

Physiotherapy Current Awareness Bulletin

January 2019

A number of other bulletins are also available – please contact the Academy Library for further details

If you would like to receive these bulletins on a regular basis please contact the library.

This bulletin uses content created and shared with permission by the Healthcare Library Salisbury NHS Foundation Trust

If you would like any of the full references we will source them for you.

Contact us: **Academy Library 824897/98**

Email: **ruh-tr.library@nhs.net**

Cochrane Systematic Reviews

<http://www.cochranelibrary.com/>

July 2018

Exercise for rheumatoid arthritis of the hand

Activity monitors for increasing physical activity in adult stroke survivors

Multifactorial and multiple component interventions for preventing falls in older people living in the community

September 2018

Interventions for preventing falls in older people in care facilities and hospitals

Electromechanical and robot-assisted arm training for improving activities of daily living, arm function, and arm muscle strength after stroke

Title: A systematic literature review of physiotherapy and rehabilitation approaches to lower-limb amputation.

Citation: Physiotherapy Theory & Practice; Nov 2018; vol. 34 (no. 11); p. 821-834

Author(s): Ülger, Özlem; Yıldırım Şahan, Tezel; Çelik, Seher Erol

Background: Successful use of prostheses after lower-limb amputation (LLA) depends on undergoing physiotherapy and rehabilitation both physically and psychologically. The aim of this systematic literature review is to systematically review the scientific evidence regarding prosthetic rehabilitation and physiotherapy after LLA.

Methods: A systematic literature search was conducted using PubMed, Web of Science, Cochrane, CINAHL, EMBASE, SCOPUS, and EMB Reviews databases on December 31, 2015. Studies with the search keywords were identified and independently assessed by reviewers. The search yielded 403 potentially relevant articles after the removal of duplicates. Of these, only nine articles met the inclusion criteria. All studies were original articles, one of which was a randomized controlled study. Different measurement methods were used and positive results in terms of functional status, weight-lifting capacity with prosthesis, walking and balance ability, and acute care process were gained with a physiotherapy program. Conventional methods still possess high importance; however, it is safe to say that virtual reality and software-based programs for rehabilitation are increasingly being developed and getting more and more support.

Discussion: LLA rehabilitation is a topic that requires the focus of current and future studies; evidence-based studies are required on the approaches to rehabilitation for specific LLA groups.

Title: A Systematic Review of Mobile Health Applications in Rehabilitation.

Citation: Archives of physical medicine and rehabilitation; Aug 2018

Author(s): Nussbaum, Ryan; Kelly, Christopher; Quinby, Eleanor; Mac, Ami; Parmanto, Bambang; Dicianno, Brad E

Objective: To conduct systematic review to better define how medical mobile applications (apps) have been utilized in environments relevant to Physical Medicine and Rehabilitation.

Data Sources: PUBMED, IEEE, ACM Digital Library, SCOPUS, INSPEC, and EMBASE STUDY SELECTION: A 10-year date limit was utilized, spanning publication dates from June 1, 2006 to June 30, 2016. Terms related to Physical Medicine and Rehabilitation as well as mobile apps were used in ten individual search strategies.

Data Extraction: Two investigators screened abstracts and applied inclusion and exclusion criteria. Full-length articles were retrieved. Duplicate articles were removed. If a study met all criteria, the manuscript was reviewed in full.

Data Synthesis: Specific variables of interest were extracted and added to summary tables. Summary tables were used to categorize studies according themes, and a list of app features was generated.

Conclusions: The search yielded abstracts from 8,116 studies, and 102 studies were included in the systematic review. Approximately one-third of the studies evaluated apps as interventions while the remaining two-third of the studies assessed functioning of the app or participant interaction with the app. Some apps may have positive benefits when used to deliver exercise or gait training interventions, as self-management systems, or as measurement tools.

Title: Additional structured physical activity does not improve walking in older people (>60years) undergoing inpatient rehabilitation: a randomised trial.

Citation: Journal of physiotherapy; Sep 2018

Author(s): Said, Catherine M; Morris, Meg E; McGinley, Jennifer L; Szoeki, Cassandra; Workman, Barbara; Liew, Danny; Hill, Keith D; Woodward, Michael; Wittwer, Joanne E; Churilov, Leonid; Danoudis, Mary; Bernhardt, Julie

Questions: Among older people receiving inpatient rehabilitation, does additional supervised physical activity lead to faster self-selected gait speed at discharge? Does additional supervised physical activity lead to better mobility, function and quality of life at discharge and 6 months following discharge?

Design: Multi-centre, parallel-group, randomised controlled trial with concealed allocation, assessor blinding, and intention-to-treat analysis.

Participants: Older people (age>60years) from two Australian hospitals undergoing rehabilitation to improve mobility.

Intervention: Participants received multidisciplinary care, including physiotherapy. During hospital rehabilitation, the experimental group (n=99) spent additional time daily performing physical activities that emphasised upright mobility tasks; the control group (n=99) spent equal time participating in social activities.

Outcome Measures: Self-selected gait speed was the primary outcome at discharge and a secondary outcome at the 6-month follow-up. Timed Up and Go, De Morton Mobility Index, Functional Independence Measure and quality of life were secondary outcomes at discharge and tertiary outcomes at the 6-month follow-up.

Results: The experimental group received a median of 20 additional minutes per day (IQR 15.0 to 22.5) of upright activities for a median of 16.5days (IQR 10.0 to 25.0). Gait speed did not differ between groups at discharge. Mean gait speed was 0.51m/s (SD 0.29) in the experimental group and 0.56m/s (SD 0.28) in the control group (effect size - 0.06m/s, 95% CI -0.12 to 0.01, p=0.096). No significant differences were detected in other secondary measures.

Conclusion: While substantial gains in mobility were achieved by older people receiving inpatient rehabilitation, additional physical activity sessions did not lead to better walking outcomes at discharge or 6 months.

Title: Additional weekend allied health services reduce length of stay in subacute rehabilitation wards but their effectiveness and cost-effectiveness are unclear in acute general medical and surgical hospital wards: a systematic review.

Citation: Journal of physiotherapy; Jul 2018; vol. 64 (no. 3); p. 142-158

Author(s): Sarkies, Mitchell N; White, Jennifer; Henderson, Kate; Haas, Romi; Bowles, John; Evidence Translation in Allied Health (EviTAH) Group

Question: Are additional weekend allied health services effective and cost-effective for acute general medical and surgical wards, and subacute rehabilitation hospital wards?

Design: Systematic review and meta-analysis of studies published between January 2000 and May 2017. Two reviewers independently screened studies for inclusion, extracted data, and assessed methodological quality. Meta-analyses were conducted for relative measures of effect estimates.

Participants: Patients admitted to acute general medical and surgical wards, and subacute rehabilitation wards.

Intervention: All services delivered by allied health professionals during weekends (Saturday and/or Sunday). This study limited allied health professions to: occupational therapy, physiotherapy, social work, speech pathology, dietetics, art therapy, chiropractic, exercise physiology, music therapy, oral health (not dentistry), osteopathy, podiatry, psychology, and allied health assistants.

Outcome Measures: Hospital length of stay, hospital re-admission, adverse events, discharge destination, functional independence, health-related quality of life, and cost of hospital care.

Results: Nineteen articles (20 studies) were identified, comprising 10 randomised and 10 non-randomised trials. Physiotherapy was the most commonly investigated profession. A meta-analysis of randomised, controlled trials showed that providing additional weekend allied health services in subacute rehabilitation wards reduced hospital length of stay by 2.35 days (95% CI 0.45 to 4.24, I²=0%), and may be a cost-effective way to improve function (SMD 0.09, 95% CI -0.01 to 0.19, I²=0%), and health-related quality of life (SMD 0.10, 95% CI -0.01 to 0.20, I²=0%). For acute general medical and surgical hospital wards, it was unclear whether the weekend allied health service model provided in the two identified randomised trials led to significant changes in measured outcomes.

Conclusion: The benefit of providing additional allied health services is clearer in subacute rehabilitation settings than for acute general medical and surgical wards in hospitals.

Title: Aerobic exercise for axial spondyloarthritis - its effects on disease activity and function as compared to standard physiotherapy: A systematic review and meta-analysis.

Citation: International journal of rheumatic diseases; Sep 2018

Author(s): Verhoeven, Frank; Guillot, Xavier; Prati, Clément; Mouglin, Fabienne; Tordi, Nicolas; Demougeot, Céline; Wendling, Daniel

Aim: To evaluate the impact of an aerobic fitness program on disease activity, defined by the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and on C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and the Bath Ankylosing Spondylitis Functional Index (BASFI) in case of axial spondyloarthritis.

Methods: A systematic review of the literature, following the Prisma recommendations, was performed by two reviewers on the PubMed and Embase databases. Controlled trials assessing the efficacy of aerobic exercises compared to physiotherapy on axial spondyloarthritis disease activity were included. The diagnosis of axial spondyloarthritis was meeting the New York criteria and/or the Assessment in Axial Spondyloarthritis International Working Group criteria. Aerobic fitness was defined as an exercise performed at 50%-90% of the maximal heart rate or between 50% and 80% oxygen consumption (VO₂) peak.

Results: Five hundred and twenty abstracts were identified and 93 abstracts were analyzed. Eight studies met the selection criteria and 6 were finally included in this study because of the presence of a control group. Both groups were similar in terms of age, sex ratio, disease duration. Aerobic exercise provided a positive impact on the BASDAI in the intervention group (148 patients) (weighted mean difference [WMD]: -0.52 [95% CI: -0.9 to -0.13]) (I²: 10.3%, P = 0.35). However, when compared to a control group (152 patients), the improvement of BASDAI didn't reach significance (WMD: -0.25 [95% CI: -0.83 to 0.32]) (I²: 0%, P = 0.41). Aerobic exercise did not improve BASFI, CRP or ESR.

Conclusion: Aerobic exercise did not provide beneficial effects either on disease activity or on physical function and biological parameters when compared to a control group in axial spondyloarthritis.

Title: Carpal Tunnel Syndrome: Effectiveness of Physical Therapy and Electrophysical Modalities. An Updated Systematic Review of Randomized Controlled Trials.

Citation: Archives of physical medicine and rehabilitation; Aug 2018; vol. 99 (no. 8); p. 1623

Author(s): Huisstede, Bionka M; Hoogvliet, Peter; Franke, Thierry P; Randsdorp, Manon S; Koes, Bart W

Objective: To review scientific literature studying the effectiveness of physical therapy and electrophysical modalities for carpal tunnel syndrome (CTS).

Data Sources: The Cochrane Library, PubMed, Embase, CINAHL, and Physiotherapy Evidence Database.

Study Selection: Two reviewers independently applied the inclusion criteria to select potential eligible studies.

Data Extraction: Two reviewers independently extracted the data and assessed the methodologic quality using the Cochrane Risk of Bias Tool.

Data Synthesis: A best-evidence synthesis was performed to summarize the results of the included studies (2 reviews and 22 randomized controlled trials [RCTs]). For physical therapy, moderate evidence was found for myofascial massage therapy versus ischemic compression on latent, or active, trigger points or low-level laser therapy in the short term. For several electrophysical modalities, moderate evidence was found in the short term (ultrasound vs placebo, ultrasound as single intervention vs other nonsurgical interventions, ultrasound vs corticosteroid injection plus a neutral wrist splint, local microwave hyperthermia vs placebo, iontophoresis vs phonophoresis, pulsed radiofrequency added to wrist splint, continuous vs

pulsed vs placebo shortwave diathermy, and interferential current vs transcutaneous electrical nerve stimulation vs a night-only wrist splint). In the midterm, moderate evidence was found in favor of radial extracorporeal shockwave therapy (ESWT) added to a neutral wrist splint, in favor of ESWT versus ultrasound, or cryo-ultrasound, and in favor of ultrasound versus placebo. For all other interventions studied, only limited, conflicting, or no evidence was found. No RCTs investigating the long-term effects of physical therapy and electrophysical modalities were found. Because of heterogeneity in the treatment parameters used in the included RCTs, optimal treatment parameters could not be identified.

Conclusions: Moderate evidence was found for several physical therapy and electrophysical modalities for CTS in the short term and midterm. Future studies should concentrate on long-term effects and which treatment parameters of physical therapy and electrophysical modalities are most effective for CTS.

Title: Effect of physiotherapeutic intervention on the gait after the application of botulinum toxin in children with cerebral palsy: systematic review.

Citation: European journal of physical and rehabilitation medicine; Oct 2018; vol. 54 (no. 5); p. 757-765

Author(s): Fonseca, Paulo R; Calhes Franco de Moura, Renata; Galli, Manuela; Santos Oliveira, Claudia

Introduction: Cerebral palsy is a group of movement and posture development disorders. 90% of this population has gait impairment, often due to the presence of spasticity. A number of studies emphasize the importance of combined physical therapy with botulinum toxin A treatment. However, no consensus can be reached concerning the content of the physiotherapy program after treatment with botulinum toxin A. The purpose of the present study was to investigate, through a systematic review of the literature, the effects of physiotherapeutic intervention on gait after botulinum toxin application in children with cerebral palsy.

Evidence Acquisition: PubMed, Scielo, Cochrane Library, OTseeker, and PEDro databases were searched for randomized trial published between January 2000 and January 2017.

Evidence Synthesis: Sixty-eight articles were identified, four of which met the eligibility criteria and were selected for the present systematic review. A table was created showing the main characteristics of the studies (groups, inclusion criteria, dosage, injection site, physiotherapeutic intervention, evaluation and outcomes).

Conclusions: This study offers a view on the increase in the therapeutic effectiveness of botulinum toxin A on the lower limbs when used in conjunction with a physiotherapeutic intervention, with improvements in mobility, gait pattern, range of motion and spasticity, which are maintained after the end of the physical therapy protocol. The use of botulinum toxin A on the lower limbs when used in conjunction with a physiotherapeutic intervention, can improve muscle tone, allowing a combined treatment and intended to provide improvement of motor ability and functional skills, and potentially, delay the need for surgery.

Title: Effectiveness of Conservative, Surgical, and Postsurgical Interventions for Trigger Finger, Dupuytren Disease, and De Quervain Disease: A Systematic Review.

Citation: Archives of physical medicine and rehabilitation; Aug 2018; vol. 99 (no. 8); p. 1635

Author(s): Huisstede, Bionka M; Gladdines, Saskia; Randsdorp, Manon S; Koes, Bart W

Objectives: To provide an evidence-based overview of the effectiveness of conservative and (post)surgical interventions for trigger finger, Dupuytren disease, and De Quervain disease.

Data Sources: Cochrane Library, Physiotherapy Evidence Database, PubMed, Embase, and CINAHL were searched to identify relevant systematic reviews and randomized controlled trials (RCTs).

Data Selection: Two reviewers independently applied the inclusion criteria to select potential studies.

Data Extraction: Two reviewers independently extracted the data and assessed the methodologic quality.

Data Synthesis: A best-evidence synthesis was performed to summarize the results. Two reviews (trigger finger and De Quervain disease) and 37 randomized controlled trials (RCTs) (trigger finger: n=8; Dupuytren disease: n=14, and De Quervain disease: n=15) were included. The trials reported on oral medication (Dupuytren disease), physiotherapy (De Quervain disease), injections and surgical treatment (trigger finger, Dupuytren disease, and De Quervain disease), and other conservative (De Quervain disease) and postsurgical treatment (Dupuytren disease). Moderate evidence was found for the effect of corticosteroid injection on the very short term for trigger finger, De Quervain disease, and for injections with collagenase (30d) when looking at all joints, and no evidence was found when looking at the PIP joint for Dupuytren disease. A thumb splint as additive to a corticosteroid injection seems to be effective (moderate evidence) for De Quervain disease (short term and midterm). For Dupuytren disease, use of a corticosteroid injection within a percutaneous needle aponeurotomy in the midterm and tamoxifen versus a

placebo before or after a fasciectomy seems to promising (moderate evidence). We also found moderate evidence for splinting after Dupuytren surgery in the short term.

Conclusions: In recent years, more and more RCTs have been conducted to study treatment of the aforementioned hand disorders. However, more high-quality RCTs are still needed to further stimulate evidence-based practice for patients with trigger finger, Dupuytren disease, and De Quervain disease.

Title: Effectiveness of Pelvic Floor Muscle Training Alone and in Combination With Biofeedback, Electrical Stimulation, or Both Compared to Control for Urinary Incontinence in Men Following Prostatectomy: A Systematic Review and Meta-Analysis.

Citation: Physical therapy; Aug 2018

Author(s): Kannan, Priya; Winser, Stanley J; Fung, Brigitte; Cheing, Gladys

Background: The efficacy of pelvic floor muscle training (PFMT) alone and in combination with biofeedback (BFB), electrical stimulation (ES), or both for urinary incontinence in men following prostatectomy is inconclusive.

Purpose: The purpose of this study was to determine whether PFMT works well alone or in combination with BFB, ES, or both in comparison with a control.

Data Sources: The databases Ovid Medline, EMBASE, CENTRAL, Scopus, and Web of Science and the specialized register of the Cochrane Incontinence Review Group were searched from study inception to August 2017. Abstract proceedings from urological meetings, including the European Association of Urology and the American Urological Association, were also searched.

Study Selection: Randomized controlled trials that compared PFMT with ES (anal, stimulation with surface electrodes), BFB, or both and no treatment, placebo, or sham were included in the review. Randomized trials comparing PFMT alone and PFMT plus BFB, ES, or both against a control for urinary incontinence following prostatectomy were also included.

Data Extraction, Synthesis, and Quality: Two independent reviewers completed data extraction and quality appraisal. The Grading of Recommendations, Assessment, Development, and Evaluation tool was used for quality appraisal. Meta-analysis was done with software used for preparing and maintaining Cochrane reviews.

Limitations: Methodological flaws in the included studies limited internal validity.

Conclusions: PFMT alone, PFMT plus BFB and ES, and PFMT plus ES were more effective than the control for urinary incontinence following prostatectomy. The effect of PFMT plus BFB on postprostatectomy incontinence remains uncertain.

Title: Effectiveness of physiotherapy with telerehabilitation in surgical patients: a systematic review and meta-analysis.

Citation: Physiotherapy; Sep 2018; vol. 104 (no. 3); p. 277-298

Author(s): van Egmond, M.A.; van der Schaaf, M.; Vredeveld, T.; Vollenbroek-Hutten, M.M.R.; van Berge Henegouwen, M.I.; Klinkenbijn, J.H.G.; Engelbert, R.H.H.

Background: Over the last few years, telerehabilitation services have developed rapidly, and patients value benefits such as reduced travelling barriers, flexible exercise hours, and the possibility to better integrate skills into daily life. However, the effects of physiotherapy with telerehabilitation on postoperative functional outcomes compared with usual care in surgical populations are still inconclusive.

Objectives: To study the effectiveness of physiotherapy with telerehabilitation on postoperative functional outcomes and quality of life in surgical patients.

Data sources: Relevant studies were obtained from MEDLINE, EMBASE, CINAHL, the Cochrane Library, PEDro, Google Scholar and the World Health Organization International Clinical Trials Registry Platform. Study selection: Randomised controlled trials, controlled clinical trials, quasi-randomised studies and quasi-experimental studies with comparative controls were included with no restrictions in terms of language or date of publication.

Data extraction and synthesis: Methodological quality was assessed using the Cochrane risk of bias tool. Twenty-three records were included for qualitative synthesis. Seven studies were eligible for quantitative synthesis on quality of life, and the overall pooled standardised mean difference was 1.01 (95% confidence interval 0.18 to 1.84), indicating an increase in favour of telerehabilitation in surgical patients.

Limitations: The variety in contents of intervention and outcome measures restricted the performance of a meta-analysis on all clinical outcome measures.

Conclusions: Physiotherapy with telerehabilitation has the potential to increase quality of life, is feasible, and is at least equally effective as usual care in surgical populations. This may be sufficient reason to choose physiotherapy with telerehabilitation for surgical populations, although the overall effectiveness on physical outcomes remains unclear.

Title: Effectiveness of Surgical and Postsurgical Interventions for Carpal Tunnel Syndrome-A Systematic Review.

Citation: Archives of physical medicine and rehabilitation; Aug 2018; vol. 99 (no. 8); p. 1660

Author(s): Huisstede, Bionka M; van den Brink, Janneke; Randsdorp, Manon S; Geelen, Sven J; Koes, Bart W

Objective: To present an evidence-based overview of the effectiveness of surgical and postsurgical interventions for carpal tunnel syndrome (CTS).

Data Sources: The Cochrane Library, PubMed, EMBASE, CINAHL, and PEDro were searched for relevant systematic reviews and randomized controlled trials (RCTs) up to April 8, 2016.

Study Selection: Two reviewers independently applied the inclusion criteria to select potential studies.

Data Extraction: Two reviewers independently extracted the data and assessed the methodologic quality.

Data Synthesis: A best-evidence synthesis was performed to summarize the results. Four systematic reviews and 33 RCTs were included. Surgery versus nonsurgical interventions, timing of surgery, and various surgical techniques and postoperative interventions were studied. Corticosteroid injection was more effective than surgery (strong evidence, short-term). Surgery was more effective than splinting or anti-inflammatory drugs plus hand therapy (moderate evidence, midterm and long-term). Manual therapy was more effective than surgical treatment (moderate evidence, short-term and midterm). Within surgery, corticosteroid irrigation of the median nerve before skin closure as additive to CTS release or the direct vision plus tunneling technique was more effective than standard open CTS release (moderate evidence, short-term). Furthermore, short was more effective than long bulky dressings, and a sensory retraining program was more effective than no program after surgery (moderate evidence, short-term). For all other interventions only conflicting, limited, or no evidence was found.

Conclusions: Surgical treatment seems to be more effective than splinting or anti-inflammatory drugs plus hand therapy in the short-term, midterm, and/or long-term to treat CTS. However there is strong evidence that a local corticosteroid injection is more effective than surgery in the short-term, and moderate evidence that manual therapy is more effective than surgery in the short-term and midterm. There is no unequivocal evidence that suggests one surgical treatment is more effective than the other. Postsurgical, a short- (2-3 days) favored a long-duration (9-14 days) bulky dressing and a sensory retraining program seems to be more effective than no program in short-term. More research regarding the optimal timing of surgery for CTS is needed.

Title: Effects of orthopaedic manual therapy in knee osteoarthritis: a systematic review and meta-analysis.

Citation: Physiotherapy; Sep 2018; vol. 104 (no. 3); p. 264-276

Author(s): Anwer, Shah Nawaz; Alghadir, Ahmad; Zafar, Hamayun; Brismée, Jean-Michel

Objective: This systematic review aimed to evaluate the effects of orthopaedic manual therapy (OMT) on pain, improving function, and physical performance in patients with knee osteoarthritis (OA).

Data Sources: Four databases (PubMed, Web of Science, CENTRAL, and CINAHL) were searched.

Study Selection: Trials were required to compare OMT alone or OMT in combination with exercise therapy, with exercise therapy alone or control.

Data Extraction: Data extraction and risk assessment were done by two independent reviewers. Outcome measures were visual analogue scale (VAS), Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain score, WOMAC function score, WOMAC global score, and stairs ascending-descending time.

Results: Eleven randomized controlled trials were included (494 subjects), four of which had a PEDro score of 6 or higher, indicating adequate quality. The results of the meta-analysis indicated that reduction of VAS score in OMT compared with the control group was statistically insignificant (SDM: -0.59; 95% CI: -1.54 to -0.36; P=0.224). The reduction of VAS score in OMT compared with exercise therapy group was statistically significant (SDM: -0.78; 95% CI: -1.42 to -0.17; P=0.013). The reduction of WOMAC pain score in OMT compared with the exercise therapy group was statistically significant (SDM: -0.79; 95% CI: -1.14 to -0.43; P=0.001). Similarly, the reduction of WOMAC function score in OMT compared with the exercise

therapy group was statistically significant (SDM: -0.85; 95% CI: -1.20 to -0.50; P=0.001). However, the reduction of WOMAC global score in OMT compared with the exercise therapy group was statistically insignificant (SDM: -0.23; 95% CI: -0.54 to -0.09; P=0.164). The reduction of stairs ascending-descending time in OMT compared with the exercise therapy group was statistically significant (SDM: -0.88; 95% CI: -1.48 to -0.29; P=0.004).

Conclusions: This review indicated OMT compared with exercise therapy alone provides short-term benefits in reducing pain, improving function, and physical performance in patients with knee OA.

Title: Effects of supervised exercise compared to non-supervised exercise early after total hip replacement on patient-reported function, pain, health-related quality of life and performance-based function - a systematic review and meta-analysis of randomized controlled trials.

Citation: Clinical rehabilitation; Aug 2018 ; p. 269215518791213

Author(s): Hansen, Sebrina; Aaboe, Jens; Mechlenburg, Inger; Overgaard, Søren; Mikkelsen, Lone Ramer

Background: The rehabilitation after a total hip replacement varies in degree of supervision; however, it remains unknown whether supervised programmes are more effective than non-supervised.

Objective: This study compared the effectiveness of supervised exercise compared to non-supervised home-based exercise after total hip replacement on patient-reported function, hip-pain, health-related quality of life and performance-based function.

Methods: A systematic review and meta-analysis of randomized controlled trials investigating the effect of supervised exercise compared to non-supervised home-based exercise. An electronic search was performed in Medline, Embase and CINAHL on 14 March 2018. The methodological quality was assessed using the Cochrane Risk of Bias tool.

Results: Seven studies were included with a total of 389 participants. A small and non-significant difference in favour of the supervised groups was found in patient-reported function (standardized mean difference (SMD) -0.22 (95% confidence interval (CI) -0.46 to 0.02)), hip-related pain (SMD -0.03 (95% CI -0.27 to 0.21)), health-related quality of life (mean difference (MD) -3.08 (95% CI -6.29 to 0.14)) and performance-based function (SMD -0.26 (95% CI -0.68 to 0.17)) at end of treatment and in patient-reported function (MD -1.31 (95% CI -3.79 to 1.16)) at the 6- to 12-month follow-up.

Limitations: The literature search was systematic, but limited to three databases. The overall quality of evidence was downgraded to moderate due to lack of blinding in included studies.

Conclusion: Supervised exercise was not significantly effective compared to non-supervised home-based exercise on patient-reported function, pain, health-related quality of life and performance-based function after primary total hip replacement. Others: PROSPERO registration number: CRD42017055604.

Title: Exercise programs may be effective in preventing a new episode of neck pain: a systematic review and meta-analysis.

Citation: Journal of physiotherapy; Jul 2018; vol. 64 (no. 3); p. 159-165

Author(s): de Campos, Tarcisio F; Maher, Chris G; Steffens, Daniel; Fuller, Joel T; Hancock, Mark J

Question: What is the effectiveness of interventions that aim to prevent a new episode of neck pain?

Design: Systematic review and meta-analysis of randomised, controlled trials.

Participants: People without neck pain at study entry.

Intervention: Any intervention aiming to prevent a future episode of neck pain.

Outcome Measures: New episode of neck pain.

Results: Five trials including a total of 3852 individuals met the inclusion criteria. The pooled results from two randomised, controlled trials (500 participants) found moderate-quality evidence that exercise reduces the risk of a new episode of neck pain (OR 0.32, 95% CI 0.12 to 0.86). One of the meta-analysed trials included some co-interventions with the exercise. There was low-quality evidence from three randomised, controlled trials (3352 participants) that ergonomic programs do not reduce the risk of a new neck pain episode (OR 1.00, 95% CI 0.74 to 1.35).

Conclusion: This review found moderate-quality evidence supporting the effectiveness of an exercise program for reducing the risk of a new episode of neck pain. There is a need for high-quality randomised, controlled trials evaluating interventions to prevent new episodes of neck pain.

Title: Factors Associated With Post-Stroke Physical Activity: A Systematic Review and Meta-Analysis.

Citation: Archives of physical medicine and rehabilitation; Sep 2018; vol. 99 (no. 9); p. 1876-1889

Author(s): Thilarajah, Shamala; Mentiplay, Benjamin F; Bower, Kelly J; Tan, Dawn; Pua, Yong Hao; Williams, Gavin; Koh, Gerald; Clark, Ross A

Objective: To integrate the literature investigating factors associated with post-stroke physical activity.

Data Sources: A search was conducted from database inception to June 2016 across 9 databases: Cochrane, MEDLINE, ProQuest, Web of Science, PsycINFO, Scopus, Embase, CINAHL, and Allied and Complementary Medicine Database. The reference lists of included articles were screened for secondary literature.

Study Selection: Cohort and cross-sectional studies were included if they recruited community-dwelling stroke survivors and measured factors associated with physical activity.

Data Extraction: Risk of bias was evaluated using the Quality in Prognosis Studies checklist. A meta-analysis was conducted for correlates where there were at least 2 studies that reported a correlation value. Correlation values were used in an effect size measure and converted to a standardized unit with Fisher r to z transformation and conversion back to r method. Results were described qualitatively for studies that could not be pooled.

Data Synthesis: There were 2161 studies screened and 26 studies included. Age (meta $r=-.17$; $P\leq.001$) and sex (meta $r=-.01$; $P=.02$) were the nonmodifiable factors that were found to be associated with post-stroke physical activity. The modifiable factors were physical function (meta $r=.68-.73$; $P<.001$), cardiorespiratory fitness (meta $r=.35$; $P\leq.001$), fatigue (meta $r=-.22$; $P=.01$), falls self-efficacy (meta $r=-.33$; $P<.001$), balance self-efficacy (meta $r=.37$; $P<.001$), depression (meta $r=-.58$ to $.48$; $P<.001$), and health-related quality of life (meta $r=.38-.43$; $P<.001$). The effect of side of infarct, neglect, and cognition on post-stroke physical activity was inconclusive.

Conclusions: Age, sex, physical function, depression, fatigue, self-efficacy, and quality of life were factors associated with post-stroke physical activity. The cause and effect of these relations are unclear, and the possibility of reverse causality needs to be addressed.

Title: Fatigue and pain limit independent mobility and physiotherapy after hip fracture surgery.

Citation: Disability & Rehabilitation; Jul 2018; vol. 40 (no. 15); p. 1808-1816

Author(s): Mnster, Kristine H.; Clemmesen, Christopher G.; Foss, Nicolai B.; Palm, Henrik; Kristensen, Morten T.

Purpose: The patient's ability to complete their planned physiotherapy session after hip fracture surgery has been proposed as an independent predictor for achieving basic mobility independency upon hospital discharge. However, knowledge of factors limiting mobility is sparse. We therefore examined patient reported factors limiting ability to complete planned physiotherapy sessions as well as limitations for not achieving independency in basic mobility early after hip fracture surgery.

Methods: A total of 204 consecutive patients with a hip fracture (mean (SD) age of 80 (9.9) years, 47 patients were admitted from a nursing home) were treated in accordance with a multimodal program. The Cumulated Ambulation Score was used to evaluate the patient's independency in three basic mobility activities: getting in and out of bed, sit-to-stand-to-sit from a chair and indoor walking. Pre-defined limitations; pain, motor blockade, dizziness, fatigue, nausea, acute cognitive dysfunction and "other limitations", for not achieving a full Cumulated Ambulation Score or inability to complete planned physiotherapy sessions were noted by the physiotherapist on each of the three first postoperative days. This period was chosen, because of its importance on how well the patients had regained their pre-fracture functional level.

Results: Fatigue and hip fracture-related pain were the most frequent reasons for patients not achieving an independent basic mobility level ($> 85\%$) or not fully completing their planned physiotherapy ($> 42\%$) on all three days. At hospital discharge (median day 10), only 54% of the patients had regained their pre-fracture basic mobility level.

Conclusion: Based on the patient's perception, fatigue and pain are the most frequent limitations in not achieving independent basic mobility and not completing physiotherapy after hip fracture surgery. This raises questions whether multimodal peri-operative programs can be further optimized to enhance the early recovery of these frail patients. Implications for rehabilitation: Early postoperative mobilization is essential for patients undergoing hip fracture surgery to regain the pre-fracture functional level, in not only the short but also in the long term. The most frequent reasons for not achieving an independent Cumulated

Ambulation Score or completing physiotherapy, early after hip fracture surgery, are fatigue, pain, and the habitual cognitive status of patients. Knowledge concerning postoperative fatigue is important for rehabilitation professionals and should contribute as an essential factor when planning physiotherapy.

Title: Guidelines for the physiotherapy management of the adult, medical, spontaneously breathing patient.

Citation: Learning Disability Practice; Jul 2018 ; p. 29-43

Author(s): Chadwick, D. D.; Jolliffe, J.; Glover, G.; Ayub, A.; Hibberd, J.; Fraser, J.; Chapman, C.

Abstract: The article provides guidelines for the physiotherapy management of the adult, medical, spontaneously breathing patient. Topics mentioned include strategies and techniques to use when providing physiotherapy to patients with medical respiratory conditions, recommendations for management of breathlessness, and suggestions for managing anxiety and panic.

Title: Hippotherapy in adults with acquired brain injury: A systematic review.

Citation: Physiotherapy theory and practice; Jul 2018 ; p. 1-12

Author(s): Marquez, Jodie; Weerasekara, Ishanka; Chambers, Lucia

Background: Hippotherapy is used to supplement conventional therapy in neurological conditions with evidence supporting its use in pediatric patients. However, evaluation of its merit in adults with acquired brain injury (ABI) is lacking. The aim of this study was to determine if hippotherapy can improve motor function in adults with ABI.

Methods: A systematic review of all available controlled studies investigating the use of hippotherapy, in adults with ABI, was conducted. The primary outcome of interest was movement related function and secondary outcomes included impairment, quality of life, and adverse events.

Results: Nine studies with 256 participants were included, of which six studies with 204 participants were included for meta-analysis. When the data were pooled, hippotherapy did not produce statistically significant improvements in balance (SMD = 0.24, 95% CI -0.05, 0.54, p = 0.1) or gait parameters (SMD = -0.04, 95% CI -0.79, 0.72 p = 0.92) when compared to control and measured immediately after the intervention. Long-term effects remain unknown due to lack of follow-up evaluation.

Conclusions: This review suggests that hippotherapy is safe and well tolerated by adults with ABI. Short-term functional benefits were not associated with the use of hippotherapy. Further high-quality research is required before hippotherapy can be endorsed as a modality in adult neurological rehabilitation.

Title: Interventions involving repetitive practice improve strength after stroke: a systematic review.

Citation: Journal of physiotherapy; Sep 2018

Author(s): de Sousa, Davide G; Harvey, Lisa A; Dorsch, Simone; Glinsky, Joanne V

Questions: Do interventions involving repetitive practice improve strength after stroke? Are any improvements in strength accompanied by improvements in activity?

Design: Systematic review of randomised trials with meta-analysis.

Participants: Adults who have had a stroke.

Intervention: Any intervention involving repetitive practice compared with no intervention or a sham intervention.

Outcome Measures: The primary outcome was voluntary strength in muscles trained as part of the intervention. The secondary outcomes were measures of lower limb and upper limb activity.

Results: Fifty-two studies were included. The overall SMD of repetitive practice on strength was examined by pooling post-intervention scores from 46 studies involving 1928 participants. The SMD of repetitive practice on strength when the upper and lower limb studies were combined was 0.25 (95% CI 0.16 to 0.34, I²=44%) in favour of repetitive practice. Twenty-four studies with a total of 912 participants investigated the effects of repetitive practice on upper limb activity after stroke. The SMD was 0.15 (95% CI 0.02 to 0.29, I²=50%) in favour of repetitive practice on upper limb activity. Twenty studies with a total of 952 participants investigated the effects of repetitive practice on lower limb activity after stroke. The SMD was 0.25 (95% CI 0.12 to 0.38, I²=36%) in favour of repetitive practice on lower limb activity.

Conclusion: Interventions involving repetitive practice improve strength after stroke, and these improvements are accompanied by improvements in activity.

Title: Kinesio taping is superior to other taping methods in ankle functional performance improvement: a systematic review and meta-analysis.

Citation: Clinical rehabilitation; Jul 2018 ; p. 269215518780443

Author(s): Wang, Yun; Gu, Yu; Chen, Jiancong; Luo, Wenhao; He, Wanying; Han, Zhongyu; Tian, Jing

Objective: To compare the effect of Kinesio taping on ankle functional performance with that of other taping methods (non-elastic taping) in healthy individuals and patients with ankle sprain.

Methods: A search was performed in electronic databases (MEDLINE, Embase, Cochrane Library, and China National Knowledge Infrastructure) for studies published up to 31 March 2018 using the following keywords: ankle, Kinesio taping, KT, and tape. Studies on ankle functional performance were selected, and data on Star Excursion Balance Test results, vertical jump height, and range of motion were extracted. Meta-analyses (where appropriate and possible) using either fixed or random effects model, standardized mean differences, and tests of heterogeneity were performed.

Results: Ten studies fulfilled the inclusion criteria. The Star Excursion Balance Test results indicated that Kinesio taping was superior to other taping methods (placebo taping or tension-free taping). The mean difference was 3.2 (95% confidence interval (CI): 0.84-5.59, $I^2 = 5%$, $P = 0.008$). In studies in which vertical jump height was measured, a negative effect was observed for other taping methods (athletic taping or placebo taping), but not for Kinesio taping (mean difference = 1.06, 95% CI: 0.19-0.93, $I^2 = 15%$, $P = 0.02$). Both Kinesio taping and common taping had no significant effect on range of motion, with no differences between these methods ($I^2 = 0%$, $P = 0.80$).

Conclusion: Kinesio taping is superior to other taping methods (athletic taping) in ankle functional performance improvement.

Title: Lessons learnt from a discontinued randomised controlled trial: adalimumab injection compared with placebo for patients receiving physiotherapy treatment for sciatica (Subcutaneous Injection of Adalimumab Trial compared with Control: SCIATiC).

Citation: Trials; Jul 2018; vol. 19 (no. 1)

Author(s): Williams, Nefyn H.; Jenkins, Alison; Goulden, Nia; Hoare, Zoe; Hughes, Dyfrig A.; Wood, Eifiona; Foster, Nadine E.; Walsh, David; Carnes, Dawn; Sparkes, Valerie; Hay, Elaine M.; Isaacs, John; Konstantinou, Kika; Morrissey, Dylan; Karppinen, Jaro; Genevay, Stephane; Wilkinson, Clare

Background: Adalimumab, a biological treatment targeting tumour necrosis factor α , might be useful in sciatica. This paper describes the challenges faced when developing a new treatment pathway for a randomised controlled trial of adalimumab for people with sciatica, as well as the reasons why the trial discussed was stopped early.

Methods: A pragmatic, parallel group, randomised controlled trial with blinded (masked) participants, clinicians, outcome assessment and statistical analysis was conducted in six UK sites. Participants were identified and recruited from general practices, musculoskeletal services and outpatient physiotherapy clinics. They were adults with persistent symptoms of sciatica of 1 to 6 months' duration with moderate to high level of disability. Eligibility was assessed by research physiotherapists according to clinical criteria, and participants were randomised to receive two doses of adalimumab (80 mg then 40 mg 2 weeks later) or saline placebo subcutaneous injections in the posterior lateral thigh. Both groups were referred for a course of physiotherapy. Outcomes were measured at baseline, 6-week, 6-month and 12-month follow-up. The main outcome measure was disability measured using the Oswestry Disability Index. The planned sample size was 332, with the first 50 in an internal pilot phase.

Results: The internal pilot phase was discontinued after 10 months from opening owing to low recruitment (two of the six sites active, eight participants recruited). There were several challenges: contractual delays; one site did not complete contract negotiations, and two sites signed contracts shortly before trial closure; site withdrawal owing to patient safety concerns; difficulties obtaining excess treatment costs; and in the two sites that did recruit, recruitment was slower than planned because of operational issues and low uptake by potential participants.

Conclusions: Improved patient care requires robust clinical research within contexts in which treatments can realistically be provided. Step changes in treatment, such as the introduction of biologic treatments for severe sciatica, raise complex issues that can delay trial initiation and retard recruitment. Additional preparatory work might be required before testing novel treatments. A randomised controlled trial of tumour necrosis factor- α blockade is still needed to determine its cost-effectiveness in severe sciatica.

Title: Limited utility of Kinesio Taping® in the physiotherapy treatment for patients with chronic obstructive pulmonary disease exacerbation.

Citation: Physiotherapy Theory & Practice; Oct 2018; vol. 34 (no. 10); p. 741-746

Author(s): Daitx, Rodrigo Boff; dos Santos, Karoliny; Dohnert, Marcelo Baptista; da Silva, Tamiris do Amaral; Silva, Jane da

Background: Kinesio Taping® has been used as a physiotherapy treatment in musculoskeletal disorders. However, few studies have evaluated its effectiveness in patients with chronic obstructive pulmonary disease (COPD).

Objectives: To analyze the effects of Kinesio Taping® associated with conventional physiotherapy, on the maximal inspiratory and expiratory pressures (MIP and MEP), forced expiratory volume in 1 second (FEV1), peak expiratory flow (PEF), and pulse oxygen saturation (SpO2) of patients hospitalized for COPD exacerbation.

Methods: Prospective, randomized, single-blinded study. Sixty-two participants who were randomized into two groups: 1) control (medication and standard physiotherapy treatment); and 2) Kinesio Taping® (standard treatment plus application of Kinesio Taping® on the respiratory muscles). The outcomes were assessed 24 hours after the treatment.

Results: After the intervention, the Kinesio Taping® group showed a statistically significant increase in all outcomes assessed. However, when the mean differences between groups were analyzed, there were no statistically significant differences in MIP, MEP, FEV1, and PEF. Differences were found only in SpO2 that was improved in the Kinesio Taping® group.

Conclusions: The application of Kinesio Taping® associated with physiotherapy improved SpO2 of non-hypoxemic patients with COPD exacerbation. Further studies should be conducted to evaluate the method in the long run and in another outcome.

Title: Managing limb pain using virtual reality: a systematic review of clinical and experimental studies.

Citation: Disability and rehabilitation; Sep 2018 ; p. 1-15

Author(s): Wittkopf, Priscilla G; Lloyd, Donna M; Johnson, Mark I

Purpose: The aim of this systematic review was to assess the effect of virtual representation of body parts on pain perception in patients with pain and in pain-free participants exposed to experimentally induced pain.

Methods: Databases searched: Medline, PsycInfo, CINAHL, and Web of Science. Studies investigating participants with clinical pain or those who were pain free and exposed to experimentally induced pain were analysed separately.

Results: Eighteen clinical studies and seven experimental studies were included. Randomised controlled clinical trials showed no significant difference between intervention and control groups for pain intensity. Clinical studies with a single group pretest-posttest design showed a reduction in pain after intervention. In the studies including a sample of pain free participants exposed to experimentally induced pain there was an increase in pain threshold when the virtual arm was collocated with the real arm, when it moved in synchrony with the real arm, and when the colour of the stimulated part of the virtual arm became blue. Observing a virtual arm covered with iron armour reduced pain.

Conclusions: The use of virtual representations of body parts to reduce pain is promising. However, due to the poor methodological quality and limitations of primary studies, we could not find conclusive evidence.

Implications For Rehabilitation: Virtual reality has been increasingly used in the rehabilitation of painful and dysfunctional limbs. Virtual reality can be used to distract attention away from acute pain and may also provide corrective psychological and physiological environments. Virtual representation of body parts has been used to provide a corrective re-embodiment of painful dysmorphic body parts, and primary research shows promising results.

Title: Manual lymph drainage may not have a preventive effect on the development of breast cancer-related lymphoedema in the long term: a randomised trial.

Citation: Journal of physiotherapy; Sep 2018

Author(s): Devoogdt, Nele; Geraerts, Inge; Van Kampen, Marijke; De Vrieze, Tessa; Vos, Lore; Neven, Patrick; Vergote, Ignace; Christiaens, Marie-Rose; Thomis, Sarah; De Groef, An

Question: What are the short-term and long-term preventive effects of manual lymph drainage (MLD), when used in addition to information and exercise therapy, on the development of lymphoedema after axillary dissection for breast cancer?

Design: Randomised controlled trial with concealed allocation, blinded assessors and intention-to-treat analysis.

Participants: Adults undergoing unilateral dissection for breast cancer were recruited, with 79 allocated to the experimental group and 81 to the control group.

Intervention: The experimental group received guidelines about prevention of lymphoedema, exercise therapy and MLD. The control group received the same guidelines and exercise therapy, but no MLD. The interventions in both groups were delivered for 6 months.

Outcome Measures: The primary outcome was cumulative incidence of arm lymphoedema defined in four ways ($\geq 200\text{ml}$, $\geq 2\text{cm}$, $\geq 5\%$, and $\geq 10\%$ increase), which represent the difference in arm volume or circumference between the affected and healthy sides compared with the difference before surgery. Secondary outcomes included point prevalence of lymphoedema, change in arm volume difference, shoulder range of movement, quality of life and function.

Results: Incidence rates were comparable between experimental and control groups at all follow-up measurements. Sixty months after surgery, the cumulative incidence rate for the $\geq 200\text{ml}$ definition was 35% for the experimental group versus 29% for the control group (RR 0.89, 95% CI 0.51 to 1.54, $p=0.45$); for the $\geq 2\text{cm}$ definition 35% versus 38% (RR 0.93, 95% CI 0.59 to 1.45, $p=0.73$); for the $\geq 5\%$ definition 68% versus 53% (RR 1.28, 95% CI 0.97 to 1.69, $p=0.08$) and for the $\geq 10\%$ definition 28% versus 24% (RR 1.18, 95% CI 0.66 to 2.10, $p=0.57$). The secondary outcomes were comparable between the groups at most assessment points.

Conclusion: Manual lymph drainage may not have a preventive effect on the development of breast cancer-related lymphoedema in the short and long term.

Title: Motivational interviewing added to oncology rehabilitation did not improve moderate-intensity physical activity in cancer survivors: a randomised trial.

Citation: Journal of physiotherapy; Sep 2018

Author(s): Dennett, Amy M; Shields, Nora; Peiris, Casey L; Prendergast, Luke A; O'Halloran, Paul D; Parente, Phillip; Taylor, Nicholas F

Question: Does adding weekly, physiotherapist-delivered motivational interviewing to outpatient oncology rehabilitation for cancer survivors increase physical activity levels and improve physical and psychosocial outcomes that are typically impaired in this cohort?

Design: Randomised controlled trial with blinded outcome assessment, concealed allocation and intention-to-treat analysis.

Participants: A heterogeneous sample of 46 cancer survivors ($n=29$ female; mean age 59 years) participating in a public outpatient oncology rehabilitation program.

Intervention: Participants were randomly allocated to receive oncology rehabilitation ($n=24$) or oncology rehabilitation with motivational interviewing delivered once weekly for 7 weeks via telephone by a physiotherapist ($n=22$).

Outcome Measures: The primary outcome was amount of physical activity of at least moderate intensity completed in 10-minute bouts, measured by an accelerometer worn continuously for 1 week. Secondary outcomes included other measures of physical activity, sedentary behaviour, physical function, psychosocial function, and quality of life.

Results: When added to oncology rehabilitation, motivational interviewing caused no appreciable increase in the amount of moderate-intensity physical activity (MD -1.2 minutes/day, 95% CI -2.5 to 0.02). Among many secondary outcomes, the only statistically significant result was a small effect on nausea, which probably represents a Type I error. However, several secondary outcomes related to lower-intensity physical activity had non-significant confidence intervals that included large effects such as: sedentary time (SMD -0.67, 95% CI -1.32 to 0.02), light-intensity physical activity (SMD 0.56, 95% CI -0.12 to 1.21) and daily step count (SMD 0.37, 95% CI -0.30 to 1.02).

Conclusion: Adding motivational interviewing to oncology rehabilitation did not increase moderate-intensity physical activity. Favourable trends on measures of lower-intensity physical activity suggest that motivational interviewing should be further investigated for its effects on reducing sedentary time and improving light-intensity physical activity for cancer survivors participating in rehabilitation.

Title: Motor Skill Interventions in Children With Developmental Coordination Disorder: A Systematic Review and Meta-Analysis.

Citation: Archives of physical medicine and rehabilitation; Oct 2018; vol. 99 (no. 10); p. 2076-2099

Author(s): Yu, Jane J; Burnett, Angus F; Sit, Cindy H

Objectives: To determine the characteristics and effectiveness of motor skill interventions in children with developmental coordination disorder (DCD) and to identify potential moderators of training effects using meta-analysis.

Data Sources: A search was conducted in 6 databases (CINAHL Plus, Cochrane Library, Embase, ERIC, PsycINFO, and PubMed) for articles published between 1995 and August 2017 using search items which were grouped into 3 components (motor skill interventions, DCD, and age group of interest).

Study Selection: Studies were included if they recruited children 3 to 17 years of age with DCD, reported performance of motor-related skills as outcomes, were published in peer-reviewed journals, and were written in English. Qualitative synthesis was conducted for all included studies. Quantitative synthesis (meta-analysis) was only conducted for studies using a (quasi) randomized controlled trial design.

Data Extraction: Methodology, participant characteristics, intervention components, outcomes, and statistically significant training effects of each included study were extracted.

Data Synthesis: Sixty-six studies met the inclusion criteria with 18 of the studies eligible for meta-analysis. Motor performance and cognitive, emotional, and other psychological factors were the most common outcomes. Other 3 outcome categories included perceptions and/or satisfaction regarding the children's improvement from significant others, physical fitness, and physical activity and participation. Immediate and moderate training effects were found for motor performance (Hedges $g=0.63$; 95% confidence interval [CI], .31-.94; $P<.001$) and cognitive, emotional, and other psychological factors (Hedges $g=0.65$; 95% CI, 0.25-1.04; $P=.001$). Additionally, dose (minutes in total) and frequency of the intervention were significant moderators of training effect on motor performance.

Conclusions: Motor skill interventions are effective in improving motor competence and performance on cognitive, emotional, and other psychological aspects in children with DCD in the short term. These effects are more robust in interventions using a large training dose and a practicing schedule of high frequency.

Title: Multimodality respiratory physiotherapy reduces mortality but may not prevent ventilator-associated pneumonia or reduce length of stay in the intensive care unit: a systematic review.

Citation: Journal of Physiotherapy (Elsevier); Oct 2018; vol. 64 (no. 4); p. 222-228

Author(s): Pozuelo-Carrascosa, Diana P; Torres-Costoso, Ana; Alvarez-Bueno, Celia; Cavero-Redondo, Iván; López Muñoz, Purificación; Martínez-Vizcaíno, Vicente

Abstract Question: In intubated adult patients receiving mechanical ventilation, does multimodality respiratory physiotherapy prevent ventilator-associated pneumonia, shorten length of intensive care unit (ICU) stay, and reduce mortality?

Design: A systematic review with meta-analysis of randomised controlled trials.

Participants: Intubated adult patients undergoing mechanical ventilation who were admitted to an intensive care unit.

Intervention: More than two respiratory physiotherapy techniques such as positioning or postural drainage, manual hyperinflation, vibration, rib springing, and suctioning.

Outcomes Measures: Incidence of ventilator-associated pneumonia (VAP), duration of ICU stay, and mortality.

Results: Five trials were included in the meta-analysis. Random-effects models were used to calculate pooled weighted mean difference (WMD) for length of ICU stay and pooled risk ratio (RR) for incidence of VAP, and fixed-effects model was used to calculate pooled RR for mortality. The effect on the incidence of VAP was unclear (RR 0.73 in favour of multimodality respiratory physiotherapy, 95% CI 0.38 to 1.07). The effect on length of stay was also unclear (WMD -0.33 days shorter with multimodality respiratory physiotherapy, 95% CI -2.31 to 1.66). However, multimodality respiratory physiotherapy significantly reduced mortality (RR 0.75, 95% CI 0.58 to 0.92).

Conclusion: Multimodality respiratory physiotherapy appeared to reduce mortality in ICU patients. It was unclear whether this occurred via a reduction in the incidence of VAP and/or length of stay because the available data provided very imprecise estimates of the effect of multimodality respiratory physiotherapy on these outcomes. These very imprecise estimates include the possibility of very worthwhile effects on VAP

incidence and length of ICU stay; therefore, these outcomes should be the focus of further investigation in rigorous trials.

Title: Peri-operative chest physiotherapy for paediatric cardiac patients: a systematic review and meta-analysis.

Citation: Physiotherapy; Sep 2018; vol. 104 (no. 3); p. 251-263

Author(s): Beningfield, A.; Jones, A.

Background: Chest physiotherapy (CPT) is implemented before and after congenital heart disease (CHD) surgery in paediatrics to prevent and treat postoperative pulmonary complications (PPC). Currently, there are no systematic reviews or meta-analyses on the efficacy of CPT in this population.

Objective: To conduct a systematic review and meta-analysis to determine whether peri-operative CPT is safe and effective for paediatric patients with CHD.

Data Sources: A literature search was conducted on PEDro, MEDLINE, CINAHL, Informit, The Cochrane Library and Scopus in March and April 2016. Eligibility criteria English peer-reviewed articles that utilised CPT before or after cardiac surgery for paediatric CHD. Systematic reviews were excluded. Data extraction and synthesis Completed by two independent researchers using the Crowe Critical Appraisal Tool. Data were collated using a piloted data extraction tool. Mix Version 2.0.1.4 was used for meta-analysis, and data were extracted using an odds ratio (with a random effects model).

Results: Eleven studies met the inclusion criteria for the systematic review. Variable results were found regarding the effect of CPT on peripheral oxygen saturation and pain. Meta-analysis showed that CPT did not prevent pneumonia (odds ratio (OR) 2.01; 95% confidence interval (CI) 0.80 to 5.05; P = 0.13), and did not prevent or treat atelectasis (OR 1.27; 95% CI 0.18 to 8.87; P = 0.81).

Limitations: There was a lack of high-quality studies. The included studies were comprised of heterogeneous treatment, limiting external validity.

Conclusion: Active therapies such as mobilisation, deep breathing and incentive spirometry were more effective than passive treatment. Percussion led to oxygen desaturation, and percussion, vibration and suctioning increased the risk of developing atelectasis

Title: Physical Activity-Based Interventions Using Electronic Feedback May Be Ineffective in Reducing Pain and Disability in Patients With Chronic Musculoskeletal Pain: A Systematic Review With Meta-Analysis.

Citation: Archives of physical medicine and rehabilitation; Sep 2018; vol. 99 (no. 9); p. 1900-1912

Author(s): Oliveira, Crystian B; Franco, Márcia R; Maher, Chris G; Ferreira, Paulo H; Morelhão, Priscila K; Damato, Tatiana M; Gobbi, Cynthia; Pinto, Rafael Z

Objective: To investigate the effectiveness of physical activity-based interventions using electronic feedback in reducing pain and disability compared to minimal or no interventions in patients with chronic musculoskeletal pain.

Data Sources: The following electronic databases were searched: EMBASE, MEDLINE, Cochrane Central Register of Controlled Trials, PsycINFO, Cumulative Index to Nursing and Allied Health Literature, SPORTDiscus, Web of Science, Physiotherapy Evidence Database, and main clinical trial registers.

Study Selection: Randomized controlled trials investigating the effect of physical activity interventions using electronic feedback (eg, physical activity monitors) on pain and disability compared to minimal or no interventions in adults with chronic musculoskeletal pain were considered eligible.

Data Extraction: Pooled effects were calculated using the standardized mean difference (SMD), and the Grading of Recommendations Assessment, Development and Evaluation system was used to assess the overall quality of the evidence.

Data Synthesis: Four published randomized controlled trials and 4 registered unpublished randomized controlled trials were included. At short-term follow-up, pooled estimations showed no significant differences in pain (2 trials: n=116; SMD=-.50; 95% confidence interval, - 1.91 to 0.91) and disability (2 trials: n=116; SMD=-.81; 95% confidence interval, -2.34 to 0.73) between physical activity-based interventions and minimal interventions. Similarly, nonsignificant results were found at intermediate-term follow-up. According to Grading of Recommendations Assessment, Development and Evaluation, the overall quality of the evidence was considered to be of low quality.

Conclusions: Our findings suggest that physical activity-based interventions using electronic feedback may be ineffective in reducing pain and disability compared to minimal interventions in patients with chronic

musculoskeletal pain. Clinicians should be cautious when implementing this intervention in patients with chronic musculoskeletal pain.

Title: PREPARE: presurgery physiotherapy for patients with degenerative lumbar spine disorder: a randomized controlled trial.

Citation: Spine Journal; Aug 2018; vol. 18 (no. 8); p. 1347-1355

Author(s): Lindbäck, Yvonne; Tropp, Hans; Enthoven, Paul; Abbott, Allan; Öberg, Birgitta; Lindbäck, Yvonne; Öberg, Birgitta

Background Context: Surgery because of disc herniation or spinal stenosis results mostly in large improvement in the short-term, but mild to moderate improvements for pain and disability at long-term follow-up. Prehabilitation has been defined as augmenting functional capacity before surgery, which may have beneficial effect on outcome after surgery.

Purpose: The aim was to study if presurgery physiotherapy improves function, pain, and health in patients with degenerative lumbar spine disorder scheduled for surgery.

Study Design: A single-blinded, two-arm, randomized controlled trial (RCT). **Patient Sample:** A total of 197 patients were consecutively included at a spine clinic. The inclusion criteria were patients scheduled for surgery because of disc herniation, spinal stenosis, spondylolisthesis, or degenerative disc disease (DDD), 25-80 years of age.

Outcome Measures: Primary outcome was Oswestry Disability Index (ODI). Secondary outcomes were pain intensity, anxiety, depression, self-efficacy, fear avoidance, physical activity, and treatment effect. **Methods:** Patients were randomized to either presurgery physiotherapy or standardized information, with follow-up after the presurgery intervention as well as 3 and 12 months post surgery. The study was funded by regional research funds for US\$77,342. No conflict of interest is declared.

Results: The presurgery physiotherapy group had better ODI, visual analog scale (VAS) back pain, EuroQol-5D (EQ-5D), EQ-VAS, Fear Avoidance Belief Questionnaire-Physical Activity (FABQ-PA), Self-Efficacy Scale (SES), and Hospital Anxiety and Depression Scale (HADS) depression scores and activity level compared with the waiting-list group after the presurgery intervention. The improvements were small, but larger than the study-specific minimal clinical important change (MCIC) in VAS back and leg pain, EQ-5D, and FABQ-PA, and almost in line with MCIC in ODI and Physical Component Summary (PCS) in the physiotherapy group. Post surgery, the only difference between the groups was higher activity level in the physiotherapy group compared with the waiting-list group.

Conclusions: Presurgery physiotherapy decreases pain, risk of avoidance behavior, and worsening of psychological well-being, and improves quality of life and physical activity levels before surgery compared with waiting-list controls. These results were maintained only for activity levels post surgery. Still, presurgery selection, content, dosage of exercises, and importance of being active in a presurgery physiotherapy intervention is of interest to study further to improve long-term outcome.

Title: Relationship between diastasis recti of the abdominal muscles (DRAM) and musculoskeletal dysfunctions, pain and quality of life: a systematic review.

Citation: Physiotherapy; Jul 2018

Author(s): Benjamin, Deenika R; Frawley, Helena J; Shields, Nora; van de Water, Alexander T M; Taylor, Nicholas F

Background: Diastasis of the rectus abdominis muscle (DRAM) is common during and after pregnancy.

Objectives: To determine the association between: the presence of DRAM and low back pain, lumbo-pelvic pain, incontinence, pelvic organ prolapse, abdominal muscle performance or health-related quality of life; and between DRAM width and severity of these outcomes.

Data Sources: Six electronic databases (EMBASE, Medline, CINAHL, PUBMED, AMED and PEDro).

Study Selection: Included studies of all designs with adults with DRAM that assessed low back pain, lumbo-pelvic pain incontinence, pelvic organ prolapse, abdominal performance or health-related quality of life.

Study Appraisal & Synthesis Methods: Methodological quality was assessed using the Effective Public Health Practice Project tool. A narrative summary was completed for DRAM presence and presence of the various musculoskeletal dysfunctions, and DRAM width and the severity of these dysfunctions.

Results: Twelve studies involving 2242 participants were included. There was no significant association between the presence of DRAM and lumbo-pelvic pain or incontinence. There was a small association

between the presence of DRAM and pelvic organ prolapse. DRAM width may be associated with health-related quality of life, abdominal muscle strength and severity of low back pain.

Limitations: Quality of studies was weak. There was variability in the methods used to assess DRAM.

Conclusion: There is weak evidence that DRAM presence may be associated with pelvic organ prolapse, and DRAM severity with impaired health-related quality of life, impaired abdominal muscle strength and low back pain severity.

Title: Reliability, Validity, and Responsiveness of Clinical Performance-Based Outcome Measures of Walking for Individuals With Lower Limb Amputations: A Systematic Review.

Citation: Physical therapy; Sep 2018

Author(s): Hawkins, Emily J; Riddick, William

Background: Clinical outcome measures are important to use for individuals with lower limb amputations (LLA) because such individuals require intensive functional gait training before and after being fitted with prostheses. Using standardized instruments throughout the episode of care allows clinicians to objectively monitor patient progress, make evidence-based decisions regarding the plan of care, and communicate results in meaningful ways to patients, payers, and other clinicians. Many clinical outcome measures exist, but not all have been validated and shown to be reliable within a population of interest.

Purpose: The aim of this review was to provide a comprehensive overview of the psychometric properties of all current, performance-based outcome measures applicable to individuals with lower limb amputations.

Data Sources: Reviewers searched for articles using the online databases PubMed/MEDLINE and CINAHL. Reviewers also conducted a manual search of a reference list of 1 of the systematic reviews to identify any additional studies not detected with the online database search.

Study Selection: The 2 reviewers screened titles and abstracts for relevance. The same reviewers obtained and read full-text articles of the potentially relevant studies. Reviewers resolved any discrepancies of the inclusion assessment by further discussion.

Data Extraction: The reviewers created tables to extract psychometric properties of interest from the included articles. Both reviewers extracted the data from the articles and placed relevant values into a table for each primary outcome measure identified.

Data Synthesis: The rigor of study reporting was guided by use of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Checklist. Each reviewer independently read and appraised the included articles, assigning a score to each checklist item. The sum of scores for each item was calculated to appraise the overall quality of reporting of the included articles.

Limitations: Review-level limitations included the absence of a third reviewer to settle any disagreements on article inclusion and article appraisal. Additionally, the percentage of reviewer agreement on article appraisal was not determined before disagreements about checklist item satisfaction were resolved. Furthermore, reviewers only extracted data on reliability, validity, and responsiveness; instrument characteristics, such as floor and ceiling effects, are also important.

Conclusions: Valid and reliable performance-based clinical measures of ambulation in individuals with LLA were identified. Further research should investigate the minimally clinical, important difference of these clinical measures and address trends in unmet reporting guidelines.

Title: Scapular focused interventions to improve shoulder pain and function in adults with subacromial pain: A systematic review and meta-analysis.

Citation: Physiotherapy theory and practice; Sep 2018; vol. 34 (no. 9); p. 653-670

Author(s): Saito, Hiroki; Harrold, Meg E; Cavalheri, Vinicius; McKenna, Leanda

Abstract: The relationship between subacromial pain syndrome (SAPS) and altered scapular movement has been previously reported. The purpose of this review was to determine the effect of interventions that focus on addressing scapular components to improve shoulder pain, function, shoulder range of motion (ROM), and muscle strength in adults with SAPS. Databases searched in September 2016 were: PubMed, the Cochrane Central Register of Controlled Trials [Central], EMBASE [via Ovid] and PEDro. All studies selected for this review were randomized controlled trials. In total, six studies met the inclusion criteria and were included in the meta-analyses. In adults with SAPS, scapular focused interventions significantly improved pain with activities (MD [95% CI] = -0.88 [-1.19 to -0.58], I² 43%) and shoulder function (-11.31 [-17.20 to -5.41] I² 65%) in the short term. No between-group difference in shoulder pain and function were found at follow up (4 weeks). A between-group difference in shoulder abduction ROM in the short term only was found (12.71 [7.15 to 18.26]°, I² 36%). No between-group difference in flexion ROM, supraspinatus

muscle strength, pectoralis minor length or forward shoulder posture were found. In conclusion, in adults with SAPS, scapular focused interventions can improve short-term shoulder pain and function.

Title: Staff and patients have mostly positive perceptions of physiotherapists working in emergency departments: a systematic review.

Citation: Journal of Physiotherapy (Elsevier); Oct 2018; vol. 64 (no. 4); p. 229-236

Author(s): Ferreira, Giovanni E; Traeger, Adrian C; O'Keeffe, Mary; Maher, Chris G

Abstract Question: What are staff and patients' perceptions of physiotherapists working in the emergency department (ED)?
Design Systematic review of qualitative studies.

Participants: Staff working in EDs and patients presenting to the ED and managed by ED physiotherapists.

Outcome measures: Perceptions of ED staff and patients were synthesised using a three-stage thematic analysis consisting of extraction, grouping (codes), and abstraction of findings.

Results: Eight studies, which had sought the perceptions of 138 patients and 122 ED staff members, were included. Three main themes emerged: role of physiotherapists in the ED, positive perceptions of ED physiotherapists, and concerns about physiotherapists in the ED. Patients and ED staff both considered physiotherapists to be experts in musculoskeletal care. The role of ED physiotherapists was seen as providing thorough patient education, non-pharmacological pain management and activity resumption, especially through exercise therapy. Having broad knowledge to assess and treat different health conditions was seen as facilitating the work of physiotherapists in the ED. Patients and ED staff felt that ED physiotherapists had good interpersonal communication skills. ED staff expressed concerns regarding the additional time that physiotherapists spent with patients. Some patients felt that performing exercises in the ED was inappropriate and painful.

Conclusions: ED physiotherapists were mostly well accepted by patients and ED staff, and their work was perceived to improve the ED. Concerns included restricted availability, lack of awareness of the role undertaken by physiotherapists in the ED, and increased treatment time in some settings.

Title: Systematic Review on the Effects of Serious Games and Wearable Technology Used in Rehabilitation of Patients With Traumatic Bone and Soft Tissue Injuries.

Citation: Archives of physical medicine and rehabilitation; Sep 2018; vol. 99 (no. 9); p. 1890-1899

Author(s): Meijer, Henriëtte A; Graafland, Maurits; Goslings, J Carel; Schijven, Marlies P

Objective: To assess the effects on functional outcomes and treatment adherence of wearable technology and serious games (ie, interactive computer applications with specific purposes useful in the "real world") currently used in physical rehabilitation of patients after traumatic bone and soft tissue injuries.

Data Sources: PubMed, EMBASE, Cochrane Library, and Current Index to Nursing and Allied Health Literature were searched without publication date restrictions for the terms wearable, serious game, videogame or mobile application, and rehabilitation, exercise therapy, and physiotherapy.

Study Selection: The search yielded 2704 eligible articles, which were screened by 2 independent reviewers. Studies comparing serious games to standard therapy were included.

Data Extraction: Methodology and results of the studies were critically appraised in conformity with Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.

Data Synthesis: Twelve articles were included, all of which tested "off-the-shelf" games. No studies on "wearable-controlled" games or games specifically developed for rehabilitation could be included. Medical conditions included postoperative rehabilitation and acute traumatic injuries. All studies were of low to moderate quality. Only 2 studies found beneficial effects of serious games compared to conventional therapy. One of 3 studies reporting pain scores found beneficial effects of serious games compared to physiotherapy. One of 5 trials reporting treatment adherence found a statistically significant advantage in the game group compared to conventional physiotherapy. Because of heterogeneity in study design and outcome measures, pooling of data was not possible.

Conclusions: Serious games seem a safe alternative or addition to conventional physiotherapy after traumatic bone and soft tissue injuries. Future research should determine their validity and effectiveness in rehabilitation therapy, next to their cost-effectiveness and effect on treatment adherence.

Title: The effectiveness of exercise interventions for pain reduction in people with multiple sclerosis: a systematic review and meta-analysis of randomized controlled trials.

Citation: Archives of physical medicine and rehabilitation; Sep 2018

Author(s): Demaneuf, Thibaut; Aitken, Zoe; Karahalios, Amalia; Leong, Teng Ieng; De Livera, Alysha M; Jelinek, George A; Weiland, Tracey J; Marck, Claudia H

Objective: To systematically review the evidence of the effect of exercise compared to passive control on pain in people with multiple sclerosis.

Data Source And Study Selection: Five electronic databases were searched for randomized controlled trials published up to March 2017 that recruited people with multiple sclerosis where exercise was the intervention and pain was an outcome.

Statistical Analysis: A random-effects meta-analysis was conducted to estimate the standardized mean difference of the effect of exercise on pain between treatment and control groups. We assessed risk of bias, fitted meta-regression models to explore heterogeneity between studies, and assessed small study effects.

Data Synthesis: Ten studies met the inclusion criteria (total sample size = 389) and all studies were at high risk of bias. We found that exercise intervention was associated with less pain compared to passive control groups (standardized mean difference = -0.46; 95% CI: -0.92, 0.00). There was high between study heterogeneity ($I^2 = 77.0\%$), which was not explained by the pre-specified study characteristics. There was also some evidence of small study effects.

Conclusion: This is the first systematic review of the effect of exercise interventions on pain in people with multiple sclerosis, a chronic neurological disorder that affects 2.5 million people. We found some evidence that exercise compared to passive control alleviates pain in this population, but there were limitations in reporting and study quality with high risk of bias of individual studies and heterogeneity between studies.

Title: The Effects of Tai Chi on Lower Limb Proprioception in Adults Aged Over 55: A Systematic Review and Meta-Analysis.

Citation: Archives of physical medicine and rehabilitation; Aug 2018

Author(s): Zou, Liye; Han, Jia; Li, Chunxiao; Yeung, Albert; Hui, Stanley Sai-Chuen; Tsang, William W N; Ren, Zhanbing; Wang, Lin

Objective: To summarize and critically evaluate the effects of Tai Chi on lower limb proprioception in adults aged over 55.

Data Sources: Seven databases (Scopus, PubMed, Web of Science, SPORTDiscus, Cochrane Library, Wanfang, and CNKI) were searched from inception until April 14, 2018.

Study Selection: Eleven randomized controlled trials were included for meta-analysis.

Data Extraction: Two independent reviewers screened potentially relevant studies based on the inclusion criteria, extracted data, and assessed methodological quality of the eligible studies using the Physiotherapy Evidence Database (PEDro).

Data Synthesis: The pooled effect size (standardized mean difference, SMD) was calculated while the random-effects model was selected. PEDro scores ranged from 5 to 8 points (mean = 6.7). The study results showed that Tai Chi had significantly positive effects on lower limb joint proprioception. Effect sizes were moderate to large, including ankle plantar flexion (SMD = -0.55, 95% CI -0.9 to -0.2, $p = 0.002$, $I^2 = 0\%$, $N = 162$), dorsiflexion (SMD = -0.75, 95% CI -1.11 to -0.39, $p < 0.001$, $I^2 = 0\%$, $N = 162$), non-dominant/left knee flexion (SMD = -0.71, 95% CI -1.10 to -0.41, $p < 0.001$, $I^2 = 25.1\%$, $N = 266$), dominant/right knee-flexion (SMD = -0.82, 95% CI -1.06 to -0.58, $p < 0.001$, $I^2 = 33.8\%$, $N = 464$).

Conclusions: There is moderate to strong evidence suggests that Tai Chi is an effective intervention to maintain and improve lower limb proprioception in adults aged over 55. More robust multi-center studies including oldest-old participants, with longer follow-ups and validated outcome measures are needed before a definitive conclusion is drawn.

Title: The impact of therapeutic alliance in physical therapy for chronic musculoskeletal pain: A systematic review of the literature.

Citation: Physiotherapy theory and practice; Sep 2018 ; p. 1-13

Author(s): Kinney, Meredith; Seider, Jasmine; Beaty, Amanda Floyd; Coughlin, Kaitlin; Dyal, Maximilian; Clewley, Derek

Objective: To systematically determine the specific impact of therapeutic alliance (TA) on chronic musculoskeletal pain, identify factors influencing TA between physical therapists and patients with chronic musculoskeletal pain, and determine the working definition of TA across studies.

Data Sources: Databases, including PubMed, CINAHL, and Embase, were searched from inception to January 2017.

Study Selection: The initial search resulted in 451 papers. After screening, seven studies were identified that examined the role of TA on chronic pain (> 12 weeks) management in physical therapy settings.

Data Extraction: Authors extracted data into tables. Risk of bias was assessed using Cochrane Collaboration methodology.

Data Synthesis: Three studies examined the influence of a strong TA coupled with physical therapy on pain outcomes. Four studies identified factors that positively and negatively influenced TA. The working definition of TA was identified in each study.

Conclusions: Emerging evidence suggests that for individuals participating in physical therapy for chronic musculoskeletal pain, a strong TA may improve pain outcomes. In order to facilitate a strong TA, physical therapists must understand factors that positively and negatively influence the relationship. Studies demonstrate that the definition of TA remains consistent as it transitions to the physical therapy setting.

Title: Transcutaneous electrical nerve stimulation improves walking capacity and reduces spasticity in stroke survivors: a systematic review and meta-analysis.

Author(s): Kwong, Patrick Wh; Ng, Gabriel Yf; Chung, Raymond Ck; Ng, Shamay Sm

Citation: Clinical rehabilitation; Sep 2018; vol. 32 (no. 9); p. 1203-1219

Objective: To evaluate (1) the effectiveness of transcutaneous electrical nerve stimulation (TENS) at improving lower extremity motor recovery in stroke survivors and (2) the optimal stimulation parameters for TENS.

Review Methods: A systematic search was conducted for studies published up to October 2017 using eight electronic databases (CINAHL, ClinicalTrials.gov, the Cochrane Central Register of Controlled Trials, EMBASE, MEDLINE, PEDro, PubMed and Web of Science). Randomized controlled trials that evaluated the effectiveness of the application of TENS at improving lower extremity motor recovery in stroke survivors were assessed for inclusion. Outcomes of interest included plantar flexor spasticity, muscle strength, walking capacity and balance.

Results: In all, 11 studies met the inclusion criteria which involved 439 stroke survivors. The meta-analysis showed that TENS improved walking capacity, as measured by either gait speed or the Timed Up and Go Test (Hedges' g = 0.392; 95% confidence interval (CI) = 0.178 to 0.606) compared to the placebo or no-treatment control groups. TENS also reduced paretic plantar flexor spasticity, as measured using the Modified Ashworth Scale and Composite Spasticity Scale (Hedges' g = -0.884; 95% CI = -1.140 to -0.625). The effect of TENS on walking capacity in studies involving 60 minutes per sessions was significant (Hedges' g = 0.468; 95% CI = 0.201-0.734) but not in study with shorter sessions (20 or 30 minutes) (Hedges' g = 0.254; 95% CI = -0.106-0.614).

Conclusion: The results support the use of repeated applications of TENS as an adjunct therapy for improving walking capacity and reducing spasticity in stroke survivors.

Title: Trigger Point Manual Therapy for the Treatment of Chronic Noncancer Pain in Adults: A Systematic Review and Meta-analysis.

Citation: Archives of physical medicine and rehabilitation; Jul 2018

Author(s): Denny, Diarmuid; Frawley, Helena C; Petersen, Katrine; McLoughlin, Rebecca; Brook, Suzanne; Hassan, Salma; Williams, Amanda C

Objective: To determine the effectiveness of trigger point manual therapy (TPMT) for reducing chronic noncancer pain and associated problems in adults, by analyzing all relevant randomized controlled trials (RCTs).

Data Sources: We searched databases and clinical trials registers from their inception to May 2017.

Study Selection: We included RCTs in any language that recruited patients older than 18, with pain of 3 months' duration or more. We assessed pain, function, and patient-reported improvement as outcomes.

Data Extraction: Two authors independently extracted and verified data. Meta-analysis was completed where possible, otherwise data were synthesized narratively.

Data Synthesis: We combined all data using a random-effects model and assessed the quality of evidence using GRADE. A total of 19 trials (involving 1047 participants) met inclusion criteria, representing TPMT treatment of musculoskeletal, pelvic, and facial pain. No effect was found for short-term pain relief (mean standardized difference -0.53; 95% confidence interval [CI], -1.08 to 0.02). One small study showed a longer-term benefit for pain (mean standardized difference -2.00; 95% CI, -3.40 to -0.60) but with low confidence in the effect. Significant gains emerged for function (mean standardized difference -0.77; 95% CI, -1.27 to -0.26) and in patient global response (odds ratio 3.79; 95% CI, 1.86-7.71) from 4 studies, but not for health-related quality of life.

Conclusions: Evidence for TPMT for chronic noncancer pain is weak and it cannot currently be recommended.