject (Standard (St)); 3. FCPPs who could prescribe/inject (Additional Qualifications (AQ)). Patient participants from each site completed clinical outcome data at baseline, 3 and 6 months. The primary outcome was the SF-36v.2 Physical Component Score (PCS). Healthcare usage was collected for 6 months.

Results: N=426 adults were recruited from 46 practices across the UK. Non-inferiority analysis showed no significant difference in physical function (SF36-PCS) across all three arms at 6 months ($p=0.999$). At 3 months a significant difference in numbers improving was seen between arms: 54.7% GP consultees; 72.4% FCPP-St, 66.4% FCPP-AQ; ($p=0.037$). No safety issues were identified. Following initial consultation, a greater proportion of patients received medication (including opioids) in the GP-led arm (44.7%) compared with FCPP-St (17.5%) and FCPP-AQ (22.8%); ($p<0.001$). NHS costs (initial consultation and over 6 months follow up) were significantly higher in the GP-led model (median £105.50) vs FCPP-St (£41) and FCPP-AQ (£44); ($p<0.001$).

Conclusion: FCPP led models provide safe, clinically effective and cost-beneficial management for patients with MSKDs in general practice and reduced opioid use in this cohort.

Social support and therapeutic relationships intertwine to influence exercise behavior in people with sport-related knee injuries

Linda K. Truong, Amber D. Mosewich, Maxi Miciak, Justin M. Losciale, Linda C. Li & Jackie L. Whittaker

Physiotherapy Theory and Practice, 1–14. Jan 2024

<https://doi.org/10.1080/09593985.2024.2315520>



Abstract:

Objective: Explore how social support influences exercise therapy participation and adherence before and after enrolling in an education and exercise therapy intervention (Stop OsteoARthritis, SOAR).

Methods: Study design: Interpretative description. We sampled participants with sport-related knee injuries from the SOAR randomized controlled trial. SOAR is a virtual, physiotherapist-guided, education and exercise therapy-based knee health program that targets individuals at risk of early osteoarthritis. One-on-one semi-structured interviews were completed, and an inductive approach was guided by Braun & Clarke's reflexive thematic analysis.

Results: Fifteen participants (67% female, median age 26 [19–35] years) were interviewed. Three themes were generated that encapsulated participants' social support experiences that fostered exercise participation: 1) Treat me as a whole person represented the value of social support that went beyond participants' physical needs, 2) Work with me highlighted the working partnership between the clinician and the participant, and 3) Journey with me indicated a need for on-going support is necessary for the long-term management of participants' knee health. A theme of the therapeutic relationship was evident across the findings.

Conclusions: Insight was gained into how and why perceived support may be linked to exercise behavior, with the therapeutic relationship being potentially linked to perceived support. Social support strategies embedded within an education and exercise therapy program may boost exercise adherence after sport-related knee injuries.

The association of physical activity and sedentary behaviour with low back pain disability trajectories: A prospective cohort study

Gijs Petrus Gerardus Lemmers, René Johannes Fransiscus Melis, Robin Hak, Ellen Karlijne de Snoo, Sophie Pagen, Gerard Pieter Westert, Jacobus Bart Staal, Philip Jan van der Wees

Musculoskeletal Science and Practice 72 August 2024

<https://doi.org/10.1016/j.msksp.2024.102954>

Abstract:

Background: Multiple factors influence the recovery process of low back pain (LBP). The identification and increased knowledge of risk factors might contribute to a better understanding of the course of LBP.



Objectives: To investigate the association of habitual physical activity (PA) and sedentary behaviour (SB), measured at baseline, with disability trajectories in adults with LBP.

Methods: A prospective cohort study where habitual PA levels were measured using the Short QUestionnaire to ASsess Health enhancing physical activity (SQUASH), SB was calculated as average sedentary hours per day, and LBP disability using the Oswestry Disability Index (ODI). Participants completed the questionnaires at one and a half, three, six, and twelve months. Linear mixed models were estimated to describe the association of habitual PA levels SB measured at baseline with disability trajectories. Other predictors were gender, education level, age, pain, number of previous episodes of LBP, and duration of LBP.

Results: Habitual SB measured at baseline in adults (n = 347) with LBP were not associated with disability trajectories. For PA, participants with one metabolic equivalent of task (MET) hour per day above average recovered 0.04 [95% CI 0.004 to 0.076] points on the ODI per month faster than participants with an average amount of MET hours per day.

Conclusions: Habitual SB was not associated with LBP disability trajectories over a one-year follow-up. High levels of habitual PA at baseline were associated with improved recovery in LBP disability trajectory, but the finding is not clinically relevant.

Appropriateness of exercise therapy delivery in chronic low back pain management: cross-sectional online survey of physiotherapy practice in Germany

Lukas Kühn, Diane Rosen, Nils Lennart Reiter, Robert Prill, Kyung-Eun (Anna) Choi

BMC Musculoskeletal Disorders May 2024, 25:422

<https://doi.org/10.17605/OSF.IO/S76MF>.

Abstract:

Background: In Germany, exercise therapy represents the most commonly prescribed physiotherapy service for non-specific, chronic low back pain (NSCLBP). So far, little is known about current practice patterns of German physiotherapists in delivering this intervention. Thus, the aim of this study was to investigate the appropriateness of exercise therapy delivered to NSCLBP patients in German physiotherapy care and to identify practitioner-related drivers of appropriate exercise delivery.

Methods: We used a vignette-based, exploratory, cross-sectional, online-survey study design (76-items; data collection between May and July 2023). Eligible participants were required to hold a professional degree in



physiotherapy and were required to be practicing in Germany. Access links to anonymous online surveys were spread via established German physiotherapy networks, educational platforms, social media, e-mail lists, and snowball sampling. Appropriateness of exercise therapy was calculated by an equally weighted total score (400 points) including scales on shared-decision-making, exercise dose selection, pain knowledge and self-management promotion. “Appropriate exercise delivery” was determined by a relative total score achievement of >80%. “Partly appropriate exercise delivery” was determined by a relative total score achievement of 50–79%, and “inappropriate exercise delivery” by a score achievement of <50%. Practitioner-related drivers of exercise appropriateness were calculated by bivariate and multiple linear regression analyses.

Results: 11.9% (N=35) of 298 physiotherapists’ exercise delivery was considered “appropriate”, 83.3% (N=245) was “partly appropriate”, and 4.8% (N=14) was “inappropriate”. In the final multiple regression model, most robust parameters positively influencing appropriate delivery of exercise therapy were increased scientific literacy (B=10.540; 95% CI [0.837; 20.243]), increased average clinical assessment time (B=0.461; 95% CI [0.134; 0.789]), increased self perceived treatment competence (B=7.180; 95% CI [3.058; 11.302]), and short work experience (B=-0.520; 95% CI [-0.959; -0.081]).

Conclusion: Appropriate exercise delivery in NSCLBP management was achieved by only 11.9% of respondents. However, the vast majority of 95.2% of respondents was classified to deliver exercise therapy partly appropriate. Long work experience seemed to negatively affect appropriate exercise delivery. Positive influences were attributed to scientific literacy, the average clinical assessment time per patient as well as the perceived treatment competence in NSCLBP management.

Insufficient Evidence for Load as the Primary Cause of Nonspecific (Chronic) Low Back Pain. A Scoping Review

L J E de Bruin, M Hoegh, C Greve, M F Reneman

Journal of Orthopaedic & Sports Physical Therapy 2024 Mar;54(3):1-14.

doi: 10.2519/jospt.2024.11314.

Abstract:

OBJECTIVE: To assess the causal role of the relationship between loading and the onset of nonspecific low back pain (NSLBP) and persistence of NSLBP (chronic low back pain [CLBP]).



DESIGN: Scoping review.

LITERATURE SEARCH: We searched the literature from 2010 until May 2021 using a combination of terms related to (spinal) load and the Bradford Hill (BH) criteria.

STUDY SELECTION CRITERIA: Operational definitions were developed for every criterion of the BH framework for causality. Study selection was based on the causal role of load in the onset of NSLBP and persistence of chronic low back pain.

DATA SYNTHESIS: The BH criteria were operationalized, and causation was considered established when evidence supported the BH criteria strength, temporality, biological gradient, experiment, and biological plausibility.

RESULTS: Twenty-two studies were included. There was no consistent support for an association between load and the incidence of NSLBP, or that more load increased the risk of NSLBP/CLBP. Half of the studies did not support specific load exposures to increase incidence of or increase pain in NSLBP/CLBP. Half of studies did not support load preceding NSLBP. No study supported plausible biological explanations to influence the relationship between load and NSLBP/CLBP, or that similar causes have similar effects on NSLBP. Nine of 10 experimental studies did not support that load results in NSLBP or that relieving load reduces NSLBP/CLBP.

CONCLUSION: There was insufficient evidence to support a causal relationship between loading and the onset and persistence of NSLBP/CLBP based on the BH criteria. These results question the role of load management as the only/primary strategy to prevent onset and persistence of NSLBP/CLBP.

Assessing the Preservation of Lumbar Lordotic Curvature in Everyday Sitting Conditions Assessed with an Inertial Measurement System

Ju Chan Kim, Jeong-Gil Kim, Beom Suk Kim, Cheol Ki Kim, Minseok Choi, Joonnyong Lee and Sun Gun Chung

Journal of Clinical Medicine 2024 May 6;13(9):2728.

doi: 10.3390/jcm13092728.

Abstract:

Background/Objectives: Lumbar lordotic curvature (LLC), closely associated with low back pain (LBP) when decreased, is infrequently assessed in clinical settings due to the spatiotemporal limitations of radiographic methods. To overcome these constraints, this study used an inertial measurement system to compare the magnitude and maintenance



of LLC across various sitting conditions, categorized into three aspects: verbal instructions, chair type, and desk task types.

Methods: Twenty-nine healthy participants were instructed to sit for 3 min with two wireless sensors placed on the 12th thoracic vertebra and the 2nd sacral vertebra. The lumbar lordotic angle (LLA) was measured using relative angles for the mediolateral axis and comparisons were made within each sitting category.

Results: The maintenance of LLA (LLAdev) was significantly smaller when participants were instructed to sit upright ($-3.7 \pm 3.9^\circ$) compared to that of their habitual sitting posture ($-1.2 \pm 2.4^\circ$) ($p = 0.001$), while the magnitude of LLA (LLAavg) was significantly larger with an upright sitting posture ($p = 0.001$). LLAdev was significantly larger when using an office chair ($-0.4 \pm 1.1^\circ$) than when using a stool ($-3.2 \pm 7.1^\circ$) ($p = 0.033$), and LLAavg was also significantly larger with the office chair ($p < 0.001$). Among the desk tasks, LLAavg was largest during keyboard tasks ($p < 0.001$), followed by mouse and writing tasks; LLAdev showed a similar trend without statistical significance (keyboard, $-1.2 \pm 3.0^\circ$; mouse, $-1.8 \pm 2.2^\circ$; writing, $-2.9 \pm 3.1^\circ$) ($p = 0.067$).

Conclusions: Our findings suggest that strategies including the use of an office chair and preference for computer work may help preserve LLC, whereas in the case of cueing, repetition may be necessary.

Lower extremity movement quality in professional team sport athletes: Inter-rater agreement and relationships with quantitative results from the corresponding pattern

Matthias Keller, Daniel Niederer, René Schwesig and Eduard Kurz
BMC Sports Science, Medicine and Rehabilitation (2024) 16:98
<https://doi.org/10.1186/s13102-024-00886-6>

Abstract:

Background: Adequate movement control and quality can be prerequisite functions for performance of the lower extremity. The purposes of our work were 1) to explore the agreement of an efficient test battery assessing qualitative movement execution and 2) to determine its consistency with quantitative performance tests from the corresponding movement pattern.

Methods: The participants were professional male association football players competing in the first German Bundesliga. They performed four movement quality tests (Single-limb balance squat, Balance forward hop, Balance side hop, Balance 90° rotation hop) and the corresponding performance tests (Y-balance test, Forward hop for distance, Side hop test,



Square hop test). Qualitative tests were judged by two experienced raters; the ratings were compared to determine inter-rater agreement using Kappa statistics. The relationship with the quantitative tests was determined using Spearman's rank correlations.

Results: Thirty participants (19 to 33 years old) were included in this study. We found an at least substantial level of agreement (Cohen's Kappa, 0.64-0.84) with an excellent percentage of exact (83-93%) agreement between the two raters for the movement quality tests. Our findings revealed that the quantitative test results are only slightly related to the movement quality outcomes ($\rho(27) < |0.3|$ and $P > 0.2$).

Conclusions: Consequently, the qualitative test results provide unique information and complement corresponding quantitative performance tests in professional football athletes. Their observational judgement of foot position, lower limb alignment and upper body control in sagittal, frontal, and transverse planes is agreeable.

A modern way to teach and practice manual Therapy

Roger Kerry, Kenneth J. Young, David W. Evans, Edward Lee, Vasileios Georgopoulos, Adam Meakins, Chris McCarthy, Chad Cook, Colette Ridehalgh, Steven Vogel, Amanda Banton, Cecilia Bergström, Anna Maria Mazzieri, Firas Mourad and Nathan Hutting

BMC Chiropractic & Manual Therapies (2024) 32:17

<https://doi.org/10.1186/s12998-024-00537-0>

Abstract:

Background: Musculoskeletal conditions are the leading contributor to global disability and health burden. Manual therapy (MT) interventions are commonly recommended in clinical guidelines and used in the management of musculoskeletal conditions. Traditional systems of manual therapy (TMT), including physiotherapy, osteopathy, chiropractic, and soft tissue therapy have been built on principles such as clinician-centred assessment, patho-anatomical reasoning, and technique specificity. These historical principles are not supported by current evidence. However, data from clinical trials support the clinical and cost effectiveness of manual therapy as an intervention for musculoskeletal conditions, when used as part of a package of care.

Purpose: The purpose of this paper is to propose a modern evidence-guided framework for the teaching and practice of MT which avoids reference to and reliance on the outdated principles of TMT. This framework is based on three



fundamental humanistic dimensions common in all aspects of healthcare: safety, comfort, and efficiency. These practical elements are contextualised by positive communication, a collaborative context, and person-centred care. The framework facilitates best-practice, reasoning, and communication and is exemplified here with two case studies.

Methods: A literature review stimulated by a new method of teaching manual therapy, reflecting contemporary evidence, being trialed at a United Kingdom education institute. A group of experienced, internationally-based academics, clinicians, and researchers from across the spectrum of manual therapy was convened. Perspectives were elicited through reviews of contemporary literature and discussions in an iterative process. Public presentations were made to multidisciplinary groups and feedback was incorporated. Consensus was achieved through repeated discussion of relevant elements.

Conclusions: Manual therapy interventions should include both passive and active, person-empowering interventions such as exercise, education, and lifestyle adaptations. These should be delivered in a contextualised healing environment with a well-developed person-practitioner therapeutic alliance. Teaching manual therapy should follow this model.

Musculoskeletal mimics of lumbosacral radiculopathy

Emma A. Bateman, Christian D. Fortin, Meiqi Guo

Muscle Nerve 2024 May 10.

doi: 10.1002/mus.28106. Online ahead of print.

Abstract:

Electrodiagnostic evaluations are commonly requested for patients with suspected radiculopathy. Understanding lower extremity musculoskeletal conditions is essential for electrodiagnostic medicine specialists, as musculoskeletal disorders often mimic or coexist with radiculopathy. This review delineates radicular pain from other types originating from the lumbosacral spine and describes musculoskeletal conditions frequently mimicking radiculopathy, such as those that cause radiating pain and sensorimotor dysfunction. In clinical evaluation, a history of pain radiating along a specific dermatomal territory with associated sensory disturbance suggests radiculopathy. Physical examination findings consistent with radiculopathy include myotomal weakness, depressed or absent muscle stretch reflexes, focal atrophy along a discrete nerve root territory, and potentially positive dural tension maneuvers like the straight leg raise. However, electrodiagnostic medicine specialists must be knowledgeable of



musculoskeletal mimics, which may manifest as incomplete radiation within or beyond a dermatomal territory, non-radiating pain, tenderness, and give-way weakness, in the context of a normal neurological examination. A systematic approach to musculoskeletal examination is vital, and this review focuses on high-yield physical examination maneuvers and diagnostic investigations to differentiate between musculoskeletal conditions and radiculopathy. This approach ensures accurate diagnoses, promotes resource stewardship, enhances patient satisfaction, and optimizes care delivery. Musculoskeletal conditions resembling L1 to S4 radiculopathy are reviewed, emphasizing their distinctive features in history, physical examination, and diagnostic investigation. Among the more than 30 musculoskeletal disorders reviewed are hip and knee osteoarthritis, lumbar facet syndrome, myofascial pain syndrome, greater trochanteric pain syndrome, and plantar fasciitis.

Physical activity should be the primary intervention for individuals living with chronic pain A position paper from the European Pain Federation (EFIC) 'On the Move' Task Force

Henrik Bjarke Vaegter, Marja Kinnunen, Jonas Verbrugghe, Caitriona Cunningham, Mira Meeus, Susan Armijo-Olivo, Thomas Bandholm, Brona M Fullen, Harriet Wittink, Bart Morlion, Michiel F Reneman
European Journal of Pain 2024 May 4. doi: 10.1002/ejp.2278.

Abstract:

Background: There is clear evidence demonstrating the benefits of physical activity (PA) on pain and overall health, however, PA is challenging for many individuals living with chronic pain. Even non-exercise specialists can (cost) effectively promote PA, but many health professionals report a number of barriers in providing guidance on PA, suggesting that it is not consistently promoted. This expert position paper summarizes the evidence and provides five recommendations for health professionals to assess, advise and support individuals living with any chronic pain condition with a long life expectancy in adopting and sustaining physically active lifestyles.

Methods: This position paper was prepared by the 'On The Move' Task Force of the European Pain Federation EFIC. Final recommendations were endorsed by the European Pain Forum, Pain Alliance Europe and the Executive Board of EFIC.

Results: We recommend that all health professionals (1) Take a history of the persons' PA levels, and put PA on the agenda, (2) Advise that PA is important and safe for individuals living with chronic pain, (3) Deliver a brief



PA intervention and support individuals living with chronic pain in becoming physically active, (4) Discuss acceptable levels of PA-related soreness and pain and (5) Provide ongoing support in staying physically active.

Significance: Physical activity is safe and offers several advantages, including general health benefits, low risk of side effects, low cost and not requiring access to healthcare. Adoption of these recommendations can improve the quality of care and life of individuals living with chronic pain and reduce their overall health risks.

Hip and core exercise programme prevents running-related overuse injuries in adult novice recreational runners: a three-arm randomised controlled trial (Run RCT)

Mari Leppänen, Janne Viiala, Piia Kaikkonen, Kari Tokola, Tommi Vasankari, Benno M Nigg, Tron Krosshaug, Penny Werthner, Jari Parkkari, Kati Pasanen
British Journal of Sports Medicine 2024 May 9;bjssports-2023-107926.
doi: 10.1136/bjssports-2023-107926

Abstract:

Objective: This study aims to investigate the efficacy of two exercise interventions in reducing lower extremity (LE) injuries in novice recreational runners.

Methods: Novice runners (245 female, 80 male) were randomised into hip and core (n=108), ankle and foot (n=111) or control (n=106) groups. Interventions were completed before running and included exercise programmes focusing on either (1) hip and core or (2) ankle and foot muscles. The control group performed static stretching exercises. All groups were supervised by a physiotherapist and performed the same running programme. Injuries and running exposure were registered using weekly questionnaires during the 24-week study. Primary outcome was running-related LE injury.

Results: The incidence of LE injuries was lower in the hip and core group compared with the control group (HR 0.66; 95% CI 0.45 to 0.97). The average weekly prevalence of overuse injuries was 39% lower (prevalence rate ratio, PRR 0.61, 95% CI 0.39 to 0.96), and the prevalence of substantial overuse injuries was 52% lower (PRR 0.48, 95% CI 0.27 to 0.90) in the hip and core group compared with the control group. No significant difference was observed between the ankle and foot group and control group in the prevalence of overuse injuries. A higher incidence of acute injuries was observed in the ankle and foot group compared with the control group (HR 3.60, 95% CI 1.20 to 10.86).



Conclusion: A physiotherapist-guided hip and core-focused exercise programme was effective in preventing LE injuries in novice recreational runners. The ankle and foot programme did not reduce LE injuries and did not protect against acute LE injuries when compared with static stretching.

Exploring the Relationship between Running-Related Technology Use and Running-Related Injuries: A Cross-Sectional Study of Recreational and Elite Long-Distance Runners

Kuntal Chowdhary, Zachary Crockett, Jason Chua, Jennifer Soo Hoo
Healthcare (Basel, Switzerland) 2024 Mar 13;12(6):642.
doi: 10.3390/healthcare12060642

Abstract:

In recent years, the surge in sport and exercise participation, particularly in running, has coincided with the widespread adoption of running-related technology, such as fitness trackers. This study investigates the correlation between the use of running-related technology and running-related injuries among recreational and elite long-distance runners. We conducted a quantitative, cross-sectional online survey of 282 adult runners. Data were analyzed using descriptive statistics and a multivariable logistic regression analysis. Participants, with an average age of 37.4 years, reported varied running experience, with 90.07% utilizing running-related technology during their runs to some degree, primarily smartwatches like Garmin and Apple Watch. Running-related technology users showed a higher likelihood of experiencing running-related injuries compared to non-users (OR = 0.31, $p < 0.001$). However, those who utilized the metrics obtained from running-related technology to guide their training decisions did not exhibit a higher risk of injury. This nuanced relationship highlights the importance of considering individual training behaviors and the potential psychological impacts of technology on running practices. The study underscores the need for future research integrating biomechanical and psychosocial factors into running-related technology to enhance injury prevention strategies.

The bidirectional relationship between sleep problems and chronic musculoskeletal pain: a systematic review with meta-analysis

Nils Runge, Ishtiaq Ahmed, Tobias Saueressig, Julya Perea, Celine Labie, Olivier Mairesse, Jo Nijs, Anneleen Malfliet, Sabine Verschueren, Dieter Van



Assche, Kurt de Vlam, Tybo Van Waeyenberg, Jelle Van Haute, Liesbet De Baets

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doi: 10.1097/j.pain.0000000000003279.

Abstract:

Chronic musculoskeletal pain and sleep problems/disorders exhibit a recognized bidirectional relationship; yet, systematic investigations of this claim, particularly in a prospective context, are lacking. This systematic review with meta-analysis aimed to synthesize the literature on the prospective associations between sleep problems/disorders and chronic musculoskeletal pain. A comprehensive search across 6 databases identified prospective longitudinal cohort studies in adults examining the relationship between sleep problems/disorders and chronic musculoskeletal pain. Random-effects meta-analyses, using the Hartung-Knapp adjustment for 95% confidence intervals (CIs), were conducted, and all results were presented as odds ratios (ORs). Certainty of evidence was evaluated using the Grading of Recommendations, Assessment, Development, and Evaluations approach. Including 16 articles from 11 study populations (116,746 participants), meta-analyses indicated that sleep problems at baseline may heighten the risk of chronic musculoskeletal pain in both short term (OR 1.64, 95% CI 1.01-2.65) and long term (OR 1.39, 95% CI 1.21-1.59). The evidence for different sleep problem categories was very uncertain. Chronic musculoskeletal pain at baseline may increase the risk of short-term sleep problems (OR 1.56, 95% CI 1.02-2.38), but long-term evidence was very uncertain. The impact of only local or only widespread pain on short-term sleep problems was very uncertain, whereas widespread pain may elevate the risk of long-term sleep problems (OR 2.0, 95% CI 1.81-2.21). In conclusion, this systematic review with meta-analysis suggests that sleep problems are associated with an increased risk of chronic musculoskeletal pain, but the bidirectional nature of this relationship requires further investigation.

Understanding social determinants of health and physical therapy outcomes in patients with low back pain: A scoping review

Kristy Pottkotter, Miriam Hazlett, Cody J Mansfield, Katherine Rethman, Julie M Fritz, Catherine C Quatman-Yates, Matthew S Briggs

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Abstract:



Background: Low back pain (LBP) is the number one cause of disability worldwide; however, it is not clear how social determinants of health (SDOH) impact care management and outcomes related to physical therapy (PT) services for patients with LBP.

Objective: The purposes of this scoping review are to examine and assimilate the literature on how SDOH and PT care relate to non-specific LBP outcomes and identify gaps in the literature to target for future research.

Methods: Data were extracted from eight electronic databases from January 2011 to February 2022. Reviewers independently screened all studies using the PRISMA extension for scoping review guidelines. Data related to study design, type of PT, type of non-specific LBP, patient demographics, PT intervention, SDOH, and PT outcomes were extracted from the articles.

Results: A total of 30,523 studies were screened, with 1961 articles undergoing full text review. Ultimately, 76 articles were identified for inclusion. Sex and age were the most frequent SDOH examined (88% and 78% respectively) followed by education level (18%). Approximately half of the studies that examined age, sex, and education level identified no effect on outcomes. The number of studies examining other factors was small and the types of outcomes evaluated were variable, which limited the ability to pool results.

Conclusions: Sex and age were the most frequent SDOH examined followed by education level. Other factors were evaluated less frequently, making it difficult to draw conclusions. Study design and heterogeneity of determinants and outcomes were barriers to examining the potential impact on patients with LBP.

Predictive validity of the STarT Back screening tool among older adults with back pain

Ørjan Nesse Vigdal, Solveig Flugstad, Kjersti Storheim, Rikke Munk Killingmo, Margreth Grotle

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Abstract:

Background: The predictive validity of the STarT Back screening tool among older adults is uncertain. This study aimed to assess the predictive validity of the SBT among older adults in primary care.



Methods: This prospective cohort study included 452 patients aged ≥ 55 years seeking Norwegian primary care with a new episode of back pain. A poor outcome (persistent disabling back pain) was defined as a score of $\geq 7/24$ on the Roland-Morris Disability Questionnaire (RMDQ) at 3, 6 or 12 months of follow-up. The ability of the SBT risk groups to identify persistent disabling back pain was assessed with multivariable logistic regression, area under receiver operating characteristics curve (AUC), and with the accuracy measures sensitivity, specificity, predictive values and likelihood ratios.

Results: The adjusted odds ratios (95% CI) for persistent disabling back pain were 2.40 (1.34-4.30) at 3 months, 3.42 (1.76-6.67) at 6 months and 2.81 (1.47-5.38) at 12 months for the medium-risk group ($n = 118$), and 8.90 (1.83-43.24), 2.66 (0.81-8.67) and 4.53 (1.24-16.46) for the high-risk group ($n = 27$), compared to the low-risk group ($n = 282$). There were no statistically significant differences in odds between the medium- and high-risk groups at any time point. AUC values (95% CI) were 0.65 (0.59-0.71), 0.67 (0.60-0.73) and 0.65 (0.58-0.71) at 3, 6 and 12 months. Accuracy measures were poor at all time points, with particularly poor sensitivity and negative likelihood ratio values.

Conclusion: The predictive validity of the SBT risk groups in predicting persistent disabling back pain in older adults was poor.

The effect of self-management techniques on relevant outcomes in chronic low back pain: A systematic review and meta-analysis

C Scholz, P Schmigalle, C Y Plessen, G Liegl, P Vajkoczy, F Prasser, M Rose, A Obbarius

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Abstract:

Background and objective: Among many treatment approaches for chronic low back pain (CLBP), self-management techniques are becoming increasingly important. The aim of this paper was to (a) provide an overview of existing digital self-help interventions for CLBP and (b) examine the effect of these interventions in reducing pain intensity, pain catastrophizing and pain disability.

Databases and data treatment: Following the PRISMA guideline, a systematic literature search was conducted in the MEDLINE, EMBASE, PsychInfo, CINAHL and Cochrane databases. We included randomized controlled trials from the last 10 years that examined the impact of digital



self-management interventions on at least one of the three outcomes in adult patients with CLBP (duration ≥ 3 months). The meta-analysis was based on random-effects models. Standardized tools were used to assess the risk of bias (RoB) for each study and the quality of evidence for each outcome.

Results: We included 12 studies (n = 1545). A small but robust and statistically significant pooled effect was found on pain intensity (g = 0.24; 95% CI [0.09, 0.40], k = 12) and pain disability (g = 0.43; 95% CI [0.27, 0.59], k = 11). The effect on pain catastrophizing was not significant (g = 0.38; 95% CI [-0.31, 1.06], k = 4). The overall effect size including all three outcomes was g = 0.33 (95% CI [0.21, 0.44], k = 27). The RoB of the included studies was mixed. The quality of evidence was moderate or high.

Conclusion: In summary, we were able to substantiate recent evidence that digital self-management interventions are effective in the treatment of CLBP. Given the heterogeneity of interventions, further research should aim to investigate which patients benefit most from which approach.

Significance: This meta-analysis examines the effect of digital self-management techniques in patients with CLBP. The results add to the evidence that digital interventions can help patients reduce their pain intensity and disability. A minority of studies point towards the possibility that digital interventions can reduce pain catastrophizing. Future research should further explore which patients benefit most from these kinds of interventions.

Associations of the 'weekend warrior' physical activity pattern with all-cause, cardiovascular disease and cancer mortality: the Mexico City Prospective Study

Gary O'Donovan, Fanny Petermann-Rocha, Gerson Ferrari, I-Min Lee, Mark Hamer, Emmanuel Stamatakis, Olga L Sarmiento, Agustín Ibáñez, Patricio Lopez-Jaramillo

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Abstract:

Objectives: The objective was to investigate the benefits of the 'weekend warrior' physical activity pattern in Latin America, where many people take part in high levels of non-exercise physical activity.

Methods: Participants in the Mexico City Prospective Study were surveyed from 1998 to 2004 and resurveyed from 2015 to 2019. Those who exercised up to once or twice per week were termed weekend warriors. Those who



exercised more often were termed regularly active. Analyses were adjusted for potential confounders.

Results: The main analysis included 26 006 deaths in 154 882 adults (67% female) aged 52±13 years followed for 18±4 years (mean±SD). Compared with those who reported no exercise, the HR (95% CI) was 0.88 (0.83 to 0.93) in the weekend warriors and 0.88 (0.84 to 0.91) in the regularly active. Similar results were observed for cardiovascular disease and cancer mortality, but associations were weaker. Stratified analyses showed that substantial reductions in all-cause mortality risk only occurred when the duration of exercise sessions was at least 30-60 min. The repeated-measures analysis included 843 deaths in 10 023 adults followed for 20±2 years. Compared with being inactive or becoming inactive, the HR was 0.86 (95% CI 0.65 to 1.12) when being a weekend warrior or becoming a weekend warrior and 0.85 (95% CI 0.70 to 1.03) when being regularly active or becoming regularly active.

Conclusions: This is the first prospective study to investigate the benefits of the weekend warrior physical activity pattern in Latin America. The results suggest that even busy adults could benefit from taking part in one or two sessions of exercise per week.

The 'weekend warrior' strikes again:
More evidence that the risk of death is reduced in people who exercise once or twice per week!
O'Donovan et al., 2024

➤ **Lack of time** is a major barrier to physical activity. It is therefore important to understand the benefits of physical activity carried out in a 'weekend warrior' style pattern.

 ➤ We used data from the Mexico City Prospective Study (1998-2004, n>150,000). Physical activity was assessed again between 2015 and 2019 (n>10,000) using questionnaires.

Exercise 1-2x per week = "Weekend warriors"
Exercise >2x per week = "Regularly active"

Risk of death was **reduced by around 15%** in *both* the weekend warriors and the regularly active (sessions must be at least 30-60 minutes).

➤ Echoing evidence from studies in the UK and the US, this latest study from Mexico provides further evidence that **there are substantial reductions in risk of death in weekend warriors.**

➤ Policy makers should do more to implement weekly physical activity interventions that have been shown to be cost-effective, such as **parkrun** and the **Ciclovia Recreativa.**

[CLICK HERE](#) for full study

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