

# Rehabilitation

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### September 2024

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## **Case study: Digital self-management platform for MSK conditions scaled to 20 million people. Health Innovation Network; 2024.**

[getUBetter is an evidence based, digital self-management support platform for all common musculoskeletal (MSK) conditions and women's pelvic health. It helps integrated care systems to provide digital-self-management support across their whole care pathway. With the support of the Health Innovation Network since 2013, getUBetter is now available across 17 integrated care systems (ICSs) to a total eligible population of over 20 million people.]

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### **1. 'Leaving my comfort zone'. A qualitative study of physiotherapists' experiences blending an eHealth psychosocial intervention with face-to-face physiotherapy**

**Authors:** Bijker, L.;Scholten-Peeters, G.;Donker, M. H.;Coppieters, M. W.;Cuijpers, P.;Busink, V.;Poolman, E. Y. and de Wit, L. M.

**Publication Date:** 2024

**Journal:** Musculoskeletal Science & Practice 73, pp. 103121

**Abstract:** Background: Many physiotherapists do not feel adequately equipped to address psychosocial risk factors in people with complex pain states. Hence, a biopsychosocial blended intervention (Back2Action) was developed to assist physiotherapists to manage people with persistent spinal pain and coexisting psychosocial risk factors associated with the development or maintenance of persistent pain.; Objective: This study aimed to gain insight into the experiences of physiotherapists with this blended psychosocial intervention.; Design: and methods: This was an interpretative qualitative study with a reflexive thematic analysis of semi-structured interviews with physiotherapists (N = 15) who delivered Back2Action. The interview started with the grand-tour question: "What was your experience in using Back2Action?" Physiotherapist were encouraged to provide examples, and follow-up questions were posed to ensure a deeper understanding could be reached.; Results: Four themes were constructed: Physiotherapists became increasingly aware of (1) their own implicit expectations, biases and skills, and underlying treatment paradigms, and (2) the implicit expectations from their patients towards them. This led to (3) creating a deeper and stronger therapeutic alliance with the patient, but also (4) an understanding that implementation of a true biopsychosocial intervention - even if offered in a blended form - requires more practice, confidence and resources.; Conclusions: Back2Action is considered a valuable treatment to deliver a biopsychosocial intervention in primary care. Considering the high level of knowledge, skills and competency of the participating physiotherapists, the perceived barriers may be more difficult to overcome for more junior physiotherapists.; Competing Interests: Declaration of competing interest The authors declare they have no competing interests. (Copyright © 2024 The Author(s). Published by Elsevier Ltd.. All rights reserved.)

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### **2. Physiotherapist- and patient-reported barriers to guideline implementation of active physiotherapeutic management of low back pain: A theory-informed qualitative study**

**Authors:** Bogaert, Liedewij;Brumagne, Simon;Léonard, Charlotte;Lauwers, Amber and Peters, Sanne

**Publication Date:** 2024

**Journal:** Musculoskeletal Science & Practice 73, pp. 103129

**Abstract:** Background and Objective: Adoption of low back pain (LBP) guidelines in physiotherapeutic management is a well-documented problem. Thereby, an in-depth understanding of the barriers to implement an active approach for both patients and physiotherapists is needed.; Design: Semi-

structured interviews were conducted with physiotherapists and patients with non-specific LBP. Interviews, guided by the Theoretical Domains Framework (TDF), were analyzed using the Qualitative Analysis Guide of Leuven.; Results: A total of 20 participants were interviewed, including ten physiotherapists and ten patients. Our findings reveal that patients and physiotherapists face each 23 barriers spanning 14 TDF domains. The TDF domain "social influences" revealed the most barriers, followed by "beliefs about consequences" and "environmental context" for patients and physiotherapists, respectively. Five barriers did overlap between both groups (lack of guideline awareness, incorrect exercise performance, interdisciplinary communication gaps, time constraints and challenges in patient compliance).; Conclusions: Barriers to LBP guideline recommended physiotherapeutic practices span all 14 TDF domains. Consequently, future implementation interventions need to address multiple TDF domains for effective LBP guideline implementation. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

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### **3. Enhancing physiotherapists' knowledge and perceptions of telerehabilitation: A before-after educational intervention study**

**Authors:** Bonet-Collantes, Milena;Niño-Pinzón, Diana Marcela;Chaustre-Porrás, Angie;Salas-Poloche, Yuli and Angarita-Fonseca, Adriana

**Publication Date:** 2024

**Journal:** Physiotherapy Research International : The Journal for Researchers and Clinicians in Physical Therapy 29(4), pp. e2120

**Abstract:** Background and Purpose: In the evolving landscape of healthcare, telerehabilitation is emerging as a pivotal modality, especially in delivering services to vulnerable populations. With the increasing reliance on digital health solutions, there is a pressing need for physiotherapists to be adequately trained in telerehabilitation. This training is essential for them to adapt to new technologies and methodologies, ensuring effective and efficient patient care. The aim of this study was to evaluate the effect of a telerehabilitation educational intervention on physiotherapists' knowledge and perceptions in Bucaramanga and its metropolitan area.; Methods: A group of 27 physiotherapists underwent an educational intervention focused on telerehabilitation. Before- and after-intervention assessments were conducted to gauge their perceptions and knowledge.; Results: Participants generally held a positive perception of telerehabilitation both before and after the intervention Before Median (Md) and interquartile range (IQR): Md = 2.5 (IQR = 2.1-3); after: Md = 2.7 (IQR = 2.4-3.1),  $p = 0.256$ ]. A significant increase in their knowledge after-intervention was observed Before: Md = 55.5 (IQR = 33.3-66.6)]; after: Md = 77.7 (IQR = 66.6-88.8),  $p = <0.001$ , emphasizing the potential benefits of targeted educational interventions.; Conclusions: The educational intervention significantly improved physiotherapists' knowledge of telerehabilitation, underscoring the importance of professional training in this domain. While perceptions remained consistently positive, the notable increase in knowledge suggests that such educational programs are crucial for enhancing the adoption and effective use of telerehabilitation in physiotherapy practice. (© 2024 The Author(s). Physiotherapy Research International published by John Wiley & Sons Ltd.)

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### **4. Multimodal Prehabilitation for Peripheral Arterial Disease Patients with Intermittent Claudication-A Pilot Randomized Controlled Trial**

**Authors:** Coca-Martinez, Miquel;Girsowicz, Elie;Doonan, Robert J.;Obrand, Daniel I.;Bayne, Jason P.;Steinmetz, Oren K.;Mackenzie, Kent S.;Carli, Francesco;Martinez-Palli, Graciela and Gill, Heather L.

**Publication Date:** 2024

**Journal:** Annals of Vascular Surgery 107, pp. 2–12

**Abstract:** Background: To establish the feasibility and safety of multimodal prehabilitation (MP), and to obtain pilot data on the change in quality of life, functional walking capacity, and the need for surgery for a full-scale trial.; Methods: Pilot randomized controlled trial that included patients older than 50 years old suffering from moderate to severe intermittent claudication and who were candidates for endovascular revascularization (ER). Participants were excluded if they presented with ischemic rest pain, gangrene or ulceration of the index leg, significant lesions in the iliac vessels, planned surgical bypass, comorbidities in which exercise was contraindicated or if they were unable to speak English or French. Participants were randomized in a 1:1 ratio to 12 weeks of MP or institutional standard of care (unsupervised walking advice). MP consisted of i) 1 weekly supervised exercise session; ii) home-based exercise prescription; iii) nutritional counseling and supplementation; iv) smoking cessation therapy; and v) psychosocial support. Feasibility and safety were measured with recruitment and retention rates, as well as the occurrence of any adverse events. In addition, barriers to attend supervised sessions and compliance to each component were assessed. Change in functional walking capacity, health-related quality of life, and the rates of patients deciding not to undergo ER were collected and analyzed throughout the follow-up period of 12 months.; Results: Of the 37 patients referred for eligibility, 27 (73%) accepted to participate in the trial and were randomized. Of the 27 patients included, 24 completed the 12-week program. Adherence to each prehabilitation component was 83% [interquartile range 72,93] for supervised exercise, 90% [83,96] for home-based exercise and 69% [45,93] for nutritional sessions. Fifty percent of patients were referred for and underwent psychosocial intervention and 40% of the active smokers enrolled in the smoking cessation program. No adverse events were observed during the program. The 2 main barriers for not fully adhering to the intervention were excessive pain while performing the exercises and the difficulty to keep up with the prescribed exercises. A statistically significant mean change (standard deviation (SD)) was seen in the MP group versus standard of care for functional capacity, mean (SD) 6 Min Walk Test 60 (74) vs. -11 (40) meters  $P < 0.05$ , and quality of life mean (SD) VasculQoL 1.15 (0.54) vs. -0.3 (1.09) points  $P < 0.05$ . There was no statistically significant difference between groups in the rates of patients deciding to undergo ER during the 1-year follow-up period.; Conclusions: The results of this pilot trial demonstrate that MP is safe and feasible. A 12-week MP program seems to improve quality of life and functional walking capacity to a greater extent than unsupervised walking advice. There is a need for a large-scale trial to investigate the effectiveness of MP at improving quality of life and assessing its impact on the rates of patients deciding not to undergo or delay ER. The long-term functional and quality of life outcomes of the patients deciding to undergo ER after prehabilitation also need to be assessed. (Copyright © 2023 Elsevier Inc. All rights reserved.)

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## 5. Cognitive behavioral physical therapy in chronic musculoskeletal conditions: A systematic review...Fifth World Congress of Sports Physical Therapy, June 14-15, 2024, Oslo, Norway,

**Authors:** Jaffri, Abbas; Greenfield, Ryan and Kelley, Sean

**Publication Date:** 2024

**Journal:** International Journal of Sports Physical Therapy 19(6), pp. 775

**Abstract:** Introduction: Despite the enhancement of physical therapy treatment interventions, the prevalence of chronic musculoskeletal conditions is increasing. Therefore, new holistic treatment interventions are implemented by physical therapists to improve clinical and patient-reported outcomes. Objective: To critically assess the literature focused on the effect of psychologically informed physical therapy interventions in improving outcomes associated with chronic musculoskeletal conditions. Study design: Systematic review. 1,511 total subjects from 19 different studies were included in this systematic review: one study on Knee osteoarthritis (O.A), eight studies with chronic low back pain (CLBP) patients, four studies with chronic neck pain (CNP), and two studies with patellofemoral pain (PFP). Materials and methods: A search of electronic databases including PubMed, CINAHL,

psychological and behavioral sciences, SPORTdiscus, and Scopus was completed between January 2000 to January 2023. Randomized control trials (RCTs) with an outcome of interest including the VAS (visual analog scale), FABQ (fear avoidance belief questionnaire), ODI (modified Oswestry Disability index), Tampa Scale for Kinesiophobia, and functional outcomes. Results: No superiority of CBPT was observed for improving pain and function of knee OA. For the CLBT patients, disability improved in 7/8 studies, pain improved in 5/8 studies, and fear in 4/8 studies. For PFP, one study showed immediate improvements in pain and disability compared to controls but no difference at 6 months. All four CNP studies showed improvements in pain in the groups receiving CBPT, no improvement in disability was observed with CBPT in CNP, two of the four studies looked at kinesiophobia or pain related to fear and both studies found improvements with CBPT compared to the control group. Conclusion: While initial results are promising, high-quality RCTs following CONSORT guidelines are required to further evaluate the efficacy of CBPT and determine optimal clinical pathways for addressing pain, disability, and fear developed because of chronic musculoskeletal conditions.

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## **6. Exploring the personal stroke and rehabilitation experiences of older adults with chronic stroke during the COVID-19 pandemic: a qualitative descriptive study**

**Authors:** Lee, Nicole P.; Pearson, Erin S.; Sanzo, Paolo and Klarner, Taryn

**Publication Date:** 2024

**Journal:** International Journal of Qualitative Studies on Health and Well-Being 19(1), pp. 2331431

**Abstract:** Purpose: The purpose of this study was to explore the personal stroke and rehabilitation experiences of older adults with chronic stroke living in a mid-sized Northwestern Ontario city in Canada during the COVID-19 pandemic.; Methods: A qualitative descriptive approach with a constructivist worldview was used. In addition, a semi-structured interview guide was used to gather the participants' perspectives on their experiences throughout stroke recovery. Ten participants were interviewed, including six males and four females. The interviews were completed, transcribed, and analysed using inductive and deductive content analysis. Multiple steps were taken to enhance data trustworthiness.; Results: Six main themes and eight related subthemes emerged. These included: getting help is complex, the effects of stroke are multifaceted, losing rehabilitation services during the COVID-19 pandemic, overcoming hardships but not alone, "If you don't use it, you lost it": rehabilitative success is based on one's actions, and "look at me now": the importance of taking pride in one's successes.; Conclusions: One unique finding was that the participants used this study as an opportunity to teach and advocate for future stroke survivors which is not often seen in qualitative stroke rehabilitation research. Future stroke research should place emphasis on both the positive and negative experiences of this population.

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## **7. Efficacy of exercise rehabilitation for managing patients with Alzheimer's disease**

**Authors:** Li, Dan; Jia, Jinning; Zeng, Haibo; Zhong, Xiaoyan; Chen, Hui and Yi, Chenju

**Publication Date:** 2024

**Journal:** Neural Regeneration Research 19(10), pp. 2175–2188

**Abstract:** Alzheimer's disease (AD) is a progressive and degenerative neurological disease characterized by the deterioration of cognitive functions. While a definitive cure and optimal medication to impede disease progression are currently unavailable, a plethora of studies have highlighted the potential advantages of exercise rehabilitation for managing this condition. Those studies show that exercise rehabilitation can enhance cognitive function and improve the quality of life for individuals affected by AD. Therefore, exercise rehabilitation has been regarded as one of the most important

strategies for managing patients with AD. Herein, we provide a comprehensive analysis of the currently available findings on exercise rehabilitation in patients with AD, with a focus on the exercise types which have shown efficacy when implemented alone or combined with other treatment methods, as well as the potential mechanisms underlying these positive effects. Specifically, we explain how exercise may improve the brain microenvironment and neuronal plasticity. In conclusion, exercise is a cost-effective intervention to enhance cognitive performance and improve quality of life in patients with mild to moderate cognitive dysfunction. Therefore, it can potentially become both a physical activity and a tailored intervention. This review may aid the development of more effective and individualized treatment strategies to address the challenges imposed by this debilitating disease, especially in low- and middle-income countries. (Copyright © 2024 Copyright: © 2024 Neural Regeneration Research.)

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## **8. Virtual reality gaming for rehabilitation of patients with urinary incontinence: A systematic review and meta-analysis**

**Authors:** Lialy, Hagar E.;Abdallahman, Hamid Ali;Elsebaie, Mai;Abdrabo, Mohamed Fouad;Emara, Mohamed;Mosad, Yara and Elsaid, Mohamed

**Publication Date:** 2024

**Journal:** Physiotherapy Research International : The Journal for Researchers and Clinicians in Physical Therapy 29(4), pp. e2112

**Abstract:** Background: Urinary Incontinence (UI) is a global health issue that mainly affects the female population worldwide. Different approaches have been sought for the management of UI including Pelvic floor muscle training (PFMT) using Virtual Reality (VR) gaming. We conducted this study to evaluate the effectiveness of VR gaming for rehabilitation of pelvic floor muscles (PFM) and improving urinary symptoms in patients with UI.; Method: We've included studies that contain any type of VR in all geographic locations and settings with no restrictions on the date of publication, age, or gender. Our exclusion criteria include reviews, case series, case reports, unextractable data, unavailable full text, abstract only articles, and studies don't show the effects of VR as a treatment for UI. A pre-specified search term was used and modified according to the requirements of each of the following databases: PubMed, Web of Science, Scopus, Cochrane, Google scholar, and ScienceDirect. For risk of bias assessment, two assessment tools have been used: ROB 2.0 for RCTs and NIH for single arm studies.; Results: Of 915 papers identified from 6 databases, 341 papers were assigned for screening after removing duplicates, 11 papers were eligible for full text screening, and 4 papers were finally included. The qualitative analysis of the results identifies six outcomes grouped into three primary categories: PFM, urinary symptoms, and quality of life. Only urinary loss outcome was eligible for meta-analysis. The net effect between Game therapy + PFMT and PFMT reached MD = -5.49, 95% CI -12.36:1.38] (heterogeneity;  $I^2 = 95\%$ ,  $p < 0.01$ ).; Conclusion: Our research underscores the potential of VR gaming as a valuable adjunctive therapy for pelvic floor muscle rehabilitation in patients with UI. However, further studies are needed to explore its long-term effectiveness, optimal therapy parameters, and cost-effectiveness.; Registration: Our protocol has been registered in PROSPERO (CRD42022384500). (© 2024 John Wiley & Sons Ltd.)

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## **9. Utilizing Diagnostic Musculoskeletal Ultrasound for Assessment of the Infrapinatus Muscle and Tendon: Implications for Rehabilitation Professionals**

**Authors:** Manske, Robert C.;Voight, Michael and Wolfe, Chris

**Publication Date:** 2024

**Journal:** International Journal of Sports Physical Therapy 19(7), pp. 1–5

**Abstract:** The rotator cuff, comprising the subscapularis, supraspinatus, infraspinatus, and teres minor muscles, plays a crucial role in stabilizing the glenohumeral joint by securing the head of the humerus within the glenoid cavity of the scapula. The tendinous insertions of these muscles generate tension within the capsule, enhancing joint stability during muscular activity. The rotator cuff is susceptible to damage from disease, injury, or trauma, which can result in tears or ruptures of one or more tendons. The evaluation of the infraspinatus muscle and tendon is vital for diagnosing and managing various shoulder pathologies. Accurate imaging to determine the specific muscle involvement and injury severity significantly impacts treatment decisions. Diagnostic musculoskeletal ultrasound (MSK-US) has emerged as a valuable tool for assessing the infraspinatus muscle and tendon, offering real-time, dynamic assessment capabilities essential for precise diagnosis and effective rehabilitation planning. This article reviews the utility and advantages of MSK-US in evaluating the infraspinatus muscle and tendon, emphasizing technique specifics, diagnostic accuracy, and comparative efficacy against other imaging modalities. It details a systematic approach to the ultrasound examination technique for the infraspinatus, including patient positioning and identification of common pathologies such as tears, tendinopathy, and calcifications. With recent advancements in transducer strength, image resolution, and operator training, ultrasound serves as an excellent alternative imaging modality for diagnosing rotator cuff tears. This article aims to equip rehabilitation professionals with a comprehensive understanding of MSK-US as a diagnostic tool for the infraspinatus, promoting more precise diagnosis, treatment planning and improved patient outcomes.

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#### **10. What attributes of digital devices are important to clinicians in rehabilitation? A cross-cultural best-worst scaling study**

**Authors:** Michelle Nettleton Pearce, Louise;Howell, Martin;Parma Yamato, Tiê;Maria Ribeiro Bacha, Jéssica;Eduardo Pompeu, José;Howard, Kirsten;Sherrington, Catherine and Hassett, Leanne

**Publication Date:** 2024

**Journal:** International Journal of Medical Informatics 191, pp. N.PAG

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#### **11. Headache diagnosis and treatment: A pilot knowledge and needs assessment among physical therapists**

**Authors:** Minen, Mia T.;Whetten, Christopher;Messier, Danielle;Mehta, Sheena;Williamson, Anne;Verhaak, Allison and Grosberg, Brian

**Publication Date:** 2024

**Journal:** Headache

**Abstract:** Objective: The objective of this pilot study was to assess physical therapists' (PTs) knowledge and needs regarding headache diagnosis and management.; Background: While there is significant research on physical therapy and cervicogenic headache, studies suggest that migraine is often under-recognized, misdiagnosed, and inadequately treated across society despite its high prevalence and burden. Because migraine commonly includes concurrent neck pain and/or vestibular symptoms, patients with migraine may present to PTs for treatment. Very little is known about PTs' headache and migraine education, knowledge, and clinical practices.; Methods: A team of headache specialists and PTs adapted a previously used headache knowledge and needs assessment survey to help ascertain PTs' knowledge and needs regarding headache treatment. The cross-sectional survey was distributed online via Research Electronic Data Capture (REDCap) to PTs within a large healthcare system in Connecticut.; Results: An estimated 50.5% (101/200) of PTs invited to complete the survey did so. Only 37.6% (38/101) of respondents reported receiving any formal headache or migraine education in their professional training, leading to knowledge gaps in differentiating and

responding to headache subtypes. Only 45.5% (46/101) were able to identify that migraine is characterized by greater pain intensity than tension-type headache, and 22.8% (23/101) reported not knowing the duration of untreated migraine. When asked about the aspects of care they believe their patients with headache would like to see improved, PTs reported education around prevention and appropriate medication use (61/100 61.0%), provider awareness of the degree of disability associated with migraine (51/100 51.0%), and diagnostics (47/100 47.0%).; Conclusion: This sample of PTs from one healthcare system demonstrates knowledge gaps and variations in clinical practice for managing their patients with headache. Future research on integrating additional opportunities for headache education for physical therapists, including evidence-based behavioral therapies, is needed to ascertain whether it is likely to improve patient care. (© 2024 American Headache Society.)

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## **12. The perceptions and knowledge of prognosis of physiotherapists in musculoskeletal practice: An exploratory qualitative study**

**Authors:** Mullen, Nicholas;Ashby, Samantha;Haskins, Robin and Osmotherly, Peter

**Publication Date:** 2024

**Journal:** Musculoskeletal Science & Practice 73, pp. 103142

**Abstract:** Question(s): What are the perceptions and knowledge of physiotherapists who treat musculoskeletal disorders towards prognosis?; Design: Exploratory phenomenological study.; Participants: 15 physiotherapists involved in the treatment of musculoskeletal disorders.; Data Analysis: Data were collected through semi-structured interviews and analysed using inductive coding and thematic analysis.; Results: Four themes were identified. First, participants perception of prognosis was influenced by how they defined prognosis. Participants often perceived that prognosis was the timeline to recovery related to function, tissue health, or pain. Second, some participants could not recall foundational knowledge about prognosis being taught during their entry-level physiotherapy program. Others recalled it being taught in relation to the tissue healing model. Third, participants described learning about prognosis through experience, professional development, or from peers. Finally, participants identified that a potential learning opportunity is to conceptualise prognosis as separate outcomes associated with function, tissue health, and pain. Each can impact upon prognosis, have a prognosis of their own, and can occur simultaneously.; Conclusion: How physiotherapists perceive and understand the concept of prognosis is influenced by their foundational knowledge. It appears for physiotherapists, prognosis may be conceptualised within the biomedical model of health. Indeed, physiotherapists may perceive that prognosis is the timeline for recovery determined by the tissue model of healing. Physiotherapists also rely on experiential knowledge gained from clinical practice, professional development, and their peers to enhance learning about prognosis. The understanding of prognosis may be enhanced if physiotherapists conceptualise prognosis in terms of the multifactorial outcomes associated with function, tissue health, and pain. (Copyright © 2024 The Authors. Published by Elsevier Ltd.. All rights reserved.)

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## **13. The effect of pulmonary rehabilitation on cardiovascular risk, oxidative stress and systemic inflammation in patients with COPD**

**Authors:** Muñoz Montiel, Ana;Ruiz-Esteban, Pedro;Doménech Del Río, Adolfo;Valdivielso, Pedro;Sánchez Chaparro, Miguel Ángel and Oliveira, Casilda

**Publication Date:** 2024

**Journal:** Respiratory Medicine 232, pp. 107740

**Abstract:** Purpose: Chronic obstructive pulmonary disease (COPD) is a leading cause of death, and



cardiovascular (CV) comorbidities play a role. Evidence of the pulmonary rehabilitation (PR) effect in reducing the CV risk (CVR) in COPD patients is limited. In this study, we aimed to determine the impact of an 8-week PR program (PRP) on the CVR of the overall population and to compare the impact on the exacerbator versus non-exacerbator patients.; Patients and Methods: This was a prospective study that included adults who had post-bronchodilator forced expiratory volume in 1 s (FEV1) to forced vital capacity (FVC) (FEV1/FVC) ratio <70 % and FEV1 <80 % predicted, had quit smoking for at least 1 year and had a history of tobacco consumption greater than 10 packs/year, and were clinically stable in the last 8 weeks. Pre- and post-PRP assessments included respiratory function evaluation, laboratory tests, and exercise capacity assessment (6-min walking test 6MWT]). CVR was assessed using different risk prediction models.; Results: A total of 50 patients (28 exacerbators and 22 non-exacerbators) completed the PRP (median age: 64.5 years, men: 72 %; arterial hypertension: 70 %, dyslipidemia: 30 %, diabetes: 20 %; CV disease (CVD): 24 %. After the PRP, exacerbator patients showed a significant decrease in the CVR calculated by the COPDCoRi model ( $p < 0.001$ ); patients with  $\geq 30$ -m increase on the 6MWT showed statistically significant lower levels of glucose ( $p = 0.004$ ), HbA1c ( $p = 0.004$ ) and BODE index score ( $p = 0.026$ ) compared to patients with <30-m increase.; Conclusions: PR reduced certain modifiable CVR factors and CVD risk, especially in exacerbator patients.; Competing Interests: Declaration of competing interest The authors report no conflicts of interest in this work. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

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#### 14. Perme ICU Physical Therapy Competency: Development of an ICU Knowledge and Skills Assessment Tool

**Authors:** Perme, Christiane S.;Damasceno, Monica S.;Chandrashekar, Rohini;Xu, Jiaqiong;Ratnani, Iqbal;Masud, Faisal and Wilches-Luna, Esther

**Publication Date:** 2024

**Journal:** Intensive & Critical Care Nursing 85, pp. N.PAG

**Abstract:** Physical therapy for patients in the ICU is advanced practice demanding specialized knowledge and skills. However, ICU physical therapy competency standards lack uniformity or defined processes. To describe the development process of the Perme ICU Physical Therapy Competency and to assess its face and content validity. Quantitative research study for the content validation of the Perme ICU Physical Therapy Competency using a panel of experts. The face validity assessment consisted of two informal surveys and discussions with clinicians representing various disciplines in ICU. A content validation survey included analysis of sufficiency, clarity, coherence, and relevance for items in the Perme ICU Physical Therapy Competency. For the quantitative analysis of content validity, the item-level content validity index (I-CVI) was used. Scale-level content validity index based on the universal agreement method (S-CVI/UA) was calculated as the proportion of items on the scale that achieve a relevance scale of 3 or 4 by all experts. Scale-level content validity index was calculated based on the average method (S-CVI/Ave). The sufficiency, clarity, coherence, and relevance of the Perme ICU Physical Therapy Competency items presented S-CVI/Ave greater than 80 % (97 %, 97 %, 99 %, 95 %, respectively). This study establishes that the Perme ICU Physical Therapy Competency has a satisfactory level of face and content validity. The Perme ICU Physical Therapy Competency, with its solid framework, is a valuable assessment tool applicable for integration in any ICU competency program. It can be utilized as a self-assessment tool by individual therapists or in collaboration with mentors and evaluators to evaluate knowledge and skills effectively. This innovative tool not only enhances clinical practice but also presents an opportunity for advancing the physical therapy profession within the ICU setting.

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#### 15. Pain intensity scales: A cross-sectional study on the preferences and knowledge of physiotherapists and participants with musculoskeletal pain

**Authors:** Ranzatto, Amanda Dutra da Silva;Chaves, Thais Cristina;Martins, Marcella Nobre;Motta, Diogo Pereira;Nogueira, Leandro Calazans;Meziat-Filho, Ney and Reis, Felipe J. J.

**Publication Date:** 2024

**Journal:** Musculoskeletal Science & Practice 73, pp. 103162

**Abstract:** Background: Subjective pain intensity can be measured using instruments like the Faces Pain Scale-Revised (FPS-R), Verbal Rating Scale (VRS), Numerical Pain Rating Scale (NPRS), and Visual Analogue Scale (VAS). However, information on physiotherapists' and patients' knowledge and preference for these tools is scarce.; Objective: We investigated the knowledge and preference of physiotherapists and participants with musculoskeletal pain (MP) regarding the pain intensity measurement scales.; Methods: This cross-sectional study consisted of physiotherapists and participants with MP. Physiotherapists were recruited via social media for an online open survey, gathering sociodemographic, professional data, and their knowledge and preferences for pain intensity scales. Participants over 18 with MP, participated in interviews focusing on their familiarity and preferences for pain intensity scales. Data was analyzed descriptively, and Chi-squared test evaluated scale preferences.; Results: We included 352 physiotherapists (mean experience = 10.5 years) and 94 participants with MP. Of the physiotherapists, 94.3% were familiar with pain scales, but 30.4% struggled to differentiate them. The NPRS was the most used (56.3%) and preferred scale (52.4%). Among participants with MP, unfamiliarity was noted with all scales. After instruction, 46% preferred FPS-R, with preference varying by income and education levels ( $p < 0.001$ ).; Conclusion: We found a knowledge gap among physiotherapists in identifying pain intensity scales, with a preference for the NPRS among those familiar with the scales. Participants with MP had limited familiarity with these scales. After instructions, these participants preferred the FPS-R, particularly those with lower income and education levels. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

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## 16. Physiotherapy students' rating on lecturers' and supervisors' clinical education attributes

**Authors:** Safo-Kantanka, Nana;Quartey, Jonathan and Kwakye, Samuel Koranteng

**Publication Date:** 2024

**Journal:** Hong Kong Physiotherapy Journal (World Scientific) 44(2), pp. 79–90

**Abstract:** Background: Clinical education is considered a vital aspect of education of health science students. Attributes of clinical educators play a crucial role in determining the outcome of clinical teaching and learning. A good clinical educator ensures that students get maximum benefits of the clinical learning experience. Objective: To determine the ratings of physiotherapy students on clinical education attributes of lecturers and clinical supervisors. Methods: The study was conducted with 81 clinical physiotherapy students from two universities in Ghana. Two copies of McGill clinical teachers' evaluation (CTE) tool were used to obtain students' ratings on their clinical supervisors' and lecturers' clinical education attributes. Independent t-test was used to compare the means of students' level of study and ratings regarding the clinical education attributes of clinical supervisors and lecturers. Results: Students had a high rating on their clinical education attributes of supervisors and lecturers with a mean score of  $(12.22 \pm 1.81)$  and  $(12.21 \pm 1.67)$ , respectively. Rating on clinical education attributes of supervisors ( $p = 0.111$ ) and lecturers ( $p = 0.124$ ) did not differ significantly between the different levels of study. Conclusion: Clinical physiotherapy students rated the clinical education attributes of their lecturers and supervisors high.

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## 17. A Pre and Postnatal Physical Therapy Protocol for Recreational Athletes: A Case Series

**Authors:** Selman, Rachel and Early, Kate S.

**Publication Date:** 2024

**Journal:** International Journal of Sports Physical Therapy 19(8), pp. 1012–1019

**Abstract:** Background and Purpose Recent changes to medical recommendations for exercise in pregnancy and postpartum have expanded to include recreational athletes. While women are transitioning into motherhood at the height of their athletic careers, there is limited guidance on musculoskeletal training from pregnancy through safe return to activity. The lack of education and support in this population may lead to increased prevalence of symptoms and delay of treatment, ultimately hindering athletic performance. The purpose of this case series is to assess pelvic floor symptoms through implementing a new pre- and postnatal exercise training paradigm in a group of women aiming to return to recreational athletics. Study Design Case series Methods Six recreationally athletic women between 25-35 years of age were referred to physical therapy during pregnancy to participate in this protocol. The women completed a standardized pregnancy and postpartum rehabilitation plan focused on core and pelvic floor control in addition to specific strength and mobility training. Results Pain, urinary dysfunction, and pelvic floor muscle strength were assessed at six weeks postpartum and at discharge. Meaningful improvement was noted in pain, urinary dysfunction, and muscle strength by the time of discharge. Conclusion The decrease in symptoms and improvements in measures of musculoskeletal health suggests that a physical therapist guided rehabilitation protocol may be useful as part of the standard of care to reduce prevalence of pain and dysfunction, particularly in the recreational athlete population. Improving understanding of exercise training in this population may minimize musculoskeletal symptoms and encourage additional research to improve the standard of care for this group of patients. Level of Evidence Level 4

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## 18. Physical therapists' perceptions and attitudes towards artificial intelligence in healthcare and rehabilitation: A qualitative study

**Authors:** Shawli, Lama;Alsobhi, Mashaal;Faisal Chevidikunnan, Mohamed;Rosewilliam, Sheeba;Basuodan, Reem and Khan, Fayaz

**Publication Date:** 2024

**Journal:** Musculoskeletal Science & Practice 73, pp. 103152

**Abstract:** Background: Artificial intelligence (AI) is being introduced to rehabilitation practices, and it can optimize the patient's outcome through their ability to design personalized care strategies and interventions.; Objectives: To understand the attitudes and perceptions of physical therapy professionals on the use of AI in rehabilitation in regard to treatment planning, diagnosis, outcome prediction, and advantages and disadvantages.; Design and Methods: This paper followed an exploratory, qualitative research design. Semi-structured, one-to-one interviews were conducted with participants of different experience levels and specialties in physical therapy. Results were evaluated using thematic analysis.; Results: Four themes were identified: (i) perceptions of AI and its applications in healthcare services, (ii) impact on the workforce (iii) considerations around implementing AI within rehabilitation and (iv) AI, and the fast-approaching future. Participants shared views on the potential impact of AI on rehabilitation practices, such as aiding the decision-making process, saving time and effort of both the therapist and patients. Participants have stressed on potential pitfalls that still need to be considered, such as patient data privacy, potential loss of patient-healthcare practitioner relationship, ethical concerns regarding overreliance on these applications and how that might hinder effective patient care.; Conclusion: The findings add to the literature about physical therapists' understanding regarding the use of AI in patient care. Several concerns were raised to the adoption of AI, including concerns about patient privacy, and ethical concerns. Based on the study findings, researchers emphasize the importance of establishing guidelines when incorporating AI in rehabilitation to improve the therapist's knowledge and skills.; Competing Interests: Declaration of competing interest

The authors declare that they have no competing interests. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

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### **19. Are physiotherapists and occupational therapists following the guidelines for discharge summary?-An analysis of the content of physiotherapists' and occupational therapists' discharge summaries and their adherence to stroke guideline recommendations**

**Authors:** Solbakken, Liss Marita;Sundseth, Antje;Langhammer, Birgitta and Brovold, Therese

**Publication Date:** 2024

**Journal:** PloS One 19(9), pp. e0308039

**Abstract:** Purpose: Discharge summaries are important tools for communication between health care levels and can ensure continuity of rehabilitation. This study aims to gain insight into the content of discharge summaries written by hospital physiotherapists and occupational therapists regarding patients with stroke, and their adherence to recommended criteria for discharge summaries.; Material and Methods: 31 physiotherapy and multidisciplinary discharge summaries, for stroke patients discharged home from hospital with need of follow-up, were included in the study. We employed qualitative content analysis and descriptive statistics to explore and describe the content.; Results: The physiotherapists and occupational therapists adhered to the recommended criteria for content in varying degree. The main focus for physiotherapists and occupational therapists were description of ADL, sensorimotor and general cognitive functions, they rarely report tolerance to exercise, and the specific cognitive abilities to follow instruction and learn were often omitted. Less focus was put on patients' experiences and needs during acute stroke, and description of goals were omitted in the physiotherapy discharge summaries.; Conclusion: While the physiotherapists and occupational therapists complement each other in their assessment of patients and inform the reader about both sensorimotor and cognitive functions and abilities, they omit some of the specific criteria for rehabilitation. Despite the omissions, the information provided is specific to the patients' function and needs.; Competing Interests: First and second authors are affiliated with the university hospital from which the data was collected. Third and fourth authors report no competing interest. (Copyright: © 2024 Solbakken et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.)

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### **20. Portable robots for upper-limb rehabilitation after stroke: a systematic review and meta-analysis**

**Authors:** Tseng, Kevin C.;Wang, Le;Hsieh, Chunkai and Wong, Alice M.

**Publication Date:** 2024

**Journal:** Annals of Medicine 56(1), pp. 2337735

**Abstract:** Background: Robot-assisted upper-limb rehabilitation has been studied for many years, with many randomised controlled trials (RCTs) investigating the effects of robotic-assisted training on affected limbs. The current trend directs towards end-effector devices. However, most studies have focused on the effectiveness of rehabilitation devices, but studies on device sizes are relatively few.; Goal: Systematically review the effect of a portable rehabilitation robot (PRR) on the rehabilitation effectiveness of paralysed upper limbs compared with non-robotic therapy.; Methods: A meta-analysis was conducted on literature that included the Fugl-Meyer Assessment (FMA) obtained from the PubMed and Web of Science (WoS) electronic databases until June 2023.; Results: A total of 9 studies, which included RCTs, were completed and a meta-analysis was conducted on 8 of them. The analysis involved 295 patients. The influence on upper-limb function before and after treatment in a clinical environment is analysed by comparing the experimental group using the portable upper-limb rehabilitation robot with the control group using conventional therapy. The result shows that portable robots prove to be effective (FMA: SMD = 0.696, 95% = 0.099 to.293, p < 0.05).; Discussion: Both

robot-assisted and conventional rehabilitation effects are comparable. In some studies, PRR performs better than conventional rehabilitation, but conventional treatments are still irreplaceable. Smaller size with better portability has its advantages, and portable upper-limb rehabilitation robots are feasible in clinical rehabilitation.; Conclusion: Although portable upper-limb rehabilitation robots are clinically beneficial, few studies have focused on portability. Further research should focus on modular design so that rehabilitation robots can be decomposed, which benefits remote rehabilitation and household applications.

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## **21. Physical therapy in the ICU practice makes perfect – Where to go from competency to capability?**

**Authors:** Twose, Paul and Eggmann, Sabrina

**Publication Date:** 2024

**Journal:** Intensive & Critical Care Nursing 85, pp. N.PAG

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## **22. Effectiveness of physiotherapy rehabilitation approaches for Parkinson's disease: A Durrës case study**

**Authors:** Zotaj, Aida;Millosi, Rajmonda;Sokoli, Selda and Doci, Hariklie

**Publication Date:** 2024

**Journal:** Physiotherapy Research International : The Journal for Researchers and Clinicians in Physical Therapy 29(4), pp. e2124

**Abstract:** Background and Purpose: The article's significance lies in the substantial rise in the risk of developing Parkinson's disease (PD), necessitating the exploration of various approaches to rehabilitation and medical treatment. The purpose of the article is to detect the direct effect of physiotherapy for patients with PD and to identify how it helps in slowing down cardio-pulmonary failure, improving the posture, balance, bradykinesia and tremor.; Methods: The research utilised clinical data from 407 PD patients aged 30-100 years at the Central Polyclinic of Durrës, spanning 2011-2022, and included a systematic literature review and statistical analysis comparing physiotherapy outcomes with European Union standards.; Results: The research demonstrates the efficiency of physiotherapy in the short and long term in the treatment of PD for patients and medical personnel. All information can be used to increase the functional abilities of patients and minimise complications after physiotherapy and to estimate the effectiveness of different exercises in delaying PD. Older adults, particularly those aged 71-80, are most affected by PD, with males more likely to be diagnosed. Physiotherapy rehabilitation improves motor symptoms, posture, and balance in 30-80-year-olds, but its effectiveness declines with age. Advanced rehabilitation methods in Italy lead to better outcomes, suggesting the potential for improvement in Durrës disease.; Conclusions: The study emphasises the need for improved rehabilitation strategies for older patients by recommending tailored programs, advanced methods, standardisation, training, and long-term monitoring. Further research should concentrate on the long-term sustainability of physiotherapy benefits, the development of targeted interventions for older patients, and the integration of innovative therapeutic approaches. (© 2024 John Wiley & Sons Ltd.)

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