

Rehabilitation

Current Awareness Bulletin

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1. Comparison of the efficacy of auricular vagus nerve stimulation and conventional low back rehabilitation in patients with chronic low back pain

Authors: Demircioğlu, Gamze;Özden, Ali Veysel and Genç, Hazal

Publication Date: /08// ,2024

Journal: Complementary Therapies in Clinical Practice 56, pp. 101862

Abstract: Background: In recent years, human and animal studies have provided increasing evidence that vagus nerve stimulation (VNS) can produce analgesic effects as well as alleviating resistant epilepsy and depression. Our study was designed to compare the efficacy of transcutaneous auricular vagus nerve stimulation with conventional low back rehabilitation in patients with chronic low back pain (CLBP).; Methods: Sixty patients with LBP were randomly divided into two groups. Group 1 received conventional rehabilitation and home exercise, and Group 2 received transcutaneous auricular VNS and home exercise. Both groups received treatment five days a week for three weeks. Trunk mobility (Modified Schober test, fingertip-to-floor test), muscle strength (CSMI-Cybex Humac-Norm isokinetic dynamometer and Lafayette manual muscle strength measuring device), trunk endurance, balance tests, Visual Analog Scale, Beck Depression Scale, Pittsburgh Sleep Quality Index, Oswestry Disability Index were evaluated.; Results: At the end of three weeks, within-group assessment results showed positive effects on mobility, functional status, depression and sleep in all groups ($p < 0.05$). Pain level, endurance time and flexion trunk muscle strength results showed more improvement in Group 2 ($p < 0.05$). Some parameters of isokinetic lower extremity quadriceps muscle strength and fall risk scores showed a significant improvement in Group 1 ($p < 0.05$).; Discussion: VNS has been observed to be more effective on pain, trunk muscle strength and endurance duration and sleep status. Auricular VNS may be included in the treatment of patients with CLBP in whom conventional physical therapy is inadequate or not applicable. (Copyright © 2024 Elsevier Ltd. All rights reserved.)

2. A Glove-Based Virtual Hand Rehabilitation System for Patients With Post-Traumatic Hand Injuries

Authors: Jha, Chandan Kumar;Shukla, Yagna;Mukherjee, Rupsha;Rathva, Prakash;Joshi, Mahima and Jain, Dhruv

Publication Date: /07// ,2024

Journal: IEEE Transactions on Bio-Medical Engineering 71(7), pp. 2033-2041

Abstract: Recent studies have shown that virtual gamified therapy can be a potential adjunct to conventional orthopedic rehabilitation. However, the off-the-shelf gaming consoles used for virtual rehabilitation pose several practical challenges in deploying them in clinical settings. In this article, we present the design of a portable glove-based virtual hand rehabilitation system (RehabRelive Glove) that can be used at both clinics and homes for physiotherapy. We also evaluate the system's efficacy on patients with post-traumatic hand injuries. Thirty patients were randomly categorized into groups A (virtual rehabilitation) and B (conventional physiotherapy). Both groups received fifteen 25-minute sessions of respective therapy over three weeks. The wrist and finger joints' range of motion (ROM) and grip strength were measured every seven sessions to compare the efficacy. Group A showed about 1.5 times greater improvement in flexion/extension ROM of the wrist compared to Group B. While both groups improved finger ROM and grip strength with time, no significant difference was observed between the groups. The results suggest that the proposed virtual rehabilitation system effectively enables patients with hand injuries to recover ROM faster.

3. Cognitive and emotional impairment in stroke survivors: insights from a multi-center study on inpatient rehabilitation therapy

Authors: Jin, Lihua;Zhao, Ying;Ye, Ting;He, Ying and Yao, Liqing

Publication Date: /07/02/ ,2024

Journal: Brain Injury 38(8), pp. 630-636

Abstract: Background: Individuals recovering from stroke often experience cognitive and emotional impairments, but rehab programs tend to focus on motor skills. The aim of this investigation is to systematically assess the change of magnitude of cognitive and emotional function subsequent to a conventional rehabilitative protocol administered to stroke survivors within a defined locale in China.; Methods: This is a multicenter study; a total of 1884 stroke survivors who received in-hospital rehabilitation therapy were assessed on admission (T0) and discharge (T1). The tool of InterRAI was used to assess cognitive, emotional, and behavioral abnormality.; Results: The patients aged >60 years, with a history of hypertension, and long stroke onset duration were more exposed to functional impairment (all $p < 0.05$). Both cognitive and emotional sections were significantly improved at T1 compared to T0 ($p < 0.001$). Initially, 64.97% and 46.55% of patients had cognitive or emotional impairment at T0, respectively; this percentage was 58.55% and 37.15% at T1.; Conclusion: Many stroke survivors have ongoing cognitive and emotional problems that require attention. It is essential to focus on rehabilitating these areas during the hospital stay, especially for older patients, those with a longer recovery, and those with hypertension history.

4. Effects of rehabilitation treatments jointly considered by physiatrists and rehabilitation therapists in patients with severe burn injury

Authors: Kondo, Takahito;Tsuboi, Hiroyuki;Nishiyama, Kazunari;Takahashi, Gaku and Nishimura, Yukihide

Publication Date: /08// ,2024

Journal: Burns : Journal of the International Society for Burn Injuries 50(6), pp. 1621-1631

Abstract: Rehabilitation treatments for patients with severe burn injury (SBI) are difficult owing to the lack of knowledge, skills, and experience among clinicians and physical and occupational therapists, resulting in serious patient disability. This study retrospectively evaluated the effectiveness of rehabilitation treatments jointly considered by physiatrists and rehabilitation therapists (Physiatrist and Registered therapist Operating rehabilitation: PROr) for patients with SBI admitted to our hospital's burn intensive care unit (BICU). Eligible patients were classified into the PROr and standard rehabilitation (SR) groups. Contents of the rehabilitation program in the BICU, the functional ambulation categories (FAC), and the Barthel index at the first rehabilitation, BICU discharge, and hospital discharge were collected. Of the 184 patients with severe burns admitted to the BICU, 29 (PROr group, $n = 16$; SR group, $n = 13$) met the eligibility criteria. The PROr group received more types of exercise interventions for a longer time than the SR group. No significant differences in the FAC and Barthel index scores at the first time of rehabilitation were found between the two groups; however, the scores of FAC and Barthel index at BICU and hospital discharges were higher in the PROr group than in the SR group. The PROr program may help in the functional improvement of patients with SBI.; Competing Interests: Declaration of Competing Interest None. (Copyright © 2024 Elsevier Ltd and International Society of Burns Injuries. All rights reserved.)

5. 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: /12// ,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.

6. 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: /10/01/ ,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.)

7. Acceptability of two mobile applications to support cross-sectoral, person-centred and empowering stroke rehabilitation - a process evaluation

Authors: Marwaa, Mille Nabsen;Guidetti, Susanne;Ytterberg, Charlotte and Kristensen, Hanne Kaae

Publication Date: /12// ,2024

Journal: Annals of Medicine 56(1), pp. 2302979

Abstract: Aim: To evaluate the acceptability of two co-designed mobile applications [Mit Sygehus a knowledge-based solution] and Genoptræn.dk a self-training solution] to support a cross-sectoral, person-centred and empowering stroke rehabilitation.; Setting: The applications were implemented and tested throughout two stroke rehabilitation trajectories in Southern Denmark, comprising two acute, two sub-acute and two municipal stroke rehabilitation settings.; Methods, Participants and Analysis: A process evaluation focusing on acceptability was conducted. Individual and dyadic interviews were performed with ten stroke survivors (three women and seven men, aged 50-84) with moderate stroke and seven significant others (five women and two men, aged 50-78) post-rehabilitation. A constructivist Grounded Theory analysis was used to explore what, why, when, and how the apps worked or did not

work throughout the stroke rehabilitation trajectory and if adaptations were needed.; Results: Participants found that Mit Sygehus provided adequate and sufficient knowledge and was easy to use, however, acceptability of Mit Sygehus declined throughout the rehabilitation process. Also, knowledge on 'return-to-work' and 're-gaining driver's license/permission to drive' needed to be developed. The content in Genoptræn.dk was perceived as acceptable, through content being person-centred, motivating and meaningful. Genoptræn.dk furthermore, supported the transfer between rehabilitation settings, provided a sense of progress throughout the rehabilitation process, facilitated positive habits regarding self-training, and relieved the burden on significant others. Genoptræn.dk was perceived most acceptable in the sub-acute rehabilitation setting and declined when rehabilitation continued in the municipal setting.; Conclusion: Stroke survivors and their significant others found Mit Sygehus and Genoptræn.dk acceptable to support cross-sectoral, person-centred and empowering stroke rehabilitation, however acceptability declined throughout the rehabilitation process. Further investigations are required to determine how cognitive rehabilitation can play a greater role in app-supported stroke rehabilitation and how the need for more long-term follow-up can be supported.

8. The role of multiplatform messaging applications in burns care and rehabilitation: A systematic review

Authors: Mc Kittrick, Andrea;Kornhaber, Rachel;de Jong, Alette;Allorto, Nikki;Vana, Luiz Philipe Molina;Chong, Si Jack;Haik, Josef and Cleary, Michelle

Publication Date: /08// ,2024

Journal: Burns : Journal of the International Society for Burn Injuries 50(6), pp. 1424-1436

Abstract: Background: Multiplatform messaging applications also referred to as cross-platform instant messaging play an important role in delivery of healthcare and education with its low cost, ease of use and accessibility.; Aim: To evaluate the existing evidence regarding the use of multiplatform messaging applications in facilitating consultations and decision-making processes in the context of burns care, as well as to assess the impact of such applications on burns care and rehabilitation.; Method: A systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines and PROSPERO protocol CRD42021265203. The CASP and JBI tools were used to evaluate the quality of the studies. Eight hundred fifty-three papers were retrieved from PubMed, CINAHL, Scopus, EMBASE and LILACS published up to July 2022 (updated August 2023) with no time restrictions applied.; Results: An analysis of the seven studies included in this review, inclusive of 16 Multiplatform messaging applications, revealed six themes. These encompassed the utilization of social media for directing and managing clinical practice, as a mode of communication, for evaluating the quality-of-care provision, for investigating available platforms and their technological features, measuring quality of life and for examining issues related to confidentiality.; Conclusion: Multiplatform messaging applications offer a solution for individuals with burn injuries to stay in direct contact with burn specialist clinicians for their follow-up and subsequent rehabilitation phase of recovery.; Competing Interests: Declaration of Competing Interest The author(s) declared that they have no competing interests. (Copyright © 2024 The Author(s). Published by Elsevier Ltd.. All rights reserved.)

9. Implementation of nutritional screening tools, nutritional assessment tools, and diagnostic criteria for malnutrition in convalescent rehabilitation wards: A nationwide survey

Authors: Nishioka, Shinta;Takayama, Masako;Okamoto, Takatsugu and Miyai, Ichiro

Publication Date: /08// ,2024

Journal: Clinical Nutrition ESPEN 62, pp. 102-107

Abstract: Background & Aims: The utilization of recommended nutritional assessment measures in rehabilitation settings remains unclear. This study explored methods for identifying nutritional disorders using data from a nationwide survey conducted in convalescent rehabilitation wards.; Methods: This

cross-sectional study analyzed the annual survey, including methods for identifying malnutrition, the risk of malnutrition, and overnutrition in Kaifukuki (convalescent) rehabilitation wards. Methods identifying malnutrition and risk of malnutrition were grouped into nutritional screening tools (NSTs), nutritional assessment tools (NATs), diagnostic criteria for malnutrition (DCM), and suboptimal methods (e.g., hypoalbuminemia). NSTs, NATs, and DCM were further categorized as "acceptable tools." The association between applying acceptable tools, hospital-based data (e.g., the number of beds), and ward-based data (e.g., assessor for nutritional status) was analyzed by logistic regression analysis with multiple imputations.; Results: In total, 885 hospitals with Kaifukuki rehabilitation wards responded to the survey, and 754 hospitals were included in the analysis. Registered dietitians assessed the nutritional status in 88% of the hospitals, whereas other professionals (e.g., nurses) evaluated the nutritional status in the remainder. NSTs (e.g., Mini Nutritional Assessment Short-Form), NATs (e.g., Subjective Global Assessment), DCM (e.g., Global Leadership Initiative on Malnutrition criteria), and suboptimal tools were used in 13.1%, 5.4%, 4.8%, and 74.6% of cases, respectively. Most hospitals used acceptable measures (e.g., body mass index) for overnutrition (91.2%). Multiple logistic regression analysis showed that assessments by registered dietitians (adjusted odds ratio[OR]: 2.20, 95% confidence interval[CI]: 1.09-4.45) and hospital-owned food services, a proxy for limited clinical practice time of dietitians, were associated with a low likelihood of implementing acceptable measures (adjusted OR: 0.64, 95%CI: 0.43-0.97).; Conclusions: Acceptable malnutrition measures, including the NSTs, NATs, and DCM, have not been widely applied in convalescent rehabilitation settings. The implementation of recommended tools for identifying malnutrition may be promoted when registered dietitians assess the patients' nutritional status.; Competing Interests: Declaration of competing interest The authors have no conflict of interest to declare. (Copyright © 2024 European Society for Clinical Nutrition and Metabolism. Published by Elsevier Ltd. All rights reserved.)

10. Occupational therapy's oversight: How science veiled our humanity

Authors: Reid, Heleen;Hocking, Clare and Smythe, Elizabeth

Publication Date: /12// ,2024

Journal: Scandinavian Journal of Occupational Therapy 31(1), pp. 2306585

Abstract: Background: Occupational therapy's connection to positivist science predates the profession's formal beginning, with important contributing knowledge sources coming from mathematics, physics, psychology, and systems theory. While these sources of objective knowledge provide a rational, defensible position for practice, they can only explain a portion of what it means to exist as an occupational being.; Aims/objectives: This article aims to reveal some of the history of science within occupational therapy and reveal the subjective, ontological nature of doing everyday activities that the profession's preoccupation with positivist science has obscured.; Methods: This research used a history of ideas methodology to uncover how occupational therapy perceived people and how practice was conceptualised and conducted between 1800 and 1980s, as depicted in writing of the time.; Conclusion: Analysis showed that, through history, people were increasingly categorised and delimited. Practice also became systematically controlled, moving occupational therapy into a theoretical, scientific, and abstract realm.; Significance: The emphasis placed on objectivity diminishes the attention given to human ways of practicing, where the subjective experience is central to our thinking.

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

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

Publication Date: /12// ,2024

Journal: Hong Kong Physiotherapy Journal : Official Publication of the Hong Kong Physiotherapy Association Limited = Wu Li Chih Liao 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 (121 . 22 ± 18 . 12) and (122 . 11 ± 16 . 71), 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.; Competing Interests: There were no competing interests from all authors in this study. (© Hong Kong Physiotherapy Association.)

12. 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: /12// ,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.

13. The future of burn management: How can machine learning lead to a revolution in improving the rehabilitation of burn patients?

Authors: Vakili Ojarood, Mohammad;Yaghoubi, Tahereh;Mohsenizadeh, Seyed Mostafa;Torabi, Hossein and Farzan, Ramyar

Publication Date: /08// ,2024

Journal: Burns : Journal of the International Society for Burn Injuries 50(6), pp. 1704-1706

Abstract: Competing Interests: Declaration of Competing Interest The authors declare no conflicts of interest.

14. Bridging the gap: The need for physical therapy and patient-reported outcome measures in vaginoplasty recovery

Authors: Yoon, YooJin;Poinski-McCoy, Sarah;Higuchi, Ty and Kaoutzanis, Christodoulos

Publication Date: /07// ,2024

Journal: Journal of Plastic, Reconstructive & Aesthetic Surgery : JPRAS 94, pp. 30-31

15. Effects of virtual reality-based rehabilitation on cognitive function and mood in multiple sclerosis: A systematic review and meta-analysis of randomized controlled trials

Authors: Zhang, Jiongliang;Wu, Minmin;Li, Jinting;Song, Wenjing;Lin, Xiaoguang and Zhu, Luwen

Publication Date: /07// ,2024

Journal: Multiple Sclerosis and Related Disorders 87, pp. 105643

Abstract: Background: Multiple sclerosis (MS) is a disabling neurological disease that causes cognitive impairment and mental problems that occur in all MS phenotypes but are most common in patients with secondary progressive MS. Various degrees of cognitive impairment and mental health concerns are common among patients with MS (PwMS). Virtual reality (VR)-based rehabilitation is an innovative approach aimed at enhancing cognitive function and mood in PwMS. This study aims to perform a meta-analysis to assess the effects of VR-based rehabilitation on cognitive function and mood in PwMS.; Methods: Using PubMed, Embase, the Cochrane Library, Web of Science, and the Physiotherapy Evidence Database (PEDro), a thorough database search was performed to identify randomized controlled trials (RCTs) examining the effects of VR on PwMS. Trials published until October 31, 2023, that satisfied our predetermined inclusion and exclusion criteria were included. Data were extracted, literature was examined, and the methodological quality of the included trials was assessed. StataSE version 16 was used for the meta-analysis.; Results: Our meta-analysis included 461 patients from 10 RCTs.; Primary Outcomes: The Montreal Cognitive Assessment (MoCA) (weighted mean difference WMD]=1.93, 95 % confidence interval CI]=0.51-3.36, P = 0.008, I² = 75.4 %) the Spatial Recall Test (SPART) (WMD=3.57, 95 % CI=1.65-5.50, P < 0.001, I² = 0 %), immediate recall (standard mean difference SMD]=0.37, 95 % CI=0.10-0.64, P = 0.007, I² = 0 %) and delayed recall (SMD]=0.30, 95 % CI=0.06-0.54, P = 0.013, I² = 35.4 %) showed improvements in comparison to the control group in terms of global cognitive function immediate recall, delayed recall, and visuospatial abilities.; Secondary Outcomes: Compared to the control group, anxiety improved (standard mean difference SMD]=0.36, 95 % CI=0.10-0.62, P = 0.007, I² = 43.1 %). However, there were no significant differences in processing speed, attention, working memory or depression.; Conclusions: This systematic review provides valuable evidence for improving cognitive function and mood in PwMS through VR-based rehabilitation. In the future, VR-based rehabilitation may be a potential method to treat cognitive function and emotional symptoms of MS.; Systematic Review Registration: PROSPERO; identifier: CRD42023474467.; Competing Interests: Declaration of competing interest The authors declare that they have no competing interests. (Copyright © 2024. Published by Elsevier B.V.)

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