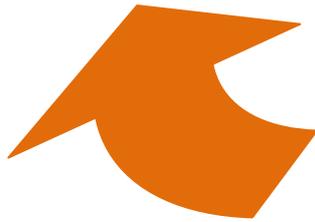


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Articles (July 2019 – December 2019)

OSTEOARTHRITIS

A consensus-based process identifying physical therapy and exercise treatments for patients with degenerative meniscal tears and knee OA: the TeMPO physical therapy interventions and home exercise program.

Author(s): Safran-Norton, Clare E.; Sullivan, James K.; Irrgang, James J.; Kerman, Hannah M.; Bennell, Kim L.; Calabrese, Gary; Dechaves, Leigh; Deluca, Brian; Gil, Alexandra B.; Kale, Madhuri; Luc-Harkey, Brittney; Selzer, Faith; Sople, Derek; Tonsoline, Peter; Losina, Elena; Katz, Jeffrey N.

Source: BMC Musculoskeletal Disorders; Nov 2019; vol. 20 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31684921

Available at [BMC musculoskeletal disorders](#) - from BioMed Central

Available at [BMC musculoskeletal disorders](#) - from Europe PubMed Central - Open Access

Available at [BMC musculoskeletal disorders](#) - from EBSCO (MEDLINE Complete)

Available at [BMC musculoskeletal disorders](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC musculoskeletal disorders](#) - from Unpaywall

Abstract:Background: Knee osteoarthritis (OA) is prevalent and often associated with meniscal tear. Physical therapy (PT) and exercise regimens are often used to treat OA or meniscal tear, but, to date, few programs have been designed specifically for conservative treatment of meniscal tear with concomitant knee OA. Clinical care and research would be enhanced by a standardized, evidence-based, conservative treatment program and the ability to study the effects of the contextual factors associated with interventions for patients with painful, degenerative meniscal tears in the setting of OA. This paper describes the process of developing both a PT intervention and a home exercise program for a randomized controlled clinical trial that will compare the effectiveness of these interventions for patients with knee pain, meniscal tear and concomitant OA. Methods: This paper describes the process utilized by an interdisciplinary team of physical therapists, physicians, and researchers to develop and refine a standardized in-clinic PT intervention, and a standardized home exercise program to be carried out without PT supervision. The process was guided in part by Medical Research Council guidance on intervention development. Results: The investigators achieved agreement on an in-clinic PT intervention that included manual therapy, stretching, strengthening, and neuromuscular functional training addressing major impairments in range of motion, musculotendinous length, muscle strength and neuromotor control in the major muscle groups associated with improving knee function. The investigators additionally achieved agreement on a progressive, protocol-based home exercise program (HEP) that addressed the same major muscle groups. The HEP was designed to allow patients to perform and progress the exercises without PT supervision, utilizing minimal equipment and a variety of methods for instruction. Discussion: This multi-faceted in-clinic PT program and standardized HEP provide templates for in-clinic and home-based care for patients with symptomatic degenerative meniscal tear and concomitant OA. These interventions will be tested as part of the Treatment of Meniscal Tear in Osteoarthritis (TeMPO) Trial. Trial Registration: The TeMPO Trial was first registered at clinicaltrials.gov with registration No. NCT03059004 on February 14, 2017. TeMPO was also approved by the Institutional Review Board at Partners HealthCare/Brigham and Women's Hospital.

Database: CINAHL

Technology-assisted rehabilitation following total knee or hip replacement for people with osteoarthritis: a systematic review and meta-analysis.

Author(s): Wang, Xia; Hunter, David J.; Vesentini, Giovana; Pozzobon, Daniel; Ferreira, Manuela L.

Source: BMC Musculoskeletal Disorders; Nov 2019; vol. 20 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31679511

Available at [BMC musculoskeletal disorders](#) - from BioMed Central

Available at [BMC musculoskeletal disorders](#) - from Europe PubMed Central - Open Access

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Abstract:Background: To evaluate the effectiveness and safety of technology-assisted rehabilitation following total hip/knee replacement (THR/TKR).Methods: Six electronic databases were searched without language or time restrictions for relevant studies: MEDLINE, EMBASE, Cochrane Library, CINAHL, SPORTDiscus, Physiotherapy Evidence Database (PEDro); from inception to November 7th, 2018. Two reviewers independently applied inclusion criteria to select eligible randomised controlled trials (RCTs) that investigated the effectiveness of technology-based interventions, compared with usual care or no intervention for people undergoing THR/TKR. Two reviewers independently extracted trial details (e.g. patients' profile, intervention, outcomes, attrition and adverse events). Study methodological quality was assessed using the PEDro scale. Quality of evidence was critically appraised using the Grading of Recommendations, Assessment, Development and Evaluation approach.Results: We identified 21 eligible studies assessing telerehabilitation, game- or web-based therapy. There were 17 studies (N = 2188) in post-TKR rehabilitation and 4 studies (N = 783) in post-THR rehabilitation. Compared to usual care, technology-based intervention was more effective in reducing pain (mean difference (MD): - 0.25; 95% confidence interval (CI): - 0.48, - 0.02; moderate evidence) and improving function measured with the timed up-and-go test (MD: -7.03; 95% CI: - 11.18, - 2.88) in people undergoing TKR. No between-group differences were observed in rates of hospital readmissions or treatment-related adverse events (AEs) in those studies.Conclusion: There is moderate-quality of evidence showed technology-assisted rehabilitation, in particular, telerehabilitation, results in a statistically significant improvement in pain; and low-quality of evidence for the improvement in functional mobility in people undergoing TKR. The effects were however too small to be clinically significant. For THR, there is very limited low-quality evidence shows no significant effects.

Database: CINAHL

Can a physiotherapy student assume the role of an advanced practice physiotherapist in Orthopaedic surgery triage? A prospective observational study.

Author(s): Yin, David; Cabana, François; Tousignant-Laflamme, Yannick; Bédard, Sonia; Tousignant, Michel

Source: BMC Musculoskeletal Disorders; Oct 2019; vol. 20 (no. 1)

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31664983

Available at [BMC musculoskeletal disorders](#) - from BioMed Central

Available at [BMC musculoskeletal disorders](#) - from Europe PubMed Central - Open Access

Available at [BMC musculoskeletal disorders](#) - from EBSCO (MEDLINE Complete)

Available at [BMC musculoskeletal disorders](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC musculoskeletal disorders](#) - from Unpaywall

Abstract:Background: Advanced practice physiotherapists (APP) have helped improve accessibility to orthopaedic outpatient care. Several studies have validated the APP practice model in orthopaedic care, demonstrating high agreement between APPs and orthopaedic surgeons (OS) regarding diagnosis and management. However, as APPs tend to be experienced senior physiotherapists, such a study involving physiotherapy students (PS) has not yet been explored. The objective of this study was to evaluate the agreement for orthopaedic diagnoses and surgical triage between a PS and OSs. Methods: A prospective study involving a final year PS and seven OSs was conducted in a university hospital, after the PS had undergone a three-week intensive training. Eighty-six adult patients referred to OSs for knee osteoarthritis, hip osteoarthritis or shoulder problem were independently evaluated by the PS, and then re-evaluated by an OS. The diagnoses and surgical triage recommendations of both clinicians were analyzed for agreement using raw percent agreement and Cohen's kappa. Patient satisfaction with the outpatient clinic experience was noted using a modified version of the Visit-Specific Satisfaction Instrument. Results: Our sample consisted of 86 patients (mean age = 63.4 years). Reasons for consultation included shoulder problems (36%), knee osteoarthritis (52%) and hip osteoarthritis (12%). The raw percent agreement for diagnosis was 95.3%. The agreement for surgical triage was high ($\kappa = 0.86$, 95% CI: 0.74-0.98) with a raw agreement of 94.2%. Patient satisfaction was high. Conclusions: The PS and OSs made similar diagnoses and triage recommendations suggesting that clinical experience alone is not a prerequisite for physiotherapists to help increase accessibility to orthopaedic care.

Database: CINAHL

Modulatory effects of different exercise modalities on the functional connectivity of the periaqueductal grey and ventral tegmental area in patients with knee osteoarthritis: a randomised multimodal magnetic resonance imaging study.

Author(s): Liu, Jiao; Chen, Lidian; Chen, Xiangli; Hu, Kun; Tu, Youxue; Lin, Meiqin; Huang, Jia; Liu, Weilin; Wu, Jinsong; Qiu, Zhijie; Zhu, Jingfang; Li, Ming; Park, Joel; Wilson, Georgia; Lang, Courtney; Xie, Guanli; Tao, Jing; Kong, Jian

Source: BJA: The British Journal of Anaesthesia; Oct 2019; vol. 123 (no. 4); p. 506-518

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31395306

Available at [British journal of anaesthesia](#) - from Unpaywall

Abstract:Background: Knee osteoarthritis is a prevalent disorder with unsatisfactory treatment options. Both physical and mindful exercises may be able to relieve its pain symptoms. We compared the modulatory effects of different exercise modalities on the periaqueductal grey (PAG) and ventral tegmental area (VTA), which play important roles in descending opioidergic pathways and reward/motivation systems in patients with knee osteoarthritis. Methods: We recruited and randomised 140 patients into Tai Chi, Baduanjin, stationary cycling, and health education control groups for 12 weeks. Knee injury and Osteoarthritis Outcome Score (KOOS), functional and structural

MRI, and blood biomarkers were measured at the beginning and end of the experiment. We used the PAG and VTA as seeds in resting-state functional connectivity (rsFC) analysis. Results: Compared with the control group: (i) all exercises significantly increased KOOS pain sub-scores (pain reduction) and serum programmed death 1 (PD-1) concentrations; (ii) all exercises decreased right PAG rsFC with the medial orbital prefrontal cortex, and the decreased rsFC was associated with improvements in knee pain; and (iii) grey matter volume in the medial orbital prefrontal cortex was significantly increased in all exercise groups. There was also significantly decreased rsFC between the left VTA and the medial orbital prefrontal cortex in the Tai Chi and Baduanjin groups. Conclusions: Exercise can simultaneously modulate the rsFC of the descending opioidergic pathway and reward/motivation system and blood inflammation markers. Elucidating the shared and unique mechanisms of different exercise modalities may facilitate the development of exercise-based interventions for chronic pain. Clinical Trial Registration: ChiCTR-IOR-16009308.

Database: CINAHL

Effects of body weight support and pedal stance width on joint loading during pinnacle trainer exercise.

Author(s): You, Yu-Lin; Lee, Su-Ya; Tsai, Yi-Jung; Lin, Cheng-Feng; Kuo, Li-Chieh; Su, Fong-Chin

Source: Gait & Posture; Oct 2019; vol. 74 ; p. 45-52

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31442822

Abstract: Background: A pinnacle trainer is a stair climber that has a biplane exercise trajectory and an adjustable pedal stance width (PSW). A pinnacle trainer integrated with a body weight support (BWS) system can help overweight individuals or individuals with poor balance exercise safely by reducing excessive or improper joint loads, preventing training-related injuries. However, few studies have investigated the biomechanical features of the lower extremities during pinnacle trainer exercise with and without partial BWS for various PSWs. Research Question: We aimed to investigate the effects of partial BWS and PSW on the joint loading of the lower extremities during stepping on a pinnacle trainer. Methods: Seventeen healthy adults exercised on the pinnacle trainer with or without BWS using various PSWs. The joint resultant forces and joint moments of the lower extremities were calculated according to the kinematic and kinetic data measured via a motion capture system and force transducers on the pedals, respectively. Results: The joint resultant forces and joint moments of the lower extremities significantly decreased with increasing percentage of BWS. The internal knee adduction moment and internal hip abduction moment significantly increased with increasing PSW. For every kilogram of BWS, the joint loading of the lower extremities decreased by approximately 1% of the joint resultant forces of body weight during exercise with the pinnacle trainer. Significance: Exercise on the pinnacle trainer with partial BWS significantly reduced joint loading. Exercise with a wider pedal stance may be helpful for knee osteoarthritis rehabilitation as it produces greater internal hip abduction and internal knee adduction moments.

Database: CINAHL

Knee Osteoarthritis: Alternative Range of Motion Treatment.

Author(s): Benner, Rodney W; Shelbourne, K Donald; Bauman, Scot N; Norris, Adam; Gray, Tinker

Source: Orthopedic Clinics of North America; Oct 2019; vol. 50 (no. 4); p. 425-432

Publication Date: Oct 2019

Publication Type(s): Periodical

PubMedID: 31466659

Available at [The Orthopedic clinics of North America](#) - from Unpaywall

Abstract:The number of total knee arthroplasty (TKA) surgeries is expected to soar, and an effective nonoperative rehabilitation program is needed. We began treating patients with knee osteoarthritis with a range-of-motion (ROM) -based rehabilitation program that was delivered systematically, starting with ROM exercises for knee extension, followed by exercises for flexion and swelling reduction, before starting a strengthening program. In a group of 396 patients, significant improvements were made in knee extension, flexion, and KOOS subjective scores for pain, symptoms, activities of daily living, sport, and quality of life. Furthermore, the program prevented 76% of patients from undergoing TKA surgery.

Database: CINAHL

Pain, Physical Function, Radiographic Features, and Quality of Life in Knee Osteoarthritis Agricultural Workers Living in Rural Population.

Author(s): Nikolic, Gordana; Nedeljkovic, Biserka; Trajkovic, Goran; Rasic, Dragisa; Mirkovic, Zlatica; Pajovic, Slavica; Grbic, Rade; Sipetic, Sandra; Vujcic, Isidora

Source: Pain Research & Management; Sep 2019 ; p. 1-5

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31662813

Available at [Pain research & management](#) - from Europe PubMed Central - Open Access

Available at [Pain research & management](#) - from Hindawi Open Access Journals

Available at [Pain research & management](#) - from EBSCO (MEDLINE Complete)

Available at [Pain research & management](#) - from Unpaywall

Abstract:Background: The aim of this study was to analyse the relationship between the clinical manifestations, disease severity based on radiography images, functional activity level, and quality of life in patients with knee osteoarthritis in a rural population living in Serbian enclaves in Kosovo, as well as to determine the correlation between the WOMAC and the EQ-5D questionnaire in this population. Method: The cross-sectional study was conducted at the Internal Medicine Clinic, Clinical Hospital Center Pristina-Gracanica, located in Laplje Selo from February to December 2013. One hundred patients with confirmed (American College of Rheumatology criteria) knee osteoarthritis completed the EQ-5D and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) questionnaires, rated pain on a visual analogue scale (VAS), and underwent knee radiographic examinations. Result: Most patients were obese with moderate radiographic changes according to the Kellgren-Lawrence scale and suffered from very severe pain according to the VAS scale. The duration of disease significantly correlated with the WOMAC scores, VAS score, and all of the scores on the EQ-5D, except for mobility. The age of participants showed a similar correlation with the same variables. The patients with higher Kellgren-Lawrence scores (3-4) were significantly older, with a significantly higher body mass index (BMI) and longer duration of disease than patients with lower scores (1-2). Significantly higher VAS, pain/discomfort EQ-5D, and WOMAC pain and function scores were also recorded among patients with more significant radiological changes. The correlations between WOMAC and EQ-5D were satisfactory. Conclusion: The severity of clinical manifestations and radiographic area changes may affect functional ability and the quality of life in knee OA patients living in rural areas, which requires adequate treatment and physical therapy.

Database: CINAHL

Misconceptions and the Acceptance of Evidence-based Nonsurgical Interventions for Knee Osteoarthritis. A Qualitative Study.

Author(s): Bunzli, Samantha; O'Brien, Penny; Ayton, Darshini; Dowsey, Michelle; Gunn, Jane; Choong, Peter; Manski-Nankervis, Jo-Anne; O'Brien BHealthSci, Penny

Source: Clinical Orthopaedics & Related Research; Sep 2019; vol. 477 (no. 9); p. 1975-1982

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31192807

Abstract:Background: In contrast to best practice guidelines for knee osteoarthritis (OA), findings from several different healthcare settings have identified that nonsurgical treatments are underused and TKA is overused. Empirical evidence and qualitative observations suggest that patients' willingness to accept nonsurgical interventions for knee OA is low. A qualitative investigation of why patients may feel that such interventions are of little value may be an important step toward increasing their use in the treatment of knee OA. QUESTIONS/PURPOSES: This qualitative study was embedded in a larger study investigating patient-related factors (beliefs/attitudes toward knee OA and its treatment) and health-system related factors (access, referral pathways) known to influence patients' decisions to seek medical care. In this paper we focus on the patient-related factors with the aim of exploring why patients may feel that nonsurgical interventions are of little value in the treatment of knee OA. Methods: A cross-sectional qualitative study was conducted in a single tertiary hospital in Australia. Patients with endstage knee OA on the waiting list for TKA were approached during their preadmission appointment and invited to participate in one-to-one interviews. As prescribed by the qualitative approach, data collection and data analysis were performed in parallel and recruitment continued until the authors agreed that the themes identified would not change through interviews with subsequent participants, at which point, recruitment stopped. Thirty-seven patients were approached and 27 participated. Participants were 48% female; mean age was 67 years. Participants' beliefs about knee OA and its treatment were identified in the interview transcripts. Beliefs were grouped into five belief dimensions: identity beliefs (what knee OA is), causal beliefs (what causes knee OA), consequence beliefs (what the consequences of knee OA are), timeline beliefs (how long knee OA lasts) and treatment beliefs (how knee OA can be controlled). Results: All participants believed that their knee OA was "bone on bone" (identity beliefs) and most (> 14 participants) believed it was caused by "wear and tear" (causal beliefs). Most (> 14 participants) believed that loading the knee could further damage their "vulnerable" joint (consequence beliefs) and all believed that their pain would deteriorate over time (timeline beliefs). Many (>20 participants) believed that physiotherapy and exercise interventions would increase pain and could not replace lost knee cartilage. They preferred experimental and surgical treatments which they believed would replace lost cartilage and cure their knee pain (treatment beliefs). Conclusions: Common misconceptions about knee OA appear to influence patients' acceptance of nonsurgical, evidence-based treatments such as exercise and weight loss. Once the participants in this study had been "diagnosed" with "bone-on-bone" changes, many disregarded exercise-based interventions which they believed would damage their joint, in favor of alternative and experimental treatments, which they believed would regenerate lost knee cartilage. Future research involving larger, more representative samples are needed to understand how widespread these beliefs are and if/how they influence treatment decisions. In the meantime, clinicians seeking to encourage acceptance of nonsurgical interventions may consider exploring and targeting misconceptions that patients hold about the identity, causes, consequences, timeline, and treatment of knee OA. Level Of Evidence: Level II, prognostic study.

Database: CINAHL

CANCER

Exercise is medicine in oncology: Engaging clinicians to help patients move through cancer.

Author(s): Schmitz, Kathryn H.; Campbell, Anna M.; Stuiver, Martijn M.; Pinto, Bernardine M.; Schwartz, Anna L.; Morris, G. Stephen; Ligibel, Jennifer A.; Cheville, Andrea; Galvão, Daniel A.; Alfano, Catherine M.; Patel, Alpa V.; Hue, Trisha; Gerber, Lynn H.; Sallis, Robert; Gusani, Niraj J.; Stout, Nicole L.; Chan, Leighton; Flowers, Fiona; Doyle, Colleen; Helmrich, Susan

Source: CA: A Cancer Journal for Clinicians; Nov 2019; vol. 69 (no. 6); p. 468-484

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31617590

Available at [CA: a cancer journal for clinicians](#) - from IngentaConnect - Open Access

Available at [CA: a cancer journal for clinicians](#) - from Wiley Online Library Free Content - NHS

Available at [CA: a cancer journal for clinicians](#) - from Unpaywall

Abstract:Multiple organizations around the world have issued evidence-based exercise guidance for patients with cancer and cancer survivors. Recently, the American College of Sports Medicine has updated its exercise guidance for cancer prevention as well as for the prevention and treatment of a variety of cancer health-related outcomes (eg, fatigue, anxiety, depression, function, and quality of life). Despite these guidelines, the majority of people living with and beyond cancer are not regularly physically active. Among the reasons for this is a lack of clarity on the part of those who work in oncology clinical settings of their role in assessing, advising, and referring patients to exercise. The authors propose using the American College of Sports Medicine's Exercise Is Medicine initiative to address this practice gap. The simple proposal is for clinicians to assess, advise, and refer patients to either home-based or community-based exercise or for further evaluation and intervention in outpatient rehabilitation. To do this will require care coordination with appropriate professionals as well as change in the behaviors of clinicians, patients, and those who deliver the rehabilitation and exercise programming. Behavior change is one of many challenges to enacting the proposed practice changes. Other implementation challenges include capacity for triage and referral, the need for a program registry, costs and compensation, and workforce development. In conclusion, there is a call to action for key stakeholders to create the infrastructure and cultural adaptations needed so that all people living with and beyond cancer can be as active as is possible for them.

Database: CINAHL

Physical Therapy-Based Exercise Protocol for Cancer Patients: Evaluating Outcomes for Cardiopulmonary Performance and Cancer-Related Fatigue.

Author(s): Hutchison, Nancy A.; Deval, Nikita; Rabusch, Stacey; Rich, Holly; Kelley, Tom; Flinn, Nancy; Banerji, Nilanjana

Source: PM & R: Journal of Injury, Function & Rehabilitation; Nov 2019; vol. 11 (no. 11); p. 1178-1183

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30729722

Abstract:Background: Studies have shown that rehabilitation and fitness throughout cancer treatment interventions have been linked to improved outcomes for morbidity and mortality of cancer patients. This study serves to detail the efficacy of the Cancer Rehabilitation Physical Therapy Fitness and Debility (Ca PT) Program in cancer patients.Objective: To describe the clinical population

of cancer patients referred to the Ca PT Program and evaluate the efficacy of the program's therapy protocol in improving cardiopulmonary performance and cancer-related fatigue and pain. Design: Retrospective study. Setting: Outpatient clinics. Patients: One hundred two adults who had been referred from a variety of referral sources and supervised individualized exercise programs. Methods: Participation in the Ca PT Program. Main Outcome Measurements: The primary outcome measure was a change in baseline-to-discharge scores in the 6-Minute Walk Test (6MWT), a cardiopulmonary performance measure. The secondary measures were changes in baseline-to-discharge scores of cancer-related fatigue and general pain, measured by patient self-report using a visual analogue scale. Results: 6MWT values were significantly higher at discharge (mean 523 yards) than at baseline (mean 436), ($P < .001$, $r = 0.57$). Ninety-two percent of cases showed improvement and 58% of cases had a change on the 6MWT that met threshold for minimal important difference. Quality of life factors, fatigue ($P < .001$) and pain ($P < .001$) also significantly improved. Conclusions: The results indicate the Ca PT Program yields significant improvement in cardiovascular fitness, fatigue, and pain in people with cancer history. Personalized physical therapy fitness programs for individuals recovering from cancer treatment should be a standard component of cancer intervention. Level Of Evidence: III.

Database: CINAHL

Development, implementation, and effects of a cancer center's exercise-oncology program.

Author(s): Santa Mina, Daniel; Au, Darren; Auger, Leslie E.; Alibhai, Shabbir M. H.; Matthew, Andrew G.; Sabiston, Catherine M.; Oh, Paul; Ritvo, Paul G.; Chang, Eugene B.; Jones, Jennifer M.

Source: Cancer (0008543X); Oct 2019; vol. 125 (no. 19); p. 3437-3447

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31206630

Available at [Cancer](#) - from Wiley Online Library

Abstract: Background: National and international bodies acknowledge the benefit of exercise for people with cancer, yet limited accessibility to related programming remains. Given their involvement in managing the disease, cancer centers can play a central role in delivering exercise-oncology services. The authors developed and implemented a clinically integrated exercise-oncology program at a major cancer center and evaluated its effectiveness and participant experience. Methods: A hospital-based program with prescribed at-home exercise was developed and accepted referrals over a 42-month period (3.5 years). Implementation was conducted in 2 phases: a pilot phase for women with breast cancer and men with genitourinary cancer and a roll-out phase for all patients with cancer. Enrolled patients were assessed and received an exercise prescription as well as a program manual, resistance bands, and a stability ball from a kinesiologist. Program participation and effectiveness were evaluated up to 48 weeks after the baseline assessment using intention-to-treat analyses. Participants in the roll-out phase were asked to complete a program experience questionnaire at the completion of the 48-week follow-up. Results: In total, 112 participants enrolled in the pilot, and 150 enrolled in the roll-out phase. Program attrition to 48 weeks was 48% and 65% in the pilot and roll-out phases, respectively. In participants who consented to research evaluation of their performance, objective and patient-reported measures of functional capacity improved significantly from baseline in both phases. Participants were highly satisfied with the program. Conclusions: Despite significant drop-out to program endpoints, our cancer-exercise program demonstrated clinically relevant improvement in functional outcomes and was highly appreciated by participants.

Database: CINAHL

Exercise-based rehabilitation for cancer survivors with chemotherapy-induced peripheral neuropathy.

Author(s): McCrary, J. Matt; Goldstein, David; Sandler, Carolina X.; Barry, Benjamin K.; Marthick, Michael; Timmins, Hannah C.; Li, Tiffany; Horvath, Lisa; Grimison, Peter; Park, Susanna B.

Source: Supportive Care in Cancer; Oct 2019; vol. 27 (no. 10); p. 3849-3857

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30756229

Abstract: Purpose: Chemotherapy-induced peripheral neuropathy (CIPN) affects up to 40% of cancer survivors and is associated with functional deficits and an increased falls incidence. There are presently no strongly recommended treatment strategies for CIPN. The aim of this study was to evaluate the impact of a multimodal exercise intervention on CIPN symptoms and related functional deficits, as well as neurophysiologic parameters. Methods: All outcomes were assessed before and after an 8-week exercise intervention (3-weekly sessions) and preceding 8-week control period at baseline, pre-exercise and post-exercise. Outcome measures were objective and patient-reported CIPN, standing and dynamic balance, mobility, quality of life, and sensory and motor nerve excitability and conduction studies. Results: Twenty-nine cancer survivors (8 male, 21 female; mean age 61.6 ± 11.8 years) with CIPN symptoms affecting function completed all assessments. Objective and patient-reported CIPN, dynamic balance, standing balance in eyes open conditions, mobility and quality of life were improved from pre- to post-exercise ($4.0 < F < 10.2$; $p .21$). No changes were observed in sensory or motor neurophysiologic parameters ($p > .23$). Conclusions: This study provides encouraging evidence of the rehabilitative potential of multimodal exercise for persisting CIPN in a post-treatment cohort. Large randomised controlled trials are justified to confirm observed benefits and determine the mechanisms and clinical significance.

Database: CINAHL

Effectiveness of exercise-based rehabilitation on functional capacity and quality of life in head and neck cancer patients receiving chemo-radiotherapy.

Author(s): Samuel, Stephen Rajan; Maiya, Arun G.; Fernandes, Donald J.; Guddattu, Vasudeva; Saxena, PU Prakash; Kurian, Jestina Rachel; Lin, Po-Ju; Mustian, Karen M.; Saxena, P U Prakash

Source: Supportive Care in Cancer; Oct 2019; vol. 27 (no. 10); p. 3913-3920

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30919154

Available at [Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer](#) - from Unpaywall

Abstract: Purpose: Fatigue, decreased functionality, and impaired quality of life are some of the most common adverse outcomes of chemo-radiotherapy (CRT). Head and neck cancers (HNC) affect more than half a million individuals globally and its treatment takes a heavy toll on the patient, often affecting their speech, swallowing, and respiratory functions, and as a result they often develop fatigue, depression, and physical inactivity. The purpose of this study was to evaluate the effectiveness of exercise-based rehabilitation on functional capacity, quality of life, fatigue, hemoglobin, and platelet counts in patients with HNC on CRT. Patients and Methods: A randomized controlled trial was conducted on 148 patients with head and neck cancer undergoing CRT to

evaluate the effectiveness of exercise on functional capacity measured by the 6-min walk test, quality of life measured by the Medical Outcomes Survey Short Form 36 v2 questionnaire, fatigue by the NCCN (0-10) scale, hemoglobin, and platelets. The control group received standard physical activity recommendations while the exercise group received a structured exercise program of aerobic and active resistance exercises for a period of 11 weeks. Results: There was a significant improvement in the functional capacity ($p < 0.001$), quality of life ($p < 0.001$), and prevention of worsening of fatigue ($p < 0.001$) in the exercise group. The blood parameters did not show a significant difference between the control group and the exercise group. Conclusion: Our results elucidate that an 11-week structured exercise program for HNC patients receiving CRT helps in improving their functional capacity and quality of life. It also prevents deterioration of fatigue levels in the exercise group.

Database: CINAHL

Feasibility of an exercise and nutritional intervention for weight management during adjuvant treatment for localized breast cancer: the PASAPAS randomized controlled trial.

Author(s): Foucaut, Aude-Marie; Morelle, Magali; Kempf-Lépine, Anne-Sophie; Baudinet, Cédric; Meyrand, Renaud; Guillemaut, Séverine; Metzger, Séverine; Bourne-Branchu, Valérie; Grinand, Elodie; Chabaud, Sylvie; Pérol, David; Carretier, Julien; Berthouze, Sophie E.; Reynes, Eric; Perrier, Lionel; Rebattu, Paul; Heudel, Pierre-Etienne; Bachelot, Thomas; Bachmann, Patrick; Fervers, Béatrice

Source: Supportive Care in Cancer; Sep 2019; vol. 27 (no. 9); p. 3449-3461

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30680617

Abstract: Purpose: Lack of physical activity (PA), weight gain, and overweight have been associated with increased risk of recurrence and mortality after breast cancer diagnosis. We evaluated the feasibility of implementing an individualized exercise program and nutritional counseling during adjuvant treatment of localized invasive breast cancer. Methods: Sixty-one patients eligible for adjuvant chemotherapy were randomized 2:1 to receive a 6-month program of weekly aerobic exercises associated with nutritional counseling ($n = 41$) or usual care with nutritional counseling ($n = 20$, one withdrawal). The primary endpoints were the proportion of patients compliant with two weekly supervised sessions and their overall adherence (i.e., proportion of supervised and unsupervised sessions completed versus planned sessions). Results: Ten percent of patients in the intervention group were compliant with the two weekly supervised sessions for 6 months, but the overall median adherence rate was 85% of supervised and non-supervised sessions completed. Non-adherence was mainly due to intrinsic reasons (medical, organizational, psychological barriers). Adherence was positively associated with education and baseline PA level and inversely associated with baseline weight and tumor grade. No statistically significant benefits were observed in the intervention group, even if overall PA level and body composition improved and anthropometrics were maintained over time ($p < 0.05$). Conclusions: Overall, there was good adherence with the 6-month exercise program during adjuvant treatment for breast cancer, despite poor compliance to twice-weekly supervised sessions. This study highlights the need for flexible exercise modalities and innovative experimental design to reach patients who would most adhere and benefit from intervention. Trial Registration: ClinicalTrials.gov Identifier: NCT01331772. Registered 8 April 2011, <https://clinicaltrials.gov/ct2/show/NCT01331772?term=pasapas&rank=1>.

Database: CINAHL

LOW BACK PAIN

Treatment of Discogenic Low Back Pain: Current Treatment Strategies and Future Options-a Literature Review.

Author(s): Zhao, Lei; Manchikanti, Laxmaiah; Kaye, Alan David; Abd-Elseyed, Alaa

Source: Current Pain & Headache Reports; Nov 2019; vol. 23 (no. 11); p. 1-9

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31707499

Abstract: Purpose Of Review: Many studies have demonstrated that discogenic low back pain is the most common type of chronic low back pain (CLBP), one of the major causes of disability, and has a major socioeconomic impact. Our aim is to review present therapeutic interventions for discogenic low back pain. Recent Findings: There are a multitude of treatments used in clinical practice to treat CLBP, but there is continued debate and lack of consensus among clinicians and the policy makers as to which modality is the best approach. Based on controlled evaluations, lumbar intervertebral discs have been shown to be the source of chronic back pain without disc herniation in 26 to 39% of patients. Treatment modalities include noninvasive treatments such as drug therapy, multiple physical modalities, and multidisciplinary biopsychosocial rehabilitation; interventional modalities such as intradiscal therapies and epidural injections; and regenerative modalities with disc injections of various solutions; and, finally, surgical approaches such as fusion and artificial disc replacement, all of which are accompanied by significant discussion, limited evidence, and lack of consensus. The results of this evaluation show that the evidence for drug therapy in chronic discogenic low back pain is limited; for multidisciplinary biopsychosocial rehabilitation, it is moderate; and for multiple physical and behavioral therapies, the evidence is limited. For intradiscal therapies, it is poor; for epidural injections, it is moderate; and for regenerative therapies, evidence levels of 3 to 4. The evidence for surgical fusions and disc replacement is similar, without superiority when compared with multidisciplinary biopsychosocial rehabilitation, well-designed physical therapy, or epidural injections.

Database: CINAHL

Effects of pre-surgery physiotherapy on walking ability and lower extremity strength in patients with degenerative lumbar spine disorder: Secondary outcomes of the PREPARE randomised controlled trial.

Author(s): Fors, Maria; Enthoven, Paul; Abbott, Allan; Öberg, Birgitta

Source: BMC Musculoskeletal Disorders; Oct 2019; vol. 20 (no. 1); p. 1-11

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31651299

Available at [BMC musculoskeletal disorders](#) - from BioMed Central

Available at [BMC musculoskeletal disorders](#) - from Europe PubMed Central - Open Access

Available at [BMC musculoskeletal disorders](#) - from EBSCO (MEDLINE Complete)

Available at [BMC musculoskeletal disorders](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC musculoskeletal disorders](#) - from Unpaywall

Abstract:Background: Degenerative lumbar spine disorders are common among musculoskeletal disorders. When disabling pain and radiculopathy persists after adequate course of rehabilitation and imaging confirms compressive pathology, surgical decompression is indicated. Prehabilitation aiming to augment functional capacity pre-surgery may improve physical function and activity levels pre and post-surgery. This study aims to evaluate the effect and dose-response of pre-surgery physiotherapy on quadriceps femoris strength and walking ability in patients with degenerative lumbar spine disorders compared to waiting-list controls and their association with postoperative physical activity level.Method: In this single blinded, 2-arm randomised controlled trial, 197 patients were consecutively recruited. Inclusion criteria were: MRI confirmed diagnosis and scheduled for surgery due to disc herniation, lumbar spinal stenosis, degenerative disc disease or spondylolisthesis, ages 25-80 years. Patients were randomised to 9 weeks of pre-surgery physiotherapy or to waiting-list. Patient reported physical activity level, walking ability according to Oswestry Disability Index item 4, walking distance according to the SWESPINE national register and physical outcome measures including the timed ten-meter walk test, maximum voluntary isometric quadriceps femoris muscle strength, patient-rated were collected at baseline and follow-up. Parametric or non-parametric within and between group comparisons as well as multivariate regression was performed.Results: Patients who received pre-surgery physiotherapy significantly improved in all variables from baseline to follow-up ($p < 0.001$ - $p < 0.05$) and in comparison to waiting-list controls ($p < 0.001$ - $p < 0.028$). Patients adhering to ≥ 12 treatment sessions significantly improved in all variables ($p < 0.001$ - $p < 0.032$) and those receiving 0-11 treatment session in only normal walking speed ($p 0.035$) but there were no significant differences when comparing dosages. Physical outcome measures after pre-surgery physiotherapy together significantly explain 27.5% of the variation in physical activity level 1 year after surgery with pre-surgery physical activity level having a significant multivariate association.Conclusion: Pre-surgery physiotherapy increased walking ability and lower extremity strength in patients with degenerative lumbar spine disorders compared to waiting-list controls. A clear treatment dose-response relationship was not found. These results implicate that pre-surgery physiotherapy can influence functional capacity before surgical treatment and has moderate associations with maintained postoperative physical activity levels mostly explained by physical activity level pre-surgery.Trial Registration: NCT02454400 . Trial registration date: August 31st 2015, retrospectively registered.

Database: CINAHL

Effect of Tai Chi alone or as additional therapy on low back pain: Systematic review and meta-analysis of randomized controlled trials.

Author(s): Qin, Jiawei PhD; Zhang, Yi MMED; Wu, Lijian BSc; He, Zexiang BSc; Huang, Jia PhD; Tao, Jing PhD; Chen, Lidian PhD; Enix., Dennis; Qin, Jiawei; Zhang, Yi; Wu, Lijian; He, Zexiang; Huang, Jia; Tao, Jing; Chen, Lidian

Source: Medicine; Sep 2019; vol. 98 (no. 37)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31517838

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from Unpaywall

Abstract:Background: This is the first systematic review evaluating and statistically synthesis the current studies regarding the effects of Tai Chi on pain and disability in patients with low back pain (LBP).Methods: Seven electronic databases including PubMed, EMBASE, Web of Science, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang and VIP information from inception to early March 2019 were searched. The Physiotherapy Evidence Database (PEDro) Scale

was used to assess quality of all included randomized controlled trials (RCTs). The pooled effect size (weight mean difference, WMD) and 95% confidence interval (CI) were calculated to determine the effect of Tai Chi on pain and disability among LBP patients based on random effects model. Results: The aggregated results of the meta-analysis suggested that Tai Chi significantly decreased pain (WMD = -1.27, 95% CI -1.50 to -1.04, $P < .00001$, $I = 74\%$) and improve function disability, Oswestry disability index (ODI) subitems: pain intensity (WMD = -1.70, 95% CI -2.63 to -0.76, $P = .0004$, $I = 89\%$); personal care (WMD = -1.93, 95% CI -2.86 to -1.00, $P < .0001$, $I = 90\%$); lifting (WMD = -1.69, 95% CI -2.22 to -1.15, $P < .0001$, $I = 66\%$); walking (WMD = -2.05, 95% CI -3.05 to -1.06, $P < .0001$, $I = 88\%$); standing (WMD = -1.70, 95% CI -2.51 to -0.89, $P < .0001$, $I = 84\%$); sleeping (WMD = -2.98, 95% CI -3.73 to -2.22, $P < .00001$, $I = 80\%$); social life (WMD = -2.06, 95% CI -2.77 to -1.35, $P < 0.00001$, $I = 80\%$) and traveling (WMD = -2.20, 95% CI -3.21 to -1.19, $P < .0001$, $I = 90\%$), Japanese Orthopedic Association (JOA) score (WMD = 7.22, 95% CI 5.59-8.86, $P < .00001$, $I = 0\%$), Medical Outcomes Study Questionnaire Short Form 36 Health Survey (SF-36) physical functioning (WMD = 3.30, 95% CI 1.92-4.68, $P < .00001$), and Roland-Morris Disability Questionnaire (RMDQ) (WMD = -2.19, 95% CI -2.56 to -1.82, $P < .00001$). Conclusion: We drew a cautious conclusion that Tai Chi alone or as additional therapy with routine physical therapy may decrease pain and improve function disability for patients with LBP. Further trials are needed to be conducted with our suggestions mentioned in the systematic review.

Database: CINAHL

Effectiveness of spa therapy for patients with chronic low back pain: An updated systematic review and meta-analysis.

Author(s): Bai, Ruixue MPH; Li, Chihua MPH; Xiao, Yangxue BSc; Sharma, Manoj PhD; Zhang, Fan PhD; Zhao, Yong MSc; Enix., Dennis; Bai, Ruixue; Li, Chihua; Xiao, Yangxue; Sharma, Manoj; Zhang, Fan; Zhao, Yong

Source: Medicine; Sep 2019; vol. 98 (no. 37)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31517832

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from Unpaywall

Abstract: Background: Low back pain (LBP) is a major health problem around the world. Two previous meta-analyses showed that the spa therapy has a positive effect on reducing pain among patients with LBP based on studies published before 2006 and studies published between 2006 and 2013. In recent years, more studies reported the effect of spa therapy on treating chronic low back pain (CLBP). Our study aimed to update the meta-analysis of randomized controlled trials (RCTs) about the effect of spa therapy on treating CLBP and to examine the effect of spa therapy based on different interventions. Methods: PubMed, Embase, Web of Science, and Cochrane Library were searched until May 2018 to identify RCTs about spa therapy among patients with CLBP. Summary effect estimates were calculated by using a random-effects model. The quality of each eligible study was evaluated by Jadad checklist. Results: Twelve studies met the inclusion criteria for the systematic review and were included in meta-analysis. There was a significant decrease in pain based on visual analogue scale (VAS) (mean difference [MD] 16.07, 95% confidence interval [CI] [9.57, 22.57], $P < .00001$, $I = 88\%$, $n = 966$), and lumbar spine function in Oswestry disability index (ODI) (MD 7.12, 95% CI [3.77, 10.47], $P < .00001$, $I = 87\%$, $n = 468$) comparing spa therapy group to control group. Methodological assessment for included studies showed that the study's quality is associated with lacking blinding. Conclusion: This updated meta-analysis confirmed that spa therapy can benefit pain relieving and improve lumbar spine function among patients with CLBP. Physiotherapy of subgroup

analysis indicated that it can improve lumbar spine function. However, these conclusions should be treated with caution due to limited studies. More high-quality RCTs with double-blind design, larger sample size, and longer follow-up should be employed to improve the validity of study results.

Database: CINAHL

Predictors of substantial improvement in physical function six months after lumbar surgery: is early post-operative walking important? A prospective cohort study.

Author(s): Gilmore, Sarah J.; Hahne, Andrew J.; Davidson, Megan; McClelland, Jodie A.

Source: BMC Musculoskeletal Disorders; Sep 2019; vol. 20 (no. 1)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31506099

Available at [BMC musculoskeletal disorders](#) - from BioMed Central

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Available at [BMC musculoskeletal disorders](#) - from EBSCO (MEDLINE Complete)

Available at [BMC musculoskeletal disorders](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC musculoskeletal disorders](#) - from Unpaywall

Abstract:Background: Resuming walking after lumbar surgery is a common focus of early post-operative rehabilitation, however there is no knowledge about whether increased walking is associated with better functional outcomes. This study aimed to determine whether time spent walking in the week after lumbar surgery, along with co-morbidities, pre-operative pain duration, pre-operative physical activity or function, or surgical variables predict substantial improvement in physical function six months after lumbar surgery. Methods: A prospective cohort study design was utilized. Participants undergoing lumbar surgery (discectomy, decompression, fusion) were recruited between April and November 2016. Predictor variables were collected pre-operatively (age, sex, smoking status, obesity, diabetes, depression, anxiety, pre-operative pain duration, neurological deficit, physical activity levels, mobility restriction, function) and early post-operatively (post-operative walking time, surgical procedure, single/multi-level surgery). Outcome variables (physical function, back pain and leg pain severity) were measured pre-operatively and six-months post-operatively. Logistic regression analysis was used to establish prediction of substantial improvement in outcome at six months. Results: Participants (N = 233; 50% female; age 61 (SD = 14) years) who walked more in the first post-operative week were more likely to have substantially improved function on the Oswestry Disability Questionnaire at six months (OR 1.18, 95%CI 1.02-1.37), as were participants with < 12 months pre-operative pain (OR 2.71, 95%CI 1.28-5.74), and those with lower pre-operative function (OR 4.02, 95%CI 2.33-6.93). Age < 65 years (OR 2.36, 95%CI 1.14-4.85), and < 12 months pre-operative pain (OR 3.52 95%CI 1.69-7.33) predicted substantial improvement on the SF-36 Physical Component Summary. There were no significant predictors for substantial improvement in either leg or back pain. Conclusions: Walking time in the week after lumbar surgery is one of several predictors of substantial improvement in function at six months. Further research is required to determine whether intervention designed to increase walking early after lumbar surgery results in improved longer-term recovery of function. Trial Registration: Australian New Zealand Clinical Trials Registry (ANZCTR), registration number 12616000747426 . Retrospectively registered on the 7th of June 2016.

Database: CINAHL

A study on the paraspinal muscle surface electromyography in acute nonspecific lower back pain.

Author(s): Qiao, Jie; Zhang, Shu-Li; Zhang, Jun; Feng, Dan; Schaller., Bernhard

Source: Medicine; Aug 2019; vol. 98 (no. 34)

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31441870

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from Unpaywall

Abstract: Aim of this study was to determine if surface electromyography (sEMG) could provide objective data in monitoring the alteration of signal amplitude of myoelectric activity of the paraspinal muscles in the patients with acute nonspecific lower back pain (ANLBP), and to explore the correlation between sEMG data and symptom relief in the ANLBP patients before and after massage therapy. Forty-five ANLBP patients and 20 healthy subjects were enrolled into this study. Patients were given massage therapy for 1 week. The average electromyography (AEMG), visual analogue scale (VAS), and distance of finger to floor (DFTF) were measured before and after treatment. AEMG at flexion and maintained flexion positions were significantly higher in the ANLBP group compared to that in the control group. At extension position, in contrast, AEMG was significantly lower in the ANLBP patients than that of control group, and there was no significant difference between the 2 groups at upright position. After massage therapy for the ANLBP patients, AEMG was significantly reduced at flexion and maintained flexion positions, but significantly increased at extension position than that before treatment. VAS and DFTF were also significantly reduced after treatment. In addition, AEMG alteration at maintained flexion position was significantly correlated with improvement of VAS or DFTF. Myoelectric activity of the paraspinal muscles in the ANLBP patients was different from that of healthy subjects. Massage therapy not only relieved patients' symptoms, but also normalized myoelectric activity of the paraspinal muscles in the ANLBP patients.

Database: CINAHL

ARTHROPLASTY

Same-Day Physical Therapy Following Total Knee Arthroplasty Leads to Improved Inpatient Physical Therapy Performance and Decreased Inpatient Opioid Consumption.

Author(s): Sarpong, Nana O.; Lakra, Akshay; Jennings, Emma; Cooper, H. John; Shah, Roshan P.; Geller, Jeffrey A.

Source: Journal of Arthroplasty; Dec 2019; vol. 34 (no. 12); p. 2931-2936

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31427131

Available at [The Journal of arthroplasty](#) - from Unpaywall

Abstract: Background: Early ambulation with physical therapy (PT) following total knee arthroplasty (TKA) has demonstrated benefits in the literature. However, the impact of early PT on rehabilitation performance and opioid consumption has not been elucidated. We evaluate the effect of same-day PT on in-hospital functional outcomes and opioid consumption. Methods: We retrospectively identified 2 cohorts of primary TKA patients from July 2016 to December 2017: PT0 (n = 295) received PT on the day of surgery, and PT1 (n = 392) received PT on postoperative day (POD) 1. Outcomes studied included number of feet walked on POD0-3, visual analog scale pain scores,

morphine equivalents (ME) consumed, length of stay, and discharge disposition. Analysis was conducted using the Student t-test and Fisher exact test. Results: In comparison to the PT1 group, the PT0 group walked significantly more steps on POD1 (347.6 vs 167.4 ft, $P < .0001$), POD2 (342.1 vs 203.5 ft, $P < .0001$), and POD3 (190.3 vs 128.9 ft, $P = .00028$). There was no difference between the 2 groups for visual analog scale. The PT0 group also consumed significantly fewer total ME when compared to the PT1 group (149.0 vs 200.3 mg, $P = .0002$). The PT0 group had a significantly shorter length of stay when compared to the PT1 group (2.7 vs 3.2 days, $P = .00075$). More patients were discharged home in the PT0 group (81.7% vs 54.8%, $P < .0001$). Conclusion: We observed that initiation of PT on POD0 led to better PT performance, reduced ME during hospitalization, and more patients discharged home. Level Of Evidence: III, Retrospective cohort study.

Database: CINAHL

Artificial Intelligence and Arthroplasty at a Single Institution: Real-World Applications of Machine Learning to Big Data, Value-Based Care, Mobile Health, and Remote Patient Monitoring.

Author(s): Ramkumar, Prem N.; Haeberle, Heather S.; Bloomfield, Michael R.; Schaffer, Jonathan L.; Kamath, Atul F.; Patterson, Brendan M.; Krebs, Viktor E.

Source: Journal of Arthroplasty; Oct 2019; vol. 34 (no. 10); p. 2204-2209

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31280916

Abstract: Background: Driven by the recent ubiquity of big data and computing power, we established the Machine Learning Arthroplasty Laboratory (MLAL) to examine and apply artificial intelligence (AI) to musculoskeletal medicine. Methods: In this review, we discuss the 2 core objectives of the MLAL as they relate to the practice and progress of orthopedic surgery: (1) patient-specific, value-based care and (2) human movement. Results: We developed and validated several machine learning-based models for primary lower extremity arthroplasty that preoperatively predict patient-specific, risk-adjusted value metrics, including cost, length of stay, and discharge disposition, to provide improved expectation management, preoperative planning, and potential financial arbitration. Additionally, we leveraged passive, ubiquitous mobile technologies to build a small data registry of human movement surrounding TKA that permits remote patient monitoring to evaluate therapy compliance, outcomes, opioid intake, mobility, and joint range of motion. Conclusion: The rapid rate with which we in arthroplasty are acquiring and storing continuous data, whether passively or actively, demands an advanced processing approach: AI. By carefully studying AI techniques with the MLAL, we have applied this evolving technique as a first step that may directly improve patient outcomes and practice of orthopedics.

Database: CINAHL

Remote Patient Monitoring Using Mobile Health for Total Knee Arthroplasty: Validation of a Wearable and Machine Learning-Based Surveillance Platform.

Author(s): Ramkumar, Prem N.; Haeberle, Heather S.; Ramanathan, Deepak; Cantrell, William A.; Navarro, Sergio M.; Mont, Michael A.; Bloomfield, Michael; Patterson, Brendan M.

Source: Journal of Arthroplasty; Oct 2019; vol. 34 (no. 10); p. 2253-2259

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31128890

Abstract:Background: Recent technologic advances capable of measuring outcomes after total knee arthroplasty (TKA) are critical in quantifying value-based care. Traditionally accomplished through office assessments and surveys with variable follow-up, this strategy lacks continuous and complete data. The primary objective of this study was to validate the feasibility of a remote patient monitoring (RPM) system in terms of the frequency of data interruptions and patient acceptance. Second, we report pilot data for (1) mobility; (2) knee range of motion, (3) patient-reported outcome measures (PROMs); (4) opioid use; and (5) home exercise program (HEP) compliance.Methods: A pilot cohort of 25 patients undergoing primary TKA for osteoarthritis was enrolled. Patients downloaded the RPM mobile application preoperatively to collect baseline activity and PROMs data, and the wearable knee sleeve was paired to the smartphone during admission. The following was collected up to 3 months postoperatively: mobility (step count), range of motion, PROMs, opioid consumption, and HEP compliance. Validation was determined by acquisition of continuous data and patient tolerance at semistructured interviews 3 months after operation.Results: Of the 25 enrolled patients, 100% had uninterrupted passive data collection. Of the 22 available for follow-up interviews, all found the system motivating and engaging. Mean mobility returned to baseline within 6 weeks and exceeded preoperative baseline by 30% at 3 months. Mean knee flexion achieved was 119°, which did not differ from clinic measurements (P = .31). Mean KOOS improvement was 39.3 after 3 months (range: 3-60). Opioid use typically stopped by postoperative day 5. HEP compliance was 62% (range: 0%-99%).Conclusions: In this pilot study, we established the ability to remotely acquire continuous data for patients undergoing TKA, who found the application to be engaging. RPM offers the newfound ability to more completely evaluate the patients undergoing TKA in terms of mobility and rehabilitation compliance. Study with more patients is required to establish clinical significance.

Database: CINAHL

Bundled Payments for Care Improvement: Health System Experience With Lower Extremity Joint Replacement at Higher and Lower Volume Hospitals.

Author(s): McAsey, Craig J.; Johnson, Elisabeth M.; Hopper, Robert H.; Engh, Charles A.; Hopper, Robert H Jr; Engh, Charles A Jr

Source: Journal of Arthroplasty; Oct 2019; vol. 34 (no. 10); p. 2284-2289

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31176563

Abstract:Background: The Bundled Payments for Care Improvement (BPCI) initiative was introduced in 2013 to reduce Medicare healthcare costs while preserving or enhancing quality. We examined data from a metropolitan healthcare system comprised of 1 higher volume hospital and 4 lower volume hospitals that voluntarily elected to participate in the BPCI Major Joint Replacement of the Lower Extremity Model 2, beginning July 1, 2015. Stratifying the data by hospital volume, we determined how costs changed during the 16-month period when all 5 hospitals participated compared to the 1-year period preceding BPCI participation, where savings were achieved, and how the hospitals were rewarded.Methods: The Medicare data included the 90-day target for each episode and actual part A and part B spending for the anchor hospitalization plus all post-acute payments including inpatient rehabilitation, skilled nursing, home health, outpatient physical therapy, and hospital readmissions.Results: The mean episode of care cost decreased by 11.1% (from \$21,324 to \$18,953) at the higher volume hospitals and by 8.3% (from \$25,724 to \$23,584) at the lower volume hospitals during BPCI participation compared to the preceding year. The savings were achieved by reducing the use of inpatient rehabilitation, shortening the length of stay at skilled nursing facilities, and decreasing readmission rates. Although the higher volume hospital achieved

an increased mean savings of \$230 per episode compared to the lower volume hospitals (\$2371 vs \$2141), it was penalized \$490 per episode after reconciling the actual Medicare expenditures with the BPCI targets while the lower volume hospitals received a mean reward of \$315 per episode. Conclusion: The BPCI initiative decreased costs and readmissions within our healthcare system. Despite substantial savings compared to the preceding year, the higher volume hospital's low target derived from its 2009-2012 baseline costs was not achieved which resulted in a penalty and led it to withdraw from the BPCI initiative in October 2016.

Database: CINAHL

Self-Directed Home Exercises vs Outpatient Physical Therapy After Total Knee Arthroplasty: Value and Outcomes Following a Protocol Change.

Author(s): Wang, William L.; Rondon, Alexander J.; Tan, Timothy L.; Wilsman, John; Purtill, James J.

Source: Journal of Arthroplasty; Oct 2019; vol. 34 (no. 10); p. 2388-2391

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31178383

Abstract: Background: The need for outpatient physical therapy (OPPT) has been questioned following primary total knee arthroplasty (TKA). Recent studies have suggested that similar outcomes may be possible with self-directed home exercise programs (HEP) compared to OPPT, which can be costly to both the patient and healthcare system. The aim of the present study is to compare the safety, efficacy, and health economics of formal OPPT with self-directed home exercises after TKA following a protocol change. Methods: A single-surgeon, retrospective study of 520 consecutive patients undergoing primary unilateral TKA from 2016 to 2018 was performed. All 251 TKAs performed in 2016 were routinely prescribed OPPT, while all 269 TKAs in 2017 completed a self-directed HEP alone for 2 weeks. At their 2-week visit, OPPT was prescribed if patients had less than 90° range of motion or per patient request. Financial data of postdischarge costs were collected for all patients. Multivariate logistic regression evaluated for variables associated with failure of the HEP program. Results: Overall, 65.8% (177/269) of patients in the HEP group did not require OPPT. There was no significant difference in percentage of patients whose range of motion was less than 90° at 2-week follow-up between OPPT and HEP (14% vs 11.9%, $P = .467$). Between OPPT and HEP, there were no differences in manipulation under anesthesia (3.2% vs 3%, $P = .883$). On average, patients who received OPPT incurred an increase in average cost of \$1340.87 and \$1893.42 for Medicare and private insurer patients, respectively. We did not identify any significant risk factors for failing HEP. Conclusion: Comparable outcomes were demonstrated between patients receiving HEP compared to OPPT with a substantial cost saving. While a portion of patients still require formal OPPT, the majority do not. Surgeons should consider an initial trial of HEP with close follow-up in order to limit unnecessary costs associated with OPPT.

Database: CINAHL

Functional and postural recovery after bilateral or unilateral total hip arthroplasty.

Author(s): Temporiti, Federico; Zanotti, Giulia; Furone, Roberta; Loppini, Mattia; Molinari, Sara; Zago, Matteo; Galli, Manuela; Grappiolo, Guido; Gatti, Roberto

Source: Journal of Electromyography & Kinesiology; Oct 2019; vol. 48 ; p. 205-211

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31442926

Abstract:One-stage bilateral total hip arthroplasty (THA) implies similar complication rate and hospitalization time to unilateral THA, but no studies have evaluated the functional and postural recovery in these patients. The aim of this study was to assess short-term functional and postural recovery in patients after one-stage bilateral or unilateral THA. Forty patients undergoing bilateral (n = 20) or unilateral (n = 20) THA were assessed by Timed Up and Go (TUG), Numeric Rating Scale (NRS), Tampa Scale of Kinesiophobia (TSK) and Body Weight Distribution Symmetry Index (BWDSI) during stand-to-sit (STS). Centre of Pressure (CoP) parameters and BWDSI during standing with eyes open (EO) and closed (EC) were also assessed. Data were collected one day before surgery, at three and seven days. No between-group differences were found for TUG, NRS and TSK at any time-point, showing similar mobility, pain and fear of movement in both groups. BWDSI during STS (P = 0.001) and standing (OE P = 0.007; CE P = 0.012) revealed differences over time in favor of patients with bilateral THA, who showed better symmetry in weight distribution. Shorter CoP path length was observed during standing in patients with unilateral THA (OE P = 0.023; CE P = 0.018), who mainly used their non-affected limb to maintain balance.

Database: CINAHL

Ninety-day and one-year healthcare utilization and costs after knee arthroplasty.

Author(s): Hung, A.; Li, Y.; Keefe, F.J.; Ang, D.C.; Slover, J.; Perera, R.A.; Dumenci, L.; Reed, S.D.; Riddle, D.L.

Source: Osteoarthritis & Cartilage; Oct 2019; vol. 27 (no. 10); p. 1462-1469

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31176805

Abstract:Objectives: This study examined ninety-day and one-year postoperative healthcare utilization and costs following total knee arthroplasty (TKA) from the health sector and patient perspectives.Design: This study relied on: 1) patient-reported medical resource utilization data from diaries in the Knee Arthroplasty Pain Coping Skills Training (KASTPain) trial; and 2) Medicare fee schedules. Medicare payments, patient cost-sharing, and patient time costs were estimated. Generalized linear mixed models were used to identify baseline predictors of costs.Results: In the first ninety days following TKA, patients had an average of 29.7 outpatient visits and 6% were hospitalized. Mean total costs during this period summed to \$3,720, the majority attributed to outpatient visit costs (84%). Over the year following TKA, patients had an average of 48.9 outpatient visits, including 33.2 for physical therapy. About a quarter (24%) of patients were hospitalized. Medical costs were incurred at a decreasing rate, from \$2,428 in the first six weeks to \$648 in the last six weeks. Mean total medical costs across all patients over the year were \$8,930, including \$5,328 in outpatient costs. Total costs were positively associated with baseline Charlson comorbidity score (P < 0.01). Outpatient costs were positively associated with baseline Charlson comorbidity score (P = 0.03) and a bodily pain burden summary score (P < 0.01). Mean patient cost-sharing summed to \$1,342 and time costs summed to \$1,346.Conclusions: Costs in the ninety days and year after TKA can be substantial for both healthcare payers and patients. These costs should be considered as payers continue to explore alternative payment models.

Database: CINAHL

Adductor canal versus femoral triangle anatomical locations for continuous catheter analgesia after total knee arthroplasty: a multicentre randomised controlled study.

Author(s): Chuan, A.; Lansdown, A.; Brick, K.L.; Bourgeois, A.J.G.; Pencheva, L.B.; Hue, B.; Goddard, S.; Lennon, M.J.; Walters, A.; Auyong, D.

Source: BJA: The British Journal of Anaesthesia; Sep 2019; vol. 123 (no. 3); p. 360-367

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31056239

Abstract:Background: Adductor canal (AC) catheters are being used to provide continuous postoperative analgesia after total knee arthroplasty (TKA) surgery. There are anatomical arguments that most AC catheters are being inserted into the femoral triangle (FT) compartment of the thigh rather than the AC compartment. The clinical relevance of this is unknown with respect to motor weakness, quality of analgesia, and opioid consumption. We hypothesised that AC catheters provide superior functional mobilisation on postoperative Day 1 after TKA as measured using the Timed Up and Go (TUG) test. Methods: In this multinational, multicentre, double-blinded RCT, catheters were inserted under ultrasound guidance into the anatomical AC and FT compartments. The standardised protocol included spinal anaesthesia without intrathecal morphine, fixed catheter infusion rates, and oral analgesia. Results: Of 151 subjects recruited, 75 were in the AC group and 76 in the FT group. There was no statistically significant difference in TUG on postoperative Day 1 between AC (38 [29-55] s) and FT subjects (44 [32-64] s) (median [inter-quartile range]); P=0.11). There was no difference in TUG Day 2, AC (38 [27-53] s) vs FT (42 [31-59] s); P=0.66. There were no statistically significant differences for secondary endpoints of pain level, effectiveness of pain relief, interference of functional activities and interpersonal relationships by pain, and opioid consumption between groups. Conclusions: There were no differences in immediate postoperative functional mobility, analgesia, and opioid consumption provided by catheters inserted into the AC vs FT locations for TKA surgery. Clinical Trial Registration: ANZCTR12617001421325.

Database: CINAHL

Rapid Recovery After Total Joint Arthroplasty Using General Anesthesia.

Author(s): Stambough, Jeffrey B.; Bloom, G. Barnes; Edwards, Paul K.; Mehaffey, Gregory R.; Barnes, C. Lowry; Mears, Simon C.

Source: Journal of Arthroplasty; Sep 2019; vol. 34 (no. 9); p. 1889-1896

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31202638

Abstract:Background: Multiple papers have purported the superiority of spinal anesthesia used in total joint arthroplasty (TJA). However, there is a paucity of data available for modern general anesthesia (GA) regimens used at high-volume joint replacement centers. Methods: We retrospectively reviewed a series of 1527 consecutive primary TJAs (644 total hip arthroplasties and 883 total knee arthroplasties) performed over a 3-year span at a single institution that uses a contemporary GA protocol and report on the length of stay, early recovery rates, perioperative complications, and readmissions. Results: From the elective TJAs performed using a modern GA protocol, 96.3% (n = 1471) of patients discharged on postoperative day 1, and 97.2% (n = 1482) of subjects were able to participate with physical therapy on the day of surgery. Only 6 patients (0.4%) required an intensive care unit stay postoperatively. The 90-day readmission rate over this time was 2.4% (n = 36), while the reoperation rate was 1.3% (n = 20). Discussion: Neuraxial anesthesia for TJA is commonly preferred in high-volume institutions utilizing contemporary enhanced recovery pathways. Our data support the notion that the utilization of modern GA techniques that limit

narcotics and certain inhalants can be successfully used in short-stay primary total joint arthroplasty. Level Of Evidence: IV- Case series.

Database: CINAHL

Preoperative Patient Factors Affecting Length of Stay following Total Knee Arthroplasty: A Systematic Review and Meta-Analysis.

Author(s): Shah, Ajay; Memon, Muzammil; Kay, Jeffrey; Wood, Thomas J.; Tushinski, Daniel M.; Khanna, Vickas

Source: Journal of Arthroplasty; Sep 2019; vol. 34 (no. 9); p. 2124-2124

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31182407

Abstract:Background: Total knee arthroplasty (TKA) yields substantial improvements in quality of life for patients with severe osteoarthritis. Previous research has shown that TKA outcomes are inferior in patients with certain demographic and clinical factors. Length of stay (LOS) following TKA is a major component of costs incurred by healthcare providers. It is hypothesized that patient-related factors may influence LOS following TKA. The purpose of this systematic review and meta-analysis is to investigate these factors. Methods: Three databases (PubMed, Embase, and OVID Medline) were searched using variants of the terms "total knee arthroplasty" and "length of stay". Studies were screened and data abstracted in duplicate. The primary outcome was the effect of prognostic variables on LOS following TKA. Meta-analysis was performed using the Review Manager (RevMan) software (version 5.3. Copenhagen: The Nordic Cochrane Center, The Cochrane Collaboration, 2014). Results: A total of 68 studies met all inclusion criteria for this review. These studies comprised 21,494,459 patients undergoing TKA with mean age 66.82 years (range, 15-95 years) and 63.8% (12,165,160 of 19,060,572 reported) females. The mean MINORS score was 7, suggesting that studies had a low quality of evidence. Mean LOS following TKA has steadily decreased over the past 4 decades, partially because of the implementation of fast-track programs. Demographic factors associated with increased LOS were age >70 years (mean difference [MD] = 0.81; 95% confidence interval [CI] = 0.38-1.24), female gender (MD = 0.32; 95% CI = 0.29-0.48), body mass index >30 (MD = 0.09; 95% CI = 0.01-0.16), and non-White race (MD = 0.20; 95% CI = 0.10-0.29). Clinical factors associated with increased LOS were American Society of Anesthesiologists score 3-4 vs 1-2 (MD = 1.12; 95% CI = 0.58 to 1.66), Charlson Comorbidity Index > 0 vs 0 (MD = 0.77; 95% CI = 0.32 to 1.22), and preoperative hemoglobin < 130 g/L were predictors of increased LOS. Mean LOS has steadily decreased over the past decades with the implementation of perioperative "fast-track" programs. Future research should investigate the benefits of preoperative risk factor modification on LOS, in addition to novel surgical approaches, anesthetic adjuvants, and physiotherapy modifications. Level Of Evidence: IV, systematic review, and meta-analysis of level III and IV evidence.

Database: CINAHL

Effects of low-intensity pulsed ultrasound on recovery of physical impairments, functional performance and quality of life after total knee arthroplasty: Protocol for a quasi-experimental study.

Author(s): Munajat, Munayati MS; Mohd Nordin, Nor Azlin PhD; Mohamad, Yahya, Nor Hamdan MD, MS; Zulkifly, Ahmad Hafiz MD, MS; Munajat, Munayati; Mohd Nordin, Nor Azlin; Mohamad Yahya, Nor Hamdan; Zulkifly, Ahmad Hafiz

Source: Medicine; Sep 2019; vol. 98 (no. 36)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31490397

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from Unpaywall

Abstract:Introduction: The presence of significant pain and swelling during the acute stage following total knee arthroplasty (TKA) may limit the patients' ability to cooperate in intensive physiotherapy interventions. Low-intensity pulsed ultrasound is one of the modalities that can be used for acute pain and swelling management. However, only one study investigated the effect of this modality in patients with TKA. There is limited documentation of the effects of combining low-intensity pulsed ultrasound in TKA rehabilitation in the recovery of physical impairments and how these influence the recovery of function after TKA. Therefore, this study is proposed with the aim to evaluate the effects of low-intensity pulsed ultrasound as an adjunct to conventional physiotherapy on the recovery of physical impairments, functional performance and quality of life after TKA surgery. Methods: This is an assessor-blinded quasi-experimental study comparing two approaches of physiotherapy, namely pulsed ultrasound-added physiotherapy and conventional physiotherapy. Total number of participants with TKA required for this study will be calculated based on the result of a pilot study. Participants will be alternately allocated into either pulsed ultrasound-added physiotherapy group (low-intensity pulsed ultrasound and conventional physiotherapy) or control group (conventional physiotherapy). Pulsed ultrasound-added physiotherapy group will receive low-intensity pulsed ultrasound starting at post-operative day 2 (4-5 times for the first-week after surgery and 2-3 times a week for a further 2 weeks). Both groups will receive conventional physiotherapy 4 to 5 times for the first-week after surgery and 2 to 3 times a week for a further 11 weeks. This procedure and process will be tested and established in a pilot study. Primary outcomes of interest are pain level, swelling, active range of knee motion, and quadriceps strength. The secondary outcomes are functional performance and quality of life. Discussion: This study will fill the gaps in knowledge relating the benefits of including low-intensity pulsed ultrasound into conventional physiotherapy for patients with TKA. Trial Registration: Australian New Zealand Clinical Trials Registry, ACTRN12618001226291.

Database: CINAHL

PAEDIATRICS

Predictive model of proficiency in powered mobility of children and young adults with motor impairments.

Author(s): Gefen, Naomi; Rigbi, Amihai; Weiss, Patrice L

Source: Developmental Medicine & Child Neurology; Dec 2019; vol. 61 (no. 12); p. 1416-1422

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31115048

Available at [Developmental medicine and child neurology](#) - from Wiley Online Library

Abstract:Aim: To identify variables that can predict proficiency in powered mobility use for children in young adults. Method: Participants included 80 children and young adults (42 males, 38 females; mean age 10y 2mo, [SD 5y 1mo]; range: 2-22y) with cerebral palsy, neuromuscular disease, and spinal cord injury who participated in the ALYN Hospital Powered Mobility Lending Program from 2009 to 2016. Data were collected and compared before and after participation in the program and

powered mobility levels were determined by the Israeli Ministry of Health (MOH) Powered Mobility Proficiency Test. Multivariate logistic regression analysis followed by a bootstrapping procedure that was based on 1000 samples were used to determine if the variables were predictive of success on the Israeli MOH Powered Mobility Proficiency Test. Results: Significant variables for predicting success were identified: manual wheelchair propulsion, go-stop voluntarily upon request, and using a joystick. The model was able to correctly identify 80% of the children. Interpretation: Children and young adults with the ability to go-stop upon request, propel a manual wheelchair short distances, and use a joystick to activate the powered wheelchair had a higher chance of becoming proficient. In countries where wheelchair proficiency is a requirement for powered wheelchair procurement, these findings may support policy changes, as they did in Israel. What This Paper Adds: Using powered wheelchairs offers children earlier and more natural practice to determine driving proficiency. Manual wheelchair propulsion, go-stop voluntarily upon request, and using a joystick were predictors of powered mobility proficiency. More than 80% of children use a joystick with their hand to activate a powered wheelchair.

Database: CINAHL

Adolescent and Caregiver-derived Utilities for Traumatic Patella Dislocation Health States.

Author(s): Nwachukwu, Benedict U.; So, Conan; Zhang, Yi; Shubin-Stein, Beth E.; Strickland, Sabrina M.; Green, Daniel W.; Dodwell, Emily R.

Source: Journal of Pediatric Orthopedics; Nov 2019; vol. 39 (no. 10)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30688843

Abstract: Introduction: The treatment of a first-time traumatic patella dislocation in children and adolescents remains controversial. Preference-based health utility assessments can provide health-related quality of life information for orthopaedic conditions and their subsequent treatment. The purpose of this study was to determine utilities for pediatric acute traumatic patella dislocation and subsequent treatment health states from both children with patellar dislocation, and their parents. Methods: Adolescents with acute first-time patella dislocations and their parents were identified. Six patella dislocation health states were defined: (1) Immediate post injury (Injury), (2) Postdislocation and nonoperative treatment with physical therapy (Rehabilitation), (3) Immediately poststabilization surgery (Postsurgical), (4) Recurrent dislocation after treatment (Recurrent dislocator), (5) Stable knee after initial treatment but unable to participate in sport at previous level (Stable return to lower function), and (6) Stable knee after initial treatment and fully able to participate in sport at previous level (Stable return to same function). Classic feeling thermometer utilities acquisition was performed, with self-report (patient) and proxy-report (parent) interviews performed separately. Patients' physical activity levels were collected using the UCLA Activity Score and the HSS Pedi-FABS. Comparisons between groups were made using Mann-Whitney U test and Wilcoxon signed-rank test. Results: Ninety-five adolescents and 95 parents were included. Median (interquartile range) patient utilities for Injury, Rehabilitation, Postsurgical, Recurrent dislocator, Stable return to lower function, and Stable return to same function health states were: 25 (10 to 45), 50 (35 to 62.5), 30 (15 to 48.5), 20 (10 to 40), 70 (50 to 80), and 100 (100 to 100), respectively. Caregiver-derived utilities for children going through these health states were: 25 (10 to 49.5), 50 (25 to 60), 40 (15 to 60), 20 (5 to 40), 60 (50 to 77.5), and 100 (100 to 100). Stable return to a lower function was assigned a significantly higher utility by adolescents than their caregivers ($P=0.03$); highly active adolescents assigned a significantly higher utility to achieving a stable return to same function ($P=0.02$) while assigning significantly lower utility to health states in which they were not fully participating in sport. Conclusions: Adolescents and their parents felt that successful treatment of an acute patella dislocation was equivalent to perfect health (utility=1); however, adolescents

assigned a significantly higher utility to a stable but lower functioning health state compared with their parents. Baseline functional status is an important modifier of health state preference-highly active adolescents assign a significantly greater disutility to health states in which they are not participating in sports at their regular level of play. These findings provide insight into the health-related quality of life impact for acute patella dislocations and their management, and potentially support minimizing time out of play and more aggressive treatment of first time acute patellar dislocations in athletic adolescents. Level Of Evidence: Level III.

Database: CINAHL

Epilepsy: knowledge and attitudes of physiotherapists, occupational therapists, and speech therapists.

Author(s): Hackel, Katharina; Neining, Martina Patrizia; Kiess, Wieland; Bertsche, Thilo; Bertsche, Astrid

Source: European Journal of Pediatrics; Oct 2019; vol. 178 (no. 10); p. 1485-1491

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31375900

Abstract:Physiotherapists, occupational therapists, and speech therapists play a key role in the treatment of children with epilepsy. We performed a survey of therapists' knowledge of and attitudes towards epilepsy in two regions of Germany, the city of Leipzig and the rural district of Zwickau. Therapists of 29/68 (43%) outpatient practices and 4/9 (44%) hospitals took part. In total, 195 therapists participated: 63 (32%) physiotherapists, 74 (38%) occupational therapists, and 58 (30%) speech therapist. In 65%, epilepsy was subject of vocational training. Of all therapists, 8% claimed they had not treated epilepsy patients so far. During professional life, 43% had witnessed a seizure. Of all therapists, 44% correctly assumed a seizure could result in death. During a seizure, 42% would perform the obsolete measure of placing something solid in the patient's mouth, and 41% would administer a prescribed rescue medication. More information on epilepsy was requested by 92%. Conclusion: Most therapists treat patients with epilepsy, and almost half have already witnessed a seizure. Often, however, epilepsy is not subject of vocational training. The risk of a fatal outcome of a seizure is underestimated, and many therapists would perform obsolete measures. Knowledge of seizure management should be transmitted to therapists especially during vocational training.

Database: CINAHL

Effect of Outpatient Service Utilization on Hospitalizations and Emergency Visits Among Youths With Autism Spectrum Disorder.

Author(s): Mandell, David S.; Candon, Molly K.; Xie, Ming; Marcus, Steven C.; Kennedy-Hendricks, Alene; Epstein, Andrew J.; Barry, Colleen L.

Source: Psychiatric Services; Oct 2019; vol. 70 (no. 10); p. 888-893

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31215353

Available at [Psychiatric services \(Washington, D.C.\)](#) - from American Psychiatric Association

Abstract:Objective: Psychiatric hospitalizations and emergency department (ED) visits occur more frequently for youths with autism spectrum disorder (ASD). One mechanism that may reduce the likelihood of these events is utilization of home and community-based care. Using commercial claims

data and a rigorous analytical framework, this retrospective study examined whether spending on outpatient services for ASD, including occupational, physical, and speech therapies and other behavioral interventions, reduced the likelihood of psychiatric hospitalizations and ED visits. Methods: The study sample was composed of >100,000 children and young adults with ASD and commercial insurance from every state between 2008 and 2012. The authors estimated maximum-likelihood complementary log-log link survival models with robust standard errors. The outcomes of interest were a hospitalization or an ED visit with an associated psychiatric diagnosis code (ICD-9-CM 290 through 319) in a given week. Results: An increase of \$125 in weekly spending on ASD-specific outpatient services in the 7 to 14 weeks prior to a given week reduced the likelihood of a psychiatric hospitalization in that week by 2%. ASD-specific outpatient spending during the 6 weeks prior to a psychiatric hospitalization did not decrease risk of hospitalization. Spending on ASD-specific outpatient services did not reduce the likelihood of a psychiatric ED visit. Conclusions: The financial burden associated with ASD is extensive, and psychiatric hospitalizations remain the most expensive type of care, costing more than \$4,000 per week on average. Identifying the mechanisms by which psychiatric hospitalizations occur may reduce the likelihood of these events.

Database: CINAHL

Quantifying motor learning strategies can translate to physiotherapy dose for children with cerebral palsy.

Author(s): Dumas, Helene M

Source: Developmental Medicine & Child Neurology; Sep 2019; vol. 61 (no. 9); p. 996-996

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30761519

Available at [Developmental medicine and child neurology](#) - from Wiley Online Library

Available at [Developmental medicine and child neurology](#) - from Unpaywall

Abstract: This commentary is on the original article by Ryan et al. on pages 1061–1066 of this issue.

Database: CINAHL

Upper limb strength training and somatosensory stimulation: optimizing self-care independence for children with unilateral cerebral palsy.

Author(s): Mailleux, Lisa; Feys, Hilde

Source: Developmental Medicine & Child Neurology; Sep 2019; vol. 61 (no. 9); p. 998-998

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30888051

Available at [Developmental medicine and child neurology](#) - from Wiley Online Library

Abstract: This commentary is on the original article by Russo et al. on pages 1080–1086 of this issue.

Database: CINAHL

Effectiveness of interactive computer play on balance and postural control for children with cerebral palsy: A systematic review.

Author(s): Pin, Tamis W.

Source: Gait & Posture; Sep 2019; vol. 73 ; p. 126-139

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31323621

Abstract:Background: Interactive computer play (ICP) becomes popular in rehabilitation for children with cerebral palsy (CP). With the nature of ICP, it could be an effective intervention specifically to improve balance and postural control for children with CP. The present paper aimed to review the effectiveness of ICP on postural control and balance for children with CP. Methods: Electronic databases including Medline, AMED, EBSCOhost, PsycINFO, Embase, the Cochrane Library and the DARE were searched up to September 2018. Studies were included if (1) participants were aged under 18 and had CP, (2) ICP intervention was performed, (3) an explicit objective was postural control and balance of the participants, and (4) results were fully published in English-language peer-reviewed journals. Characteristics of study participants, ICP protocols and study results were extracted. Level of evidence of each studies was graded using the guidelines from the American Academy of Cerebral Palsy and Developmental Medicine. Methodological quality was graded using the Physiotherapy Evidence Database (PEDro) scale. Effect sizes were calculated on available data. Results: Twenty studies were included, with nine of level I or II evidence. Most studies had fair methodological rigor. Huge variations in the study designs and protocols of ICP were found among the studies. Conclusions: ICP seemed to be more effective than conventional therapy in improving postural control and balance, with medium to large effect sizes for children with mild to moderate severity of CP. Future studies of high methodological rigour are required to verify the role of on-site guidance of the children during ICP and the effect on children with more severe CP.

Database: CINAHL

Gross motor skill performance in children with and without CHARGE syndrome: Research to practice.

Author(s): Haibach-Beach, Pamela; Perreault, Melanie; Foster, Elizabeth; Lieberman, Lauren

Source: Research in Developmental Disabilities; Aug 2019; vol. 91 ; p. 103423-103423

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31238243

Abstract:Background: CHARGE syndrome is a multifaceted syndrome of complex birth defects. The heterogeneous nature of children with CHARGE syndrome brings unique issues and challenges affecting the overall motor development of the child, often resulting in developmental delays including motor delays. Aims: The purpose of this research was to assess children with CHARGE Syndrome on locomotor and object control skills to better understand their motor development. This information is relevant to adapted physical education teachers, paraeducators, vision teachers, health care professionals (occupational therapists, physical therapists, and physicians) and parents and family members of children with CHARGE Syndrome. Methods and Procedures: Thirty-seven children with CHARGE syndrome and thirty peers without disabilities participated in the study. Each participant was assessed on two object control and three locomotor skills with modifications, if necessary. In addition, the age of onset of independent walking was recorded for each participant. Outcome and Results: Children with CHARGE syndrome performed significantly behind their same age peers in most gross motor skills with the biggest deficits found in the run and kick. Age of onset of walking was associated with performance in jumping, running, and throwing. Conclusions and Implications: Early intervention services should focus on gross motor skills such as throwing, kicking, as well as walking at an early age.

Database: CINAHL

Views of professionals about the educational needs of children with neurodevelopmental disorders.

Author(s): Van Herwegen, Jo; Ashworth, Maria; Palikara, Olympia

Source: Research in Developmental Disabilities; Aug 2019; vol. 91 ; p. 103422-103422

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31247387

Abstract:Background: Professionals play a key role in supporting children with special educational needs in schools. However, the views of those working with neurodevelopmental disorders are less known.Aims: This study examined the views of professionals (including teachers, teaching assistants, educational psychologists, speech and language therapists, physio and occupational therapists etc.) working with children with Williams Syndrome (WS), Down Syndrome (DS) or with Autism Spectrum Disorders (ASD) in terms of how informed professionals are about the disorder and their views about the type of support these children need to be receiving.Methods and Procedures: Professionals working with 77 children with ASD, 26 with DS and 38 with WS completed an online questionnaire.Outcomes and Results: Professionals in all three groups highlighted relevant areas of difficulty for these children, but they did not recognise some of the less phenotypical difficulties that children with a specific disorder may experience. In addition, there was a disconnect between the difficulties identified by the professionals and the type of specialist support that may be necessary.Conclusions and Implications: Although professionals have a lot of knowledge about the specific neurodevelopmental disorders, further evidence-based training would allow more effective support for children with neurodevelopmental disorders in the classroom but also equip professionals better and raise their confidence in meeting these children's needs.

Database: CINAHL

STROKE

Cerebrovascular Pulsatility During Rest and Exercise Reflects Hemodynamic Impairment in Stroke and Cerebral Small Vessel Disease.

Author(s): Robertson, Andrew D.; Atwi, Sarah; Kostoglou, Kyriaki; Verhoeff, Nicolaas Paul L.G.; Oh, Paul I.; Mitsis, Georgios D.; Marzolini, Susan; MacIntosh, Bradley J.

Source: Ultrasound in Medicine & Biology; Dec 2019; vol. 45 (no. 12); p. 3116-3127

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31570171

Abstract:Although aerobic exercise is recommended as a core component of stroke rehabilitation, knowledge of acute cerebrovascular responses in patients is limited. This study tested the hypothesis that older adults with chronic stroke or cerebral small vessel disease (SVD) exhibit a greater increase in pulsatile hemodynamics during exercise compared with young and age-matched healthy adults. Middle cerebral artery blood flow velocity was acquired during 20 min of moderate intensity cycling in 51 participants from four groups (young, old, SVD and stroke). During rest, only the stroke group had a higher pulsatility index (PI) compared with the young group (1.02 ± 0.17 vs 0.83 ± 0.13 ; $p = 0.038$). During exercise, however, the SVD group exhibited a larger increase in PI ($68 \pm 20\%$ relative to rest) than the young ($47 \pm 19\%$), old ($45 \pm 17\%$) and stroke ($40 \pm 25\%$) groups ($p < 0.05$, for each). The stress of aerobic exercise may reveal arterial dysfunction associated with latent and overt cerebrovascular disease.

Database: CINAHL

Medical Mobile Applications for Stroke Survivors and Caregivers.

Author(s): Piran, Pirouz; Thomas, Jinu; Kunnakkat, Saroj; Pandey, Abhishek; Gilles, Nadege; Weingast, Sarah; Burton, Dee; Balucani, Clotilde; Levine, Steven R.

Source: Journal of Stroke & Cerebrovascular Diseases; Nov 2019; vol. 28 (no. 11)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31416761

Abstract:Background: Recent studies estimate nearly half of the US population can access mobile medical applications (apps) on their smartphones. There are no systematic data available on apps focused on stroke survivors/caregivers.Objective: To identify apps (a) designed for stroke survivors/caregivers, (b) dealing with a modifiable stroke risk factor (SRF), or (c) were developed for other purposes but could potentially be used by stroke survivors/caregivers.Methods: A systematic review of the medical apps in the US Apple iTunes store was conducted between August 2013 and January 2016 using 18 predefined inclusion/exclusion criteria. SRFs considered were: diabetes, hypertension, smoking, obesity, atrial fibrillation, and dyslipidemia.Results: Out of 30,132 medical apps available, 843 (2.7%) eligible apps were identified. Of these apps, (n = 74, 8.7%) apps were specifically designed for stroke survivors/caregivers use and provided the following services: language/speech therapy (n = 28, 37%), communication with aphasic patients (n = 19, 25%), stroke risk calculation (n = 11, 14%), assistance in spotting an acute stroke (n = 8, 10%), detection of atrial fibrillation (n = 3, 4%), direction to nearby emergency room (n = 3, 4%), physical rehabilitation (n = 3, 4%), direction to the nearest certified stroke center (n = 1, < 2%), and visual attention therapy (n = 1, < 2%). 769 apps identified that were developed for purposes other than stroke. Of these, the majority (n = 526, 68%) addressed SRFs.Conclusions: Over 70 medical apps exist to specifically support stroke survivors/caregivers and primarily targeted language and communication difficulties. Apps encompassing most stroke survivor/caregiver needs could be developed and tested to ensure the issues faced by these populations are being adequately addressed.

Database: CINAHL

Patient and service factors associated with referral and admission to inpatient rehabilitation after the acute phase of stroke in Australia and Norway.

Author(s): Labberton, Angela S.; Barra, Mathias; Rønning, Ole Morten; Thommessen, Bente; Churilov, Leonid; Cadilhac, Dominique A.; Lynch, Elizabeth A.

Source: BMC Health Services Research; Nov 2019; vol. 19 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31752874

Available at [BMC health services research](#) - from BioMed Central

Available at [BMC health services research](#) - from Europe PubMed Central - Open Access

Available at [BMC health services research](#) - from EBSCO (MEDLINE Complete)

Available at [BMC health services research](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC health services research](#) - from Unpaywall

Abstract:Background: Unequal access to inpatient rehabilitation after stroke has been reported. We sought to identify and compare patient and service factors associated with referral and admission to an inpatient rehabilitation facility (IRF) after acute hospital care for stroke in two countries with publicly-funded healthcare.Methods: We compared two cohorts of stroke patients admitted consecutively to eight acute public hospitals in Australia in 2013-2014 (n = 553), and to one large university hospital in Norway in 2012-2013 (n = 723). Outcomes were: referral to an IRF; admission to an IRF if referred. Logistic regression models were used to identify and compare factors associated with each outcome.Results: Participants were similar in both cohorts: mean age 73 years, 40-44% female, 12-13% intracerebral haemorrhage, ~ 77% mild stroke (National Institutes of Health Stroke Scale < 8). Services received during the acute admission differed (Australia vs. Norway): stroke unit treatment 82% vs. 97%, physiotherapy 93% vs. 79%, occupational therapy 83% vs. 77%, speech therapy 78% vs. 13%. Proportions referred to an IRF were: 48% (Australia) and 37% (Norway); proportions admitted: 35% (Australia) and 28% (Norway). Factors associated with referral in both countries were: moderately severe stroke, receiving stroke unit treatment or allied health assessments during the acute admission, living in the community, and independent pre-stroke mobility. Directions of associations were mostly congruent; however younger patients were more likely to be referred and admitted in Norway only. Models for admission among patients referred identified few associated factors suggesting that additional factors were important for this stage of the process.Conclusions: Similar factors were associated with referral to inpatient rehabilitation after acute stroke in both countries, despite differing service provision and access rates. Assuming it is not feasible to provide inpatient rehabilitation to all patients following stroke, the criteria for the selection of candidates need to be understood to address unwanted biases.

Database: CINAHL

Effects of virtual reality-based planar motion exercises on upper extremity function, range of motion, and health-related quality of life: a multicenter, single-blinded, randomized, controlled pilot study.

Author(s): Park, Mina; Ko, Myoung-Hwan; Oh, Sang-Wook; Lee, Ji-Yeong; Ham, Yeajin; Yi, Hyoseok; Choi, Younggeun; Ha, Dokyeong; Shin, Joon-Ho

Source: Journal of NeuroEngineering & Rehabilitation (JNER); Oct 2019; vol. 16 (no. 1)

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31651335

Available at [Journal of neuroengineering and rehabilitation](#) - from BioMed Central

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Abstract:Background: Virtual reality (VR)-based rehabilitation is considered a beneficial therapeutic option for stroke rehabilitation. This pilot study assessed the clinical feasibility of a newly developed VR-based planar motion exercise apparatus (Rapaël Smart Board™ [SB]; Neofect Inc., Yong-in, Korea) for the upper extremities as an intervention and assessment tool.Methods: This single-blinded, randomized, controlled trial included 26 stroke survivors. Patients were randomized to the intervention group (SB group) or control (CON) group. During one session, patients in the SB group completed 30 min of intervention using the SB and an additional 30 min of standard occupational therapy; however, those in the CON group completed the same amount of conventional

occupational therapy. The primary outcome was the change in the Fugl-Meyer assessment (FMA) score, and the secondary outcomes were changes in the Wolf motor function test (WMFT) score, active range of motion (AROM) of the proximal upper extremities, modified Barthel index (MBI), and Stroke Impact Scale (SIS) score. A within-group analysis was performed using the Wilcoxon signed-rank test, and a between-group analysis was performed using a repeated measures analysis of covariance. Additionally, correlations between SB assessment data and clinical scale scores were analyzed by repeated measures correlation. Assessments were performed three times (baseline, immediately after intervention, and 1 month after intervention). Results: All functional outcome measures (FMA, WMFT, and MBI) showed significant improvements ($p < 0.05$) in the SB and CON groups. AROM showed greater improvements in the SB group, especially regarding shoulder abduction and internal rotation. There was a significant effect of time \times group interactions for the SIS overall score ($p = 0.038$). Some parameters of the SB assessment, such as the explored area ratio, mean reaching distance, and smoothness, were significantly associated with clinical upper limb functional measurements with moderate correlation coefficients. Conclusions: The SB was available for improving upper limb function and health-related quality of life and useful for assessing upper limb ability in stroke survivors. Trial Registration: The study was registered with the clinical research information service (CRIS) (KCT0003783 , registered 15 April 2019; retrospectively registered).

Database: CINAHL

Harnessing smartphone technology and three dimensional printing to create a mobile rehabilitation system, mRehab: assessment of usability and consistency in measurement.

Author(s): Bhattacharjya, Sutanuka; Stafford, Matthew C.; Cavuoto, Lora Anne; Yang, Zhuolin; Song, Chen; Subryan, Heamchand; Xu, Wenyaoy; Langan, Jeanne

Source: Journal of NeuroEngineering & Rehabilitation (JNER); Oct 2019; vol. 16 (no. 1)

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31665036

Available at [Journal of neuroengineering and rehabilitation](#) - from BioMed Central

Available at [Journal of neuroengineering and rehabilitation](#) - from Europe PubMed Central - Open Access

Available at [Journal of neuroengineering and rehabilitation](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Journal of neuroengineering and rehabilitation](#) - from Unpaywall

Abstract:Background: Residual sensorimotor deficits are common following stroke. While it has been demonstrated that targeted practice can result in improvements in functional mobility years post stroke, there is little to support rehabilitation across the lifespan. The use of technology in home rehabilitation provides an avenue to better support self-management of recovery across the lifespan. We developed a novel mobile technology, capable of quantifying quality of movement with the purpose of providing feedback to augment rehabilitation and improve functional mobility. This mobile rehabilitation system, mRehab, consists of a smartphone embedded in three dimensional printed items representing functional objects found in the home. mRehab allows individuals with motor deficits to practice activities of daily living (ADLs) and receive feedback on their performance. The aim of this study was to assess the usability and consistency of measurement of the mRehab system. Methods: To assess usability of the mRehab system, four older adults and four individuals with stroke were recruited to use the system, and complete surveys to discuss their opinions on the user interface of the smartphone app and the design of the 3D printed items. To assess the consistency of measurement by the mRehab system, 12 young adults were recruited and performed

mRehab ADLs in three lab sessions within 1 week. Young adults were chosen for their expected high level of consistency in motor performance. Results: Usability ratings from older adults and individuals with stroke led us to modify the design of the 3D printed items and improve the clarity of the mRehab app. The modified mRehab system was assessed for consistency of measurement and six ADLs resulted in coefficient of variation (CV) below 10%. This is a commonly used CV goal for consistency. Two ADLs ranged between 10 and 15% CV. Only two ADLs demonstrated high CV. Conclusions: mRehab is a client-centered technology designed for home rehabilitation that consistently measures performance. Development of the mRehab system provides a support for individuals working on recovering functional upper limb mobility that they can use across their lifespan.

Database: CINAHL

Quantifying sit-to-stand and stand-to-sit transitions in free-living environments using the activPAL thigh-worn activity monitor.

Author(s): Pickford, Chris G.; Findlow, Andrew H; Kerr, Andy; Banger, Matthew; Clarke-Cornwell, Alexandra M.; Hollands, Kristen L.; Quinn, Terry; Granat, Malcolm H.

Source: Gait & Posture; Sep 2019; vol. 73 ; p. 140-146

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31325738

Abstract: Purpose: Standing up, sitting down and walking require considerable effort and coordination, which are crucial indicators to rehabilitation (e.g. stroke), and in older populations may indicate the onset of frailty and physical and cognitive decline. Currently, there are few reports robustly quantifying sit-to-stand and stand-to-sit transitions in free-living environments. The aim of this study was to identify and quantify these transitions using the peak velocity of sit-to-stand and stand-to-sit transitions to determine if these velocities were different in a healthy cohort and a mobility-impaired population. Methods: Free-living sit-to-stand and stand-to-sit acceleration data were recorded from 21 healthy volunteers and 34 stroke survivors using activPAL3™ monitors over a one-week period. Thigh inclination velocity was calculated from these accelerometer data. Maximum velocities were compared between populations. Results: A total of 10,299 and 11,392 sit-to-stand and stand-to-sit transitions were recorded in healthy volunteers and stroke survivors, respectively. Healthy volunteers had significantly higher overall mean peak velocities for both transitions compared with stroke survivors [$70.7^\circ/s \pm 52.2$ versus $44.2^\circ/s \pm 28.0$ for sit-to-stand, $P < 0.001$ and $74.7^\circ/s \pm 51.8$ versus $46.0^\circ/s \pm 31.9$ for stand-to-sit; $P < 0.001$]. Mean peak velocity of transition was associated with increased variation in peak velocity across both groups. Conclusion: There were significant differences in the mean peak velocity of sit-to-stand and stand-to-sit transitions between the groups. Variation in an individual's mean peak velocity may be associated with the ability to perform these transitions. This method could be used to evaluate the effectiveness of interventions following injury such as stroke, as well as monitor decline in functional ability.

Database: CINAHL

Randomized Controlled Trial of Gait Training Using Gait Exercise Assist Robot (GEAR) in Stroke Patients with Hemiplegia.

Author(s): Tomida, Ken; Sonoda, Shigeru; Hirano, Satoshi; Suzuki, Akira; Tanino, Genichi; Kawakami, Kenji; Saitoh, Eiichi; Kagaya, Hitoshi

Source: Journal of Stroke & Cerebrovascular Diseases; Sep 2019; vol. 28 (no. 9); p. 2421-2428

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31307899

Abstract: Purpose: This trial aimed to validate the effectiveness of using the Gait Exercise Assist Robot (GEAR) in patients with hemiplegia after primary stroke. Methods: The study design was open-label randomized controlled trial. Twenty-six patients with hemiplegia after primary stroke admitted to the comprehensive inpatient rehabilitation wards were enrolled and randomized to a group using GEAR in gait training and a control group. The intervention period was 4 weeks. Evaluations were conducted at admission, during intervention period, 8 weeks from start of intervention, and at discharge. Primary outcome measure was improvement efficiency of Functional Independence Measure (FIM)-walk score (FIM-walk improvement efficiency) that was calculated at the time of achieving FIM-walk score 5 (supervision level) during the intervention period or as weekly gain in FIM-walk score during 4 weeks for those who did not achieve score 5. Results: FIM-walk improvement efficiency was $.7 \pm .4$ in GEAR group and $.4 \pm .3$ in control group, and was significantly higher in GEAR group ($P = .01$). The FIM-walk score gain after 4 weeks was significantly higher in the GEAR group ($P = .01$), but there were no significant differences between 2 groups after 8 weeks and at discharge. Conclusions: Gait training using GEAR for 4 weeks improved walking ability of subacute stroke patients. GEAR contributes to early improvement of walking ability probably by the knee flexion assist during swing phase on the paralyzed side thereby increasing the volume of training, and by the finely adjustable stance/swing assist mechanism for the paralyzed limb which optimizes the training difficulty level.

Database: CINAHL

Integration of Real-Time Electronic Health Records and Wireless Technology in a Mobile Stroke Unit.

Author(s): Schimpf, Brandi; Deanda, Kathy; Severenuk, David A.; Montgomery, Tara M.; Cooley, Gregory D.; Kowalski, Robert G.; Vela-Duarte, Daniel; Jones, William J.

Source: Journal of Stroke & Cerebrovascular Diseases; Sep 2019; vol. 28 (no. 9); p. 2530-2536

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31307897

Abstract: Background: UCHealth's Mobile Stroke Unit (MSU) at University of Colorado Hospital is an ambulance equipped with a computed tomography (CT) scanner and tele-stroke capabilities that began clinical operation in Aurora, Colorado January 2016. As one of the first MSU's in the United States, it was necessary to design unique and dynamic information technology infrastructure. This includes high-speed cellular connectivity, Health Insurance Portability and Accountability Act compliance, cloud-based and remote access to electronic medical records (EMR), and reliable and rapid image transfer. Here we describe novel technologies incorporated into the MSU. Technological data-handling aspects of the MSU were reviewed. Functions evaluated include wireless connectivity while in transit, EMR access and manipulation in the field, CT with image transfer from the MSU to the hospital's Picture Archiving Communication System (PACS), and video and audio communication for neurological assessment. Methods/results: The MSU wireless system was designed with redundancy to avoid dropped signals during data transfer. Two separate Internet Protocol destinations with split-tunnel architecture are assigned, for videoconferencing and for EMR data transfer. Brain images acquired in the ambulance CT scanner are transferred initially to an onboard laptop, then via Citrix Receiver to the hospital-based PACS server where they can be viewed in PACS

or EMR by the stroke neurologist, neuroradiologist, and other providers. PACS and Radiology Information System are 2 of the XenApps utilized by CT technologists on board the MSU. Discussion/conclusions: These technologies will serve as a blueprint for development of similar units elsewhere, and as a framework for improvement in this technology.

Database: CINAHL

Effectiveness of Intensive Rehabilitation Therapy on Functional Outcomes After Stroke: A Propensity Score Analysis Based on Japan Rehabilitation Database.

Author(s): Kamo, Tomohiko; Momosaki, Ryo; Suzuki, Keisuke; Asahi, Ryoma; Azami, Masato; Ogihara, Hirofumi; Nishida, Yuusuke

Source: Journal of Stroke & Cerebrovascular Diseases; Sep 2019; vol. 28 (no. 9); p. 2537-2542

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31235378

Abstract: Aim: To examine the association of the amount of rehabilitation with functional gains of elderly stroke patients at a convalescent rehabilitation ward using propensity score analysis methods and the Japan Rehabilitation Database. Methods: This study was a retrospective cohort study. From the database, 6875 patients who were admitted to the convalescent rehabilitation wards with stroke were identified. After excluding 4586 patients, 2325 were eligible for the study. Intensive rehabilitation therapy (IRT) was defined as rehabilitation therapy of more than 15 hours per week by a physical therapist, an occupational therapist, and/or a speech therapist. Functional Independence Measure (FIM) gain, discharge rate to home, and FIM efficiency were examined using student's t test and the χ^2 test after inverse probability weighting (IPW). Results: IRT was provided to 862 patients (37.1%). The unadjusted data showed that patients in the IRT group had a longer hospital stay, more physical therapy, occupational therapy, and speech and language therapy. After adjustment for IPW, the baseline characteristics were found to be closely matched between the 2 groups. The IRT group showed significantly higher motor FIM gain, cognitive FIM gain, FIM gain, and discharge rate to home. Conclusions: The present study demonstrated that a longer rehabilitation time per week was associated with increased functional gain in elderly stroke patients at convalescent rehabilitation wards.

Database: CINAHL

Effectiveness of Intensive Rehabilitation Therapy on Functional Outcomes After Stroke: A Propensity Score Analysis Based on Japan Rehabilitation Database.

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Source: Journal of Stroke & Cerebrovascular Diseases; Sep 2019; vol. 28 (no. 9); p. 2537-2542

Publication Date: Sep 2019

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rehabilitation therapy (IRT) was defined as rehabilitation therapy of more than 15 hours per week by a physical therapist, an occupational therapist, and/or a speech therapist. Functional Independence Measure (FIM) gain, discharge rate to home, and FIM efficiency were examined using student's t test and the χ^2 test after inverse probability weighting (IPW). Results: IRT was provided to 862 patients (37.1%). The unadjusted data showed that patients in the IRT group had a longer hospital stay, more physical therapy, occupational therapy, and speech and language therapy. After adjustment for IPW, the baseline characteristics were found to be closely matched between the 2 groups. The IRT group showed significantly higher motor FIM gain, cognitive FIM gain, FIM gain, and discharge rate to home. Conclusions: The present study demonstrated that a longer rehabilitation time per week was associated with increased functional gain in elderly stroke patients at convalescent rehabilitation wards.

Database: CINAHL

Effects of Exergame on Patients' Balance and Upper Limb Motor Function after Stroke: A Randomized Controlled Trial.

Author(s): Henrique, Patrícia P.B.; Colussi, Eliane L.; De Marchi, Ana C.B.

Source: Journal of Stroke & Cerebrovascular Diseases; Aug 2019; vol. 28 (no. 8); p. 2351-2357

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31204204

Abstract: Background: Stroke is a major cause of motor incapacity in adults and the elderly population, requiring effective interventions capable of contributing to rehabilitation. Different interventions such as use of exergames are being adopted in the motor rehabilitation and balance area, as they act as motivating instruments, making therapies more pleasurable. Objective: The aim of this study was to investigate the effects of exergame on patients' balance and upper limb motor function after stroke. Methods: This study is a randomized controlled trial. Thirty-one participants of both genders, mean age of 76 years, were assigned to the experimental or control groups; the experimental group (n = 16) underwent exergame rehabilitation using Motion Rehab AVE 3D, and the control group (n = 15) underwent conventional physiotherapy. Both EG and GC sessions happened twice a week, for 30 minutes each, over a 12 weeks period, resulting in 24 sessions. All sessions were composed of similar exercises, with same purpose and elapsed time (5 minutes). Instruments applied to verify inclusion criteria were a sociodemographic questionnaire and clinical aspects and a Mini-Mental State Examination. At baseline and after 12 weeks of intervention, the Modified Ashworth Scale, the Fugl-Meyer Assessment, and the Berg Balance Scale were used. Results: In both groups, patients obtained significant improvement from baseline values in all analyzed variables (shoulder, elbow, and forearm; wrist; hand; and balance) ($P < .001$). In the intergroup comparison, there were significant differences between the 2 groups for changes in values from preintervention to postintervention of shoulder, elbow and forearm ($P = .001$), and total ($P = .002$). Conclusion: Exergame rehabilitation in poststroke patients can be an efficient alternative for restoring balance and upper limb motor function and might even reduce treatment time.

Database: CINAHL

How to improve eRehabilitation programs in stroke care? A focus group study to identify requirements of end-users.

Author(s): Wentink, Manon; van Bodegom-Vos, L.; Brouns, B.; Arwert, H.; Houdijk, S.; Kewalbansing, P.; Boyce, L.; Vliet Vlieland, T.; de Kloet, A.; Meesters, J.

Source: BMC Medical Informatics & Decision Making; Jul 2019; vol. 19 (no. 1)

Publication Date: Jul 2019

Publication Type(s): Academic Journal

PubMedID: 31349824

Available at [BMC Medical Informatics & Decision Making](#) - from BioMed Central

Available at [BMC Medical Informatics & Decision Making](#) - from Europe PubMed Central - Open Access

Available at [BMC Medical Informatics & Decision Making](#) - from EBSCO (MEDLINE Complete)

Available at [BMC Medical Informatics & Decision Making](#) - from Unpaywall

Abstract:Background: A user-centered design approach for eHealth interventions improves their effectiveness in stroke rehabilitation. Nevertheless, insight into requirements of end-users (patients/informal caregivers and/or health professionals) for eRehabilitation is lacking. The aim of this study was to identify end-user requirements for a comprehensive eHealth program in stroke rehabilitation.Methods: Eight focus groups were conducted to identify user requirements; six with patients/informal caregivers and two with health professionals involved in stroke rehabilitation (rehabilitation physicians, physiotherapists, occupational therapists, psychologists, team coordinators, speech therapist). The focus groups were audiotaped and transcribed in full. Direct content analysis was used to identify the end-user requirements for stroke eHealth interventions concerning three categories: accessibility, usability and content.Results: In total, 45 requirements for the accessibility, usability and content of a stroke eRehabilitation program emerged from the focus groups. Most requirements concerned content (27 requirements), followed by usability (12 requirements) and accessibility (6 requirements). Patients/informal caregivers and health professionals each identified 37 requirements, respectively, with 29 of them overlapping.Conclusions: Requirements between stroke patients/informal caregivers and health professionals differed on several aspects. Therefore, involving the perspectives of all end users in the design process of stroke eRehabilitation programs is needed to achieve a user-centered design.Trial Registration: The study was approved by the Medical Ethical Review Board of the Leiden University Medical Center [P15.281].

Database: CINAHL

The "Beam-Me-In Strategy" - remote haptic therapist-patient interaction with two exoskeletons for stroke therapy.

Author(s): Baur, Kilian; Rohrbach, Nina; Hermsdörfer, Joachim; Riener, Robert; Klamroth-Marganska, Verena

Source: Journal of NeuroEngineering & Rehabilitation (JNER); Jul 2019; vol. 16 (no. 1)

Publication Date: Jul 2019

Publication Type(s): Academic Journal

PubMedID: 31296226

Available at [Journal of NeuroEngineering & Rehabilitation \(JNER\)](#) - from BioMed Central

Available at [Journal of NeuroEngineering & Rehabilitation \(JNER\)](#) - from Europe PubMed Central - Open Access

Available at [Journal of NeuroEngineering & Rehabilitation \(JNER\)](#) - from Unpaywall

Abstract:Background: We present a robot-assisted telerehabilitation system that allows for haptic interaction between therapist and patient over distance. It consists of two arm therapy robots. Attached to one robot the therapists can feel on their own arm the limitations of the patient's arm which is attached to the other robot. Due to the exoskeleton structure of the robot, movements can be performed in the three-dimensional space. Methods: Fifteen physical and occupational therapists tested this strategy, named "Beam-Me-In", while using an exoskeleton robot connected to a second exoskeleton robot in the same room used by the study experimenter. Furthermore, the therapists assessed the level of impairment of recorded and simulated arm movements. They quantified four typical impairments of stroke patients: reduced range of motion (active and passive), resistance to passive movement, a lack of ability to fractionate a movement, and disturbed quality of movement. Results: On a Likert Scale (0 to 5 points) therapists rated the "Beam-Me-In" strategy as a very useful medium (mode: 4 points) to evaluate a patient's progress over time. The passive range of motion of the elbow joint was assessed with a mean absolute error of 4.9° (absolute precision error: 6.4°). The active range of motion of the elbow was assessed with a mean absolute error of 4.9° (absolute precision error: 6.5°). The resistance to passive movement (i.e. modified Tardieu Scale) and the lack of ability to fractionate a movement (i.e. quantification of pathological muscle synergies) was assessed with an inter-rater reliability of 0.930 and 0.948, respectively. Conclusions: The "Beam-Me-In" strategy is a promising approach to complement robot-assisted movement training. It can serve as a platform to assess and identify abnormal movement patterns in patients. This is the first application of remote three-dimensional haptic assessment applied to telerehabilitation. Furthermore, the "Beam-Me-In" strategy has a potential to overcome barriers for therapists regarding robot-assisted telerehabilitation.

Database: CINAHL

REHABILITATION

Effect of tele-rehabilitation on glucose control, exercise capacity, physical fitness, muscle strength and psychosocial status in patients with type 2 diabetes: A double blind randomized controlled trial.

Author(s): Duruturk, Neslihan; Özköslü, Manolya Acar

Source: Primary Care Diabetes; Dec 2019; vol. 13 (no. 6); p. 542-548

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31014938

Abstract:Aim: To determine the effect of a tele-rehabilitation (TR) program on glucose control, exercise capacity, physical fitness, muscle strength and psychosocial status in patients with type 2 diabetes mellitus (DM). Method: Fifty type 2 DM participants were enrolled in the study and divided randomly into two groups; TR (n = 25, mean age: 52.82 ± 11.86) or control (n = 25, mean age: 53.04 ± 10.45) group. Participants in the TR group performed breathing and callisthenic exercises, three times a week, for 6 weeks, at home by internet based video conferences. Outcome measures including, HbA1c level, 6 min walk testing, physical fitness and muscle strength dynamometer measurement, Beck Depression Inventory were performed before and after the 6 weeks. Results: HbA1c (p = 0.00), 6 min walking distance (p = 0.00), physical fitness subparameters; sit-up (p = 0.00), sit-and-reach (p = 0.04), back scratch (p = 0.00), lateral flexion right (p = 0.04), left (p = 0.00) and time up go tests (p = 0.00), muscles strength (p = 0.00); deltoideus-anterior, middle, quadriceps femoris and gluteus maximus, and depression levels (p = 0.00) changed significantly (p = 0.00) in TR groups. There were no significant improvements in control group (p > 0.05). Conclusion: Our findings suggest that TR interventions found to be safe and effective, and may be an alternative treatment model for

type 2 DM management. In addition to these health benefits, patients and rehabilitation team may save time, labor and treatment costs by using TR.

Database: CINAHL

Short- or Long-Term Treatment of Spinal Disability in Older Adults With Manipulation and Exercise.

Author(s): Maiers, Michele; Hartvigsen, Jan; Evans, Roni; Westrom, Kristine; Wang, Qi; Schulz, Craig; Leininger, Brent; Bronfort, Gert

Source: Arthritis Care & Research; Nov 2019; vol. 71 (no. 11); p. 1516-1524

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30354023

Available at [Arthritis care & research](#) - from Wiley Online Library

Available at [Arthritis care & research](#) - from Unpaywall

Abstract:Objective: Back and neck pain are associated with disability and loss of independence in older adults. Whether long-term management using commonly recommended treatments is superior to shorter-term treatment is unknown. This randomized clinical trial compared short-term treatment (12 weeks) versus long-term management (36 weeks) of back- and neck-related disability in older adults using spinal manipulative therapy (SMT) combined with supervised rehabilitative exercises (SRE).Methods: Eligible participants were ages ≥ 65 years with back and neck disability for ≥ 12 weeks. Coprimary outcomes were changes in Oswestry Disability Index (ODI) and Neck Disability Index (NDI) scores after 36 weeks. An intent-to-treat approach used linear mixed-model analysis to detect between-group differences. Secondary analyses included other self-reported outcomes, adverse events, and objective functional measures.Results: A total of 182 participants were randomized. The short-term and long-term groups demonstrated significant improvements in back disability (ODI score -3.9 [95% confidence interval (95% CI) -5.8, -2.0] versus ODI score -6.3 [95% CI -8.2, -4.4]) and neck disability (NDI score -7.3 [95% CI -9.1, -5.5] versus NDI score -9.0 [95% CI -10.8, -7.2]) after 36 weeks, with no difference between groups (back ODI score 2.4 [95% CI -0.3, 5.1]; neck NDI score 1.7 [95% CI 0.8, 4.2]). The long-term management group experienced greater improvement in neck pain at week 36, in self-efficacy at weeks 36 and 52, and in functional ability, and balance.Conclusion: For older adults with chronic back and neck disability, extending management with SMT and SRE from 12 to 36 weeks did not result in any additional important reduction in disability.

Database: CINAHL

Outcomes of Anterior Cruciate Ligament Reconstruction Using Biologic Augmentation in Patients 21 Years of Age and Younger.

Author(s): Berdis, Anthony S.; Veale, Kodi; Fleissner, Paul R.; Fleissner, Paul R Jr

Source: Arthroscopy: The Journal of Arthroscopy & Related Surgery; Nov 2019; vol. 35 (no. 11); p. 3107-3113

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31439458

Available at [Arthroscopy : the journal of arthroscopic & related surgery : official publication of the Arthroscopy Association of North America and the International Arthroscopy Association](#) - from Unpaywall

Abstract: Purpose: To report on the outcomes of a subset of patients ≤ 21 years of age after anterior cruciate ligament (ACL) reconstruction coupled with biologic augmentation using platelet-rich plasma (PRP) and a porous collagen carrier. Methods: A cohort of patients was retrospectively reviewed after ACL reconstruction with hamstring autograft tendon. All reconstructive surgeries combined biologic augmentation in which the ACL graft was coupled with PRP contained within porous collagen membrane. Patients were included if they maintained a minimum follow-up period of 24 months. Outcomes were assessed through patient-reported questionnaires and physical examination in the clinical setting. Patient-reported outcomes including International Knee Documentation Committee (IKDC), Lysholm, Tegner, and Single Assessment Numeric Evaluation (SANE) scores were collected. ACL stability was evaluated using Lachman and KT-1000 testing. Patients were also evaluated for return to play at the same level of competition, family history of ACL injury, and time to complete rehabilitation. Results: A total of 194 patients were initially eligible; 143 (74%) patients with 151 knees were ultimately evaluated. The average patient age was 16 years; 79 patients were female and 64 were male. Follow-up duration averaged 52 months. IKDC and Lysholm scores averaged 91 and 91; the average SANE score was 94. The KT-1000 side-to-side difference averaged 1.2 mm. The average time to complete physical therapy was 22 weeks, and 132 patients (92%) returned to their preinjury level of competition. There were 23 cases of contralateral ACL injury (15%) and 7 cases of ACL reinjury necessitating revision surgery (5%). Conclusions: Biologic augmentation with hamstring autograft in ACL reconstruction shows a decreased rate of second ACL injury, specifically with regard to ACL revision surgery. The patients in this study also show higher return to preinjury level of competition at a faster rate than other studies have shown. Level Of Evidence: Level IV, Therapeutic Case Series.

Database: CINAHL

Peripheral Arterial Disease: Supervised Exercise Therapy Through Cardiac Rehabilitation.

Author(s): Thomas, Scott G; Marzolini, Susan; Lin, Edward; Nguyen, Cindy H; Oh, Paul

Source: Clinics in Geriatric Medicine; Nov 2019; vol. 35 (no. 4); p. 527-537

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31543183

Abstract: Peripheral arterial disease (PAD) is frequently underdiagnosed and undertreated. This review identifies specific subgroups within older adults more likely to develop PAD, and describes methods to diagnose PAD and provide evidence in support of systematic referral to cardiac rehabilitation programs to enhance successful comprehensive management. Clear evidence and guidelines support the routine use of supervised exercise therapy to improve function, reduce risk of cardiovascular morbidity and mortality, and enhance the success of endovascular interventions.

Database: CINAHL

Arterial Stiffness is Related to Impaired Exercise Capacity in Patients With Coronary Artery Disease and History of Myocardial Infarction.

Author(s): Alves, Alberto Jorge; Oliveira, Norton Luís; Lopes, Susana; Ruescas-Nicolau, Maria-Arantzazu; Teixeira, Madalena; Oliveira, José; Ribeiro, Fernando

Source: Heart, Lung & Circulation; Nov 2019; vol. 28 (no. 11); p. 1614-1621

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30318391

Abstract:Background: Augmented arterial stiffness and reduced cardiorespiratory fitness are associated with increased morbidity and mortality from coronary artery disease (CAD). The relationship between exercise capacity and arterial stiffness is independent of known influencing variables in CAD. This study aimed to analyse the interaction between exercise capacity, arterial stiffness and early vascular ageing in patients with CAD.Methods: This cross-sectional study included 96 CAD patients with myocardial infarction (55.9±10.9years, 81 men) referred to cardiac rehabilitation. Arterial stiffness was assessed using carotid-femoral pulse wave velocity (cf-PWV). Cardiopulmonary exercise test was performed to measure VO₂peak. Comparisons of VO₂peak across cf-PWV risk threshold values (high-risk cf-PWV≥10m/s) and tertile groups, and across cf-PWV threshold values and age groups (younger group<60 years) were performed. Correlation tests were used to study the association between pair of variables.Results: Patients with high-risk cf-PWV had lower VO₂peak than those with low-risk cf-PWV (p<0.001). VO₂peak decreased across tertiles of cf-PWV, showing significantly lower values in the third tertile (p<0.001). There were no differences in the VO₂peak between younger patients with high-risk cf-PWV and older patients irrespective of their cf-PWV values. VO₂peak showed an upward trend in younger patients with low-risk cf-PWV compared to their age-mates with high-risk cf-PWV (p=0.09). VO₂peak was strongly and inversely correlated with cf-PWV (r=-0.502, p<0.001).Conclusions: Arterial stiffening is associated with lower cardiorespiratory fitness in CAD patients with myocardial infarction. When its values are above risk threshold, exercise capacity is impaired regardless of the relationship between age and arterial stiffness.

Outcome of femoral fractures in poliomyelitis patients.

Author(s): Gellman, Yechiel N.; Khoury, Amal; Liebergall, Meir; Mosheiff, Rami; Weil, Yoram A.

Source: International Orthopaedics; Nov 2019; vol. 43 (no. 11); p. 2607-2612

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 30643935

Abstract:Background and Purpose: As patients who were afflicted with poliomyelitis during the outbreaks in the past are aging, lower extremity osteoporotic fractures are becoming more frequent. Fixation in deformed, porotic bone, coupled with muscle weakness and imbalance creates a unique challenge when treating these fractures as does their reduced rehabilitation potential. The aim of this study was to investigate the outcome of femoral fractures in surviving poliomyelitis patients.Patients and Methods: Sixty-five patients with 74 femoral fractures were treated between 1990 and 2014. Clinical outcome was assessed using the Parkland and Palmer mobility score, and quality-of-life was assessed using the SF-12[®] score.Results: Some 84% of the fractures were a result of low-energy mechanisms and occurred in the polio-affected limbs, but nonaffected limbs were also injured owing to low-energy mechanisms in all cases. Fifty-seven fractures were treated operatively. There were nine re-operations (16%), including implant removals, nonunion, peri-implant fractures, and malunion. Some 60% of the patients did not regain their previous ambulatory capacity. Post-operative weight-bearing status did not correlate with the final functional outcome.Conclusions: Polio patients with femoral fractures have a guarded prognosis for regaining their pre-injury ambulatory capacity. A higher re-operation rate than that with "normal" osteoporotic fractures is expected.

Database: CINAHL

Physio4FMD: protocol for a multicentre randomised controlled trial of specialist physiotherapy for functional motor disorder.

Author(s): Nielsen, Glenn; Stone, Jon; Buszewicz, Marta; Carson, Alan; Goldstein, Laura H.; Holt, Kate; Hunter, Rachael; Marsden, Jonathan; Marston, Louise; Noble, Hayley; Reuber, Markus; Edwards, Mark J.; on behalf of the Physio4FMD Collaborative Group; Breen, David; Burness, Christine; Callaghan, Hannah; Coebergh, Jan; Cookson, Patrick; Cooper, Paul; Drake, Lee

Source: BMC Neurology; Oct 2019; vol. 19 (no. 1)

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31638942

Available at [BMC neurology](#) - from BioMed Central

Available at [BMC neurology](#) - from Europe PubMed Central - Open Access

Available at [BMC neurology](#) - from EBSCO (MEDLINE Complete)

Available at [BMC neurology](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC neurology](#) - from Unpaywall

Abstract:Background: Patients with functional motor disorder (FMD) experience persistent and disabling neurological symptoms such as weakness, tremor, dystonia and disordered gait. Physiotherapy is usually considered an important part of treatment; however, sufficiently-powered controlled studies are lacking. Here we present the protocol of a randomised controlled trial (RCT) that aims to evaluate the clinical and cost effectiveness of a specialist physiotherapy programme for FMD. Methods/design: The trial is a pragmatic, multicentre, single blind parallel arm randomised controlled trial (RCT). 264 Adults with a clinically definite diagnosis of FMD will be recruited from neurology clinics and randomised to receive either the trial intervention (a specialist physiotherapy protocol) or treatment as usual control (referral to a community physiotherapy service suitable for people with neurological symptoms). Participants will be followed up at 6 and 12 months. The primary outcome is the Physical Function domain of the Short Form 36 questionnaire at 12 months. Secondary domains of measurement will include participant perception of change, mobility, health-related quality of life, health service utilisation, anxiety and depression. Health economic analysis will evaluate the cost impact of trial and control interventions from a health and social care perspective as well as societal perspective. Discussion: This trial will be the first adequately-powered RCT of physical-based rehabilitation for FMD. Trial Registration: International Standard Randomised Controlled Trials Number ISRCTN56136713 . Registered 27 March 2018.

Database: CINAHL

Development of Walking indicators to advance the quality of spinal cord injury rehabilitation: SCI-High Project.

Author(s): Musselman, Kristin E.; Verrier, Molly C.; Flett, Heather; Nadeau, Sylvie; Yang, Jaynie F.; Farahani, Farnoosh; Alavinia, S. Mohammad; Omidvar, Maryam; Wiest, Matheus J.; Craven, B. Catharine

Source: Journal of Spinal Cord Medicine; Oct 2019; vol. 42 ; p. 119-129

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31573443

Available at [The journal of spinal cord medicine](#) - from Unpaywall

Abstract:Objective: To describe the development of structure, process and outcome indicators that will advance the quality of walking rehabilitation for Canadians with spinal cord injury or disease (SCI/D) by 2020. Method: A framework for the evaluation of the quality of walking rehabilitation was developed by experts in walking after SCI/D. A systematic literature review identified factors

influencing walking outcomes and potential walking indicators. A Driver diagram analysis summarized the factors affecting walking outcomes and subsequently informed the selection of structure and process indicators. Psychometric properties and clinical utility of potential walking indicators were considered during the selection of outcome indicators. Results: The structure indicator is the number of physical therapists using evidence-based walking interventions per number of ambulatory individuals with SCI/D. The process indicator is the number of received hours of walking interventions during inpatient rehabilitation per number of ambulatory individuals with SCI/D. The intermediary outcome indicator, which is collected at discharge from inpatient rehabilitation, is either the modified Timed Up and Go or the 10-Meter Walk Test, the choice of measure is dictated by the stage of walking recovery, as defined by the Standing and Walking Assessment Tool. The final outcome indicator, collected at 18 months post-discharge, is the Spinal Cord Independence Measure III-Mobility subscale. Conclusion: The selected indicators align with current clinical practice in Canada. The indicators will direct the timing and enhance the volume of walking therapy delivered, to ultimately increase the proportion of patients who achieve their walking potential by 18 months post-rehabilitation.

Database: CINAHL

Development of Wheeled Mobility indicators to advance the quality of spinal cord injury rehabilitation: SCI-High Project.

Author(s): Bayley, Mark T.; Kirby, R. Lee; Farahani, Farnoosh; Titus, Laura; Smith, Cher; Routhier, François; Gagnon, Dany H.; Stapleford, Patricia; Alavinia, S. Mohammad; Craven, B. Catharine

Source: Journal of Spinal Cord Medicine; Oct 2019; vol. 42 ; p. 130-140

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31573457

Available at [The journal of spinal cord medicine](#) - from Unpaywall

Abstract:Background: Wheeled mobility is critical for individuals with Spinal Cord Injury or Disease (SCI/D) related paralysis. The World Health Organization (WHO) developed guidelines highlighting eight steps in wheelchair service delivery: (1) referral and appointment; (2) assessment; (3) prescription; (4) funding and ordering; (5) product preparation; (6) fitting; (7) user training; and, (8) follow-up maintenance/repairs. This article describes the processes used to develop structure, process and outcome indicators that reflect the WHO guidelines within the Domain of Wheeled Mobility rehabilitation for Canadians. Methods: Wheeled mobility experts within the SCI-High Project Team used the WHO guideline to inform the Construct refinement and development of a Driver diagram. Following seven meetings, the Driver diagram and review of outcome measures and literature synthesis regarding wheelchair service delivery informed indicator selection and group consensus. Results: The structure indicator examines the proportion of SCI/D service providers within a rehabilitation program who have specialized wheelchair training to ensure prescription, preparation, fitting, and maintenance quality. The process indicator evaluates the average number of hours of wheelchair service delivery provided per patient during rehabilitation. The intermediary outcome indicator (rehabilitation discharge), is a target capacity score on the Wheelchair Skills Test Questionnaire (WST-Q). The final outcome indicators (at 18 months post rehabilitation admission) are the Life Space Assessment (LSA) and the Wheelchair Use Confidence Scale (WheelCon) short form mean scores. Conclusion: Routine implementation of the selected Wheeled Mobility structure, process and outcome indicators should measurably advance care within the Wheeled Mobility Domain for Canadians living with SCI/D by 2020.

Database: CINAHL

The use of aquatic therapy among rehabilitation professionals for individuals with spinal cord injury or disorder.

Author(s): Marinho-Buzelli, Andresa R.; Zaluski, Alexandra J.; Mansfield, Avril; Bonnyman, Alison M.; Musselman, Kristin E.

Source: Journal of Spinal Cord Medicine; Oct 2019; vol. 42 ; p. 158-165

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31573458

Abstract:Context/Objective: Aquatic therapy (AT) has been used to enhance balance and mobility in people with disabilities; however, AT is reported to be underused among people with spinal cord injury or disorder (SCI/D). We aimed to understand the perceptions of AT use by physical therapists (PT), PT assistants (PTA) and kinesiologists (KIN) across Canada for clients with SCI/D.

Design/Methods: Individual semi-structured interviews were completed with PT, PTA and KIN (phone or in-person). PT, PTA and KIN who had used AT with at least one client with SCI/D in the past year were eligible. Interview questions queried each participant's AT setting, AT approaches, and perceived facilitators and barriers to AT implementation for clients with SCI/D. Interviews were audio recorded and transcribed verbatim. Thematic analysis was used to identify themes and subthemes. Results: Six PT (2 male, 4 female), three PTA (female) and 1 KIN (female) participated. The following four themes were identified: (1) multi-system benefits from AT (e.g. from impairment to function, confidence and enjoyment); (2) application of AT (e.g. based on principles of the water); (3) perceived barriers to implementing AT (e.g. pool accessibility, client comorbidities); and (4) water as an enabler to function on land. Conclusions: The participants reported AT was a unique and versatile approach that benefits the multi-dimensional aspects of the health of individuals with SCI/D. They successfully integrated AT into their clinical practice despite the barriers faced by professionals and clients.

Database: CINAHL

Patients' experiences of supervised jaw-neck exercise among patients with localized TMD pain or TMD pain associated with generalized pain.

Author(s): Storm Mienna, Christina; Glas, Linnéa; Magnusson, My; Ilgunas, Aurelija; Häggman-Henrikson, Birgitta; Wänman, Anders

Source: Acta Odontologica Scandinavica; Oct 2019; vol. 77 (no. 7); p. 495-501

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30957601

Available at [Acta odontologica Scandinavica](#) - from Unpaywall

Abstract:Objective: To evaluate temporomandibular disorder (TMD) patients' experiences of a supervised jaw-neck exercise programme. Materials and methods: The study used a mixed method design. All patients were diagnosed with myalgia according to the Research Diagnostic Criteria for TMD and divided into local myalgia (n = 50; 38 women, mean age 43 yrs, SD 14), and myalgia with generalized pain (n = 28; 27 women, mean age 43 yrs, SD 13). Patients participated in a ten-session supervised exercise programme that included relaxation, coordination and resistance training of the jaw, neck and shoulders. After the 10 sessions an evaluation form was filled out including both open- and closed-ended questions. The quantitative analysis was based on closed-ended questions concerned experience, adaptation and side-effects from the exercise programme. The qualitative analysis was employing inductive content analysis of open-ended questions. Results: Patients reported similar positive overall experiences of exercise regardless of diagnosis, although more

individuals in the general pain group experienced pain during training (57%) compared to the local pain group (26%; $p = .015$). Patients in both groups shared similar experiences and acknowledged the possibility to participate in an individualized and demanding exercise programme. They expressed feelings of being noticed, taken seriously and respectful care management to be key factors for successful treatment outcome. The exercise programme was acknowledged as a valuable part of treatment. Conclusion: The hypothesis generated was that individualized and gradually demanding exercise in the rehabilitation process of TMD stimulates self-efficacy and confidence in chronic TMD patients regardless of whether the pain was localized or combined with wide-spread pain.

Database: CINAHL

Exercise Parameters and Outcome Measures Used in Cardiac Rehabilitation Programs Following Median Sternotomy in the Elderly: A Systematic Review and Meta-Analysis.

Author(s): Pengelly, Jacqueline; Pengelly, Michael; Lin, Kuan-Yin; Royle, Colin; Karri, Roshan; Royle, Alistair; Bryant, Adam; Williams, Gavin; El-Ansary, Doa

Source: Heart, Lung & Circulation; Oct 2019; vol. 28 (no. 10); p. 1560-1570

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31176628

Abstract:Objective: The aim of this systematic review was to identify exercise parameters and outcome measures used in cardiac rehabilitation programs following median sternotomy, in the elderly cardiac population. Data Sources: Five (5) electronic databases were searched for relevant studies published in English after 1997. Study Selection: The screening process was completed by two independent researchers, with a third independent reviewer for overall agreement. Studies were selected if they included only cardiac patients aged ≥ 65 years who had undergone valve surgery and/or coronary artery bypass grafting via median sternotomy, and who had undertaken a postoperative cardiac rehabilitation exercise intervention assessing physical function and/or cognitive recovery as outcomes. Data Extraction: Two researchers independently completed the data extraction and quality assessment. Quality was assessed using a modified Downs and Black tool. Data Synthesis: In total, 11 articles were included for appraisal with respect to the quality of the study. Only two randomised controlled trials were suitable for meta-analysis. A higher volume of exercise was shown to have a positive effect on functional recovery, assessed using the 6-minute walk test (6MWT) (mean difference=26.97m; 95% confidence interval [CI], 6.96-46.97; $p=0.008$; $I^2=0\%$). No significant improvement was shown between additional exercise compared to standard care in improving VO_{2peak} , maximal power output or quality of life. No studies evaluated the effect of exercise on cognitive recovery. Conclusions: Exercise significantly improves functional recovery in the post-surgical elderly cardiac population, however uncertainty still exists with regard to which modes of exercise and their specific parameters are most effective in improving cognitive recovery.

Database: CINAHL

Why exercise may be beneficial in concussion rehabilitation: A cellular perspective.

Author(s): Dech, Ryan T.; Bishop, Scott A.; Neary, J. Patrick

Source: Journal of Science & Medicine in Sport; Oct 2019; vol. 22 (no. 10); p. 1090-1096

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31349959

Available at [Journal of science and medicine in sport](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:Introduction: Concussion diagnosis and rehabilitation management has become a prevalent area of research, and yet much is still unknown about these complex injuries. Historically, exercise prescription post-concussion was conservatively used for rehabilitation due to the suspected harmful effects that exercise can have on damaged neurons, and increase in symptoms. However, there has been a shift to implement exercise earlier into recovery as several studies have demonstrated positive outcomes.Objective: The objective of this literature review is to update the reader about new advances in concussion research related to the beneficial effects of physical activity from both a neurometabolic and a broader physiological perspective, using gene expression as a vehicle to demonstrate why and how physical activity has the capacity to optimize recovery from a cellular perspective. To further this clinical guideline, the evidence must continue to support these positive outcomes from an inductive and deductive physiologic approach (i.e., the clinical evidence aligned from a micro- to macroscopic approach and vice versa).Design: Narrative review.Methods: Pubmed and Medline were used with the following key words: concussion and, physical activity, neurometabolic, gene regulation, trauma, nervous system, mild head injury, acute exercise, cellular physiology and pathophysiology.Conclusion: It is our contention that understanding the cellular perspective will help guide clinical management, and promote research into post-concussion exercise.

Database: CINAHL

Effect of a Multicomponent Home-Based Physical Therapy Intervention on Ambulation After Hip Fracture in Older Adults: The CAP Randomized Clinical Trial.

Author(s): Magaziner, Jay; Mangione, Kathleen K.; Orwig, Denise; Baumgarten, Mona; Magder, Laurence; Terrin, Michael; Fortinsky, Richard H.; Gruber-Baldini, Ann L.; Beamer, Brock A.; Tosteson, Anna N. A.; Kenny, Anne M.; Shardell, Michelle; Binder, Ellen F.; Koval, Kenneth; Resnick, Barbara; Miller, Ram; Forman, Sandra; McBride, Ruth; Craik, Rebecca L.

Source: JAMA: Journal of the American Medical Association; Sep 2019; vol. 322 (no. 10); p. 946-956

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31503309

Available at [JAMA](#) - from EBSCO (MEDLINE Complete)

Abstract:Importance: Disability persists after hip fracture in older persons. Current rehabilitation may not be sufficient to restore ability to walk in the community.Objective: To compare a multicomponent home-based physical therapy intervention (training) with an active control on ability to walk in the community.Design, Setting, and Participants: Parallel, 2-group randomized clinical trial conducted at 3 US clinical centers (Arcadia University, University of Connecticut Health Center, and University of Maryland, Baltimore). Randomization began on September 16, 2013, and ended on June 20, 2017; follow-up ended on October 17, 2017. Patients aged 60 years and older were enrolled after nonpathologic, minimal trauma hip fracture, if they were living in the community and walking without human assistance before the fracture, were assessed within 26 weeks of hospitalization, and were not able to walk during daily activities at the time of enrollment. A total of 210 participants were randomized and reassessed 16 and 40 weeks later.Interventions: The training intervention (active treatment) (n = 105) included aerobic, strength, balance, and functional training. The active control group (n = 105) received transcutaneous electrical nerve stimulation and active range-of-motion exercises. Both groups received 2 to 3 home visits from a physical therapist weekly for 16 weeks; nutritional counseling; and daily vitamin D (2000 IU), calcium (600 mg), and multivitamins.Main Outcomes and Measures: The primary outcome (community ambulation) was

defined as walking 300 m or more in 6 minutes at 16 weeks after randomization. The study was designed to test a 1-sided hypothesis of superiority of training compared with active control. Results: Among 210 randomized participants (mean age, 80.8 years; 161 women [76.7%]), 197 (93.8%) completed the trial (187 [89.0%] by completing the 6-minute walk test at 16 weeks and 10 [4.8%] by adjudication of the primary outcome). Among these, 22 of 96 training participants (22.9%) and 18 of 101 active control participants (17.8%) (difference, 5.1% [1-sided 97.5% CI, $-\infty$ to 16.3%]; 1-sided $P = .19$) became community ambulators. Seventeen training participants (16.2%) and 15 control participants (14.3%) had 1 or more reportable adverse events during the intervention period. The most common reportable adverse events reported were falls (training: 6 [5.7%], control: 4 [3.8%]), femur/hip fracture (2 in each group), pneumonia (training: 2, control: 0), urinary tract infection (training: 2, control: 0), dehydration (training: 0, control: 2), and dyspnea (training: 0, control: 2). Conclusions and Relevance: Among older adults with a hip fracture, a multicomponent home-based physical therapy intervention compared with an active control that included transcutaneous electrical nerve stimulation and active range-of-motion exercises did not result in a statistically significant improvement in the ability to walk 300 m or more in 6 minutes after 16 weeks. Trial Registration: ClinicalTrials.gov Identifier: NCT01783704.

Database: CINAHL

Effects of 6 Months of Exercise-Based Cardiac Rehabilitation on Autonomic Function and Neuro-Cardiovascular Stress Reactivity in Coronary Artery Disease Patients.

Author(s): Badrov, Mark B.; Wood, Katelyn N.; Lalande, Sophie; Sawicki, Carolyn P.; Borrell, Lindsay J.; Barron, Carly C.; Vording, Jennifer L.; Fleischhauer, Arlene; Suskin, Neville; McGowan, Cheri L.; Shoemaker, J. Kevin

Source: Journal of the American Heart Association; Sep 2019; vol. 8 (no. 17); p. 1-10

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31438760

Available at [Journal of the American Heart Association](#) - from Europe PubMed Central - Open Access

Available at [Journal of the American Heart Association](#) - from HighWire - Free Full Text

Available at [Journal of the American Heart Association](#) - from Wiley Online Library Free Content - NHS

Available at [Journal of the American Heart Association](#) - from Unpaywall

Abstract: Background Autonomic dysregulation represents a hallmark of coronary artery disease (CAD). Therefore, we investigated the effects of exercise-based cardiac rehabilitation (CR) on autonomic function and neuro-cardiovascular stress reactivity in CAD patients. Methods and Results Twenty-two CAD patients (4 women; 62 ± 8 years) were studied before and following 6 months of aerobic- and resistance-training-based CR. Twenty-two similarly aged, healthy individuals (CTRL; 7 women; 62 ± 11 years) served as controls. We measured blood pressure, muscle sympathetic nerve activity, heart rate, heart rate variability (linear and nonlinear), and cardiovagal (sequence method) and sympathetic (linear relationship between burst incidence and diastolic blood pressure) baroreflex sensitivity during supine rest. Furthermore, neuro-cardiovascular reactivity during short-duration static handgrip (20s) at 40% maximal effort was evaluated. Six months of CR lowered resting blood pressure ($P < 0.05$), as well as muscle sympathetic nerve activity burst frequency (48 ± 8 to 39 ± 11 bursts/min; $P < 0.001$) and burst incidence (81 ± 7 to 66 ± 17 bursts/100 heartbeats; $P < 0.001$), to levels that matched CTRL and improved sympathetic baroreflex sensitivity in CAD patients ($P < 0.05$) and cardiovagal baroreflex sensitivity ($P = 0.11$) were unchanged following CR, yet values were not different pre-CR from CTRL (all $P > 0.05$). Furthermore, before CR, CAD patients displayed greater

blood pressure and muscle sympathetic nerve activity reactivity to static handgrip versus CTRL (all $P < 0.05$); yet, responses were reduced following CR (all $P < 0.05$) to levels observed in CTRL. Conclusions Six months of exercise-based CR was associated with marked improvement in baseline autonomic function and neuro-cardiovascular stress reactivity in CAD patients, which may play a role in the reduced cardiac risk and improved survival observed in patients following exercise training.

Database: CINAHL

Assessing a novel way to measure three common rehabilitation outcome measures using a custom mobile phone application.

Author(s): Lein, Donald H.; Willig, James H.; Smith, Christian R.; Curtis, Jeffrey R.; Westfall, Andrew O.; Hurt, Christopher P.; Lein, Donald H Jr

Source: Gait & Posture; Sep 2019; vol. 73 ; p. 246-250

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31377580

Abstract:Background: Clinicians often use thirty-second-sit (chair)-to-stand (30CST), timed-up-and-go (TUG), and the five-times-sit-to-stand (5xSTS) since these outcome measures (OMs) are sensitive for strength, balance and mobility. Research Question: The purpose of this study was to validate a custom smart phone application (App) that can remotely assess the 30CST, TUG, and 5xSTS. Methods: Thirty-one healthy adults (range: 22-55 y; 54.6-106.8 kg; 160-185 cm; 19 females) participated in this cross-sectional study. Each participant performed the 30CST, TUG, and 5xSTS at a slow and normal speed. They performed each OMs twice while the App collected their performance data using both an iOS and Android phone. The gold standard of each test was the average of the silent count of two investigators for the 30CST and the time recorded by two investigators using stopwatches for the TUG and 5xSTS. Investigators analyzed the data using Intraclass Correlation coefficients (ICC), Pearson R coefficients, Signed Rank Tests, and Wilcoxon Rank-Sum Tests. Results and Significance: A significant correlation was observed between the performances recorded by the phones and the direct observation gold standard for all three OMs ($r > 0.97$). For 30CST, no significant mean count differences were found for the following comparisons: between phones, within phone types, or within phone-by-speed levels. (P-values range 0.06-1.00). While a statistically significant difference was found in all of the time comparisons when performing TUG and 5xSTS ($p < 0.0001$) except for the between phone comparison with TUG ($p = 0.27$). For TUG and 5xSTS, the time difference was less than a second when compared to the gold standard and ICCs showed moderate to strong agreement when comparing the phone application to the gold standard (ICCs range 0.60-0.99). These data suggested that the App could validly measure performance of these OMs.

Database: CINAHL

Serious games for rehabilitation: Gestural interaction in personalized gamified exercises through a recommender system.

Author(s): González-González, Carina S.; Toledo-Delgado, Pedro A.; Muñoz-Cruz, Vanesa; Torres-Carrion, Pablo V.

Source: Journal of Biomedical Informatics; Sep 2019; vol. 97

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31408732

Abstract:One of the principal problems of rehabilitation is that therapy sessions can be boring due to the repetition of exercises. Serious games, and in particular exergames in rehabilitation, can motivate, engage and increase patients' adherence to their treatment. Also, the automatic personalization of exercises to each patient can help therapists. Thus, the main objective of this work is to build an intelligent exergame-based rehabilitation system consisting of a platform with an exergame player and a designer tool. The intelligent platform includes a recommender system which analyzes user interactions, along with the user's history, to select new gamified exercises for the user. The main contributions of this paper focus, first, on defining a recommender system based on different difficulty levels and user skills. The recommender system offers the ability to provide the user with a personalized game mode based on his own history and preferences. The results of a triple validation with experts, users and rehabilitation center professionals reveal a positive impact on gestural interaction and rehabilitation uses. Also, different methods are presented for testing the rehabilitation recommender system.

Database: CINAHL

Applications of complementary therapies during rehabilitation for individuals with traumatic Spinal Cord Injury: Findings from the SCIR rehab Project.

Author(s): Taylor, Sally M.; Cheung, Elaine O.; Sun, Ruichen; Grote, Veronika; Marchlewski, Anthony; Addington, Elizabeth L.

Source: Journal of Spinal Cord Medicine; Sep 2019; vol. 42 (no. 5); p. 571-578

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 29883300

Abstract:Objective: Evaluate the use of complementary therapies during rehabilitation for patients with traumatic spinal cord injury (SCI). Design: Secondary analyses were conducted to identify the use and associated outcomes of complementary therapies provided by occupational therapists (OTs) and physical therapists (PTs) during rehabilitation from a public dataset. Setting: Inpatient rehabilitation. Participants: A public dataset composed of 1376 patients with SCI that were enrolled in a five-year, multi-center investigation, the SCIR rehab Project. Secondary analyses focused on a subset of 93 patients (47 who received complementary therapy during treatment and 46 case-matched controls who received no complementary therapy). Interventions: OTs and PTs recorded use of complementary therapies during sessions, including yoga, Pilates, tai chi, aromatherapy, relaxation techniques, imagery and other. Outcome Measures: Pain interference, pain severity, mobility, and social integration. Results: Three percent of participants received any complementary therapies. Patients who received complementary therapies showed greater reductions in pain severity from 6 months to 12 months relative to matched controls. Furthermore, the amount of time that patients received complementary therapies during physical therapy sessions was associated with reduced pain interference at 6 months and with reduced pain severity at the 6-month and 12-month follow-ups. Complementary therapy use was not associated with mobility or social integration. Conclusion: The current study provides preliminary evidence documenting the limited use of complementary therapies in rehabilitation settings and highlights the opportunity for further research, particularly regarding pain-related outcomes.

Database: CINAHL

Rehabilitation After Hip Fracture for Nursing Home Residents: A Controlled Feasibility Trial.

Author(s): Beaupre, Lauren A; Magaziner, Jay S; Jones, C Allyson; Jhangri, Gian S; Johnston, D William C; Wilson, Donna M; Majumdar, Sumit R

Source: Journals of Gerontology Series A: Biological Sciences & Medical Sciences; Sep 2019; vol. 74 (no. 9); p. 1518-1525

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30753303

Available at [The journals of gerontology. Series A, Biological sciences and medical sciences](#) - from Unpaywall

Abstract:Background: This study compared functional outcomes at 3 months after hip fracture surgery between nursing home residents participating in a 10-week outreach rehabilitation program and those receiving usual care. Function, health-related quality of life, and mortality were also compared over 12 months, and outreach program feasibility was assessed.Methods: A feasibility trial was undertaken in Canadian nursing homes; of 77 participants, 46 were allocated to Outreach and 31 to Control prior to assessing function or cognition. Outreach participants received 10 weeks of rehabilitation (30 sessions), and Control participants received usual posthospital fracture care in their nursing homes. The primary outcome was the Functional Independence Measure Physical Domain (FIMphysical) score 3 months post-fracture; we also explored FIM Locomotion and Mobility. Secondary outcomes were FIM scores, EQ-5D-3L scores, and mortality over 12 months. Program feasibility was also evaluated.Results: The mean age was 88.7 ± 7.0 years, 55 (71%) were female, and 58 (75%) had severe cognitive impairment with no significant group differences ($p > .14$). Outreach participants had significantly higher FIM Locomotion than usual care ($p = .02$), but no significant group differences were seen in FIMphysical or FIM Mobility score 3 months post-fracture. In adjusted analyses, Outreach participants reported significant improvements in all FIM and EQ-5D-3L scores compared with Control participants over 12 months ($p < .05$). Mortality did not differ by group ($p = .80$). Thirty (65%) Outreach participants completed the program.Conclusions: Our feasibility trial demonstrated that Outreach participants achieved better locomotion by 3 months post-fracture compared with participants receiving usual postfracture care; benefits were sustained to 12 months post-fracture. In adjusted analyses, Outreach participants also showed sustained benefits in physical function and health-related quality of life.

Database: CINAHL

Safety and Feasibility of Early Mobilization in Patients with Subarachnoid Hemorrhage and External Ventricular Drain.

Author(s): Young, Bethany; Moyer, Megan; Pino, William; Kung, David; Zager, Eric; Kumar, Monisha A.

Source: Neurocritical Care; Aug 2019; vol. 31 (no. 1); p. 88-96

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 30659467

Abstract:Background/objective: In November 2014, our Neurointensive Care Unit began a multi-phased progressive early mobilization initiative for patients with subarachnoid hemorrhage and an external ventricular drain (EVD). Our goal was to transition from a culture of complete bed rest (Phase 0) to a physical and occupational therapy (PT/OT)-guided mobilization protocol (Phase I), and ultimately to a nurse-driven mobilization protocol (Phase II). We hypothesized that nurses could mobilize patients as safely as an exclusively PT/OT-guided approach.Methods: In Phase I, patients were mobilized only with PT/OT at bedside; no independent time out of bed occurred. In Phase II, nurses independently mobilized patients with EVDs, and patients could remain out of bed for up to 3 h at a time. Physical and occupational therapists continued routine consultation during Phase

II. Results: Phase II patients were mobilized more frequently than Phase I patients [7.1 times per ICU stay (\pm 4.37) versus 3.0 times (\pm 1.33); $p = 0.02$], although not earlier [day 4.9 (\pm 3.46) versus day 6.0 (\pm 3.16); $p = 0.32$]. All Phase II patients were discharged to home PT services or acute rehabilitation centers. No patients were discharged to skilled nursing or long-term acute care hospitals, versus 12.5% in Phase I. In a multivariate analysis, odds of discharge to home/rehab were 3.83 for mobilized patients, independent of age and severity of illness. Other quality outcomes (length of stay, ventilator days, tracheostomy placement) between Phase I and Phase II patients were similar. No adverse events were attributable to early mobilization. Conclusions: Nurse-driven mobilization for patients with EVDs is safe, feasible, and leads to more frequent ambulation compared to a therapy-driven protocol. Nurse-driven mobilization may be associated with improved discharge disposition, although exact causation cannot be determined by these data.

Database: CINAHL

Toward overcoming physical disability in spinal cord injury: a qualitative inquiry of the experiences of injured individuals and their families.

Author(s): Nikbakht-Nasrabadi, Alireza; Mohammadi, Nooredin; Yazdanshenas, Manijeh; Shabany, Maryam

Source: BMC Neurology; Jul 2019; vol. 19 (no. 1)

Publication Date: Jul 2019

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Available at [BMC Neurology](#) - from Europe PubMed Central - Open Access

Available at [BMC Neurology](#) - from EBSCO (MEDLINE Complete)

Available at [BMC Neurology](#) - from Unpaywall

Abstract: Background: Spinal cord injury (SCI) is a life-changing experience for the individuals with SCI and their families. This study aimed to investigate physical strategies used for overcoming physical disability in individuals with SCI. Methods: In this qualitative study, 17 SCI persons and 13 family caregivers were selected by a purposeful sampling. Settings of the study were Brain and SCI research (BASIR) center of Tehran University of Medical Sciences and Southern Social Welfare Center of Tehran and SCI Association of Tehran, Iran. Data were collected by face-to-face semi-structured interviews, which were continued until data saturation. The gathered data were concurrently analyzed by the content analysis method. Results: The data analysis revealed one main theme (towards overcoming physical disability) and three sub-themes: 1) physical rehabilitation by various methods; 2) tendency towards the use of alternative medical methods; and 3) making effort for self-reliance. Conclusion: The participants used physiotherapy and occupational therapy as an effective and essential approach offered by the healthcare team. Some individuals with SCI with help of their family had invented simple rehabilitation equipment for help to their physical rehabilitation. However, most participants had referred to different complimentary medicine specialists based on advice friends and relatives and they often had spent a lot of time and money ineffectively. Therefore, they need training and support of the healthcare team as well as social support to achieve physical independence and physical recovery. Further research is suggested to investigate the barriers to achieving physical empowerment in people with SCI in Iran.

Database: CINAHL

CRITICAL CARE

An interdisciplinary statement of scientific societies for the advancement of delirium care across Europe (EDA, EANS, EUGMS, COTEC, IPTOP/WCPT).

Author(s): Morandi, Alessandro; Pozzi, Christian; Milisen, Koen; Hobbelen, Hans; Bottomley, Jennifer M.; Lanzoni, Alessandro; Tatzler, Verena C.; Carpena, Maria Gracia; Cherubini, Antonio; Ranhoff, Anette; MacLulich, Alasdair M. J.; Teodorczuk, Andrew; Bellelli, Giuseppe

Source: BMC Geriatrics; Sep 2019; vol. 19 (no. 1)

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Available at [BMC geriatrics](#) - from Unpaywall

Abstract:Background: Delirium is a geriatric syndrome that presents in 1 out of 5 hospitalized older patients. It is also common in the community, in hospices, and in nursing homes. Delirium prevalence varies according to clinical setting, with rates of under 5% in minor elective surgery but up to 80% in intensive care unit patients. Delirium has severe adverse consequences, but despite this and its high prevalence, it remains undetected in the majority of cases. Optimal delirium care requires an interdisciplinary, multi-dimensional diagnostic and therapeutic approach involving doctors, nurses, physiotherapists, and occupational therapists. However, there are still important gaps in the knowledge and management of this syndrome. Main Body: The objective of this paper is to promote the interdisciplinary approach in the prevention and management of delirium as endorsed by a delirium society (European Delirium Association, EDA), a geriatrics society (European Geriatric Medicine Society, EuGMS), a nursing society (European Academy of Nursing Science, EANS), an occupational therapy society (Council of Occupational Therapists for European Countries, COTEC), and a physiotherapy society (International Association of Physical Therapists working with Older People of the World Confederation for Physical Therapy, IPTOP/WCPT). Short Conclusion: In this paper we have strongly promoted and supported interdisciplinary collaboration underlying the necessity of increasing communication among scientific societies. We have also provided suggestions on how to fill the current gaps via improvements in undergraduate and postgraduate delirium education among European Countries.

Database: CINAHL

BALANCE/STABILITY/MOBILITY

An exoskeleton controlled by an epidural wireless brain-machine interface in a tetraplegic patient: a proof-of-concept demonstration.

Author(s): Benabid, Alim Louis; Costecalde, Thomas; Eliseyev, Andrey; Charvet, Guillaume; Verney, Alexandre; Karakas, Serpil; Foerster, Michael; Lambert, Aurélien; Morinière, Boris; Abroug, Neil; Schaeffer, Marie-Caroline; Moly, Alexandre; Sauter-Starace, Fabien; Ratel, David; Moro, Cecile; Torres-Martinez, Napoleon; Langar, Lilia; Oddoux, Manuela; Polosan, Mircea; Pezzani, Stephane

Source: Lancet Neurology; Dec 2019; vol. 18 (no. 12); p. 1112-1122

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31587955

Abstract:Background: Approximately 20% of traumatic cervical spinal cord injuries result in tetraplegia. Neuroprosthetics are being developed to manage this condition and thus improve the lives of patients. We aimed to test the feasibility of a semi-invasive technique that uses brain signals to drive an exoskeleton.Methods: We recruited two participants at Clinatéc research centre, associated with Grenoble University Hospital, Grenoble, France, into our ongoing clinical trial. Inclusion criteria were age 18-45 years, stability of neurological deficits, a need for additional mobility expressed by the patient, ambulatory or hospitalised monitoring, registration in the French social security system, and signed informed consent. The exclusion criteria were previous brain surgery, anticoagulant treatments, neuropsychological sequelae, depression, substance dependence or misuse, and contraindications to magnetoencephalography (MEG), EEG, or MRI. One participant was excluded because of a technical problem with the implants. The remaining participant was a 28-year-old man, who had tetraplegia following a C4-C5 spinal cord injury. Two bilateral wireless epidural recorders, each with 64 electrodes, were implanted over the upper limb sensorimotor areas of the brain. Epidural electrocorticographic (ECoG) signals were processed online by an adaptive decoding algorithm to send commands to effectors (virtual avatar or exoskeleton). Throughout the 24 months of the study, the patient did various mental tasks to progressively increase the number of degrees of freedom.Findings: Between June 12, 2017, and July 21, 2019, the patient cortically controlled a programme that simulated walking and made bimanual, multi-joint, upper-limb movements with eight degrees of freedom during various reach-and-touch tasks and wrist rotations, using a virtual avatar at home (64.0% [SD 5.1] success) or an exoskeleton in the laboratory (70.9% [11.6] success). Compared with microelectrodes, epidural ECoG is semi-invasive and has similar efficiency. The decoding models were reusable for up to approximately 7 weeks without recalibration.Interpretation: These results showed long-term (24-month) activation of a four-limb neuroprosthetic exoskeleton by a complete brain-machine interface system using continuous, online epidural ECoG to decode brain activity in a tetraplegic patient. Up to eight degrees of freedom could be simultaneously controlled using a unique model, which was reusable without recalibration for up to about 7 weeks.Funding: French Atomic Energy Commission, French Ministry of Health, Edmond J Safra Philanthropic Foundation, Fondation Motrice, Fondation Nanosciences, Institut Carnot, Fonds de Dotation Clinatéc.

Database: CINAHL

Effects of motor imagery training of Parkinson's disease: a protocol for a randomized clinical trial.

Author(s): Nascimento, Isáira Almeida Pereira da Silva; Santiago, Lorena Marques de Melo; de Souza, Aline Alves; Pegado, Camila de Lima; Ribeiro, Tatiana Souza; Lindquist, Ana Raquel Rodrigues

Source: Trials; Nov 2019; vol. 20 (no. 1)

Publication Date: Nov 2019

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PubMedID: 31706325

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Available at [Trials](#) - from Europe PubMed Central - Open Access

Available at [Trials](#) - from EBSCO (MEDLINE Complete)

Available at [Trials](#) - from Unpaywall

Abstract:Background: Gait disorders in individuals with Parkinson's disease (PD) may be associated with alterations in the motor control system and aggravated by psychoemotional and cognitive issues. Therapeutic strategies aimed at self-perception and motor regulation seem to be promising.

Motor imagery (MI) has been shown to be one of these strategies, but there is still no clear evidence of its applicability in this population. The aim of this trial is to determine the effects of motor-imagery training on the gait and electroencephalographic activity of individuals with PD. Methods/design: The sample will consist of 40 individuals, aged between 45 and 75 years, in the mild and moderate phase of the disease, with the ability to generate voluntary mental images. They will be assessed for cognitive level, degree of physical disability, mental-image clarity, kinematic gait variables, electroencephalographic activity and mobility. Next, subjects will be randomly assigned to an experimental group (EG) and a control group (CG). The EG will perform motor imagery and gait, while the CG will only engage in gait exercises. Twelve training sessions will be conducted lasting up to 90 min each, three times a week, for 4 weeks. The subjects will be reassessed on the kinematic variables of gait, electroencephalographic activity and mobility at 1, 7 and 30 days after the final training session. Discussion: The results may provide an important advance in neurological rehabilitation where an easy-access and low-cost intervention may help to improve gait, electroencephalographic activity and mobility in individuals with PD. Trial Registration: Clinicaltrials.gov, ID: NCT03439800. Registered on 15 November 2017.

Database: CINAHL

Enabling public, patient and practitioner involvement in co-designing frailty pathways in the acute care setting.

Author(s): O'Donnell, Deirdre; Ní Shé, Éidín; McCarthy, Mary; Thornton, Shirley; Doran, Thelma; Smith, Freda; O'Brien, Barry; Milton, Jim; Savin, Bibiana; Donnellan, Anne; Callan, Eugene; McAuliffe, Eilish; Gray, Simone; Carey, Therese; Boyle, Nicola; O'Brien, Michelle; Patton, Andrew; Bailey, Jade; O'Shea, Diarmuid; Cooney Marie, Therese

Source: BMC Health Services Research; Nov 2019; vol. 19 (no. 5); p. 1-11

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31690304

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Available at [BMC health services research](#) - from EBSCO (MEDLINE Complete)

Available at [BMC health services research](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC health services research](#) - from Unpaywall

Abstract:Background: Although not an inevitable part of ageing, frailty is an increasingly common condition in older people. Frail older patients are particularly vulnerable to the adverse effects of hospitalisation, including deconditioning, immobility and loss of independence (Chong et al, J Am Med Dir Assoc 18:638.e7-638.e11, 2017). The 'Systematic Approach to improving care for Frail older patients' (SAFE) study co-designed, with public and patient representatives, quality improvement initiatives aimed at enhancing the delivery of care to frail older patients within an acute hospital setting. This paper describes quality improvement initiatives which resulted from a co-design process aiming to improve service delivery in the acute setting for frail older people. These improvement initiatives were aligned to five priority areas identified by patients and public representatives. Methods: The co-design work was supported by four pillars of effective and meaningful public and patient representative (PPR) involvement in health research (Bombard et al, Implement Sci 13:98, 2018; Black et al, J Health Serv Res Policy 23:158-67, 2018). These pillars were: research environment and receptive contexts; expectations and role clarity; support for participation and inclusive representation and; commitment to the value of co-learning involving institutional

leadership. Results: Five priority areas were identified by the co-design team for targeted quality improvement initiatives: Collaboration along the integrated care continuum; continence care; improved mobility; access to food and hydration and improved patient information. These priority areas and the responding quality improvement initiatives are discussed in relation to patient-centred outcomes for enhanced care delivery for frail older people in an acute hospital setting. Conclusions: The co-design approach to quality improvement places patient-centred outcomes such as dignity, identity, respectful communication as well as independence as key drivers for implementation. Enhanced inter-personal communication was consistently emphasised by the co-design team and much of the quality improvement initiatives target more effective, respectful and clear communication between healthcare personnel and patients. Measurement and evaluation of these patient-centred outcomes, while challenging, should be prioritised in the implementation of quality improvement initiatives. Adequate resourcing and administrative commitment pose the greatest challenges to the sustainability of the interventions developed along the SAFE pathways. The inclusion of organisational leadership in the co-design and implementation teams is a critical factor in the success of interventions targeting service delivery and quality improvement.

Database: CINAHL

Inferior clinical outcomes after femur fracture in the obese are potentially preventable.

Author(s): Bryant, Mary K.; Parrish, Matthew; Roy, Sara; Udekwu, Pascal; Farrell, Megan; Schinco, Miren; Ganga, Sarat

Source: Injury; Nov 2019; vol. 50 (no. 11); p. 2049-2054

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31447210

Available at [Injury](#) - from ScienceDirect

Abstract: Introduction: Obese patients with operative orthopedic trauma have increased risk of adverse outcomes, although the mechanisms accounting for the relationship remain unknown. This study examines the effect of body mass index (BMI) on outcomes after femur fracture fixation, and explores the mediating effects of pathophysiologic factors and clinical management. Methods: A retrospective chart review was performed of adult patients with femur fractures undergoing surgical fixation at a Level 1 trauma center from 2010 to 2016. Demographics, Injury Severity Score (ISS), Glasgow Coma Scale (GCS) and mechanism of injury (MOI) were collected along with operative data and complications. Primary outcomes were hospital length of stay (HLOS), ICU length of stay (ICU-LOS), mortality, complications, and time to mobility (time first out of bed, TFOB). Bivariate correlations and multiple regression models were used to examine the relationship between BMI and outcomes. Path analysis tested whether the relationship between BMI and clinical outcomes was mediated by differences in 1) clinical management, or 2) physiologic variables. Results: Of 333 patients included, the majority were male (57.4%) with a mean age of 43.4 (22.7) years and ISS of 12.5 (6.8). Predominant MOIs were motor vehicle crashes (42.8%) and falls (34.5%). There was no association between BMI category and age, ISS, or GCS. In univariate analysis, higher BMI was linked to longer HLOS ($r = .12$), longer ICU-LOS ($r = .15$), longer TFOB, ($r = .18$), and higher number of complications ($r = .12$), $p < 0.05$. Controlling for age and ISS, obese patients had 6.66 times the odds of respiratory failure ($p = 0.021$, 95% CI 1.3, 33.3) and a 3.88 odds of any complication ($p = 0.020$, 95% CI 1.24, 12.1) compared to their normal weight counterparts. For every one point increase in BMI, time first out of bed was delayed 2.3 h ($p < 0.001$; 95% CI 1.08, 3.62). The effect BMI on poor outcomes was accounted for by delayed mobility (longer TFOB) in a mediation model. Conclusions: Higher BMI increases the risk of longer hospital stays and systemic complications. Mediation models indicate that the adverse clinical outcomes associated with obesity are explained by delays in

mobility, an intervenable factor. Clinical strategies should be directed at early mobilization to minimize morbidity.

Database: CINAHL

Preoperative multimodal analgesia decreases 24-hour postoperative narcotic consumption in elective spinal fusion patients.

Author(s): Haffner, Max; Saiz, Augustine M.; Nathe, Ryan; Hwang, Joshua; Migdal, Christopher; Klineberg, Eric; Roberto, Rolando; Saiz, Augustine M Jr

Source: Spine Journal; Nov 2019; vol. 19 (no. 11); p. 1753-1763

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31325627

Abstract:Background Context: Effective postoperative pain management in patients undergoing elective spinal fusion surgery has been associated with shorter hospital stays, reduced rates of hospital readmissions due to pain, and decreased cost of care. Furthermore, preoperative multimodal analgesia regimens have been shown to decrease postoperative subjective pain measurements and narcotic consumption in patients undergoing spinal fusion and total arthroplasty surgeries.Purpose: Compare the difference in effects on 24-hour postoperative narcotic consumption, reported pain, and early mobility with administration of preoperative celecoxib plus gabapentin, gabapentin alone, and a nonstandardized analgesia regimen in patients undergoing elective spinal fusion surgery involving ≤ 5 levels.Study Design: Retrospective review, Level of Evidence III.Patient Sample: A total of 185 adult patients undergoing elective spinal fusion surgery involving ≤ 5 levels from 2013 to 2017 at one academic institution. Patients were excluded if the surgery was nonelective, for oncological purposes, or the patient was younger than 17 years old.Outcome Measures: Twenty-four-hour postoperative morphine equivalent consumption, 24-hour postoperative visual analogue scale (VAS) pain scores, postoperative day to ambulate, and postoperative day to clear physical therapy.Methods: A single-institution retrospective chart review was conducted. Patients meeting inclusion criteria were grouped by whether they had received preoperative celecoxib plus gabapentin, gabapentin alone, or neither of these medications. Opioid medication intake for the first 24 hours after the surgery end time was tabulated and converted to morphine equivalents. Visual analogue scale (VAS) pain scores were also averaged over the first 24 hours. Finally, physical therapy notes were reviewed to determine the time taken for the patient to first ambulate and to clear physical therapy. No external funding was procured for this research and the authors' conflicts of interest are not pertinent to the present work.Results: Twenty-four-hour postoperative morphine equivalent consumption was significantly lower in the celecoxib plus gabapentin group compared with control ($p=.004$). Patients in the celecoxib plus gabapentin group had significantly lower mean VAS scores ($p=.002$) and had earlier mobility postoperatively ($p=.012$) than those in the control group. Early mobility and time to physical therapy clearance did differ between the celecoxib + gabapentin group compared with the gabapentin alone group. The gabapentin group had a significantly higher 24-hour morphine dose equivalent ($p=.013$) and a significantly higher VAS average ($p=.009$) compared with the celecoxib + gabapentin group. Gabapentin given alone compared with control did not show statistically significant improved outcomes in postoperative morphine equivalent consumption, pain scores or physical therapy goals.Conclusions: This study demonstrates that administering a selective COX-2 inhibitor and GABA-analogue preoperatively can significantly decrease 24-hour postoperative opioid consumption, VAS pain scores, and elapsed time to postoperative mobility in patients undergoing elective spine fusion surgery of ≤ 5 levels. Optimal standardized dosing and drug combination for preoperative multimodal analgesia remains to be elucidated.

Database: CINAHL

Exercise and Progressive Supranuclear Palsy: the need for explicit exercise reporting.

Author(s): Slade, Susan C.; Underwood, Martin; McGinley, Jennifer L.; Morris, Meg E.

Source: BMC Neurology; Nov 2019; vol. 19 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

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Available at [BMC neurology](#) - from EBSCO (MEDLINE Complete)

Available at [BMC neurology](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC neurology](#) - from Unpaywall

Abstract:Background: Progressive Supranuclear Palsy (PSP) is the most frequent form of atypical Parkinsonism. Although there is preliminary evidence for the benefits of gait rehabilitation, balance training and oculomotor exercises in PSP, the quality of reporting of exercise therapies appears mixed. The current investigation aims to evaluate the comprehensiveness of reporting of exercise and physical activity interventions in the PSP literature.Methods: Two independent reviewers used the Consensus on Exercise Reporting Template (CERT) to extract all exercise intervention data from 11 studies included in a systematic review. CERT items covered: 'what' (materials), 'who' (instructor qualifications), 'how' (delivery), 'where' (location), 'when', 'how much' (dosage), 'tailoring' (what, how), and 'how well' (fidelity) exercise delivery complied with the protocol. Each exercise item was scored '1' (adequately reported) or '0' (not adequately reported or unclear). The CERT score was calculated, as well as the percentage of studies that reported each CERT item.Results: The CERT scores ranged from 3 to 12 out of 19. No PSP studies adequately described exercise elements that would allow exact replication of the interventions. Well-described items included exercise equipment, exercise settings, exercise therapy scheduling, frequency and duration. Poorly described items included decision rules for exercise progression, instructor qualifications, exercise adherence, motivation strategies, safety and adverse events associated with exercise therapies.Discussion: The results revealed variability in the reporting of physical therapies for people living with PSP. Future exercise trials need to more comprehensively describe equipment, instructor qualifications, exercise and physical activity type, dosage, setting, individual tailoring of exercises, supervision, adherence, motivation strategies, progression decisions, safety and adverse events.Conclusion: Although beneficial for people living with PSP, exercise and physical therapy interventions have been inadequately reported. It is recommended that evidence-based reporting templates be utilised to comprehensively document therapeutic exercise design, delivery and evaluation.

Database: CINAHL

A randomized controlled trial of the effect of supervised progressive cross-continuum strength training and protein supplementation in older medical patients: the STAND-Cph trial.

Author(s): Pedersen, Mette Merete; Petersen, Janne; Beyer, Nina; Larsen, Helle Gybel-Juul; Jensen, Pia S e; Andersen, Ove; Bandholm, Thomas; on behalf of the STAND-Cph collaborative group; Bean, Jonathan F.; Bodilsen, Ann Christine; Br dsgaard, Rasmus; Christensen, Jette; Christensen, Line Due; Dahl, Christina; Damkj er, Lars; Hegnsvad, Simon; Jepsen, Karen Dalsgaard; Juul-Larsen, Helle Gybel; Lawson-Smith, Louise; Ledertoug, Morten

Source: Trials; Nov 2019; vol. 20 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31779693

Available at [Trials](#) - from BioMed Central

Available at [Trials](#) - from Europe PubMed Central - Open Access

Available at [Trials](#) - from EBSCO (MEDLINE Complete)

Available at [Trials](#) - from Unpaywall

Abstract:Background: During hospitalization, older adults (+ 65 years) are inactive, which puts them at risk of functional decline and loss of independence. Systematic strength training can prevent loss of functional performance and combining strength training with protein supplementation may enhance the response in muscle mass and strength. However, we lack knowledge about the effect of strength training commenced during hospitalization and continued after discharge in older medical patients. This assessor-blinded, randomized study investigated the effect of a simple, supervised strength training program for the lower extremities, combined with post-training protein supplementation during hospitalization and in the home setting for 4 weeks after discharge, on the effect on change in mobility in older medical patients. Methods: Older medical patients (≥ 65 years) admitted acutely from their home to the Emergency Department were randomized to either standard care or supervised progressive strength training and an oral protein supplement during hospitalization and at home 3 days/week for 4 weeks after discharge. The primary outcome was between-group difference in change in mobility from baseline to 4 weeks after discharge assessed by the De Morton Mobility Index, which assesses bed mobility, chair mobility, static and dynamic balance, and walking. Secondary outcomes were 24-h mobility, lower extremity strength, gait speed, grip strength and activities of daily living. Results: Eighty-five patients were randomized to an intervention group (N = 43) or a control group (N = 42). In the intervention group, 43% were highly compliant with the intervention. Our intention-to-treat analysis revealed no between-group difference in mobility (mean difference in change from baseline to 4 weeks, - 4.17 (95% CI - 11.09; 2.74; $p = 0.24$) nor in any of the secondary outcomes. The per-protocol analysis showed that the daily number of steps taken increased significantly more in the intervention group compared to the control group (mean difference in change from baseline to 4 weeks, 1033.4 steps (95% CI 4.1; 2062.7), $p = 0.049$, adjusted for mobility at baseline and length of stay; 1032.8 steps (95% CI 3.6; 2061.9), $p = 0.049$, adjusted for mobility at baseline, length of stay, and steps at baseline). Conclusions: Simple supervised strength training for the lower extremities, combined with protein supplementation initiated during hospitalization and continued at home for 4 weeks after discharge was not superior to usual care in the effect on change in mobility at 4 weeks in older medical patients. For the secondary outcome, daily number of steps, high compliance with the intervention resulted in a greater daily number of steps. Less than half of the patients were compliant with the intervention indicating that a simpler intervention might be needed. Trial Registration: ClinicalTrials.gov, NCT01964482. Registered on 14 October 2013. Trial protocol PubMed ID (PMID), 27039381.

Database: CINAHL

Development and Validation of an Exercise Programme for Recovery Balance Impairments in Poststroke Patients.

Author(s): Medina-Rincón, Almudena; Bagur-Calafat, Caritat; Pérez, Laura M.; Barrios-Franquesa, Ana M.; Girabent-Farrés, Montserrat

Source: Journal of Stroke & Cerebrovascular Diseases; Nov 2019; vol. 28 (no. 11)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31409536

Abstract:Background: Deterioration of balance is one of the most common and disabling physical-motor deficits in patients after a stroke that have a negative impact on quality of life and increase the risk of falls. Previous studies have evaluated the effectiveness of the exercises on specific aspects of balance. However, there is no structured exercise program divided by levels for balance impairment in poststroke patients.Methods: Delphi method was used to design the exercise programme, and then a pilot study was performed. For the pilot study, we included 14 poststroke adults patients (n = 7 in each group), with balance impairment, without previous severe functional dependence, sensorial deficit or dementia. Our 4 weeks intervention (5 times/week) is based on 9 exercise of progressive difficulty, offering a multidimensional approach training (biomechanical constraints, stability limits, anticipatory, postural responses, and sensory orientation). Patients in the intervention arm received 45 minutes of usual rehabilitation plus 15 minutes of the intervention proposed. The usual-care arm received 60 minutes of usual rehabilitation. Balance impairment (Mini BESTest) was assessed at the baseline and at 4 weeks. Differences between groups were analysed using Mann-Whitney U test.Results: The agreement for the intervention designed was reached after 2 rounds. Participants in pilot study were 69 (SD = 9.7) years, 21.4% females. Post-treatment, median improvements in Mini BESTest were 20 (SD = 8) and 11 (SD = 10) points, P < .01 for intervention and control group respectively.Conclusion: A multidimensional approach of balance impairments in poststroke patients through the validated exercise programme proposed, may improve balance deficits.

Database: CINAHL

Early mobilization of trauma patients admitted to intensive care units: A systematic review and meta-analyses.

Author(s): Higgins, Sean D.; Erdogan, Mete; Coles, Sherry J.; Green, Robert S.

Source: Injury; Nov 2019; vol. 50 (no. 11); p. 1809-1815

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31526602

Available at [Injury](#) - from ScienceDirect

Abstract:Objective: To determine the effect of early mobilization (EM) in trauma patients admitted to the ICU. Outcomes of interest included mortality, hospital and ICU length of stay (LOS), and duration of mechanical ventilation.Methods: We performed a systematic review of 4 electronic databases (Ovid MEDLINE, Embase, CINAHL, Cochrane Library) and the grey literature. Eligible study designs included randomized control trials, prospective cohorts, or retrospective cohorts. Studies must have compared EM to usual care (i.e., delayed or no mobilization) in trauma patients admitted to ICU. Overall, there were 2982 articles screened and 9 were included in the analysis. Two authors independently performed data extraction using a standardized form. Pertinent study design and population characteristics were recorded, as were prespecified outcome measures. Meta-analyses were performed using random effects models. Study quality was assessed using the Newcastle-Ottawa Scale.Results: Study cohorts ranged from 15 to 1132 patients (median 63) and varied in their inclusion criteria. Most studies utilized a progressive mobility protocol as their intervention. Mortality was reported in 5 studies, of which 3 observed a lower rate with EM; however, meta-analysis showed no difference in mortality between patients mobilized early and those receiving usual care. Eight studies reported on LOS (in-hospital and ICU); although all 8 studies found EM reduced LOS, the difference in LOS was not significant on meta-analysis. Finally, 3 studies reported on ventilator days, all of which observed a reduction in the EM group. On meta-analysis, duration of

mechanical ventilation was significantly lower with EM (mean difference -1.18 days, 95% CI, -2.17 - -0.19).Conclusions: Few studies have investigated the effects of EM in trauma ICU patients. The available evidence suggests that patients who receive EM require fewer days of mechanical ventilation, but have similar mortality and LOS compared to those receiving usual care.

Database: CINAHL

Water-Based Exercise on Functioning and Quality of Life in Poststroke Persons: A Systematic Review and Meta-Analysis.

Author(s): Saquetto, Micheli B.; da Silva, Cássio M.; Martinez, Bruno P.; Sena, Cristiano da Conceição; Pontes, Sarah S.; da Paixão, Mayra T.C.; Gomes Neto, Mansueto

Source: Journal of Stroke & Cerebrovascular Diseases; Nov 2019; vol. 28 (no. 11)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31542367

Abstract:Objective: To investigate the effects of water-based exercise on functioning and quality of life in poststroke persons.Data Sources: We searched the following electronic database: MEDLINE, PeDro, Scielo, and the Cochrane Central Register of Controlled Trials up to September 2018 Study Selection: Only randomized controlled trials were included. Two review authors screened the titles and abstracts and selected the trials independently.Data Extraction: Two review authors independently extracted data of the included trials, using standard data-extraction model. We analyzed the pooled results using weighted mean differences, and standardized mean difference and 95% confidence intervals (CIs) were calculated.Data Synthesis: Twenty-four studies met the study criteria, but only 15 studies were included on meta-analyses. The studies presented moderate methodological quality, due to the lack of blinding of subjects and therapists and the nonperformance of the intention-to-treat analysis. Water-based exercise compared with land exercise had a positive impact on: muscle strength balance gait speed and mobility aerobic capacity and functional reach. Combined water-based exercise and land exercise was more effective than land exercise for improving balance, gait speed, and functional reach. The meta-analysis showed significant improvement in role limitations due to physical functioning and emotional problems, in vitality general mental health, social functioning, and bodily pain for participants in the water-based exercise and land exercise group versus land exercise group.Conclusions: Water-based exercise may improve muscle strength, balance, mobility, aerobic capacity, functional reach, joint position sense, and quality of life in poststroke persons and could be considered for inclusion in rehabilitation programs.

Database: CINAHL

Effects of nonpharmacological interventions on functioning of people living with dementia at home: A systematic review of randomised controlled trials.

Author(s): Scott, Iona; Cooper, Claudia; Leverton, Monica; Burton, Alex; Beresford-Dent, Jules; Rockwood, Kenneth; Butler, Laurie; Rapaport, Penny; Beresford-Dent, Jules

Source: International Journal of Geriatric Psychiatry; Oct 2019; vol. 34 (no. 10); p. 1386-1402

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31026082

Available at [International journal of geriatric psychiatry](#) - from Wiley Online Library

Available at [International journal of geriatric psychiatry](#) - from Unpaywall

Abstract:Objective: Slowing functional decline could enable people living with dementia to live for longer and more independently in their own homes. We aimed to update previous syntheses examining the effectiveness of nonpharmacological interventions in reducing functional decline (activities of daily living, activity-specific physical functioning, or function-specific goal attainment) in people living in their own homes with dementia.Methods: We systematically searched electronic databases from January 2012 to May 2018; two researchers independently rated risk of bias of randomised controlled trials (RCTs) fitting predetermined inclusion criteria using a checklist; we narratively synthesised findings, prioritising studies judged to have a lower risk of bias.Results: Twenty-nine papers (describing 26 RCTs) met eligibility criteria, of which we judged 13 RCTs to have a lower risk of bias. Study interventions were evaluated in four groups: physical exercise, occupational, multicomponent, and cognition-oriented interventions. Four out of 13 RCTs reported functional ability as a primary outcome. In studies judged to have a lower risk of bias, in-home tailored exercise, individualised cognitive rehabilitation, and in-home activities-focussed occupational therapy significantly reduced functional decline relative to control groups in individual studies. There was consistent evidence from studies at low risk of bias that group-based exercise and reminiscence therapies were ineffective at reducing functional decline.Conclusion: We found no replicated evidence of intervention effectiveness in decreasing functional decline. Interventions associated with slower functional decline in individual trials have been individually delivered and tailored to the needs of the person with dementia. This is consistent with previous findings. Future intervention trials should prioritise these approaches.

Database: CINAHL

Tai chi for enhanced inpatient mobilization: A feasibility study.

Author(s): Bao, George C.; Dillon, John; Jannat-Khah, Deanna; Besada, Melissa; Marianova, Anthony; Mathewos, Ama; Dargar, Savira; Gerber, Linda M.; Tung, Judy; Lee, Jennifer I.

Source: Complementary Therapies in Medicine; Oct 2019; vol. 46 ; p. 109-115

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31519266

Abstract:Objective: To determine whether utilizing beginner, video-guided tai chi and qigong classes as an adjunct to physical therapy to enhance mobilization among hospitalized patients is feasible and acceptable.Design: Single-arm feasibility study over a 15½-week period.Setting: Three medical-surgical units at one hospital.Interventions: Small-group video-guided beginner-level tai chi and qigong classes supervised by physical therapists occurred three times a week.Main Outcome Measures: The primary outcome was weekly class attendance. Secondary outcomes included patient and staff satisfaction, collected by surveys and semi-structured interviews. Process measures included class duration. Balancing measures included falls.Results: One-hundred and fifty-seven patients were referred for recruitment, 45 gave informed consent, and 38 patients attended at least one class. The number of weekly class attendees increased during the study period. Based on first-class experience, 68% (26/38) of patients reported enjoying the class "quite a bit" or "extremely," 66% (25/38) of patients reported feeling "more mobile" afterward, and 76% (29/38) of patients agreed that the class made them more comfortable going home. Average class duration was 29 minutes. Zero falls occurred during or immediately following class.Conclusions: Video-guided tai chi and qigong classes are feasible and well-received at our hospital. Future studies of the impact on preserving mobility and function or reducing length of stay are of interest.

Database: CINAHL

Hospitalization-Associated Change in Gait Speed and Risk of Functional Limitations for Older Adults.

Author(s): Duan-Porter, Wei; Vo, Tien N; Ullman, Kristen; Langsetmo, Lisa; Strotmeyer, Elsa S; Taylor, Brent C; Santanasto, Adam J; Cawthon, Peggy M; Newman, Anne B; Simonsick, Eleanor M; Waters, Teresa M; Ensrud, Kristine E

Source: Journals of Gerontology Series A: Biological Sciences & Medical Sciences; Oct 2019; vol. 74 (no. 10); p. 1657-1663

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30715162

Available at [The journals of gerontology. Series A, Biological sciences and medical sciences](#) - from Unpaywall

Abstract:Background: Hospitalization-associated functional decline is a common problem for older adults, but it is unclear how hospitalizations affect physical performance measures such as gait speed. We sought to determine hospitalization-associated change in gait speed and likelihood of new limitations in mobility and activities of daily living (ADLs).Methods: We used longitudinal data over 5 years from the Health, Aging and Body Composition Study, a prospective cohort of black and white community-dwelling men and women, aged 70-79 years, who had no limitations in mobility (difficulty walking 1/4 mile or climbing 10 steps) or ADLs (transferring, bathing, dressing, and eating) at baseline. Gait speed, and new self-reported limitations in mobility and ADLs were assessed annually. Selected participants (n = 2,963) had no limitations at the beginning of each 1-year interval. Hospitalizations were self-reported every 6 months and verified with medical record data. Generalized estimating equations were used to examine hospitalization-associated change in gait speed and odds of new limitations over each 1-year interval. Fully adjusted models included demographics, hospitalization within the past year, health conditions, symptoms, body mass index, and health-related behaviors.Results: In fully adjusted models, any hospitalization was associated with decrease in gait speed (-0.04 m/s; 95% confidence interval [CI]: -0.05 to -0.03) and higher odds of new limitations in mobility or ADLs (odds ratio = 1.97, 95% CI: 1.70-2.28), and separately with increased odds of new mobility limitation (odds ratio = 2.22, 95% CI: 1.90-2.60) and new ADL limitations (odds ratio = 1.84, 95% CI: 1.53-2.21). Multiple hospitalizations within a year were associated with gait speed decline (-0.06 m/s; 95% CI: -0.08 to -0.04) and greater odds of new limitations in mobility or ADLs (odds ratio = 2.96, 95% CI: 2.23-3.95).Conclusions: Functionally independent older adults experienced hospitalization-associated declines in gait speed and new limitations in mobility and ADLs.

Database: CINAHL

Effect of Balance Training After Hip Fracture Surgery: A Systematic Review and Meta-analysis of Randomized Controlled Studies.

Author(s): Lee, Sang Yoon; Jung, Se Hee; Lee, Shi-Uk; Ha, Yong-Chan; Lim, Jae-Young

Source: Journals of Gerontology Series A: Biological Sciences & Medical Sciences; Oct 2019; vol. 74 (no. 10); p. 1679-1685

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30517613

Abstract:Background: Although balance impairment after hip fracture surgery (HFS) can constitute a long-term problem of limiting mobility and increasing the risk of falls in older adults, little is known about the effect of balance training (BT) on physical functioning after HFS. Thus, we performed a

meta-analysis to evaluate whether BT improved the overall physical functioning of patients after HFS. Methods: We searched the PubMed-Medline, Embase, and Cochrane Library databases in January 2018 and included all randomized controlled trials comparing BT with usual care after HFS. We performed a pairwise meta-analysis using fixed- and random-effects models. Results: Eight randomized controlled trials including a total of 752 participants were retrieved. The BT group showed significantly improved overall physical functioning after HFS compared with the usual care group (overall standardized mean difference [SMD] = 0.390; 95% confidence interval [CI] = 0.114-0.667; $p = .006$). Both, balance and gait improved (SMD = 0.570; 95% CI = 0.149-0.992; $p = .008$ and SMD = 0.195; 95% CI = 0.043-0.347; $p = .012$, respectively) in the BT group. Lower limb strength, performance task, activity of daily living, and health-related quality of life also improved significantly in the BT group. Conclusion: Our meta-analysis revealed that BT after HFS improved overall physical functioning. Positive effects on balance, gait, lower limb strength, performance task, activity of daily living, and health-related quality of life were evident. Therefore, BT should be specifically included in postoperative rehabilitation programs and balance must be thoroughly checked in elderly patients with hip fractures.

Database: CINAHL

Weight-bearing restrictions reduce postoperative mobility in elderly hip fracture patients.

Author(s): Pfeufer, Daniel; Zeller, Anne; Mehaffey, Stefan; Böcker, Wolfgang; Kammerlander, Christian; Neuerburg, Carl

Source: Archives of Orthopaedic & Trauma Surgery; Sep 2019; vol. 139 (no. 9); p. 1253-1259

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31053870

Abstract: Background and Purpose: Reduced mobility is a severe threat to the clinical outcomes and survival of elderly hip fracture patients. These patients generally struggle to comply with partial weight bearing, yet postoperative weight-bearing restrictions are still recommended by nearly 25% of surgeons. Therefore, we hypothesized that weight-bearing restrictions in elderly hip fracture patients merely leads to reduced mobility, while transposing full weight to the fractured extremity remains unaffected disregarding the prescribed aftercare. Patients and Methods: 41 equally treated patients with pertrochanteric fractures were enrolled consecutively in a maximum care hospital in a pre-post study design (level of evidence 2). A study group of 19 patients was instructed to maintain partial weight bearing (PWB), whereas the control group of 22 patients was instructed to mobilize at full weight bearing (FWB). All patients were asked to participate in a gait analysis using an insole force sensor (loadsol®, Novel, Munich, Germany) on the fifth postoperative day. Results: The postoperative Parker Mobility Score in the PWB group compared to the FWB group was significantly reduced (3.21 vs. 4.73, $p < 0.001$). Accordingly, a significantly lower gait speed in the PWB group of 0.16 m/s vs. 0.28 m/s was seen ($p = 0.003$). No difference in weight bearing was observed in between the groups (average peak force 350.25 N vs. 353.08 N, $p = 0.918$), nor any differences in the demographic characteristics, ASA Score, Barthel Index or EQ5D. Interpretation: Weight-bearing restrictions in elderly hip fracture patients contributed to a loss of mobility, while no significant differences in loading of the affected extremity were observed. Therefore, postoperative weight-bearing restrictions in elderly hip fracture patients should be avoided, to achieve early mobilization at full weight bearing.

Database: CINAHL

Interrelated Neuromuscular and Clinical Risk Factors That Contribute to Falls.

Author(s): Ward, Rachel E; Quach, Lien; Welch, Sarah A; Leveille, Suzanne G; Leritz, Elizabeth; Bean, Jonathan F

Source: Journals of Gerontology Series A: Biological Sciences & Medical Sciences; Sep 2019; vol. 74 (no. 9); p. 1526-1532

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30721929

Available at [The journals of gerontology. Series A, Biological sciences and medical sciences](#) - from Unpaywall

Abstract:Background: Neuromuscular and clinical factors contribute to falls among older adults, yet the interrelated nature of these factors is not well understood. We investigated the relationships between these factors and how they contribute to falls, which may help optimize fall risk assessment and prevention.Methods: A total of 365 primary care patients (age = 77 ± 7 , 67% female) were included from the Boston Rehabilitative Impairment Study of the Elderly. Neuromuscular measures included leg strength and leg velocity, trunk extensor endurance, and knee range of motion. Clinical measures included memory, executive function, depressive symptoms, pain, sensory loss, vision, comorbidity, physical activity, mobility self-efficacy, and psychiatric medication. Factor analysis was used to evaluate clustering of factors. Negative binomial regression assessed the relationship of factors with three-year fall rate. Interactions were tested to examine whether clinical factors modified the relationship between neuromuscular factors and falls.Results: Three factors emerged: (i) neuromuscular factors, pain, and self-efficacy; (ii) memory; and (iii) executive function. Having three neuromuscular impairments predicted higher fall rate (incidence rate ratio [95% confidence interval]: 3.39 [1.82-6.32]) but was attenuated by memory (1.69 [1.10-2.61]), mobility self-efficacy (0.99 [0.98-0.99]), psychiatric medication use (1.54 [1.10-2.14]), and pain (1.13 [1.04-1.23]). Pain modified the relationship between neuromuscular impairment burden (number of neuromuscular impairments) and falls. Having three neuromuscular impairments was associated with a higher fall rate in patients with high levels of pain (5.73 [2.46-13.34]) but not among those with low pain.Conclusions: Neuromuscular impairment burden was strongly associated with fall rate in older adults with pain. These factors should be considered together during fall risk assessment, post fall assessment, and prevention.

Database: CINAHL

Addressing Balance, Mobility, and Falls: Are We Moving the Needle on Fall Prevention?

Author(s): Hicks, Gregory E

Source: Journals of Gerontology Series A: Biological Sciences & Medical Sciences; Sep 2019; vol. 74 (no. 9); p. 1487-1488

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30892593

Available at [The journals of gerontology. Series A, Biological sciences and medical sciences](#) - from Unpaywall

Abstract:An introduction to articles in the issue is presented on topics including the feasibility of implementing a laboratory-based reactive balance training program in a senior housing facility, the cost-effectiveness of Tai Ji Quan fall prevention exercise program for older adults at high risk of falling in urban and suburban community settings, and the impact of an individualized education intervention on post-hospital falls.

Database: CINAHL

Subacute combined degeneration associated with vitamin E deficiency due to small bowel obstruction: A case report.

Author(s): Jung, Jong Burm MD; Kim, Yuntae MD; Oh, Kiyoung MD; Kim, Soo A MD; Doh, Joung Hyun MD; Oh, Hye Jeong MD; Seok, Jin Myoung MD; Jung, Jong Burm; Kim, Yuntae; Oh, Kiyoung; Kim, Soo A; Doh, Joung Hyun; Oh, Hye Jeong; Seok, Jin Myoung

Source: Medicine; Sep 2019; vol. 98 (no. 36)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31490402

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from Unpaywall

Abstract:Rationale: There have been a few reported cases of subacute combined degeneration (SCD) associated with vitamin E deficiency, but the period of intestinal malabsorption was more than several years. We present a rare case of acute onset SCD that occurred in a relatively short period of several weeks with vitamin E deficiency related to small bowel obstruction. Patient Concerns: A 50-year-old woman had abdominal pain. A small bowel obstruction was suspected and conservative treatment was performed. She underwent bowel surgery after 2 weeks without any improvement. Following the operation, she was in a state of reduced consciousness. She was treated in an intensive care unit. Her consciousness level gradually recovered to alert in a week, but other symptoms such as ataxia, weakness on limbs, severe dysarthria, and dysphagia occurred. Since then, she had spent nearly 6 weeks in a bed-ridden state without improving. Diagnosis: SCD associated with vitamin E deficiency was confirmed by laboratory investigations, electrophysiologic test, and whole spine magnetic resonance imaging scans. Interventions: For vitamin E supplementation, she was administered a dose of 1200 mg/d. Physical therapy was focused on strengthening exercise, balance, and walker gait training. Occupational therapy was focused on activities of daily living training and dysphagia rehabilitation. Outcomes: After 6 weeks, her muscle strengths and functional level were substantially improved. The vitamin E level was recovered to normal range. Lessons: This case suggests that if neurological symptoms occur in patients with intestinal obstruction, clinicians need to consider a deficiency of micronutrients such as vitamin E and vitamin B12. Patients with short clinical courses suffer less neurological damage and achieve faster recovery.

Database: CINAHL

Contributions of Stepping Intensity and Variability to Mobility in Individuals Poststroke.

Author(s): Hornby, T. George; Henderson, Christopher E.; Plawecki, Abbey; Lucas, Emily; Lotter, Jennifer; Holthus, Molly; Brazg, Gabrielle; Fahey, Meghan; Woodward, Jane; Ardestani, Marzieh; Roth, Elliot J.

Source: Stroke (00392499); Sep 2019; vol. 50 (no. 9); p. 2492-2499

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31434543

Available at [Stroke](#) - from Ovid (Journals @ Ovid) - Remote Access

Available at [Stroke](#) - from Unpaywall

Abstract:Background and Purpose- The amount of task-specific stepping practice provided during rehabilitation poststroke can influence locomotor recovery and reflects one aspect of exercise dose that can affect the efficacy of specific interventions. Emerging data suggest that markedly increasing the intensity and variability of stepping practice may also be critical, although such strategies are discouraged during traditional rehabilitation. The goal of this study was to determine the individual and combined contributions of intensity and variability of stepping practice to improving walking speed and distance in individuals poststroke. Methods- This phase 2, randomized, blinded assessor clinical trial was performed between May 2015 and November 2018. Individuals between 18 and 85 years old with hemiparesis poststroke of >6 months duration were recruited. Of the 152 individuals screened, 97 were randomly assigned to 1 of 3 training groups, with 90 completing >10 sessions. Interventions consisted of either high-intensity stepping (70%-80% heart rate reserve) of variable, difficult stepping tasks (high variable), high-intensity stepping performing only forward walking (high forward), and low-intensity stepping in variable contexts at 30% to 40% heart rate reserve (low variable). Participants received up to 30 sessions over 2 months, with testing at baseline, post-training, and a 3-month follow-up. Primary outcomes included walking speeds and timed distance, with secondary measures of dynamic balance, transfers, spatiotemporal kinematics, and metabolic measures. Results- All walking gains were significantly greater following either high-intensity group versus low-variable training (all $P < 0.001$) with significant correlations with stepping amount and rate ($r = 0.48-0.60$; $P < 0.01$). Additional gains in spatiotemporal symmetry were observed with high-intensity training, and balance confidence increased only following high-variable training in individuals with severe impairments. Conclusions- High-intensity stepping training resulted in greater improvements in walking ability and gait symmetry than low-intensity training in individuals with chronic stroke, with potential greater improvements in balance confidence. Clinical Trial Registration- URL: <https://www.clinicaltrials.gov>. Unique identifier: NCT02507466.

Database: CINAHL

Hybrid position/force output feedback second-order sliding mode control for a prototype of an active orthosis used in back-assisted mobilization.

Author(s): Ballesteros-Escamilla, M.; Cruz-Ortiz, D.; Salgado, I.; Chairez, I.

Source: Medical & Biological Engineering & Computing; Sep 2019; vol. 57 (no. 9); p. 1843-1860

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31209711

Abstract:This article shows the design of a robust second-order sliding mode controller to solve the trajectory tracking problem of an active orthosis for assisting back physiotherapies. The orthosis was designed in agreement with morphological dimensions and its articulations distribution followed the same designing rules. The orthosis has six articulated arms attached to an articulated column. The orthosis was fully instrumented with actuators and position sensors at each articulation. The controller implemented a class of hybrid/position controller depending on the relative force exerted by the patient and the orthosis movement. The position information provided by each articulation was supplied to a distributed super-twisting differentiator to recover the corresponding angular velocity. A set of twisting controllers was implemented to regulate the position of the robot in agreement to predefined reference trajectories. Reference trajectories were obtained from a biomechanical-based analysis. The hybrid tracking control problem solved the automation of the assisted therapy to the patient, including the force feedback. The performance of the orthosis was tested with different dummy bodies with different resistance. The robust output feedback controller successfully tracked the reference trajectories despite the material of the dummy used during the

testing. The orthosis was evaluated with two volunteers using a simple reference trajectory.
Graphical Abstract General structure of the active back assisted orthosis.

Database: CINAHL

Effect of aerobic exercise prior to modified constraint-induced movement therapy outcomes in individuals with chronic hemiparesis: a study protocol for a randomized clinical trial.

Author(s): da Silva, Erika Shirley Moreira; Santos, Gabriela Lopes; Catai, Aparecida Maria; Borstad, Alexandra; Furtado, Natália Pereira Duarte; Aniceto, Isabela Arruda Verzola; Russo, Thiago Luiz

Source: BMC Neurology; Aug 2019; vol. 19 (no. 1)

Publication Date: Aug 2019

Publication Type(s): Academic Journal

PubMedID: 31416436

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Available at [BMC neurology](#) - from EBSCO (MEDLINE Complete)

Available at [BMC neurology](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC neurology](#) - from Unpaywall

Abstract:Background: Recovery of upper limb function in individuals after a stroke remains challenging. Modified constraint-induced movement therapy (m-CIMT) has strong evidence for increasing the use and recovery of sensorimotor function of the paretic upper limb. Recent studies have shown that priming with aerobic exercise prior to task-specific training potentiates upper limb recovery in individuals with stroke. This protocol describes a randomized clinical trial designed to determine whether priming with moderate-high intensity aerobic exercise prior to m-CIMT will improve the manual dexterity of the paretic upper limb in individuals with chronic hemiparesis.Methods: Sixty-two individuals with chronic hemiparesis will be randomized into two groups: Aerobic exercise + m-CIMT or Stretching + m-CIMT. m-CIMT includes 1) restraint of the nonparetic upper limb for 90% of waking hours, 2) intensive task-oriented training of the paretic upper limb for 3 h/day for 10 days and 3) behavior interventions for improving treatment adherence. Aerobic exercise will be conducted on a stationary bicycle at intervals of moderate to high intensity. Participants will be evaluated at baseline, 3, 30, and 90 days postintervention by the following instruments: Motor Activity Log, Nottingham Sensory Assessment, Wolf Motor Function Test, Box and Block Test, Nine-Hole Peg Test, Stroke Specific Quality of Life Scale and three-dimensional kinematics. The data will be tested for normality and homogeneity. Parametric data will be analyzed by two-way ANOVA with repeated measures and Bonferroni's adjustment. For nonparametric data, the Friedman test followed by the Wilcoxon test with Bonferroni's adjustment will be used to compare the ratings for each group. To compare the groups in each assessment, the Mann-Whitney test will be used.Discussion: This study will provide valuable information about the effect of motor priming for fine upper limb skill improvement in people with chronic poststroke hemiparesis, bringing new evidence about the association of two therapies commonly used in clinical practice.Trial Registration: This trial was retrospectively registered (registration number RBR-83pwm3) on 07 May 2018.

Database: CINAHL

OTHER

Epidemiology and health care utilization of patients suffering from Huntington's disease in Germany: real world evidence based on German claims data.

Author(s): Ohlmeier, Christoph; Saum, Kai-Uwe; Galetzka, Wolfgang; Beier, Dominik; Gothe, Holger

Source: BMC Neurology; Dec 2019; vol. 19 (no. 1); p. 1-8

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31823737

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Available at [BMC neurology](#) - from EBSCO (MEDLINE Complete)

Available at [BMC neurology](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC neurology](#) - from Unpaywall

Abstract:Background: Huntington's disease (HD) is a rare, genetic, neurodegenerative and ultimately fatal disease with no cure or progression-delaying treatment currently available. HD is characterized by a triad of cognitive, behavioural and motor symptoms. Evidence on epidemiology and management of HD is limited, especially for Germany. This study aims to estimate the incidence and prevalence of HD and analyze the current routine care based on German claims data.Methods: The source of data was a sample of the Institute for Applied Health Research Berlin (InGef) Research Database, comprising data of approximately four million insured persons from approximately 70 German statutory health insurances. The study was conducted in a retrospective cross-sectional design using 2015 and 2016 as a two-year observation period. At least two outpatient or inpatient ICD-10 codes for HD (ICD-10: G10) during the study period were required for case identification. Patients were considered incident if no HD diagnoses in the 4 years prior to the year of case identification were documented. Information on outpatient drug dispensations, medical aids and remedies were considered to describe the current treatment situation of HD patients.Results: A 2-year incidence of 1.8 per 100,000 persons (95%-Confidence interval (CI): 1.4-2.4) and a 2-year period prevalence of 9.3 per 100,000 persons (95%-CI: 8.3-10.4) was observed. The prevalence of HD increased with advancing age, peaking at 60-69 years (16.8 per 100,000 persons; 95%-CI: 13.4-21.0) and decreasing afterwards. The most frequently observed comorbidities and disease-associated symptoms in HD patients were depression (42.9%), dementia (37.7%), urinary incontinence (32.5%), extrapyramidal and movement disorders (30.5%), dysphagia (28.6%) and disorders of the lipoprotein metabolism (28.2%). The most common medications in HD patients were antipsychotics (66.9%), followed by antidepressants (45.1%). Anticonvulsants (16.6%), opioids (14.6%) and hypnotics (9.7%) were observed less frequently. Physical therapy was the most often used medical aid in HD patients (46.4%). Nursing services and speech therapy were used by 27.9 and 22.7% of HD patients, respectively, whereas use of psychotherapy was rare (3.2%).Conclusions: Based on a representative sample, this study provides new insights into the epidemiology and routine care of HD patients in Germany, and thus, may serve as a starting point for further research.

Database: CINAHL

Effects of combining functional exercises with exercise training on daily physical activities and functionality in patients with COPD: a protocol for a randomized clinical trial.

Author(s): de Lima, Fabiano Francisco; Camillo, Carlos Augusto; Grigoletto, Isis; Uzeloto, Juliana Souza; Vanderlei, Franciele Marques; Ramos, Dionei; Ramos, Ercy Mara Cipulo

Source: Trials; Dec 2019; vol. 20 (no. 1)

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31805981

Available at [Trials](#) - from BioMed Central

Available at [Trials](#) - from Europe PubMed Central - Open Access

Available at [Trials](#) - from EBSCO (MEDLINE Complete)

Available at [Trials](#) - from Unpaywall

Abstract:Introduction: Functional training has been shown to be a viable alternative for the elderly and patients with chronic obstructive pulmonary disease (COPD). However, whether the combination of this type of training with aerobic and resistance training, commonly performed in pulmonary rehabilitation (PR) programs, induces more pronounced effects on daily physical activities and functionality remains unclear. The aims of the study will be to evaluate the short-term and sustained effects of the combination of a functional circuit program with a training program consisting of aerobic and resistance exercise. Methods: In this randomized controlled trial, patients with COPD will be randomly assigned (1:1:1) to an 8-week training program to follow one of the three a priori defined groups: (I) resistance and aerobic and functional exercises, (II) a conventional program including only resistance and aerobic exercises, or (III) a usual care program. Patients will be evaluated before and upon completion of 8 weeks of training regarding physical activity in daily life (PADL) using an activity monitor (accelerometer), activities of daily living (London Chest Activity of Daily Living), functional exercise capacity (6-minute walk test), and muscle strength (dynamometry). Additionally, the sustained effects of the interventions will be evaluated 22 weeks after commencing the study. Discussion: The inclusion of a protocol of functional physical training in the training conventionally performed by patients with COPD as an alternative to increase PADL and functionality may provide subsidies for the treatment of these patients, representing an advance and impacting on the physical training of patients with COPD. Trial Registration: Brazilian Clinical Trials Registry (ReBEC) ID: RBR-3z mh3r. Registered: March 7, 2018.

Database: CINAHL

Cardiopulmonary Exercise Testing, Impedance Cardiography, and Reclassification of Risk in Patients Referred for Heart Failure Evaluation.

Author(s): Myers, Jonathan; Christle, Jeffrey W.; Tun, Amanda; Yilmaz, Bilge; Moneghetti, Kegan J.; Yuen, Elizabeth; Soofi, Muhammad; Ashley, Euan

Source: Journal of Cardiac Failure; Dec 2019; vol. 25 (no. 12); p. 961-968

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31454685

Abstract:Background: An impaired cardiac output response to exercise is a hallmark of chronic heart failure (HF). We determined the extent to which impedance cardiography (ICG) during exercise in combination with cardiopulmonary exercise test (CPX) responses reclassified risk for adverse events in patients with HF. Methods and Results: CPX and ICG were performed in 1236 consecutive patients (48±15 years) evaluated for HF. Clinical, ICG and CPX variables were acquired at baseline and subjects were followed for the composite outcome of cardiac-related death, hospitalization for worsening HF, cardiac transplantation, and left ventricular assist device implantation. Cox proportional hazards analyses including clinical, noninvasive hemodynamic, and CPX variables were performed to determine their association with the composite endpoint. Net reclassification improvement (NRI) was calculated to quantify the impact of adding hemodynamic responses to a model including established CPX risk markers on reclassifying risk. There were 422 events. Among CPX variables, peak VO₂ and indices of ventilatory inefficiency (VE/VCO₂ slope, oxygen uptake

efficiency slope) were significant predictors of risk for adverse events. Among hemodynamic variables, change in cardiac index, peak cardiac time interval, and peak left cardiac work index were the strongest predictors of risk. Having 5 impaired CPX and ICG responses to exercise yielded a sevenfold higher risk for adverse events compared with having no abnormal responses. Combining ICG responses to CPX resulted in NRIs ranging between 0.34 and 0.89, attributable to better reclassification of events. Conclusion: Cardiac hemodynamics determined by ICG complement established CPX measures in reclassifying risk among patients with HF.

Database: CINAHL

Physical or Occupational Therapy Use in Systemic Sclerosis: A Scleroderma Patient-centered Intervention Network Cohort Study.

Author(s): Becetti, Karima; Kwakkenbos, Linda; Carrier, Marie-Eve; Gordon, Jessica K.; Nguyen, Joseph T.; Mancuso, Carol A.; Mouthon, Luc; Nguyen, Christelle; Rannou, François; Welling, Joep; Thombs, Brett D.; Spiera, Robert F.

Source: Journal of Rheumatology; Dec 2019; vol. 46 (no. 12); p. 1605-1613

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31043542

Abstract: Objective: Systemic sclerosis (SSc) is characterized by significant disability because of musculoskeletal involvement. Physical and occupational therapy (PT/OT) have been suggested to improve function. However, the rate of PT/OT use has been shown to be low in SSc. We aimed to identify demographic, medical, and psychological variables associated with PT/OT use in SSc. Methods: Participants were patients with SSc enrolled in the Scleroderma Patient-centered Intervention Network (SPIN) Cohort. We determined the rate and indication of PT/OT use in the 3 months prior to enrollment. Multivariable logistic regression was used to identify variables independently associated with PT/OT use. Results: Of the 1627 patients with SSc included in the analysis, 23% used PT/OT in the preceding 3 months. PT/OT use was independently associated with higher education (OR 1.08, 95% CI 1.04-1.12), having moderately severe small joint contractures (OR 2.09, 95% CI 1.45-3.03), severe large joint contractures (OR 2.33, 95% CI 1.14-4.74), fewer digital ulcerations (OR 0.70, 95% CI 0.51-0.95), and higher disability (OR 1.54, 95% CI 1.18-2.02) and pain scores (OR 1.04, 95% CI 1.02-1.06). The highest rate of PT/OT use was reported in France (43%) and the lowest, in the United States (17%). Conclusion: Despite the potential of PT/OT interventions to improve function, < 1 in 4 patients with SSc enrolled in a large international cohort used PT/OT services in the last 3 months. Patients who used PT/OT had more severe musculoskeletal manifestations and higher pain and disability.

Database: CINAHL

Pediatric Chronic Critical Illness: Gaps in Inpatient Intra-team Communication.

Author(s): Hirschfeld, Ryan S.; Barone, Silvana; Johnson, Emily; Boss, Renee D.

Source: Pediatric Critical Care Medicine; Dec 2019; vol. 20 (no. 12)

Publication Date: Dec 2019

Publication Type(s): Academic Journal

PubMedID: 31634307

Abstract: Objectives: The number of children with medical complexity and prolonged hospitalizations is rising. Strategies to adapt acute care approaches for this population are falling behind clinical demand. This study aimed to identify how inpatient team communication practices match the needs

of teams caring for these patients and families, and to identify priority areas for improvement. Design: Cross-sectional mixed methods survey. Setting: Academic children's hospital. Subjects: Interdisciplinary healthcare professionals: physicians, nurse practitioners, nurses, resident and fellow trainees, respiratory therapists, clinical pharmacists, occupational therapists, physical therapists, social workers, and child life specialists. Interventions: None. Measurements and Main Results: Four-hundred eight interdisciplinary healthcare professionals participated (33% response rate). Half (53%) worked in ICUs and 37% had greater than 10 years clinical experience. Three overarching themes emerged regarding communication during care of children with prolonged hospitalizations are as follows: 1) Dysfunctional team collaboration: the many involved healthcare providers for these children have inconsistent team meetings and few platforms for reaching clinical consensus; 2) Continuity gaps: time-limited clinician rotations and no designated longitudinal clinical leaders undermine relationships with families and key elements of shared decision-making; and 3) Inadequate communication skills and tools: healthcare professionals have inadequate training to address complex conversations and big picture concerns, and often default to daily management conversations. Nearly half (40%) perceived intra-team conflict to occur more commonly during care of these children compared with those with short hospitalizations, and many feel unskilled to address these conflicts. Healthcare providers working in ICUs were more likely than other healthcare providers to find care of children with chronic critical illness stressful "most of the time" (ICU 46%; 60/131 vs non-ICU 25%; 21/84; $p = 0.02$). Conclusions: Acute care inpatient communication practices require modification to meet the needs of healthcare professionals who provide longitudinal care to children with repeated and prolonged hospitalizations. Improvement strategies should prioritize building collaboration, continuity, and communication skills among healthcare professionals.

Database: CINAHL

Evidence-based care in high- and low-risk groups following whiplash injury: a multi-centre inception cohort study.

Author(s): Griffin, Alexandra; Jagnoor, Jagnoor; Arora, Mohit; Cameron, Ian D.; Kifley, Annette; Sterling, Michele; Kenardy, Justin; Rebbeck, Trudy

Source: BMC Health Services Research; Nov 2019; vol. 19 (no. 1)

Publication Date: Nov 2019

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Abstract: Background: Studies aimed at improving the provision of evidence-based care (EBC) for the management of acute whiplash injuries have been largely successful. However, whether EBC is broadly provided and whether delivery of EBC varies based on risk of non-recovery, is uncertain. Receiving EBC should improve recovery, though this relationship has yet to be established. Further, mitigating the effect of EBC is the relationship with the practitioner, a phenomenon poorly understood in WAD. This study aimed to determine the proportion of individuals with whiplash, at differing baseline risk levels, receiving EBC. This study also aimed to determine whether receiving EBC and the therapeutic relationship were associated with recovery at 3 months post injury. Methods: Participants with acute whiplash were recruited from public hospital emergency departments, private physiotherapy practices, and State Insurance Regulatory Authority (SIRA) databases. Participants completed questionnaires at baseline (demographics, risk of non-recovery)

and 3-months (treatment received, risk identification, therapeutic relationship) post injury. Primary health care providers (HCPs) treating these participants also completed questionnaires at 3-months. Recovery was defined as neck disability index $\leq 4/50$ and global perceived effect of $\geq 4/5$. Results: Two-hundred and twenty-eight people with acute whiplash, and 53 primary care practitioners were recruited. The majority of the cohort reported receiving EBC, with correct application of the Canadian C-spine rule (74%), and provision of active treatments (e.g. 89% receiving advice) high. Non-recommended (passive) treatments were also received by a large proportion of the cohort (e.g. 50% receiving massage). The therapeutic relationship was associated with higher odds of recovery, which was potentially clinically significant (OR 1.34, 95% CI 1.18-1.62). EBC was not significantly associated with recovery. Conclusions: Guideline-based knowledge and practice has largely been retained from previous implementation strategies. However, recommendations for routine risk identification and tailored management, and reduction in the provision of passive treatment have not. The therapeutic relationship was identified as one of several important predictors of recovery, suggesting that clinicians must develop rapport and understanding with their patients to improve the likelihood of recovery.

Database: CINAHL

Development and Validation of a Mobile Application for Measuring Femoral Anteversion in Patients With Cerebral Palsy.

Author(s): Sung, Ki Hyuk; Youn, Kibeom; Chung, Chin Youb; Kitta, Muhammad I; Kumara, Hendra C; Min, Jae Jung; Lee, Jehee; Park, Moon Seok

Source: Journal of Pediatric Orthopedics; Nov 2019; vol. 39 (no. 10)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31688821

Abstract: Background: Computed tomography (CT) provides benefits for 3-dimensional (3D) visualization of femur deformities. However, the potential adverse effects of radiation exposure have become a concern. Consequently, a biplanar imaging system EOS has been proposed to enable reconstruction of the 3D model of the femur. However, this system requires a calibrated apparatus, the cost of which is high, and the area occupied by it is substantial. The purpose of this study was to develop a mobile application that included a new method of 3D reconstruction of the femur from conventional radiographic images and to evaluate the validity and reliability of mobile the application when measuring femoral anteversion. Methods: The statistical shape model, graph-cut algorithm, and iterative Perspective-n-Point algorithm were utilized to develop the application. The anteroposterior and lateral images of a femur can be input using the embedded camera or by file transfer, and the touch interface aids accurate contouring of the femur. Regarding validation, the CT scans and conventional radiographic images of 36 patients with cerebral palsy were used. To evaluate concurrent validity, the femoral anteversion measurements on the images reconstructed from the mobile application were compared with those from the 3D CT images. Three clinicians assessed interobserver reliability. Results: The mobile application, which reconstructs the 3D image from conventional radiographs, was successfully developed. Regarding concurrent validity, the correlation coefficient between femoral anteversion measured using 3D CT and the mobile application was 0.968 ($P < 0.001$). In terms of interobserver reliability, the intraclass correlation coefficient among the 3 clinicians was 0.953. Conclusions: The measurement of femoral anteversion with the mobile application showed excellent concurrent validity and reliability in patients with cerebral palsy. The proposed mobile application can be used with conventional radiographs and does not require additional apparatus. It can be used as a convenient technique in hospitals that cannot afford a CT machine or an EOS system. Level Of Evidence: Level III-diagnostic.

Database: CINAHL

Effectiveness of home-based and remotely supervised aerobic exercise in Parkinson's disease: a double-blind, randomised controlled trial.

Author(s): van der Kolk, Nicolien M; de Vries, Nienke M; Kessels, Roy P C; Joosten, Hilde; Zwinderman, Aeilko H; Post, Bart; Bloem, Bastiaan R

Source: Lancet Neurology; Nov 2019; vol. 18 (no. 11); p. 998-1008

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31521532

Abstract:Background: High-intensity aerobic exercise might attenuate the symptoms of Parkinson's disease, but high-quality evidence is scarce. Moreover, long-term adherence remains challenging. We aimed to evaluate the effectiveness of aerobic exercise-gamified and delivered at home, to promote adherence-on relieving motor symptoms in patients with Parkinson's disease with mild disease severity who were on common treatment regimes.Methods: In this single-centre, double-blind, randomised controlled trial (Park-in-Shape), we recruited sedentary patients with Parkinson's disease from the outpatient clinic at Radboudumc, Nijmegen, Netherlands. Patients were made aware of the study either by their treating neurologist or via information in the waiting room. Patients could also contact the study team via social media. We included patients aged 30-75 years with a Hoehn and Yahr stage of 2 or lower, who were on stable dopaminergic medication. Patients were randomly assigned (in a 1:1 ratio) to either aerobic exercise done on a stationary home-trainer (aerobic intervention group) or stretching (active control group) by means of a web-based system with minimisation for sex and medication status (treated or untreated) and permuted blocks of varying sizes of more than two (unknown to study personnel). Patients were only aware of the content of their assigned programme. Assessors were unaware of group assignments. Both interventions were home based, requiring 30-45 min training three times per week for 6 months. Both groups received a motivational app and remote supervision. Home trainers were enhanced with virtual reality software and real-life videos providing a so-called exergaming experience (ie, exercise enhanced by gamified elements). The primary outcome was the between-group difference in the Movement Disorders Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS) motor section at 6 months, tested during the off state (≥ 12 h after last dopaminergic medication). The analysis was done on an intention-to-treat basis in patients who completed the follow-up assessment, regardless of whether they completed the assigned intervention. Patients reported adverse events directly to their coach and also after the 6-month visit retrospectively. A between-group difference of 3.5 points or more was deemed a-priori clinically relevant. The study is concluded and registered with the Dutch Trial Registry, NTR4743.Findings: Between Feb 2, 2015, and Oct 27, 2017, 139 patients were assessed for eligibility in person, of whom 130 were randomly assigned to either the aerobic intervention group (n=65) or the active control group (n=65). Data from 125 (96%) patients were available for the primary analysis; five patients were lost to follow-up (four in the intervention group; one in the control group). 20 patients (ten in each group) did not complete their assigned programme. The off-state MDS-UPDRS motor score revealed a between-group difference of 4.2 points (95% CI 1.6-6.9, p=0.0020) in favour of aerobic exercise (mean 1.3 points [SE 1.8] in the intervention group and 5.6 points [SE 1.9] for the control group). 11 patients had potentially related adverse events (seven [11%] in the intervention group, four [6%] in the control group) and seven had unrelated serious adverse events (three in the intervention group [vestibular disorder, vasovagal collapse, knee injury during gardening that required surgery; 6%], four in the control group [supraventricular tachycardia, hip fracture, fall related injury, severe dyskinesias after suprathreshold dose levodopa in a patient with deep brain stimulation; 7%]).Interpretation: Aerobic exercise can be done at home by patients with Parkinson's disease with mild disease

severity and it attenuates off-state motor signs. Future studies should establish long-term effectiveness and possible disease-modifying effects. Funding: Netherlands Organization for Health Research and Development.

Database: CINAHL

Female sexual dysfunction associated with idiopathic cerebellar ataxia: A case report.

Author(s): López-Sosa, Carmen; Gámez-Zapata, Jorge; Iglesias-de-Sena, Helena; Alonso-Sardón, Montserrat

Source: BMC Women's Health; Nov 2019; vol. 19 (no. 1)

Publication Date: Nov 2019

Publication Type(s): Academic Journal

PubMedID: 31699074

Available at [BMC women's health](#) - from BioMed Central

Available at [BMC women's health](#) - from Europe PubMed Central - Open Access

Available at [BMC women's health](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC women's health](#) - from Unpaywall

Abstract:Background: Cerebellar ataxia affects individuals in reproductive age. To date, few clinical cases of cerebellar ataxia and involvement of the cerebellum in sexual response were reported. We report a case of a woman that need to restore skills related for execution of sexual activity and coordination of movements during sexual intercourse. Case Presentation: We present a case of idiopathic cerebellar ataxia in a 25-year-old woman who was referred for sexual health consultation. The patient complained of sexual problems as follows: "I forgot the behaviors that I should adopt in a sexual encounter, and I know what to do only after paying attention to my movements." The history of sexual behavior indicated that this patient presented a "romantic love" model. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) reports that this condition involves anorgasmia disorder and female sexual arousal disorder. In addition, there was a loss of automatism and coordination of movements in the pelvis and lower extremities. The patient's condition improved with occupational and physical therapy combined with rehabilitation therapy based on cognitive behavioral criteria for sexual therapy. Conclusions: The case evolved from the romantic-affective model to a realistic model. The patient reported being comfortable during sexual intercourse and could explain her sexual needs to her partner. She managed to coordinate lower limb and pelvic movements, but did not reach an orgasm. Moreover, vaginal lubrication occurred with a time lag of 15-30 min after the end of sexual intercourse or masturbation.

Database: CINAHL

Smart Phone APP to Restore Optimal Weight (SPAROW): protocol for a randomised controlled trial for women with recent gestational diabetes.

Author(s): Lim, Karen; Chi, Claudia; Chan, Shiao-Yng; Lim, Su Lin; Ang, Siew Min; Yoong, Joanne S.; Tsai, Cammy; Wong, Su Ren; Yew, Tong Wei; Tai, E. Shyong; Yong, Eu-Leong

Source: BMC Public Health; Oct 2019; vol. 19 (no. 1); p. 1-13

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31615456

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Available at [BMC public health](#) - from Europe PubMed Central - Open Access

Available at [BMC public health](#) - from EBSCO (MEDLINE Complete)

Available at [BMC public health](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC public health](#) - from Unpaywall

Abstract:Background: Gestational diabetes (GDM) is a known risk factor for type 2 diabetes mellitus (T2DM), and women with a history of GDM have a 7-fold increased risk of developing the disease. Achieving a healthy weight post-delivery is key in reducing the risk of future diabetes in these women. The aim of this trial is to investigate the use of an interactive smartphone application (APP) to restore women to optimal weight following delivery. Methods: This will be an open-label randomized controlled trial. Two hundred women with gestational diabetes will be randomized to receive the intervention or standard care following delivery. Participants will be reviewed at 6 weeks and 4 months post-delivery. The intervention is an APP serving as a platform for weight, diet and physical activity tracking. The APP provides 3-5 min educational videos suggesting suitable lifestyle adjustments relevant to postnatal period such as breast feeding, diet and exercise. Lastly, the APP will allow real-time interaction between users and the team of dietitians, physiotherapists and occupational therapists to encourage restoration of optimal weight. Women in the control arm will be informed about the increased risk of developing T2DM and advised to maintain a healthy weight. Primary outcome measure is the restoration of participants' booking weight if booking BMI ≤ 23 , or weight loss of at least 5% from booking weight if booking BMI > 23 over the 4 month period. Secondary outcome measures will assess serum metabolic and inflammatory markers, quality of life via questionnaires and cost-effectiveness of the intervention at each follow-up visit. Discussion: This will be the first randomised controlled trial investigating the use of a smartphone application for postpartum weight loss in women with gestational diabetes. The major ethnic groups in our study population represent the majority of ethnic groups in Asia, amongst which the prevalence of diabetes is high. If shown to be effective, this APP may be used in wider clinical settings to improve postpartum weight loss and reduce the risk of developing T2DM in these women. Trial Registration: This study was registered on [clintrials.gov](#) on the 30th of October 2017, under the trial registration number: NCT03324737 .

Database: CINAHL

Bridging the gap between research-based knowledge and clinical practice: a qualitative examination of patients and physiotherapists' views on the Otago exercise Programme.

Author(s): Worum, Hilde; Lillekroken, Daniela; Ahlsen, Birgitte; Roaldsen, Kirsti Skavberg; Bergland, Astrid

Source: BMC Geriatrics; Oct 2019; vol. 19 (no. 1)

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31638912

Available at [BMC geriatrics](#) - from BioMed Central

Available at [BMC geriatrics](#) - from Europe PubMed Central - Open Access

Available at [BMC geriatrics](#) - from EBSCO (MEDLINE Complete)

Available at [BMC geriatrics](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC geriatrics](#) - from Unpaywall

Abstract:Background: Falls and fall-related injuries exacerbate the health problems of older adults, and they are a public health concern. Despite an abundance of research, the implementation of evidence-based fall prevention programs has been slow and limited, additionally and these programs have not reduced the incidence of falling. Therefore, the primary objective of the present

study was to examine patients and physiotherapists' views on the factors that influence the implementation of the community- and evidence-based Otago Exercise Programme for fall prevention. **Methods:** We conducted eight in-depth interviews with physiotherapists and patients, and a focus group interview with 12 physiotherapists and authority figures who represented local hospitals and municipalities. The resultant qualitative data were subjected to thematic analysis. **Results:** The analysis yielded two main themes: the researcher's role and position in the implementation process and the tension between research-based knowledge and clinical practice. The participants believed that research-based knowledge can address the challenges of clinical practice. Further, the patients reported that the fall prevention program made them feel safe and enhanced their ability to cope with daily life. The physiotherapists also observed that research findings do not readily translate into clinical practice. Further, they contended that research-based knowledge is not universal and that it cannot be generalized across different contexts; instead, it must be adapted and translated into a user-friendly language. The findings suggest that the application of research-based knowledge does equate to filling up empty jars and that research-based knowledge does not flow from the expert to the non-expert as water through a tube. Indeed, physiotherapists and patients are not tabula rasa. Additionally, the participants believed that researchers and stakeholders must think critically about who has the power and voice to create a common understanding. **Conclusions:** Our findings delineate the means by which the gap between research and practice regarding the Otago fall prevention program can be bridged. The program can guide clinical work and provide important information that can be used to improve the quality of other fall prevention programs. However, the research-based knowledge that it confers must be adapted for use in clinical contexts.

Database: CINAHL

Post-discharge impact and cost-consequence analysis of prehabilitation in high-risk patients undergoing major abdominal surgery: secondary results from a randomised controlled trial.

Author(s): Barberan-Garcia, A.; Ubre, M.; Pascual-Argente, N.; Risco, R.; Faner, J.; Balust, J.; Lacy, A.M.; Puig-Junoy, J.; Roca, J.; Martinez-Palli, G.

Source: BJA: The British Journal of Anaesthesia; Oct 2019; vol. 123 (no. 4); p. 450-456

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31248644

Abstract:Background: Prehabilitation may reduce postoperative complications, but sustainability of its health benefits and impact on costs needs further evaluation. Our aim was to assess the midterm clinical impact and costs from a hospital perspective of an endurance-exercise-training-based prehabilitation programme in high-risk patients undergoing major digestive surgery. **Methods:** A cost-consequence analysis was performed using secondary data from a randomised, blinded clinical trial. The main outcomes assessed were (i) 30-day hospital readmissions, (ii) endurance time (ET) during an exercise testing, and (iii) physical activity by the Yale Physical Activity Survey (YPAS). Healthcare use for the cost analysis included costs of the prehabilitation programme, hospitalisation, and 30-day emergency room visits and hospital readmissions. **Results:** We included 125 patients in an intention-to-treat analysis. Prehabilitation showed a protective effect for 30-day hospital readmissions (relative risk: 6.4; 95% confidence interval [CI]: 1.4-30.0). Prehabilitation-induced enhancement of ET and YPAS remained statistically significant between groups at the end of the 3 and 6 month follow-up periods, respectively (Δ ET 205 [151] s; $P=0.048$) (Δ YPAS 7 [2]; $P=0.016$). The mean cost of the programme was €389 per patient and did not increment the total costs of the surgical process (€812; CI: 95% -878 - 2642; $P=0.365$). **Conclusions:** Prehabilitation may result in health value generation. Moreover, it appears to be a protective intervention for 30-day hospital

readmissions, and its effects on aerobic capacity and physical activity may show sustainability at midterm. Clinical Trial Registration: NCT02024776.

Database: CINAHL

Efficacy of six months neuromuscular exercise on lumbar movement variability - A randomized controlled trial.

Author(s): Bauer, C.M.; Kankaanpää, M.J.; Meichtry, A.; Rissanen, S.M.; Suni, J.H.

Source: Journal of Electromyography & Kinesiology; Oct 2019; vol. 48 ; p. 84-93

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31252284

Abstract: Introduction: Lumbar movement variability during heavy, repetitive work may be a protective mechanism to diminish the progression of lumbar disorders and maintain neuromuscular functional integrity. The effect of neuromuscular exercise (NME) on the variability of lumbar movement is still to be determined. Methods: A randomised controlled trial was conducted on a population of nursing personnel with subacute LBP. Following randomization, the NME group participants completed an NME program of six months duration. The participants in the control group only attended the assessment sessions. The outcomes were assessed at: baseline; after six months intervention; 12 months. The primary outcome was lumbar movement variability based on angular displacement and velocity. Results: A positive treatment effect on lumbar movement variability was seen after six months of NME intervention. Angular displacement improved, and angular velocity remained constant. At the 12-month follow up, however, the effect faded in the NME group. Lumbar movement variability worsened in the control group over all time periods. Conclusion: NME may improve lumbar movement variability in the short term and may indicate improved neuromuscular functional integrity. The design of an optimal NME program to achieve long-term improvement in lumbar movement variability is a subject worthy of further research.

Database: CINAHL

Positive effects of neuromuscular shoulder exercises with or without EMG-biofeedback, on pain and function in participants with subacromial pain syndrome - A randomised controlled trial.

Author(s): Juul-Kristensen, Birgit; Larsen, Camilla Marie; Eshoj, Henrik; Clemmensen, Trine; Hansen, Anders; Bo Jensen, Peter; Boyle, Eleanor; Sjøgaard, Karen

Source: Journal of Electromyography & Kinesiology; Oct 2019; vol. 48 ; p. 161-168

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31394380

Abstract: Background: The aim was to investigate the effect of Electromyography (EMG)-biofeedback guided exercises (BIONEX) on shoulder pain and function in participants with subacromial pain syndrome (SPS). Methods: Twenty-five women and 24 men (19-67 years), diagnosed with SPS, were randomised to BIONEX or the same exercises without EMG-biofeedback (NEX). Primary outcome was shoulder pain during the past 7 days (Numeric Pain Rating Scale (NPRS)). Secondary outcomes included self-reported (Disability of Arm Shoulder and Hand (DASH), Oxford Shoulder Score (OSS)), and measured shoulder function (surface EMG from upper trapezius, lower trapezius and serratus anterior) in mean and ratios of % of maximum voluntary EMG (%MVE) and onset time (msec), during arm tasks with 0, 1 and 3 kg. Results: There was no group difference (BIONEX versus NEX) in changed

shoulder pain (NPRS, mean difference 0.18 (95% CI. -1.56; 1.19)), self-reported or measured shoulder function. Both groups, however, showed significant within-group improvements on self-reported outcomes (NPRS, DASH, OSS), only clinically relevant on NPRS (BIONEX 2.23 (SD 2.47); NEX 2.04 (SD 2.29)). Conclusion: BIONEX and NEX were both effective in reducing pain to a clinically relevant level, while EMG-biofeedback did not make a difference. The current neuromuscular shoulder exercise protocol is recommended.

Database: CINAHL

Real-world impact of ongoing regular exercise in overweight and obese US adults with diabetes on health care utilization and expenses.

Author(s): Wu, Jun; Davis-Ajami, Mary Lynn; Lu, Zhiqiang K.

Source: Primary Care Diabetes; Oct 2019; vol. 13 (no. 5); p. 430-440

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 30808561

Abstract: Aims: To assess the effect of regular exercise on health care utilization patterns and expenses in a real-world national sample of overweight and obese US adults with diabetes. Methods: Medical Expenditure Panel Survey data (2010-2015) identified adults with diabetes and a body mass index (kg/m²) ≥25. Two groups were created: exercise (moderate or vigorous physical activity >30min at least five times weekly) and non-exercise groups. Outcomes Measured: average total health care expenses (per-person per-annum) and the likelihood of hospitalization. Results: Among 5140 overweight and obese adults with diabetes, 49.1% reported exercising at least five times weekly. The exercise group showed lower medical care and prescription drug utilization than the non-exercise group (p<0.001). Total unadjusted health expenses in the exercise group were \$5651 lower than the non-exercise group (p<0.001). After controlling for socioeconomic and health-related variables, regular exercise reduced total health care expenses by 22.1% (p<0.001) and the likelihood of hospitalization by 28% (p=0.001). Conclusions: Reduced hospitalization and health care expenses were associated with regular exercise (≥30min at least five times weekly) in overweight and obese adults with diabetes.

Database: CINAHL

Epilepsy: knowledge and attitudes of physiotherapists, occupational therapists, and speech therapists.

Author(s): Hackel, Katharina; Neining, Martina Patrizia; Kiess, Wieland; Bertsche, Thilo; Bertsche, Astrid

Source: European Journal of Pediatrics; Oct 2019; vol. 178 (no. 10); p. 1485-1491

Publication Date: Oct 2019

Publication Type(s): Academic Journal

PubMedID: 31375900

Abstract: Physiotherapists, occupational therapists, and speech therapists play a key role in the treatment of children with epilepsy. We performed a survey of therapists' knowledge of and attitudes towards epilepsy in two regions of Germany, the city of Leipzig and the rural district of Zwickau. Therapists of 29/68 (43%) outpatient practices and 4/9 (44%) hospitals took part. In total, 195 therapists participated: 63 (32%) physiotherapists, 74 (38%) occupational therapists, and 58 (30%) speech therapist. In 65%, epilepsy was subject of vocational training. Of all therapists, 8% claimed they had not treated epilepsy patients so far. During professional life, 43% had witnessed a

seizure. Of all therapists, 44% correctly assumed a seizure could result in death. During a seizure, 42% would perform the obsolete measure of placing something solid in the patient's mouth, and 41% would administer a prescribed rescue medication. More information on epilepsy was requested by 92%. Conclusion: Most therapists treat patients with epilepsy, and almost half have already witnessed a seizure. Often, however, epilepsy is not subject of vocational training. The risk of a fatal outcome of a seizure is underestimated, and many therapists would perform obsolete measures. Knowledge of seizure management should be transmitted to therapists especially during vocational training.

Database: CINAHL

Health Competency Standards in Physical Therapist Practice.

Author(s): Dean, Elizabeth; Skinner, Margot; Myezwa, Hellen; Mkumbuzi, Vyvienne; Mostert, Karien; Parra, Diana C; Shirley, Debra; Söderlund, Anne; de Andrade, Armele Dornelas; Abaraogu, Ukachukwu Okoroafor; Bruno, Selma; Clark, Diane; Gylfadóttir, Sif; Jones, Alice; Veluswamy, Sundar Kumar; Lomi, Constantina; Moffat, Marilyn; Morris, David; Stensdotter, Ann-Katrin; Wong, Wai Pong

Source: Physical Therapy; Sep 2019; vol. 99 (no. 9); p. 1242-1254

Publication Date: Sep 2019

Publication Type(s): Academic Journal

Available at [Physical Therapy](#) - from HighWire - Free Full Text

Abstract: Although the physical therapist profession is the leading established, largely nonpharmacological health profession in the world and is committed to health promotion and noncommunicable disease (NCD) prevention, these have yet to be designated as core physical therapist competencies. Based on findings of 3 Physical Therapy Summits on Global Health, addressing NCDs (heart disease, cancer, hypertension, stroke, diabetes, obesity, and chronic lung disease) has been declared an urgent professional priority. The Third Summit established the status of health competencies in physical therapist practice across the 5 World Confederation for Physical Therapy (WCPT) regions with a view to establish health competency standards, this article's focus. Three general principles related to health-focused practice emerged, along with 3 recommendations for its inclusion. Participants acknowledged that specific competencies are needed to ensure that health promotion and NCD prevention are practiced consistently by physical therapists within and across WCPT regions (ie, effective counseling for smoking cessation, basic nutrition, weight control, and reduced sitting and increased activity/exercise in patients and clients, irrespective of their presenting complaints/diagnoses). Minimum accreditable health competency standards within the profession, including use of the WCPT-supported Health Improvement Card, were recommended for inclusion into practice, entry-to-practice education, and research. Such standards are highly consistent with the mission of the WCPT and the World Health Organization. The physical therapist profession needs to assume a leadership role vis-à-vis eliminating the gap between what we know unequivocally about the causes of and contributors to NCDs and the long-term benefits of effective, sustained, nonpharmacological lifestyle behavior change, which no drug nor many surgical procedures have been reported to match.

Database: CINAHL

Improving enhanced recovery after surgery (ERAS): ERAS APptimize study protocol, a randomized controlled trial investigating the effect of a patient-centred mobile application on patient participation in colorectal surgery.

Author(s): Rauwerdink, A.; Jansen, M.; de Borgie, C. A. J. M.; Bemelman, W. A.; Daams, F.; Schijven, M. P.; Buskens, C. J.

Source: BMC Surgery; Sep 2019; vol. 19 (no. 1)

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31477107

Available at [BMC surgery](#) - from BioMed Central

Available at [BMC surgery](#) - from Europe PubMed Central - Open Access

Available at [BMC surgery](#) - from EBSCO (MEDLINE Complete)

Available at [BMC surgery](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC surgery](#) - from Unpaywall

Abstract:Background: Perioperative care in colorectal surgery is systematically defined in the Enhanced Recovery After Surgery (ERAS) protocol. The ERAS protocol improves perioperative care in a multimodal way to enhance early and safe release from the hospital. Adequate compliance to the elements of the ERAS protocol is multifactorial. There are still opportunities to improve compliance of the protocol by actively involving the patient. The main objective of this study is to investigate whether compliance of selected items in the ERAS protocol can be improved through actively involving patients in the ERAS care pathway through the use of a patient-centred mobile application. Methods: A multicentre randomized controlled trial will be conducted. Patients undergoing elective colorectal surgery, who are 18 years or older and in possession of an eligible smartphone, will be included. Patients assigned to the intervention group will install a patient-centred mobile application to be guided through the ERAS care pathway. Patients in the control group will receive care as usual. Both groups will wear an activity tracker. The primary outcome is overall compliance to selected active elements of the ERAS protocol, as registered by the patient. Secondary outcomes include Patient Reported Outcome Measures (PROMs) such as health-related quality of life, physical activity, and patient satisfaction of received care. Care-related outcomes, such as length of hospital stay, number of complications, re-intervention, and readmission rates, will also be assessed. Results: The enrolment of patients will start in the second quarter of 2019. Data collection had not begun by the time this protocol was submitted. Conclusion: We hypothesize that by providing patients with a patient-centred mobile application, compliance to the active elements of ERAS protocol can be improved, resulting in an increased health-related quality of life, physical activity, and patient satisfaction. Trial Registration: Netherlands Trial Register, NTR7314 , prospectively registered on the 9th of November 2017 (<http://www.trialregister.nl>).

Database: CINAHL

Guidetomeasure-OT: A mobile 3D application to improve the accuracy, consistency, and efficiency of clinician-led home-based falls-risk assessments.

Author(s): Hamm, Julian; Money, Arthur; Atwal, Anita

Source: International Journal of Medical Informatics; Sep 2019; vol. 129 ; p. 349-365

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 31445277

Available at [International journal of medical informatics](#) - from Unpaywall

Abstract:Background: A key falls prevention intervention delivered within occupational therapy is the home environment falls-risk assessment process. This involves the clinician visiting the patient's home and using a 2D paper-based measurement guidance booklet to ensure that all measurements are taken and recorded accurately. However, 30% of all assistive devices installed within the home are abandoned by patients, in part as a result of the inaccurate measurements being recorded as

part of the home environment falls-risk assessment process. In the absence of more appropriate and effective guidance, high levels of device abandonment are likely to persist. Aim: This study presents guidetomeasure-OT, a mobile 3D measurement guidance application designed to support occupational therapists in carrying out home environment falls-risk assessments. Furthermore, this study aims to empirically evaluate the performance of guidetomeasure-OT compared with an equivalent paper-based measurement guidance booklet. Methods: Thirty-five occupational therapists took part in this within-subjects repeated measures study, delivered within a living lab setting. Participants carried out the home environment falls-risk assessment process under two counterbalanced treatment conditions; using 3D guidetomeasure-OT; and using a 2D paper-based guide. Systems Usability Scale questionnaires and semi-structured interviews were completed at the end of both task. A comparative statistical analysis explored performance relating to measurement accuracy, measurement accuracy consistency, task completion time, and overall system usability, learnability, and effectiveness of guidance. Interview transcripts were analysed using inductive and deductive thematic analysis, the latter was informed by the Unified Theory of Acceptance and Use of Technology model. Results: The guidetomeasure-OT application significantly outperformed the 2D paper-based guidance in terms task efficiency ($p < 0.001$), learnability ($p < 0.001$), system usability ($p < 0.001$), effectiveness of guidance ($p = 0.001$). Regarding accuracy, in absolute terms, guidetomeasure-OT produced lower mean error differences for 11 out of 12 items and performed significantly better for six out of 12 items ($p = < 0.05$). In terms of SUS, guidetomeasure-OT scored 83.7 compared with 70.4 achieved by the booklet. Five high-level themes emerged from interviews: Performance Expectancy, Effort Expectancy, Social Influence, Clinical Benefits, and Augmentation of Clinical Practice. Participants reported that guidetomeasure-OT delivered clearer measurement guidance that was more realistic, intuitive, precise and usable than the paper-based equivalent. Audio instructions and animated prompts were seen as being helpful in reducing the learning overhead required to comprehend measurement guidance and maintain awareness of task progression. Conclusions: This study reveals that guidetomeasure-OT enables occupational therapists to carry out significantly more accurate and efficient home environment falls-risk assessments, whilst also providing a measurement guide tool that is considered more usable compared with the paper-based measurement guide that is currently used by clinicians in practice. These results are significant as they indicate that mobile 3D visualisation technologies can be effectively deployed to improve clinical practice, particularly within the home environment falls-risk assessment context. Furthermore, the empirical findings constitute overcoming the challenges associated with the digitisation of health care and delivery of new innovative and enabling technological solutions that health providers and policy makers so urgently need to ease the ever-increasing burden on existing public resources. Future work will focus on the development and empirical evaluation of a mobile 3D application for patient self-assessment and automated assistive equipment prescription. Furthermore, broader User Experience aspects of the application design and the interaction mechanisms that are made available to the user could be considered so as to minimize the effect of cognitive overloading and optimise user performance.

Database: CINAHL

Injection with autologous conditioned serum has better clinical results than eccentric training for chronic Achilles tendinopathy.

Author(s): von Wehren, Lutz; Pokorny, Kerstin; Blanke, Fabian; Sailer, Jannis; Majewski, Martin

Source: Knee Surgery, Sports Traumatology, Arthroscopy; Sep 2019; vol. 27 (no. 9); p. 2744-2753

Publication Date: Sep 2019

Publication Type(s): Academic Journal

PubMedID: 30900032

Abstract: Purpose: Chronic Achilles tendinopathy is one of the most common causes of malfunction and pain, which can lead to a significant reduction of the quality of life. The hypothesis of this study argues that autologous conditioned serum (i.e. Orthokine) injections in chronic midportion Achilles tendinopathy have a better outcome than eccentric training. Methods: This study investigates, retrospectively, the effects of peritendinous autologous conditioned serum injections as compared to standard eccentric training in 50 patients with chronic Achilles tendinopathy between 2012 and 2015. Before injection or eccentric training and 6 weeks, 12 weeks and 6 months thereafter, the patients were assessed by means of the VISA-A-G score (Victorian Institute of Sport Assessment-Achilles questionnaire-German). An MRI was also performed before and 6 months after injection and eccentric training. Results: Both patient groups had statistically significant better VISA-A-G scores after injection or eccentric training compared to the baseline before injection (90 vs 40, respectively, $P < 0.001$) or eccentric training (81 vs 47, respectively, $P < 0.001$). Comparing the baseline corrected VISA-A-G scores, patients in the autologous-conditioned-serum-group had significantly higher changes in VISA-A-G scores than the eccentric-training-group after 12 weeks (40 vs 36, $P = 0.018$) and 6 months (50 vs 34, $P = 0.034$). Both patient groups had statistically significant ($P < 0.001$) reduction of tendon thickness (autologous conditioned serum: 0.32; eccentric training: 0.24) and length of bursa (autologous conditioned serum: 0.24; eccentric training: 0.21) as well as significant ($P < 0.001$) improvement of tendon quality in MRI (autologous conditioned serum: 14 vs 1; eccentric training: 14 vs 2). There were no statistical differences in MRI-findings between the two groups. Conclusion: Both therapies led to improvement of MRI-findings, including reduction of tendon thickness and tendon quality. Autologous-conditioned-serum-injections show greater clinical long-term benefit as compared to eccentric training and, therefore, offers a good alternative to eccentric training. Level Of Evidence: Therapeutic studies, Level III.

Database: CINAHL

Acute sensory and motor response to 45-s heavy isometric holds for the plantar flexors in patients with Achilles tendinopathy.

Author(s): O'Neill, S.; Radia, J.; Bird, K.; Rathleff, M. S.; Bandholm, T.; Jorgensen, M.; Thorborg, K.

Source: Knee Surgery, Sports Traumatology, Arthroscopy; Sep 2019; vol. 27 (no. 9); p. 2765-2773

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Abstract: Purpose: The purpose of this study was to explore the immediate effects of heavy isometric plantar flexor exercise on sensory output (pain during a functional task and mechanical pain sensitivity) and motor output (plantar flexor torque) in individuals with Achilles tendinopathy. Methods: Sixteen subjects with Achilles tendinopathy participated in the study, mean (SD) age 48.6 (8.9) years and Victorian institute assessment-Achilles (VISA-A) score 61.3 (23.0). Sensory testing assessing pain during a functional task, mechanical pain sensitivity and motor output, and plantar flexor peak torque was completed prior to the intervention. All subjects completed a 45-s heavy isometric plantar flexor contraction and were then re-tested using the same sensory and motor tests. Motor output was assessed using isokinetic dynamometry at speeds previously identified as of interest in subjects with Achilles tendinopathy. Results: Only 9 of the 16 subjects experienced pain during a functional task, self-reported pain was 4.2 (1.9) numerical rating scale (NRS) pre-intervention and 4.9 (3.2) NRS postintervention (n.s.). Mechanical pressure sensitivity was 446.5 (± 248.5) g/mm² pre-intervention and 411.8 (± 211.8) g/mm² post-intervention (n.s.). Mean concentric plantar flexor torque at 90 and 225°/s was 47.1 (14.5) and 33.6 (11.6) Nm,

respectively, pre-intervention and 53.0 (18.5) and 33.4 (6.6) Nm post-intervention ($p = 0.039$ and n.s.). Eccentric torque at $90^\circ/s$ was 98.5 (34.2) Nm preintervention versus 106.0 (41.4) Nm post-intervention (n.s.). Conclusion: In this exploratory study, patients with Achilles tendinopathy had a varied sensory and motor output response to heavy isometric contractions. Using the recommended approach of heavy 45-s isometric contractions did not offer a meaningful acute benefit for sensory or motor output for subjects with Achilles tendinopathy. Based on this study, heavy 45-s isometric contractions cannot be recommended for immediate pain relief or improved motor output for patients with Achilles tendinopathy. Level Of Evidence: IV, prospective cohort study.

Database: CINAHL

Effects of a 12-week moderate-intensity exercise training on blood glucose response in patients with type 2 diabetes: A prospective longitudinal study.

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Available at [Medicine](#) - from Unpaywall

Abstract: Background: The blood glucose response to moderate-intensity exercise remains unclear for patients with type 2 diabetes (T2DM). In addition, little is known about determinants of blood glucose response to a 12-week moderate-intensity exercise training. Therefore, this study aimed to explore trends in blood glucose in response to a 12-week moderate-intensity exercise training in patients with T2DM and to explore the predictors of post-exercise blood glucose (PEBG) and exercise-induced glucose response (EIGR). Methods: A prospective longitudinal study was conducted. Of the 66 participants with T2DM recruited from outpatient clinics of a medical center, 20 were eligible to enroll in a 12-week moderate-intensity exercise training. Participants were randomly assigned to 1 of 3 exercise times (morning, afternoon, or evening). Blood glucose were measured pre- and post-exercise. The EIGR was calculated by subtracting the PEBG from the before-exercise blood glucose (BEBG). Generalized estimating equations were used to examine the trends and predictors of PEBG and EIGR. Results: The BEBG declined progressively ($\beta = -1.69$, $P < .001$); while the PEBG ($\beta = -0.18$, $P = .08$) remained stable over time during the 12-week exercise training. Higher BEBG predicted higher ($\beta = 0.53$, $P < .001$) PEBG. Higher baseline maximum oxygen uptake (VO_{2max}) contributed to a larger magnitude of EIGR; higher HgbA1c and BEBG predicted higher EIGR ($\beta = 0.27$, $P = .02$; $\beta = 0.45$, $P < .001$); afternoon or evening exercise predicted lower ($\beta = -13.2$, $P = .04$; $\beta = -5.96$, $P = .005$) EIGR than did morning exercise. Conclusions: A 12-week moderate-intensity exercise training appears safe for patients with T2DM. Time of day for exercise, baseline VO_{2max} , and baseline metabolic control may influence the impact of exercise for individuals with T2DM. These findings provide considerations for design of optimal exercise training for T2DM patients.

Database: CINAHL

Lower limb joint motion and muscle force in treadmill and over-ground exercise.

Author(s): Yao, Jie; Guo, Ning; Xiao, Yanqiu; Li, Zhili; Li, Yinghui; Pu, Fang; Fan, Yubo

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Available at [Biomedical engineering online](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Biomedical engineering online](#) - from EBSCO (MEDLINE Complete)

Available at [Biomedical engineering online](#) - from Unpaywall

Abstract:Background: Treadmill exercise is commonly used as an alternative to over-ground walking or running. Increasing evidence indicated the kinetics of treadmill exercise is different from that of over-ground. Biomechanics of treadmill or over-ground exercises have been investigated in terms of energy consumption, ground reaction force, and surface EMG signals. These indexes cannot accurately characterize the musculoskeletal loading, which directly contributes to tissue injuries. This study aimed to quantify the differences of lower limb joint angles and muscle forces in treadmills and over-ground exercises. 10 healthy volunteers were required to walk at 100 and 120 steps/min and run at 140 and 160 steps/min on treadmill and ground. The joint flexion angles were obtained from the motion capture experiments and were used to calculate the muscle forces with an inverse dynamic method.Results: Hip, knee, and ankle joint motions of treadmill and over-ground conditions were similar in walking, yet different in running. Compared with over-ground running, joint motion ranges in treadmill running were smaller. They were also less affected by stride frequency. Maximum Gastrocnemius force was greater in treadmill walking, yet maximum Rectus femoris and Vastus forces were smaller. Maximum Gastrocnemius and Soleus forces were greater in treadmill running.Conclusions: Treadmill exercise results in smoother joint kinematics. In terms of muscle force, treadmill exercise requires lower loading on knee extensor, yet higher loading on plantar flexor, especially on Gastrocnemius. The findings and the methodology can provide the basis for rehabilitation therapy customization and sophistic treadmill design.

Database: CINAHL