

Stroke

Evidence Update



December 2017
Quarterly

Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.



Lunchtime Drop-in Sessions

All sessions last one hour

December (12.00-13.00)

7 th (Thu)	Statistics
14 th (Thu)	Literature Searching
20 th (Wed)	Critical Appraisal

January (13.00-14.00)

4 th (Thu)	Statistics
8 th (Mon)	Literature Searching
18 th (Thu)	Critical Appraisal
24 th (Wed)	Statistics

February (12.00-13.00)

1 st (Thu)	Literature Searching
9 th (Fri)	Critical Appraisal
12 th (Mon)	Statistics
20 th (Tue)	Literature Searching
28 th (Wed)	Critical Appraisal



Your Outreach Librarian- Jo Hooper

Whatever your information needs, the library is here to help. As your Outreach Librarian I offer **literature searching services** as well as training and guidance in **searching the evidence** and **critical appraisal** – just email me at library@uhbristol.nhs.uk

Outreach: Your Outreach Librarian can help facilitate evidence-based practise for all in the oral and maxillofacial surgery team, as well as assisting with academic study and research. We can help with **literature searching, obtaining journal articles and books**, and setting up individual **current awareness alerts**. We also offer one-to-one or small group training in **literature searching, accessing electronic journals, and critical appraisal**. Get in touch: library@uhbristol.nhs.uk

Literature searching: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one-to-one session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence. Please email requests to library@uhbristol.nhs.uk

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Latest Evidence

NICE National Institute for
Health and Care Excellence

[What are the effects of early supported discharge services for people with acute stroke?](#)

Source: [Cochrane Clinical Answers](#) - 16 October 2017

[How does early discharge home compare with continued inpatient care for people recovering from stroke?](#)

Source: [Cochrane Clinical Answers](#) - 08 November 2017

[Signal: Early discharge 'hospital-at-home' gives similar outcomes to in-patient care](#)

Source: [NIHR Dissemination Centre](#) - 03 October 2017 [Read Summary](#)

[Stroke pathway](#) [PDF]

Source: [NHS RightCare](#) - 08 September 2017 - Publisher: NHS RightCare [Read Summary](#)

[Preventing and managing stroke: NHS RightCare Pathway](#)

Source: [NHS England](#) - 23 October 2017 - Publisher: NHS England [Read Summary](#)

[NIHR Signal Early discharge 'hospital-at-home' gives similar outcomes to in-patient care](#)

03 October 2017 - Publisher: National Institute for Health Research Signal

[Constraint-induced movement therapy in treatment of acute and sub-acute stroke: a meta-analysis of 16 randomized controlled trials](#)

Source: [PubMed](#) - 01 September 2017 - Publisher: Neural Regeneration Research [Read Summary](#)

[Can caregiver-mediated exercise improve outcomes in people with stroke?](#)

Source: [Cochrane Clinical Answers](#) - 16 October 2017

[Signal: Group rehabilitation activities improve walking after stroke](#)

Source: [NIHR Dissemination Centre](#) - 12 September 2017

[Short- and Long-term Effects of Repetitive Transcranial Magnetic Stimulation on Upper Limb Motor Function after Stroke: a Systematic Review and Meta-Analysis](#)

Source: [PubMed](#) - 01 September 2017 - Publisher: Clinical Rehabilitation [Read Summary](#)

[Effects of Physical Activity on Poststroke Cognitive Function: A Meta-Analysis of Randomized Controlled Trials](#)

Source: [PubMed](#) - 20 September 2017 - Publisher: Stroke [Read Summary](#)

[Active exergames to improve cognitive functioning in neurological disabilities: a systematic review and meta-analysis](#)

Source: [PubMed](#) - 25 October 2017 - Publisher: European Journal Of Physical And Rehabilitation Medicine



[Early supported discharge services for people with acute stroke](#)

Peter Langhorne , Satu Baylan and Early Supported Discharge Trialists

Online Publication Date: July 2017Review

The logo for UpToDate, with the text 'UpToDate' in a green, sans-serif font and a registered trademark symbol (®) to the upper right.

OpenAthens login required. Register here: <https://openathens.nice.org.uk/>

[Overview of geriatric rehabilitation: Patient assessment and common indications for rehabilitation](#)

- [Stroke](#)
- [Summary and recommendations](#)

Literature review current through: Oct 2017. | This topic last updated: Apr 25, 2016.

Recent Database Articles on Stroke Recovery

Below is a selection of articles on oral and maxillofacial surgery recently added to the healthcare databases, grouped into the following categories:

Early Stroke Discharge
Occupational Therapy
Upper Limb
Cognitive and Perception

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch:

library@uhbristol.nhs.uk

Early Stroke Discharge

Home-based videoconferencing enhances rural stroke early supported discharge (SESD) services

Author(s): Melissa S.; Dana N.; Andrea T.; Christina R.; Kelsey S.; Kerri M.; Kristine S.; Sarah B.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 19

Publication Type(s): Conference Abstract

Abstract: Introduction: In Alberta, 25% of stroke patients reside in small urban, rural and remote locations. The Cardiovascular Health and Stroke Strategic Clinical Network endorsed the Camrose St. Mary's Hospital's Stroke Early Supported Discharge (SESD) team serving a rural catchment area traveling 118,000 km annually. An eight week pilot project was completed in 2016 to examine the feasibility of incorporating home-based real-time Telehealth videoconferencing into SESD services. Methods: Therapy Assistants equipped with Telehealth videoconferencing equipment traveled to clients' homes connecting with SESD therapists and other Alberta Health Service providers. Data collection included: videoconference date, time, duration, quality, location, disciplines, type of consult, travel resources saved, successes, limitations, and client reaction. Client and clinician satisfaction surveys were completed. A live demonstration from a Camrose client's home to congress audience will be offered to allow direct interaction and gain first-hand impression of client experience. Results: Results show that videoconferencing created system efficiencies along with high client and staff satisfaction. There was an average travel savings of 90 minutes and 119 km per session. Clients rated overall satisfaction using videoconferencing as 9/10. Positive clinical outcomes were maintained as shown by COPM, FIM, and AusTOMs scores. Conclusion: St. Mary's Camrose successfully integrated home-based videoconferencing into SESD services. This project shows how videoconferencing can improve clinical efficiencies by reducing travel and increasing access without compromising overall quality of care or client satisfaction. Videoconferencing helps bridge gaps creating equitable rehabilitation for rural stroke survivors. Based on successful pilot results it is recommended that videoconferencing be available to all SESD teams to enhance services while maximizing available resources.

The cost effectiveness of stroke unit equivalent care and early supported discharge for rural and small urban areas: The stroke action plan

Author(s): Zheng Y.; Philip J.; Anderson C.; Arto O.; Thomas J.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 11

Publication Type(s): Conference Abstract

Abstract:Introduction: The Stroke Action Plan coupled stroke unit equivalent care (SUEC) with early supported discharge (ESD) for rural and small urban areas resulting in improvements in adherence to best practice and reduced disability. We examined the cost-effectiveness of SUEC alone, SUEC plus ESD (SUEC&ESD) relative to the usual care (non-SUEC). Methods: We used administrative health datasets and calculated costs and 6 month mortality. We calculated life expectancy for each patient after stroke onset and determined the additional life years saved from SUEC and SUEC & ESD. To reduce bias due to confounders we used propensity scores. We derived the risk-adjusted incremental cost (IC), incremental effectiveness (IE), and then incremental cost-effectiveness ratios (ICERs). Results: Of 988 patients initially identified 895 new stroke patients were selected for the analyses. We found that SUEC had less cost and was more effective than the non-SUEC (IC=-\$3,378, IE=0.45 year, ICER=-\$7,522 per life-year gain). The arm that combined SUEC&ESD was more costly but also more effective than either the SUEC (IC=\$5,179, 1.64 life years gained, ICER=\$3,154 per life-year gain) or the non-SUEC options (IC=\$8,557, 1.19 life years gained, ICER=\$7,174 per life-year gain). Conclusion: We found SUEC to be a dominant strategy with lower direct health care costs and lower mortality than the non-SUEC. The SUEC&ESD was also cost-effective when compared with the non-SUEC or the SUEC arms assuming a willingness to pay threshold of \$50 000. The stroke action plan resulted in better outcomes with either lower costs or acceptable costs per life saved.

Sharing our experiences: Development and evaluation of a brief psychoeducation & coping skills intervention for stroke patients and their families

Author(s): Ashley F.; Nelly C.; Kim K.; Lisa P.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 54

Publication Type(s): Conference Abstract

Abstract:Introduction: The Early Supported Discharge (ESD) Program provides in-home, intensive neurorehabilitation after stroke. Yet even within this individualized care model, patients often feel overwhelmed with the emotional aspects of stroke recovery. We describe the development and evaluation of a brief group intervention integrating psychoeducation, experience sharing, and teaching behavioural and cognitive coping skills for ESD patients and their families. Methods: Over 6-months, 65 patients (43%) and family members (57%) attended a 1.5-hour intervention led by a neuropsychologist and social worker. Attendees completed a short survey evaluating group content. We analyzed responses for trends in satisfaction ratings and themes provided in open-ended feedback. Results: We found high/very high satisfaction validating group content as helpful in supporting daily interactions (93% patients; 96% family), recognizing signs of stress (86% patients; 88% family), and understanding how/ when to seek help for emotional concerns (100% patients; 91% family). Primary themes emerging from open-ended feedback included: (1) patients/families enjoyed interactive opportunities to learn coping skills; (2) many families felt they could benefit from ongoing support; (3) both patients and families strongly endorsed the value of sharing their experiences with other stroke survivors in a professionally-led setting. Conclusion: Consistent with existing research, brief psychoeducational group intervention shows potential to improve knowledge, coping skills, and interpersonal connectedness after stroke. Positive feedback centered on the interactive format of sessions and ability to share experience, and facilitate education and normalization about emotional recovery. Group interventions may be a cost-effective and needed intervention to assist stroke survivors and their families at various stages of recovery.

One size does not fit all: The evolution of stroke early supported discharge (ESD) in Alberta

Author(s): Carla F.; Jaime W.; Jodi R.; Karen P.; Kim K.; Shayne B.; Melissa S.; Agnes L.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 53

Publication Type(s): Conference Abstract

Abstract:Introduction: Since the completion of two pilots in 2009, Alberta has expanded the Early Supported Discharge (ESD) model from two exclusively urban to an additional five unique, small urban or rural teams throughout the province. These seven teams meet the diverse challenge of offering ESD to differing demographic and geographic catchment areas with variation in stroke specific and staffing resources. Methods: Building from a central model of practice with standard quality metrics, additional ESD teams enhanced limited pre-existing rehabilitation services. Using this strong foundation, teams employed 'lean' methodology developing guidelines and workflow processes to customize programs overcoming challenges and meeting the needs of their clientele. Results: Each team has increased access to skilled stroke rehab in both urban and rural areas but has developed to meet local needs. The seven teams work in concert to improve the flow from acute care across the province and provide clients a smooth transition. All teams' client and clinician surveys indicate improved satisfaction. Learnings have been twoway between the urban and rural teams contributing valuable experiences to each other. Conclusion: The development of rural and urban ESD teams has improved system flow and access to rehab for Albertans. Individual team successes and challenges has required varying strategies for effective service delivery. ESD efficacy has been proven and has been expanded to the brain injury and frail elderly populations in Alberta. It is recommended that the ESD model be expanded to other populations.

Stroke action plan: The reality of the dream

Author(s): Agnes L.; Shelley V.; Balraj M.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 73

Publication Type(s): Conference Abstract

Abstract:Introduction: Stroke Action Plan (SAP) received the 2014 Chairs' Award for Impact for "Best Practices and Early Supported Discharge in Rural Stroke Care - The Dream and the Reality". We described preliminary project results from the Cardiovascular Health & Stroke Strategic Clinical NetworkTM (SCNTM) to develop models for non-metro centres by integrating Early Supported Discharge and/or Stroke Unit Equivalent Care. 2015 final results verified SAP had a positive impact. One year postproject, on-going success has been monitored. Methods: Three key mechanisms were used to ensure associated accountability for sustainability: - Innovation collaboratives created solid foundation to set sites up for success - Front-line data collection and reporting of key performance metrics in the form of "scorecards" - "Partnership Service Agreements" (PSAs) between the SCNTM and operational leads stated: sites to submit regular scorecards and the SCNTM to coordinate quarterly review meetings and collate a yearly report to senior executive. A one-year post-project site review was completed Results: All sites report ongoing frontline data collection and use of scorecards to be effective for multilevel performance monitoring. Correlation was observed between performance measures (e.g. low completion of stroke order sets and completion of swallowing screens). PSAs are a strong collaborative mechanism between frontline, administration, and the SCNTM to ensure sustainability. Conclusion: Collaboratives, robust frontline data collection, and PSA demonstrated the power of these methods to improve care. These results capture the administrative perspective of SAP one-year post-project. The front line perspective of PSAs and use of scorecards for accountability needs to be revealed.

Small Site, BIG advantage-how our small site maximize continuity of care

Author(s): Dana N.; Melissa S.; Janice T.; Celine T.; Joni K.; Sarah B.; Kerri M.; Andrea T.; Dan G.; Agnes L.; Matthew M.; Colleen N.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 71-72

Publication Date: 2017

Publication Type(s): Conference Abstract

Abstract:Introduction: Providing continuity of care, especially at care transitions, is a challenge in health care. A stroke patient's journey takes them through a maze of departments and services, meeting dozens of care providers. At St Mary's Hospital, Camrose, our goal was to improve this journey to provide continuous, consistent care. Canadian Best Practice Guidelines highlight the value of having the same staff across different teams to ensure smooth transitions. Methods:We have "blended" many roles to maximize continuity of care and staff efficiencies with small full-time equivalent positions. A single employee is cross-trained to multiple service areas, providing an advantage to the patient and the facility. Nurses serve the Stroke Prevention Clinic, navigate and participate in tPA administration in Emergency. Our Physical and Occupational Therapists work in both Stroke Unit Equivalent Care (hospital) and Early Supported Discharge (community) teams. Heart Function & Stroke Prevention Clinic staff is blended. Results: Our blended roles and having teams under the same roof provided an integrated service delivery, improved communication during transition points, and improved staff efficiency. Consistent staff throughout the journey decreased patients' stress, improved consistency of information received and enhanced the quality of their relationship with their health care provider. Conclusion: Conscientiously and intentionally blending positions helps to improve our patient's journey while supporting high quality care, especially at transition points. Blended roles have advantages to both facilities and to patients for efficient, safe and personal care.

Achieving stroke distinction across a zone-wide health system

Author(s): Shy A.; Keith K.; Thomas J.; Tracy W.; Shanen H.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 69

Publication Type(s): Conference Abstract

Abstract:Introduction: The Stroke System within Edmonton Zone (EZ) is comprised of three Stroke Prevention Clinics, three Acute Stroke Programs, four physician groups, inpatient and outpatient rehabilitation programs, and a Stroke Early Supported Discharge team across two organizations and four sites. Stroke Program Edmonton Zone (SPEZ) collaborates with site-based programs to provide coordinated, integrated, high quality stroke care. The Stroke Distinction Award was pursued collaboratively as a Comprehensive Stroke System, including numerous departments and sites within EZ. Methods: Three primary strategies were used to obtain the Award. First, a database was developed and implemented to collect stroke data in the absence of a clinical information system. Second, bi-weekly meetings were held over 15 months to prepare teams for the submission and survey. SPEZ coordinators collaborated with site-based teams to develop protocols, implemented across the Zone. Finally, an Improvement Collaborative methodology was used to strengthen relationships between sites and programs, create action plans, and track results. Results: All sites as part of the integrated EZ Stroke Program received Distinction. Acute sites experienced improvement in LOS (30% decrease), stroke unit admissions (2% increase), readmission rates (2% reduction), dysphagia (15% increase), cognitive screening (27% increase), and rehabilitation assessments (16% increase). Dysphagia and cognitive screening in rehabilitation increased 44% and 64% respectively. Partnering between over 16 groups and departments to pursue the Award reinforced a culture of collaboration and quality. Conclusion: With collaboration and central coordination, even complex stroke systems involving numerous sites and stages of care can achieve Stroke Distinction.

Occupational Therapy

Promoting Physical Activity and Nutrition in People With Stroke.

Author(s): Bailey, Ryan R

Source: The American journal of occupational therapy : official publication of the American Occupational Therapy Association; ; vol. 71 (no. 5); p. 7105360010p1

Publication Type(s): Journal Article

Available at [The American Journal of Occupational Therapy](#) - from ProQuest

Abstract:The prevalence of cardiovascular disease, diabetes, and obesity is high in people with stroke. Risk factors for these conditions include hypertension, high cholesterol, and physical inactivity. These risk factors are common in people with stroke and often go unmanaged. Engagement in healthy behaviors is important for managing and preventing these risk factors and comorbid conditions. More specifically, physical activity and nutrition are key health behaviors for the management and maintenance of health in people with stroke. These health behaviors, by their very nature, are also occupations; thus, they are influenced by client factors, performance skills and patterns, and environments and contexts. This article discusses physical activity and nutrition within the context of the Occupational Therapy Practice Framework: Domain and Process and proposes potential roles for occupational therapy practitioners and researchers in developing, testing, and providing physical activity and nutrition interventions for people with stroke.

Addressing sexuality and intimacy with individuals post-cerebrovascular accident

Author(s): Sarah F.; Susan P.; Emily B.; Maryann A.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 53-54

Publication Type(s): Conference Abstract

Abstract:Introduction: Sexuality and Intimacy has been identified as a gap in the provision of services by the Occupational Therapy team on the Restorative Care Unit(RCU) at St. Peter's Hospital. The team also acknowledges the importance of this topic in quality of life following stroke. The following questions were developed: Are healthcare providers (HCPs)addressing sexuality and intimacy with individuals post-CVA?; How can HCPs improve the quality of care specifically re: sexuality and intimacy for clients post-CVA? The perspectives of HCPs and clients were explored to understand how sexuality and intimacy are relevant during rehabilitation, which informed the development of recommendations to improve the quality of care. **[Abstract Edited]**

Improving RPG length of stay performance

Author(s): Chris P.; David C.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 63

Publication Type(s): Conference Abstract

Abstract:Introduction: In 2014, Hotel Dieu Shaver recognized that a low percentage of stroke rehabilitation patients were meeting their RPG length of stay (LOS)targets. Additionally many staff were unaware of the targets and the team discharge planning process did not include the use of RPG information as a consideration. In April 2015 we implemented a comprehensive education, retraining and process improvement plan to address these knowledge gaps and empower our staff to meet this performance measure. **[Abstract Edited]**

Interprofessional stroke team simulations: improving knowledge and skills for practice

Author(s): Diane M.; Gail C.; Kim S.; Gordon G.; Stephen M.; Kim H.; Ellen H.; Dylan B.

Source: International Journal of Stroke; 2017; vol. 12 (no. 4); p. 61

Publication Type(s): Conference Abstract

Abstract:Introduction: Collaborative interprofessional (IP) care is the accepted best-practice standard in stroke. The breadth of multi-system challenges and array of professionals involved in care is unique and challenging for learners to navigate. IP stroke team simulations offer a shared educational experience that efficiently addresses applied content and relevant IP practice relationships. Methods: A total of 386 students (356 on-site, 30 distance technology) from medicine, nursing, occupational therapy, physiotherapy, pharmacy and speech language pathology were divided into 60 teams of five to seven students. All students completed the collaborative care plan simulation and the 356 on-site student teams participated in a two-station stroke clinic team simulation. After both simulation events, voluntary and anonymous program evaluation forms were provided to all students. The evaluation included the interprofessional collaborative competency assessment scale (ICCAS) and five qualitative questions probing the simulation experiences. Results: The ICCAS scores for the collaborative care plan (378; 98% response rate) and the stroke clinic (340; 96% response rate) found a significant change ($p < 0.05$) in pre-post ratings for both simulations events, regardless of profession or previous IP experience. A larger shift in pre-post ratings was found in the stroke clinic simulation. Thematic analysis of the free text reflective questions indicated deep learning in for IP competencies, with preference for the skills-based stroke clinic simulation. Conclusion: The collaborative care plan team meeting and the stroke clinic are effective and valuable simulation designs for stroke content and IP knowledge, but the learners rated and articulated a preference for the team-based stroke clinic simulations.

Effect of passive limb activation by Functional Electrical Stimulation on wheelchair driving in patients with unilateral spatial neglect: A case study

Author(s): Yoshihiro N.; Ito E.

Source: Hong Kong Journal of Occupational Therapy; Dec 2017; vol. 30 ; p. 14-21

Publication Type(s): Article

Abstract:Background/Objective Limb activation is one of the behavioural interventions to improve unilateral spatial neglect (USN). However, the effect of passive limb activation on activities of daily living (ADL) is not clear. This study examined the effect of passive limb activation by functional electrical stimulation (FES) on wheelchair driving for patients with USN, and to discuss the possibility of application of this treatment to occupational therapy. **[Abstract Edited]**

Effect of subtypes of neglect on functional outcome in stroke patients.

Author(s): Spaccavento, Simona; Cellamare, Fara; Falcone, Rosanna; Loverre, Anna; Nardulli, Roberto

Source: Annals of physical and rehabilitation medicine; Nov 2017; vol. 60 (no. 6); p. 376-381

Publication Type(s): Journal Article

Abstract:OBJECTIVE Because of the loss of autonomy in daily-life activities, spatial neglect after stroke is one of the main causes of disability. According to the spatial domains, neglect can be divided into personal (body), peripersonal (reaching) and extrapersonal (far) space. We evaluated the effect of these subtypes of neglect on functional outcome of rehabilitation in stroke patients. **[Abstract Edited]**

The role of occupational and physiotherapy in multi-modal approach to tackling delirium in the intensive care.

Author(s): Rains, Jenny; Chee, Nigel

Source: Journal of the Intensive Care Society; Nov 2017; vol. 18 (no. 4); p. 318-322

Publication Type(s): Journal Article Review

Abstract:The presence of delirium within critical care remains a long-standing challenge for patients and clinicians alike. A myriad of pre-disposing and precipitating factors lead to this patient cohort being high risk for developing delirium during their critical care stay. Until now, non-pharmacological management of these patients usually encompasses a 'bundle' of principles to reduce delirium days. These bundles have limited focus on the entire multi-disciplinary team (including occupational therapists and physiotherapists) who could assist with the reduction of delirium. The purpose of this analysis is to review the current literature and develop a mnemonic, which may help facilitate collaborative working for patients with delirium. **[Abstract Edited]**

Examining a new functional electrical stimulation therapy with people with severe upper extremity hemiparesis and chronic stroke: A feasibility study.

Author(s): Hebert, Deborah A.; Bowen, James M.; Cindy Ho; Antunes, Irene; O'Reilly, Daria J.

Source: British Journal of Occupational Therapy; Nov 2017; vol. 80 (no. 11); p. 651-659

Publication Type(s): Academic Journal

Abstract:Introduction: Upper extremity impairment post-stroke is common and results in decreased occupational engagement. For those with chronic stroke and severe hemiparesis, few treatment options are available. MyndMove™ is a functional electrical stimulation technology programmed to stimulate up to eight muscle groups in reach and grip patterns. A pre-post, cohort, feasibility study was conducted to inform the design of a randomized controlled trial examining the effectiveness of MyndMove™ therapy. **[Abstract Edited]**

Virtual Activities of Daily Living for Recovery of Upper Extremity Motor Function

Author(s): Adams R.J.; Lichter M.D.; Ellington A.; White M.; Armstead K.; Patrie J.T.; Diamond P.T.

Source: IEEE Transactions on Neural Systems and Rehabilitation Engineering; Nov 2017

Publication Type(s): Article In Press

Abstract:A study was conducted to investigate the effectiveness of virtual activities of daily living (ADL) practice using the SaeboVR software system for recovery of upper extremity (UE) motor function following stroke. The system employs Kinect sensor-based tracking to translate human UE motion into the anatomical pose of the arm of the patient's avatar within a virtual environment, creating a virtual presence within a simulated task space. Patients gain mastery of twelve different integrated activities while traversing a metaphorical "Road to Recovery" that includes thematically-linked levels and therapist-selected difficulty settings. Clinical trials were conducted under the study name Virtual Occupational Therapy Application (VOTA) [1]. A total of 15 chronic phase stroke survivors completed a protocol involving three sessions per week over eight weeks, during which they engaged in repetitive task practice through performance of the virtual ADLs. Results show a clinically important improvement and statistically significant difference in Fugl-Meyer UE assessment (FMUE) scores in the study population of chronic stroke survivors over the eight-week interventional period compared to a non-interventional control period of equivalent duration. Statistically significant and clinically important improvements are also found in Wolf Motor Function Test (WMFT) scores. These results provide new evidence for use of virtual ADL practice as a tool for UE therapy for stroke patients. Limitations of the study include non-blinded assessments and the possibility of selection and/or attrition bias. Copyright OAPA

No Racial Difference in Rehabilitation Therapy Across All Post-Acute Care Settings in the Year Following a Stroke.

Author(s): Skolarus, Lesli E; Feng, Chunyang; Burke, James F

Source: Stroke; Oct 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND AND PURPOSEBlack stroke survivors experience greater poststroke disability than whites. Differences in post-acute rehabilitation may contribute to this disparity. Therefore, we estimated racial differences in rehabilitation therapy utilization, intensity, and the number of post-acute care settings in the first year after a stroke.METHODSWe used national Medicare data to study 186 168 elderly black and white patients hospitalized with a primary diagnosis of stroke in 2011. We tabulated the proportion of stroke survivors receiving physical, occupational, and speech and language therapy in each post-acute care setting (inpatient rehabilitation facility, skilled nursing facility, and home health agency), minutes of therapy, and number of transitions between settings. We then used generalized linear models to determine whether racial differences in minutes of physical therapy were influenced by demographics, comorbidities, thrombolysis, and markers of stroke severity.RESULTSBlack stroke patients were more likely to receive each type of therapy than white stroke patients. Compared with white stroke patients, black stroke patients received more minutes of physical therapy (897.8 versus 743.4; $P<0.01$), occupational therapy (752.7 versus 648.9; $P<0.01$), and speech and language therapy (865.7 versus 658.1; $P<0.01$). There were no clinically significant differences in physical therapy minutes after adjustment. Blacks had more transitions (median, 3; interquartile range, 1-5) than whites (median, 2; interquartile range, 1-5; $P<0.01$).CONCLUSIONSThere are no clinically significant racial differences in rehabilitation therapy utilization or intensity after accounting for patient characteristics. It is unlikely that differences in rehabilitation utilization or intensity are important contributors to racial disparities in poststroke disability.

Canadian Stroke Best Practice Recommendations: Telestroke Best Practice Guidelines Update 2017.

Author(s): Blacquiere, Dylan; Lindsay, M Patrice; Foley, Norine; Taralson, Colleen; Alcock, Susan

Source: International journal of stroke : official journal of the International Stroke Society; Oct 2017; vol. 12 (no. 8); p. 886-895

Publication Date: Oct 2017

Publication Type(s): Journal Article

Abstract:Every year, approximately 62,000 people with stroke and transient ischemic attack are treated in Canadian hospitals. The 2016 update of the Canadian Stroke Best Practice Recommendations Telestroke guideline is a comprehensive summary of current evidence-based and consensus-based recommendations appropriate for use by all healthcare providers and system planners who organize and provide care to patients following stroke across a broad range of settings. These recommendations focus on the use of telemedicine technologies to rapidly identify and treat appropriate patients with acute thrombolytic therapies in hospitals without stroke specialized expertise; select patients who require to immediate transfer to stroke centers for Endovascular Therapy; and for the patients who remain in community hospitals to facilitate their care on a stroke unit and provide remote access to stroke prevention and rehabilitation services. **[Abstract Edited]**

Non-pharmacological interventions for spasticity in adults: An overview of systematic reviews.

Author(s): Khan, Fary; Amatya, Bhasker; Bensmail, Djamel; Yelnik, Alain

Source: Annals of physical and rehabilitation medicine; Oct 2017

Publication Type(s): Journal Article Review

Abstract:OBJECTIVESSpasticity causes significant long-term disability-burden, requiring comprehensive management. This review evaluates evidence from published systematic reviews of clinical trials for effectiveness of non-pharmacological interventions for improved spasticity outcomes. **[Abstract Edited]**

Effect of Transcranial Direct Current Stimulation on Severely Affected Arm-Hand Motor Function in Patients After an Acute Ischemic Stroke: A Pilot Randomized Control Trial.

Author(s): Rabadi, Meheroz H; Aston, Christopher E

Source: American journal of physical medicine & rehabilitation; Oct 2017; vol. 96 (no. 10)

Publication Type(s): Randomized Controlled Trial Journal Article

Abstract:OBJECTIVEThe aim of this article was to determine whether cathodal transcranial direct current stimulation (c-tDCS) to unaffected primary motor cortex (PMC) plus conventional occupational therapy (OT) improves functional motor recovery of the affected arm hand in patients after an acute ischemic stroke compared with sham transcranial direct current stimulation plus conventional OT. **[Abstract Edited]**

Knowledge translation in occupational therapy.

Author(s): Bennett, Sally

Source: Australian Occupational Therapy Journal; Oct 2017; vol. 64 (no. 5); p. 349-349

Publication Type(s): Academic Journal

Abstract:This article focuses on knowledge translation, a dynamic and iterative process that involves synthesis, dissemination, exchange and application of knowledge to improve health. Topics discussed include the aim of knowledge translation to close the gap between research and practice, the targets of knowledge translation within occupational therapy, including stroke rehabilitation, mental health and falls prevention, and the need for research to be developed with the end-use in mind.

Re-establishing an occupational identity after stroke – a theoretical model based on survivor experience.

Author(s): Walder, Kim; Molineux, Matthew

Source: British Journal of Occupational Therapy; Oct 2017; vol. 80 (no. 10); p. 620-630

Publication Type(s): Academic Journal

Abstract:Introduction Annually, approximately five million people worldwide are left with a permanent disability following a stroke, often with ongoing occupational issues. A deeper understanding of the emerging picture of occupational disruption and identity reconstruction after stroke is needed to inform client-centred practice. **[Abstract Edited]**therapy services in the reality of individual needs from an occupational perspective.

Delayed recovery of the affected finger extensors at chronic stage in a stroke patient

Author(s): Jang S.H.; Lee H.D.

Source: Medicine (United States); Oct 2017; vol. 96 (no. 43)

Publication Type(s): Article

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

Abstract:Rationale: A 33-year-old male presented with complete weakness of the right extremities due to corona radiata infarct. Patient concerns: The main concerns of the patient is recovery of hand function especially related to finger extension. Diagnoses: Right corona radiata infarct. Interventions: He underwent physical therapy and occupational therapy at the outpatient clinic of the rehabilitation department of the same university hospital until 2 years after onset. In addition, he underwent neuromuscular electrical stimulation for the right finger extensors continuously until 4 years after onset. **[Abstract Edited]**

Videojuegos comerciales en la rehabilitacion de pacientes con ictus subagudo: Estudio piloto
Commercial video games in the rehabilitation of patients with sub-acute stroke: A pilot study

Author(s): Cano-Manas M.J.; Collado-Vazquez S.; Cano-De-La-Cuerda R.

Source: Revista de Neurologia; Oct 2017; vol. 65 (no. 8); p. 337-347

Publication Type(s): Article

Abstract:Introduction. Stroke generates dependence on the patients due to the various impairments associated. The use of lowcost technologies for neurological rehabilitation may be beneficial for the treatment of these patients. Aim. To determine whether combined treatment using a semi-immersive virtual reality protocol to an interdisciplinary rehabilitation approach, improve balance and postural control, functional independence, quality of life, motivation, selfesteem and adherence to intervention in stroke patients in subacute stage. **[Abstract Edited]**

Successful treatment of post-stroke shoulder pain with peripheral nerve stimulation of the axillary nerve

Author(s): Miccio V.F.; Sein M.T.; O'Dell M.W.

Source: Neuromodulation; Oct 2017; vol. 20 (no. 7)

Publication Type(s): Conference Abstract

Abstract:Introduction: Post-stroke shoulder pain affects almost one-third of patients following stroke (1). The etiology of shoulder pain after stroke is elusive and has been attributed to chronic glenohumeral subluxation, complex regional pain syndrome, rotator cuff tendinopathy, and biomechanical imbalance secondary to increased tone. Pain is often refractory to both pharmacologic and non-pharmacologic therapies. **[Abstract Edited]**

Examining the effect of receiving strategy training intervention on usual care practice

Author(s): Harleman S.; Skidmore E.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: Compared to directed cues, guided cues are associated with favorable outcomes for individuals with stroke-related cognitive impairments. We examined the frequencies of directed and guided cues in usual rehabilitation care (occupational therapy and physical therapy) and in strategy training sessions (where guided cues are emphasized). **[Abstract Edited]**

Assessing a task oriented training program in the home with mixed methods

Author(s): Rowe V.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To determine the effectiveness and structure of a task oriented training program administered at home for people with stroke related hemiparesis.DesignMixed methods. Quantitative, experimental design with standardized assessments administered pre-test, post-test, and one-month follow-up. Qualitative, phenomenological design assessing field notes to more fully describe the essence of the intervention. Setting: All evaluation and intervention sessions were conducted in the participant's home. **[Abstract Edited]**

Upper Limb

Pattern of improvement in upper limb pointing task kinematics after a 3-month training program with robotic assistance in stroke.

Author(s): Pila, Ophélie; Duret, Christophe; Laborne, François-Xavier; Gracies, Jean-Michel;

Source: Journal of neuroengineering and rehabilitation; Oct 2017; vol. 14 (no. 1); p. 105

Publication Type(s): Journal Article

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

Abstract:BACKGROUNDWhen exploring changes in upper limb kinematics and motor impairment associated with motor recovery in subacute post stroke during intensive therapies involving robot-assisted training, it is not known whether trained joints improve before non-trained joints and whether target reaching capacity improves before movement accuracy. **[Abstract Edited]**

Home programs for upper extremity recovery post-stroke: a survey of occupational therapy practitioners.

Author(s): Donoso Brown, Elena V; Fichter, Renae

Source: Topics in stroke rehabilitation; Dec 2017; vol. 24 (no. 8); p. 573-578

Publication Type(s): Journal Article

Abstract:BACKGROUNDUpper extremity hemiparesis is an impairment post-stroke that impacts quality of life. Home programs are an intervention strategy used by many occupational therapists to support continued motor recovery post-stroke, yet little is known about how these programs are designed and implemented.OBJECTIVESThe purpose of this study was to describe how occupational therapy practitioners approach this task and specifically what strategies they use to support adherence and what types of technology are most commonly used. **[Abstract Edited]**

Explicit motor sequence learning with the paretic arm after stroke.

Author(s): Fleming, Melanie K; Newham, Di J; Rothwell, John C

Source: Disability and rehabilitation; Feb 2018; vol. 40 (no. 3); p. 323-328

Publication Type(s): Journal Article

Abstract:PURPOSEMotor sequence learning is important for stroke recovery, but experimental tasks require dexterous movements, which are impossible for people with upper limb impairment. This makes it difficult to draw conclusions about the impact of stroke on learning motor sequences. We aimed to test a paradigm requiring gross arm movements to determine whether stroke survivors with upper limb impairment were capable of learning a movement sequence as effectively as age-matched controls. **[Abstract Edited]**since stroke, hand dominance and gender on learning of motor sequences after stroke.

Effects of transcranial direct current stimulation over the supplementary motor area body weight-supported treadmill gait training in hemiparetic patients after stroke.

Author(s): Manji, Atsushi; Amimoto, Kazu; Matsuda, Tadamitsu; Wada, Yoshiaki; Inaba, Akira;

Source: Neuroscience letters; Jan 2018; vol. 662 ; p. 302-305

Publication Type(s): Journal Article

Abstract:Transcranial direct current stimulation (tDCS) is used in a variety of disorders after stroke including upper limb motor dysfunctions, hemispatial neglect, aphasia, and apraxia, and its effectiveness has been demonstrated. Although gait ability is important for daily living, there were few reports of the use of tDCS to improve balance and gait ability. The supplementary motor area (SMA) was reported to play a potentially important role in balance recovery after stroke. We aimed to investigate the effect of combined therapy body weight-supported treadmill training (BWSTT) and tDCS on gait function recovery of stroke patients. **[Abstract Edited]**

Effectiveness of repetitive transcranial magnetic stimulation (rTMS) after acute stroke: A one-year longitudinal randomized trial

Author(s): Guan Y.-Z.; Wu S.; Du H.; Cui L.-Y.; Li J.; Zhang X.-W.; Zhang W.-H.

Source: CNS Neuroscience and Therapeutics; Dec 2017; vol. 23 (no. 12); p. 940-946

Publication Type(s): Article

Abstract:Aims: To evaluate the effectiveness of repetitive transcranial magnetic stimulation (rTMS) on motor recovery after stroke using a prospective, double-blind, randomized, sham-controlled study. Methods: Patients with unilateral subcortical infarction in the middle cerebral artery territory within 1 week after onset were enrolled. The patients were randomly divided into an rTMS treatment group and a sham group. We performed high-frequency rTMS or sham rTMS on the two groups. Motor functional scores were assessed pre- and post-rTMS/sham rTMS and at 1 month, 3 months, 6 months, and 1 year after stroke onset**[Abstract Edited]**

A Recurrent Case of Ischemic Stroke Caused by Vasospasm due to Giant Cell Arteritis.

Author(s): Kawamura, Reina; Mizuma, Atsushi; Kouchi, Maiko; Nagata, Eiichiro; Takahashi, Wakoh

Source: Journal of Stroke & Cerebrovascular Diseases; Nov 2017; vol. 26 (no. 11)

Publication Type(s): Academic Journal

Abstract:A 73-year-old man was admitted with sudden right upper-limb weakness. He had a temporal headache on the left side and had a 4-month history of fever. Meandering of the left temporal artery (TA) with induration and high inflammatory responses (white blood cell count 22,500 per microliter, C-reactive protein 35.0 mg/dL, and elevated sedimentation rate [ESR] 80 mm/h) were observed. Glycometabolism and lipid metabolism were normal, and autoimmune antibodies were negative. Cultivation tests revealed no bacteria in either blood culture or cerebrospinal fluid. Brain magnetic resonance imaging (MRI) showed ischemic lesion in the left frontal lobe, while magnetic resonance angiography (MRA) and carotid ultrasonography showed unstable plaque lesions in the left extracranial internal carotid artery (ICA). According to reported criteria (age > 50 years, new onset of headache, abnormality of the TA, and raised ESR), we diagnosed giant cell arteritis (GCA) with acute ischemic stroke (IS) and gave the patient antithrombotic therapy (aspirin 100 mg, cilostazol 200 mg). After admission, hemiparesis progressed but fluctuated. Subsequent MRI showed new lesions in the left watershed area. MRA also showed vasospasm in the middle cerebral artery and C5 portion of the ICA. Considering the correlation with GCA pathophysiology, oral prednisolone therapy was administered. Steroid therapy has prevented stroke recurrence and improved the symptoms and vasospasm. We wish to emphasize that GCA can induce IS via vasospasm, and steroid therapy is recommended.

Increasing upper limb training intensity in chronic stroke using embodied virtual reality: A pilot study

Author(s): Perez-Marcos D.; Chevalley O.; Garipelli G.; Serino A.; Tadi T.; Blanke O.; Schmidlin T.

Source: Journal of NeuroEngineering and Rehabilitation; Nov 2017; vol. 14 (no. 1)

Publication Type(s): Article

Available at [Journal of NeuroEngineering and Rehabilitation](#) - from BioMed Central

Abstract:Background: Technology-mediated neurorehabilitation is suggested to enhance training intensity and therefore functional gains. Here, we used a novel virtual reality (VR) system for task-specific upper extremity training after stroke. The system offers interactive exercises integrating motor priming techniques and embodied visuomotor feedback. In this pilot study, we examined (i) rehabilitation dose and training intensity, (ii) functional improvements, and (iii) safety and tolerance when exposed to intensive VR rehabilitation. **[Abstract Edited]**

Virtual reality for stroke rehabilitation

Author(s): Laver K.E.; George S.; Crotty M.; Lange B.; Deutsch J.E.; Saposnik G.

Source: Cochrane Database of Systematic Reviews; Nov 2017; vol. 2017 (no. 11)

Publication Type(s): Review

Available at [Cochrane Database of Systematic Reviews](#) - from Cochrane Collaboration (Wiley)

Abstract:Background: Virtual reality and interactive video gaming have emerged as recent treatment approaches in stroke rehabilitation with commercial gaming consoles in particular, being rapidly adopted in clinical settings. This is an update of a Cochrane Review published first in 2011 and then again in 2015. Objectives: Primary objective: to determine the efficacy of virtual reality compared with an alternative intervention or no intervention on upper limb function and activity. Secondary objectives: to determine the efficacy of virtual reality compared with an alternative intervention or no intervention on: gait and balance, global motor function, cognitive function, activity limitation, participation restriction, quality of life, and adverse events. **[Abstract edited]**

A composite robotic-based measure of upper limb proprioception

Author(s): Kenzie J.M.; Semrau J.A.; Dukelow S.P.; Hill M.D.; Scott S.H.

Source: Journal of NeuroEngineering and Rehabilitation; Nov 2017; vol. 14 (no. 1)

Publication Type(s): Article

Available at [Journal of NeuroEngineering and Rehabilitation](#) - from BioMed Central

Abstract:Background: Proprioception is the sense of the position and movement of our limbs, and is vital for executing coordinated movements. Proprioceptive disorders are common following stroke, but clinical tests for measuring impairments in proprioception are simple ordinal scales that are unreliable and relatively crude. We developed and validated specific kinematic parameters to quantify proprioception and compared two common metrics, Euclidean and Mahalanobis distances, to combine these parameters into an overall summary score of proprioception. **[ABSTRACT EDITED]**

Effects of somatosensory electrical stimulation on motor function and cortical oscillations

Author(s): Tu-Chan A.P.; Natraj N.; Godlove J.; Abrams G.; Ganguly K.

Source: Journal of NeuroEngineering and Rehabilitation; Nov 2017; vol. 14 (no. 1)

Publication Type(s): Article

Available at [Journal of NeuroEngineering and Rehabilitation](#) - from BioMed Central

Abstract:Background: Few patients recover full hand dexterity after an acquired brain injury such as stroke. Repetitive somatosensory electrical stimulation (SES) is a promising method to promote recovery of hand function. However, studies using SES have largely focused on gross motor function; it remains unclear if it can modulate distal hand functions such as finger individuation. Objective: The specific goal of this study was to monitor the effects of SES on individuation as well as on cortical oscillations measured using EEG, with the additional goal of identifying neurophysiological biomarkers. **[ABSTRACT EDITED]**

High-Intensity Chronic Stroke Motor Imagery Neurofeedback Training at Home: Three Case Reports

Author(s): Zich C.; Debener S.; Schweinitz C.; Meekes J.; Kranczioch C.; Sterr A.

Source: Clinical EEG and Neuroscience; Nov 2017; vol. 48 (no. 6); p. 403-412

Publication Type(s): Article

Available at [Clinical EEG and Neuroscience](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Motor imagery (MI) with neurofeedback has been suggested as promising for motor recovery after stroke. Evidence suggests that regular training facilitates compensatory plasticity, but frequent training is difficult to integrate into everyday life. Using a wireless electroencephalogram (EEG) system, we implemented a frequent and efficient neurofeedback training at the patients' home. Aiming to overcome maladaptive changes in cortical lateralization patterns we presented a visual feedback, representing the degree of contralateral sensorimotor cortical activity and the degree of sensorimotor cortex lateralization. Three stroke patients practiced every other day, over a period of 4 weeks. Training-related changes were evaluated on behavioral, functional, and structural levels. All 3 patients indicated that they enjoyed the training and were highly motivated throughout the entire training regime. EEG activity induced by MI of the affected hand became more lateralized over the course of training in all three patients. The patient with a significant functional change also showed increased white matter integrity as revealed by diffusion tensor imaging, and a substantial clinical improvement of upper limb motor functions. Our study provides evidence that regular, home-based practice of MI neurofeedback has the potential to facilitate cortical reorganization and may also increase associated improvements of upper limb motor function in chronic stroke patients. Copyright © EEG and Clinical Neuroscience Society (ECNS) 2017.

Motion Rehab AVE 3D: A VR-based exergame for post-stroke rehabilitation

Author(s): Trombetta M.; Bazzanello Henrique P.P.; Brum M.R.; Colussi E.L.; De Marchi A.C.B.

Source: Computer Methods and Programs in Biomedicine; Nov 2017; vol. 151 ; p. 15-20

Publication Type(s): Article

Abstract:Background and objective Recent researches about games for post-stroke rehabilitation have been increasing, focusing in upper limb, lower limb and balance situations, and showing good experiences and results. With this in mind, this paper presents Motion Rehab AVE 3D, a serious game for post-stroke rehabilitation of patients with mild stroke. The aim is offer a new technology in order to assist the traditional therapy and motivate the patient to execute his/her rehabilitation program, under health professional supervision. **[ABSTRACT EDITED]**

Effectiveness of central plus peripheral stimulation (CPPS) on post stroke upper limb motor rehabilitation.

Author(s): Khan, Fayaz Rahman; Chevidikunnan, Mohamed Faisal

Source: Brain Injury; Oct 2017; vol. 31 (no. 11); p. 1494-1500

Publication Type(s): Academic Journal

Abstract: Purpose: This study was to assess the motor-cortex integrity and reaction time of the upper limb in patients early after stroke after CPPS approach with Theta Burst Stimulation (TBS) a repetitive Trans-cranial Magnetic Stimulation (TMS) paradigm and Neuromuscular Electrical Stimulation (NMES). Methods: Ten patients and ten age matched controls underwent three experimental sessions in three consecutive weeks. First-week W1 (TBS) with TBS alone, second-week W2 (NMES) with NMES alone and third-week W3 (TBS + NMES) with both TBS and NMES given sequentially. Cortical excitability was assessed with single pulse TMS stimulator before and immediately after the three interventions for Resting Motor Threshold (RMT) from the ipsilesional and contralesional hemisphere in the corresponding first dorsal interossei muscle of the ipsilateral and contralateral hand. Post intervention functional assessment was done with 9 Hole Peg Test (9PHT) for change in reaction time (RT) for both ipsilateral and contralateral hand. Results: All the three interventions showed significant improvement from the baseline, however W3 (TBS + NMES) showed significantly greater improvement when compared to other interventions in RMT and 9 PHT. Conclusion: CPPS with TBS and NMES showed synergistic effect in both electrophysiological and clinical assessment. A combined approach (CPPS) may be more effective for post-stroke motor rehabilitation.

Immediate effect of mental practice with and without mirror therapy on muscle activation in hemiparetic stroke patients.

Author(s): Caires, Tamise Aguiar; Rodrigues Martinho Fernandes, Luciane Fernanda; Patrizzi, Lislei Jorge; de Almeida Oliveira, Rafael; Pascucci Sande de Souza, Luciane Aparecida

Source: Journal of Bodywork & Movement Therapies; Oct 2017; vol. 21 (no. 4); p. 1024-1027

Publication Type(s): Academic Journal

Abstract: Mental practice (MP) consists of the repeated mental rehearsal of a physical skill without movement, called motor imagery (MI). Studies show that MP and MI associated mirror therapy (MPMT) may improve muscle control of the upper limbs in hemiparesis. This study aimed to evaluate muscle activation during active flexion of the wrist (MA), MP, and MPMT in patients with history of stroke and hemiparesis. Individuals diagnosed with stroke showing sequelae of upper limb hemiparesis were enrolled. The flexor carpi ulnaris was analyzed using electromyography during tasks (MA, MP, MPMT) involving wrist flexion. Greater electromyographic activity was detected during MP and MPMT techniques compared to active movement ($p = 0.02$). There was no significant difference between MP and MPMT ($p = 0.56$). These results were found in both the affected limb and unaffected limb. Immediate effects on muscle activation are experienced during MP and MPMT, and muscle activity was similar with both therapies.

Motor Imagery Training After Stroke: A Systematic Review and Meta-analysis of Randomized Controlled Trials.

Author(s): Fernandes Guerra, Zaqueline; Lucchetti, Alessandra L. G.; Lucchetti, Giancarlo

Source: Journal of Neurologic Physical Therapy; Oct 2017; vol. 41 (no. 4); p. 205-214

Publication Type(s): Academic Journal

Abstract: Background and Purpose: A number of studies have suggested that imagery training (motor imagery [MI]) has value for improving motor function in persons with neurologic conditions. We performed a systematic review and meta-analysis to assess the available literature related to efficacy of MI in the recovery of individuals after stroke. **[ABSTRACT EDITED]**

Effects of action observation therapy on upper extremity function, daily activities and motion evoked potential in cerebral infarction patients

Author(s): Fu J.; Zeng M.; Shen F.; Zhu M.; Gu X.; Sun Y.; Cui Y.

Source: Medicine (United States); Oct 2017; vol. 96 (no. 42)

Publication Type(s): Article

PubMedID: 29049194

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

Abstract:Background: The aim of this study was to explore the effects of action observation therapy on motor function of upper extremity, activities of daily living, and motion evoked potential in cerebral infarction patients. **[ABSTRACT EDITED]**

The novel implantable peripheral nerve stimulator for post-stroke shoulder pain

Author(s): McRoberts W.P.; Kim C.; Sein M.; Naftulin S.; Huntoon M.; Apostol C.; Abdul H.S.

Source: Neuromodulation; Oct 2017; vol. 20 (no. 7)

Publication Type(s): Conference Abstract

Abstract:Introduction: Post-stroke Shoulder Pain (PSSP) is a debilitating condition that occurs in 30-70% of stroke patients (1,2). It is associated with shoulder sub-luxation and it frequently contributes to loss of upper limb use and an inability to perform basic activities of daily living. PSSP is a multifactorial pain mechanism that involves central and peripheral as well as nociceptive and neuropathic components. The peripheral nervous system (PNS) is particularly impaired, since several peripheral nerves that innervate the glenohumeral joint GH (axillary, suprascapular, lateral pectoral) are involved in the peripheral transmission of pain to the central nervous system. Peripheral nerves also have descending motor components and are involved in the altered mechanics (upper arm weakness and spasticity) and the resulting malalignment of the GH joint. The axillary nerve, in particular, controls an important motor component via activation of the teres minor and deltoid muscles, that promote rotation and elevation of the GH joint. Peripheral nerve stimulation, specifically stimulation of the axillary nerve, is a promising treatment for PSSP (3). Methods: Patients with PSSP were implanted with a StimRouter peripheral neuromodulation device (Bioness, Valencia, CA) consisting of a peripheral stimulation lead placed adjacent to the axillary nerve, and a lead receiver placed under the skin. The peripheral lead was guided, under ultrasound guidance (Fig. 1), until an appropriate deltoid twitch response was elicited. The final lead position was verified under fluoroscopy as the lead was buried anteriorly in an L-shape (Fig. 2), across the lower deltoid muscle. The flexible lead receiver was placed under the skin surface of the posterior/middle deltoid muscle. An external pulse transmitter was used to run the stimulation program. Results: Patients from four different sites are included in this study. Visual analog scores (VAS) were recorded prior to implant and at various times after the start of stimulation (Table 1, 2, 3). Conclusion: Peripheral nerve stimulation targeting the axillary nerve is a promising treatment for PSSP, that may improve quality of life in stroke patients. The stimulation probe can be implanted in under 15 minutes with ultrasound or fluoroscopy guidance. Peripheral excitation of sensory and motor nerves may have an effect on the central nervous system, leading to increased blood flow to the injured area, reduced spasticity and improved alignment. Implantable peripheral neurostimulation therapies provide a safe, effective, pain management option that can improve the rehabilitation process in patients recovering from stroke (4).

Is two better than one? Muscle vibration plus robotic rehabilitation to improve upper limb spasticity and function: A pilot randomized controlled trial

Author(s): Calabro R.S.; Naro A.; Russo M.; Milardi D.; Leo A.; Trinchera A.; Bramanti P.; Filoni S.

Source: PLoS ONE; Oct 2017; vol. 12 (no. 10)

Publication Type(s): Article

PubMedID: 28973024

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

Abstract:Even though robotic rehabilitation is very useful to improve motor function, there is no conclusive evidence on its role in reducing post-stroke spasticity. Focal muscle vibration (MV) is instead very useful to reduce segmental spasticity, with a consequent positive effect on motor function. Therefore, it could be possible to strengthen the effects of robotic rehabilitation by coupling MV. To this end, we designed a pilot randomized controlled trial (Clinical Trial NCT03110718) that included twenty patients suffering from unilateral post-stroke upper limb spasticity. Patients underwent 40 daily sessions of Armeo-Power training (1 hour/session, 5 sessions/week, for 8 weeks) with or without spastic antagonist MV. They were randomized into two groups of 10 individuals, which received (group-A) or not (group-B) MV. The intensity of MV, represented by the peak acceleration (a-peak), was calculated by the formula $(2\pi f)^2 A$, where f is the frequency of MV and A is the amplitude. Modified Ashworth Scale (MAS), short intracortical inhibition (SICI), and Hmax/Mmax ratio (HMR) were the primary outcomes measured before and after (immediately and 4 weeks later) the end of the treatment. In all patients of group-A, we observed a greater reduction of MAS ($p = 0.007$, $d = 0.6$) and HMR ($p < 0.05$). Copyright © 2017 Calabro 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.

Pattern of improvement in upper limb pointing task kinematics after a 3-month training program with robotic assistance in stroke

Author(s): Pila O.; Duret C.; Gracies J.-M.; Bayle N.; Hutin E.; Laborne F.-X.

Source: Journal of NeuroEngineering and Rehabilitation; Oct 2017; vol. 14 (no. 1)

Publication Type(s): Article

Available at [Journal of NeuroEngineering and Rehabilitation](#) - from BioMed Central

Abstract:Background: When exploring changes in upper limb kinematics and motor impairment associated with motor recovery in subacute post stroke during intensive therapies involving robot-assisted training, it is not known whether trained joints improve before non-trained joints and whether target reaching capacity improves before movement accuracy. **[ABSTRACT EDITED]**

Transfer of robotic therapy to daily activities after stroke: Considerations for patient-targeted home programs

Author(s): Fasoli S.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To develop and refine a stroke therapy protocol that combines robotic therapy with patient-targeted home programs based on motor learning principles. To describe intervention effects on paretic upper limb function and activity performance via outcome measures across ICF domains. To examine pilot study strengths and limitations in preparation for planning a larger clinical trial. Design: Repeated measures design. Setting: Outpatient research lab in

rehabilitation hospital. Participants: Community-dwelling adults with moderate chronic upper limb motor impairments after stroke. Interventions: Participants were randomly assigned to receive 18 sessions of robot-assisted therapy, with or without task-oriented training, together with an individualized home program to facilitate carryover of targeted upper limb motions in the home/community. Home programs, focused on motor learning principles, upper limb self-management and problem solving strategies, were reviewed weekly. Main Outcome Measure(s) Primary measure: Motor Activity Log (MAL). Secondary measures: Fugl-Meyer Assessment (FMA), Wolf Motor Function Test (WMFT), Stroke Impact Scale, Confidence in Arm and Hand Movement (CAHM) scale, and accelerometer data collected during 72 hour periods at home. Measures were administered pre/post treatment and at one month follow-up. Results: Moderate to large pre-post intervention gains were evident for the MAL, FMA, and WMFT in both treatment groups. Participants with greater distal function at baseline were more likely to follow through with home program activities and reported greater use of problem solving strategies to optimize upper limb function. Associations between paretic arm use and CAHM scores will be discussed. Conclusions: Previous studies have not well-addressed the transfer of robot-trained movements to functional paretic arm use after stroke. This pilot indicates the need for robotic training that utilizes theory-based motor learning strategies to optimize home programming and carryover of upper limb function during daily activities.

Estimating clinical scores from wearable sensor data in stroke survivors

Author(s): Meagher C.; Sapienza S.; Adans-Dester C.; O'Brien A.; Patel S.; Vergara-Diaz G.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract: Research Objectives: To investigate the suitability of a machine learning algorithm based on data collected using two wearable 3-axis accelerometers to predict the total Functional Ability Scale (FAS) score during the performance of a battery of motor tasks taken from the Wolf Motor Function Test (WMFT). Design Cross-sectional pilot study. Setting: Research laboratory. Participants: 34 Stroke Survivors: 24 subjects were evaluated at Spaulding Rehabilitation Hospital (42+/-7 years old, 12+/-17 months post-stroke) and 10 at the University of Southampton (UK) (42+/-7 years old, 12+/-12 months post-stroke). Interventions: N/A. Main Outcome Measure(s) Functional Ability Scale (FAS), accelerometer data collected using wearable sensors positioned on the trunk (i.e. sternum) and the wrist of the stroke-affected upper limb. Results: Data features were derived from the accelerometer data collected during the performance of motor tasks taken from the WMFT. A machine learning algorithm (Random Forest) was used to generate estimates of the FAS scores for each individual task. Then the scores for individual tasks were combined via linear regression to estimate the total FAS score. The results were compared with FAS scores generated via clinical observation. The total FAS scores estimated using the accelerometer data showed high correlation with the clinical scores (2.92 % average relative error). Conclusion/Discussion The results indicate that it is feasible to estimate movement quality (i.e. FAS scores) based on data recorded using two wearable sensors. The average relative error of the sensor-based estimates appears to be smaller than the inter-rater variability. Future studies with a larger sample size could further increase the accuracy of the algorithm.

Designing a wrist-worn sensor to monitor upper-limb use in stroke survivors: Stakeholder focus group results

Author(s): Adans-Dester C.; O'Brien A.; Dowling A.; Lee S.; Bonato P.; Gwin J.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To gather feedback from patients and clinicians in regard to a wearable system designed to monitor upper-limb movements and encourage stroke survivors to use the affected arm.DesignFocus groups. Setting: General community, Inpatient and Outpatient. Participants: 17 chronic stroke survivors and 13 occupational therapists (4 inpatient therapists and 9 outpatient therapists). Spaulding Rehabilitation Hospital IRB reviewed and approved the study. Interventions: We conducted separate focus group sessions for stroke survivors and therapists. During each session, we presented the technology, provided participants with prototypes of the system, addressed questions from the group, and asked participants to fill out an anonymous feedback questionnaire at the end of the session.Main Outcome Measure(s)Stakeholder feedback questionnaire. Results: Patients: 76.5% were very enthusiastic about the system and liked the fact that the system is designed to provide reminders during the day and thus encourage stroke survivors to use the affected upper limb. 82.3% expressed confidence that the system would help increase upper-limb use. 88.2% indicated that they would use the system if it is recommended by their therapist. Therapists: 91.7% said they would use this system in their clinical practice. All the therapists indicated that they would want to access data and configure the system remotely and in the clinic. All the therapists expressed enthusiasm for the fact that the system would encourage stroke survivors throughout the day to use the affected upper limb.Conclusion/DiscussionParticipants in both focus groups (i.e. patients and clinicians) expressed enthusiasm for the proposed system to encourage stroke survivors to use the affected upper limb throughout the day.

Potential predictors of quality of life in patients with stroke: A follow-up study

Author(s): Chang T.-L.; Chen C.-L.; Chong C.-Y.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: This study identifies predictors for quality of life (QOL) 6 months later in patients with stroke.DesignA longitudinal study with 6-month follow-up. Setting: This study recruited patients with stroke from the departments of physical medicine and rehabilitation of three tertiary hospitals (Taipei and Linkou branches of Chang Gung Memorial Hospital) and one regional hospital (Taoyuan branch). Participants: We enrolled 59 patients with stroke, age between 23-77 years. Interventions: Not applicable.Main Outcome Measure(s)Nine potential predictors were examined at baseline: age; sex; stroke type; lesion side; Mini Mental State Examination (MMSE); Beck Depression Inventory-II; National Institutes of Health Stroke Scale (NIHSS); Brunstrom stage of upper limb distal part and lower limb. The QOL were assessed using Stroke Impact Scale (SIS) at 6-month follow-up. Results: Regression analysis revealed that Brunstrom stage of upper limb distal part was a main predictor for strength, ADL/IADL, mobility, hand function and total domains of SIS. The score of Beck Depression Inventory-II predicted memory, ADL/IADL and total domains of SIS. NIHSS score was a predictor of emotion and mobility domains. Furthermore, age, lesion side and types of stroke were associated with SIS scores.Conclusion/DiscussionThe Brunstrom stage of upper limb distal part, BDI and NIHSS together may predict the QOL outcomes at 6-month follow-up for patients with stroke. These findings may allow clinicians to identify the patients who benefit most from therapy on QOL outcomes for these patients.

A randomized controlled trial investigating the efficacy of virtual reality in inpatient stroke rehabilitation

Author(s): Bird M.-L.; Cannell J.; Jovic E.; Rathjen A.; Lane K.; Tyson A.; Callisaya M.; Smith S.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To compare physical function changes after usual physical therapy or rehabilitation using novel interactive, motion capture rehabilitation software that uses commercially available hardware. [ABSTRACT EDITED]

Therabracelet sensory stimulation to enhance hand functional recovery post stroke

Author(s): Seo N.J.; Downey R.; Dellenbach B.; Imburgia R.; Lauer A.; Ramakrishnan V.; Bonilha L.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To determine the efficacy of concomitant sensory stimulation during therapy on improving paretic hand function for chronic stroke survivors. Design A pilot study with a double-blinded randomized controlled design. All subjects received standardized hand task-practice therapy (2 hours/day, 3 days/week for 2 weeks). All subjects wore the stimulation device on the paretic wrist during therapy and received either subthreshold (treatment) or no (control) vibration. Evaluations were performed pre, post, and 2 weeks after the therapy. Setting: Laboratory. Participants: Data were analyzed for the first 10 stroke survivors (n=5 treatment, n=5 control) enrolled in this ongoing study. The subjects, 5 men/5 women, 8 with left hemisphere lesion, were >1 year post-stroke, ranged in age from 46-73 years, and exhibited Fugl-Meyer Upper Limb Assessment scores ranging 35-59/66 (mild-moderate impairment). Interventions: The treatment group received TheraBracelet sensory stimulation, i.e. white-noise vibration on the wrist skin with intensity 40% below the perceptual sensory threshold. Main Outcome Measure(s) Paretic hand function scores of the Box and Block Test and the hand items of the timed Wolf Motor Function Test. Results: The treatment group significantly improved the Box and Block Test score from pre to post ($p=0.016$), while the control group did not. Other comparisons were not significant. The same was found for the hand portion of the Wolf Motor Function Test time ($p < 0.001$ for pre vs. post for the treatment group, but not significant for the control group and for other comparisons). Pairwise comparisons were performed using a repeated measures mixed model, with adjustment for multiple comparisons. Conclusions: TheraBracelet sensory stimulation appears promising in improving paretic hand function more than therapy alone. This is a pilot study with a small sample size. A larger study is needed.

The feasibility of sequential robotic arm and hand training for maximizing function in chronic stroke

Author(s): Bishop L.; Stein J.; Martinez-Hernandez I.; Kitago T.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To assess the feasibility of sequential training using robotic arm and hand devices for function gains. Design Cross-over pilot study. Setting: Large, urban, outpatient center. Participants: Twelve participants completed the study. All participants were at least six months post a single stroke with residual upper limb weakness. Participants had no severe spasticity (3 or less on Modified Ashworth Scale) nor contractures of the affected upper limb that interfered with training in either device. Participants were medically stable, without history of other neurological conditions, and not receiving any concomitant therapy for the affected arm/hand. Interventions: Participants were randomized 1:1 to begin training with either the robotic arm or robotic hand device. Once randomized, each participant completed six-weeks of training with one device, then crossed over for six-weeks of training with the other device. Training sessions were one hour in duration, three times weekly for a total of 36 visits. Assessments were conducted at baseline, after the initial six-weeks of training with the first device, and on completion of the 12-week training. Main Outcome Measure(s) The upper limb portion of the Fugl-Meyer (UEFM) was used

as our primary outcome measure. Secondary outcomes included the Action Research Arm Test (ARAT), Motor Activity Log (MAL) and Manual Ability Measure (MAM-36). Results: Statistical analysis revealed significant improvements on the UEFM for the 12-week intervention (mean change 3.833, $p=0.038$). Secondary outcomes revealed significant changes on the MAL (mean change 10.167, $p=0.04$). No significant gains were noted with the ARAT nor the MAM-36. No significant effects were noted in any outcomes on training with individual devices. Conclusion/Discussion Functional gains are seen with sequential training using these two robotic devices.

Spatial neglect predicts upper limb use in the activities of daily living

Author(s): Vanbellingen T.; Muri R.M.; Nef T.; Cazzoli D.; Nyffeler T.; Ottiger B.; Maaijwee N.; Pflugshaupt T.; Bohlhalter S.

Source: Cerebrovascular Diseases; Oct 2017; vol. 44 (no. 3); p. 122-127

Publication Type(s): Article

Abstract:Background and Purpose: Motor tests performed at stroke onset have been shown to predict the recovery of upper limb motor impairment. Less is known about upper limb recovery at the level of functional activity or of participation and how spatial neglect may influence the integration of the upper limb in the activities of daily living (ADL). Our objective was to investigate whether the initial severity of spatial neglect may predict upper limb use in ADL. **[ABSTRACT EDITED]**

Perception and action in swimming: Effects of aquatic environment on upper limb inter-segmental coordination

Author(s): Guignard B.; Chollet D.; Ayad O.; Seifert L.; Rouard A.; Bonifazi M.; Dalla Vedova D.

Source: Human Movement Science; Oct 2017; vol. 55 ; p. 240-254

Publication Type(s): Article

Abstract:This study assessed perception-action coupling in expert swimmers by focusing on their upper limb inter-segmental coordination in front crawl. To characterize this coupling, we manipulated the fluid flow and compared trials performed in a swimming pool and a swimming flume, both at a speed of 1.35 m s⁻¹. The temporal structure of the stroke cycle and the spatial coordination and its variability for both hand/lower arm and lower arm/upper arm couplings of the right body side were analyzed as a function of fluid flow using inertial sensors positioned on the corresponding segments. Swimmers' perceptions in both environments were assessed using the Borg rating of perceived exertion scale. **[ABSTRACT EDITED]**

Mirror therapy for motor function of the upper extremity in patients with stroke: A meta-analysis.

Author(s): Zeng, Wen; Guo, Yonghong; Wu, Guofeng; Liu, Xueyan; Fang, Qian

Source: Journal of rehabilitation medicine; Oct 2017

Publication Type(s): Journal Article

Available at [Journal of Rehabilitation Medicine](#) - from EBSCO (MEDLINE Complete)

Abstract:OBJECTIVE To evaluate the mean treatment effect of mirror therapy on motor function of the upper extremity in patients with stroke. DATA SOURCE Electronic databases, including the Cochrane Library, PubMed, MEDLINE, Embase and CNK Systematic, were searched for relevant studies published in English between 1 January 2007 and 22 June 2017. **[ABSTRACT EDITED]**

Somatosensory stimulation to improve hand and upper limb function after stroke-a systematic review with meta-analyses.

Author(s): Grant, Virginia Marie; Gibson, Alison; Shields, Nora

Source: Topics in stroke rehabilitation; Oct 2017 ; p. 1-11

Publication Type(s): Journal Article

Abstract:Background Somatosensory stimulation may have a positive impact on recovery of motor function by maintaining cortical representation of the hand and acting to prime the motor system for movement. Objective Determine the efficacy of somatosensory stimulation on upper limb motor function after stroke. **[ABSTRACT EDITED]**

Rehabilitation methods for reducing shoulder subluxation in post-stroke hemiparesis: a systematic review.

Author(s): Arya, Kamal Narayan; Pandian, Shanta; Puri, Vinod; Vikas

Source: Topics in stroke rehabilitation; Oct 2017 ; p. 1-14

Publication Type(s): Journal Article

Abstract:Background Shoulder subluxation is a common post-stroke complication affecting up to 80% of the stroke subjects. The pathomechanics at the skeletal level does not provide the structural base for the neural-motor recovery. The management of subluxed shoulder has always been a challenge, complicating the motor and functional recovery. Objective To review the available studies of rehabilitation interventions for reduction of subluxed shoulder and to explore the evidence for impact of subluxation on motor recovery. **[ABSTRACT EDITED]**

Patient Engagement Is Related to Impairment Reduction During Digital Game-Based Therapy in Stroke.

Author(s): Putrino, David; Zanders, Helma; Hamilton, Taya; Rykman, Avrielle; Lee, Peter

Source: Games for health journal; Oct 2017; vol. 6 (no. 5); p. 295-302

Publication Type(s): Journal Article

Abstract:OBJECTIVEUpper limb impairment in the chronic phase of stroke recovery is persistent, disabling, and difficult to treat. The objectives of this study were to determine whether therapeutic enjoyment is related to clinical improvement after upper limb rehabilitation and to assess the feasibility of a therapy gaming system.MATERIALS AND METHODSTen chronic stroke survivors with persistent upper limb impairment were enrolled in the study. Upper limb impairment was evaluated by using the Fugl-Meyer Assessment of Upper Extremity Function (FMA-UE). The Physical Activity Enjoyment Scale (PACES) assessed the level of therapy enjoyment, and the System Usability Scale (SUS) measured the ease of operation of the game. Upper limb therapy involved 30 minutes of novel digital gaming therapy, three times per week, for 6 weeks.RESULTSThe average improvement in the FMA-UE after the digital gaming therapy was 2.8 (± 2.1) points. Participants scored the digital gaming system as having good usability (SUS: 72 ± 7.9), and the physical activity as enjoyable (PACES: 65.8 ± 10.6). There was a strong positive correlation between improvement in the FMA-UE score and the PACES (Spearman's $Rho = 0.84$; $P < 0.002$).CONCLUSIONThis pilot study demonstrates the feasibility and potential for improvements in upper limb motor function by using digital gaming in the chronic stroke patient population. The positive correlation found between therapy enjoyment and clinical gains highlights the importance of engagement in therapy to optimize outcomes in chronic stroke survivors.

Cognitive and Perception

Executive Function Declines in the First 6 Months After a Transient Ischemic Attack or Transient Neurological Attack.

Author(s): van Rooij, Frank G; Plaizier, Nicole O; Vermeer, Sarah E; Góraj, Bozena M

Source: Stroke; Nov 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND AND PURPOSEAlthough by definition transient, both transient ischemic attack (TIA) and transient neurological attack (TNA) are associated with cognitive impairment. Determinants and course of cognitive function afterward are, however, unclear. We prospectively determined cognitive performance after TIA and TNA in relation to clinical diagnosis and diffusion-weighted imaging (DWI) results. **[ABSTRACT EDITED]**

Effects of Virtual Reality-Based Training with BTs-Nirvana on Functional Recovery in Stroke Patients: Preliminary Considerations.

Author(s): De Luca, Rosaria; Russo, Margherita; Naro, Antonino; Tomasello, Provvidenza;

Source: The International journal of neuroscience; Nov 2017 ; p. 0

Publication Type(s): Journal Article

Abstract:AIM OF THE STUDYcognitive impairment occurs frequently in post-stroke patients. This study aimed to determine the effects of a virtual reality training (VRT) with BTs-Nirvana (BTsN) on the recovery of cognitive functions in stroke patients, using the Interactive-Semi-Immersive Program (I-SIP). **[ABSTRACT EDITED]**

Determinants, Prevalence, and Trajectory of Long-Term Post-Stroke Cognitive Impairment: Results from a 4-Year Follow-Up of the ARCOS-IV Study.

Author(s): Mahon, Susan; Parmar, Priya; Barker-Collo, Suzanne; Krishnamurthi, Rita; Jones, Kelly; Theadom, Alice; Feigin, Valery

Source: Neuroepidemiology; Nov 2017; vol. 49 (no. 3-4); p. 129-134

Publication Type(s): Journal Article

Abstract:BACKGROUNDThe long-term (>12 months) prevalence, predictors, and trajectory of post-stroke cognitive deficits are not well established, especially at a community level. This study investigated the longitudinal course and prevalence of cognitive impairment in an incidence cohort, identifying factors associated with declining cognition. **[ABSTRACT EDITED]**

Advance directives, proxy opinions, and treatment restrictions in patients with severe stroke.

Author(s): de Kort, Floor A S; Geurts, Marjolein; de Kort, Paul L M; van Tuijl, Julia H

Source: BMC palliative care; Nov 2017; vol. 16 (no. 1); p. 52

Publication Type(s): Journal Article

Available at [BMC Palliative Care](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:BACKGROUNDPatients with severe stroke often do not have the capacity to participate in discussions on treatment restrictions because of a reduced level of consciousness, aphasia, or another cognitive disorder. We assessed the role of advance directives and proxy opinions in the decision-making process of incapacitated patients. **[ABSTRACT EDITED]**

Effects of an Exercise Protocol for Improving Handgrip Strength and Walking Speed on Cognitive Function in Patients with Chronic Stroke.

Author(s): Kim, Jaeun; Yim, Jongeun

Source: Medical science monitor : international medical journal of experimental and clinical research; Nov 2017; vol. 23 ; p. 5402-5409

Publication Type(s): Journal Article

Available at [Medical science monitor : international medical journal of experimental and clinical research](#) - from EBSCO (MEDLINE Complete)

Abstract:BACKGROUND Handgrip strength and walking speed predict and influence cognitive function. We aimed to investigate an exercise protocol for improving handgrip strength and walking speed, applied to patients with chronic stroke who had cognitive function disorder. MATERIAL AND METHODS Twenty-nine patients with cognitive function disorder participated in this study, and were randomly divided into one of two groups: exercise group (n=14) and control group (n=15). Both groups underwent conventional physical therapy for 60 minutes per day. Additionally, the exercise group followed an exercise protocol for handgrip using the hand exerciser, power web exerciser, Digi-Flex (15 minutes); and treadmill-based weight loading training on their less-affected leg (15 minutes) using a sandbag for 30 minutes, three times per day, for six weeks. Outcomes, including cognitive function and gait ability, were measured before and after the training. RESULTS The Korean version of Montreal Cognitive Assessment (K-MoCA), Stroop test (both simple and interference), Trail Making-B, Timed Up and Go, and 10-Meter Walk tests ($p<0.05$) yielded improved results for the exercise group compared with the control group. Importantly, the K-MoCA, Timed Up and Go, and 10-Meter Walk test results were significantly different between the two groups ($p<0.05$). CONCLUSIONS The exercise protocol for improving handgrip strength and walking speed had positive effects on cognitive function in patients with chronic stroke.

Effect of acupuncture and Chinese herbal medicine on subacute stroke outcomes: a single-centre randomised controlled trial.

Author(s): Fang, Jianqiao; Keeler, Crystal Lynn; Chen, Lifang; Ma, Ruijie; Wang, Chao; Xu, Shouyu

Source: Acupuncture in medicine : journal of the British Medical Acupuncture Society; Nov 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVE To determine whether integrative medicine, combining acupuncture and Chinese herbal medicine with conventional rehabilitation during subacute stroke, is an effective comprehensive rehabilitation strategy for daily life activities, neurological deficits, motor dysfunction, cognitive impairment and depression. [ABSTRACT EDITED]

Using Mahalanobis Distance to Evaluate Recovery in Acute Stroke.

Author(s): Tehan, Hannah; Witteveen, Kate; Tolan, G Anne; Tehan, Gerald; Senior, Graeme J

Source: Archives of clinical neuropsychology : the official journal of the National Academy of Neuropsychologists; Nov 2017 ; p. 1-6

Publication Type(s): Journal Article

Abstract:Objective In the weeks immediately following a stroke, impairments across multiple cognitive domains are pervasive yet there is little literature that explores cognitive recovery during this period. This paper evaluates the use of Mahalanobis distance as a means of statistically evaluating cognitive change at the individual level. Method A small battery of standardized neuropsychological tests was administered on five or six occasions across a 2-week period to the participants recovering from a stroke and a non-stroke control group. Mahalanobis distance was used to evaluate the change profile of those who were recovering from a stroke relative to the non-stroke control. Results The outcomes of three patients show that Mahalanobis distance could statistically differentiate recovery, no change, and deterioration from normal repetition effects. Discussion In the acute phase of stroke using Mahalanobis distance it is possible to distinguish between recovery, normal learning, and generalized learning deficits thereby identifying likely candidates for further cognitive assessment and rehabilitation.

Validation of the Telephone Interview of Cognitive Status and Telephone Montreal Cognitive Assessment Against Detailed Cognitive Testing and Clinical Diagnosis of Mild Cognitive Impairment After Stroke.

Author(s): Zietemann, Vera; Kopczak, Anna; Müller, Claudia; Wollenweber, Frank Arne

Source: Stroke; Nov 2017; vol. 48 (no. 11); p. 2952-2957

Publication Type(s): Clinical Trial Multicenter Study Journal Article Validation Studies

Abstract:BACKGROUND AND PURPOSE Assessment of cognitive status poststroke is recommended by guidelines but follow-up can often not be done in person. The Telephone Interview of Cognitive Status (TICS) and the Telephone Montreal Cognitive Assessment (T-MoCA) are considered useful screening instruments. Yet, evidence to define optimal cut-offs for mild cognitive impairment (MCI) after stroke is limited. METHODS We studied 105 patients enrolled in the prospective DEDEMAS study (Determinants of Dementia After Stroke; NCT01334749). Follow-up visits at 6, 12, 36, and 60 months included comprehensive neuropsychological testing and the Clinical Dementia Rating scale, both of which served as reference standards. The original TICS and T-MoCA were obtained in 2 separate telephone interviews each separated from the personal visits by 1 week (1 before and 1 after the visit) with the order of interviews (TICS versus T-MoCA) alternating between subjects. Area under the receiver-operating characteristic curves was determined. RESULTS Ninety-six patients completed both the face-to-face visits and the 2 interviews. Area under the receiver-operating characteristic curves ranged between 0.76 and 0.83 for TICS and between 0.73 and 0.94 for T-MoCA depending on MCI definition. For multidomain MCI defined by multiple-tests definition derived from comprehensive neuropsychological testing optimal sensitivities and specificities were achieved at cut-offs <36 (TICS) and <18 (T-MoCA). Validity was lower using single-test definition, and cut-offs were higher compared with multiple-test definitions. Using Clinical Dementia Rating as the reference, optimal cut-offs for MCI were <36 (TICS) and approximately 19 (T-MoCA). CONCLUSIONS Both the TICS and T-MoCA are valid screening tools poststroke, particularly for multidomain MCI using multiple-test definition.

Cerebral amyloid angiopathy-related cognitive impairment: The search for a specific neuropsychological pattern.

Author(s): Planton, M; Raposo, N; Albucher, J-F; Pariente, J

Source: Revue neurologique; Nov 2017; vol. 173 (no. 9); p. 562-565

Publication Type(s): Journal Article Review

Abstract:Cerebral amyloid angiopathy is diagnosed in stroke units after lobar intracerebral hemorrhage. CAA can also be diagnosed in memory clinics when patients are referred for cognitive impairment assessment, and may be a reason for admission to emergency or neurology departments because of rapidly progressive cognitive or neurological decline, or a transient focal neurological episode. CAA may even be observed in older community-dwelling individuals. Neuropsychological impairment in CAA has been described over the past 20 years. The symptoms most commonly reported are perceptual speed, episodic memory, semantic memory, attention and executive function, and global cognitive impairments. Psychiatric symptoms, such as personality changes, behavioral disturbances and depression, have been more recently described. CAA is also a risk factor for the development of dementia, and its relationship with Alzheimer's disease has been demonstrated in post-mortem studies. Yet, despite the increase in literature on CAA-related cognitive and psychiatric symptoms, the specific characteristics of symptoms in CAA are difficult to assess because of the substantial prevalence of comorbidities such as small vessel disease due to high blood pressure, Lewy body disease and, of course, AD, all of which act as important confounding factors. Also, within the entity of CAA itself, the additive and perhaps synergistic effects of each lesion on cognition remain to be assessed. In the present paper, the focus is on the latest

evidence of neuropsychological impairment observed in CAA patients, and the emergence of a possible specific neuropsychological profile due to CAA is also discussed.

Cognitive functioning over 2 years after intracerebral hemorrhage in school-aged children.

Author(s): Murphy, Lexa K; Compas, Bruce E; Gindville, Melissa C; Reeslund, Kristen L; Jordan, Lori C

Source: Developmental medicine and child neurology; Nov 2017; vol. 59 (no. 11); p. 1146-1151

Publication Type(s): Journal Article

Abstract:AIM Previous research investigating outcomes after pediatric intracerebral hemorrhage (ICH) has generally been limited to global and sensorimotor outcomes. This study examined cognitive outcomes after spontaneous ICH in school-aged children with serial assessments over 2 years after stroke. **[ABSTRACT EDITED]**

Association Between 2 Measures of Cognitive Instrumental Activities of Daily Living and Their Relation to the Montreal Cognitive Assessment in Persons With Stroke.

Author(s): Toglia, Joan; Askin, Gulce; Gerber, Linda M; Taub, Michael C; Mastrogiovanni, Andrea R

Source: Archives of physical medicine and rehabilitation; Nov 2017; vol. 98 (no. 11); p. 2280-2287

Publication Type(s): Journal Article

Abstract:OBJECTIVE To explore the relation between a computer adaptive functional cognitive questionnaire and a performance-based measure of cognitive instrumental activities of daily living (C-IADL) and to determine whether the Montreal Cognitive Assessment (MoCA) at admission can identify those with C-IADL difficulties at discharge. **[ABSTRACT EDITED]**

Physical exercise promotes novel object recognition memory in spontaneously hypertensive rats after ischemic stroke by promoting neural plasticity in the entorhinal cortex

Author(s): Pan, Xiaona; Jiang, Ting; Zhang, Liying; Zheng, Haiqing; Luo, Jing; Hu, Xiquan

Source: Frontiers in Behavioral Neuroscience; Nov 2017; vol. 11

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available at [Frontiers in Behavioral Neuroscience](#) - from Europe PubMed Central - Open Access

Abstract:Cerebral ischemia leads to memory impairment, and several studies have indicated that physical exercise (PE) has memory-improving effects after ischemia. This study was designed to further explore the specific role of PE in novel object recognition (NOR) memory after stroke and the exact cortical regions in which memory is restored by PE. Spontaneously hypertensive rats (SHR) were subjected to transient middle cerebral artery occlusion (tMCAO) or sham surgery, followed by 26 days of PE starting on day 3 post-tMCAO. Thereafter, infarct volume, neurobehavioral outcome and NOR memory were assessed. Immunofluorescence staining and Luxol Fast Blue (LFB) staining were performed in the prefrontal cortex, entorhinal cortex and corpus callosum regions. Western blot analysis was performed to detect expressions of Nestin, Bcl-2 and SYN proteins in the entorhinal cortex. After tMCAO, NOR memory impairment was found in SHR. Rats subjected to PE post-tMCAO showed increased discrimination ratio, as well as significant decreases in infarct volumes and modified neurological severity scores (mNSS), when compared with tMCAO rats without PE. After stroke, NeuN-positive cell number was drastically reduced in the entorhinal cortex, rather than in the prefrontal cortex. Ischemic stroke had no impact on myelin and phospholipids, and the ratio of SMI-32/MBP in the corpus callosum. PE increased NeuN, Nestin, Ki67, MBP, SYN, PSD-95 and Bcl-2 expressions in the entorhinal cortex, while TUNEL and SMI-32 expressions were decreased. In conclusion, the NOR memory-improving capacity promoted by PE was closely related to neuronal

cell proliferation and synaptic plasticity of the entorhinal cortex. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

Change in multimodal MRI markers predicts dementia risk in cerebral small vessel disease.

Author(s): Zeestraten, Eva A; Lawrence, Andrew J; Lambert, Christian; Benjamin, Philip; Brookes, Rebecca L; Mackinnon, Andrew D; Morris, Robin G; Barrick, Thomas R; Markus, Hugh S

Source: Neurology; Oct 2017; vol. 89 (no. 18); p. 1869-1876

Publication Type(s): Journal Article

Available at [Neurology](#) - from Ovid (Journals @ Ovid)

Abstract:OBJECTIVE To determine whether MRI markers, including diffusion tensor imaging (DTI), can predict cognitive decline and dementia in patients with cerebral small vessel disease (SVD).

[ABSTRACT EDITED]

A single session of moderate intensity walking increases brain-derived neurotrophic factor (BDNF) in the chronic post-stroke patients.

Author(s): Morais, Viviane Aparecida Carvalho de; Tourino, Marina Ferreira da Silva

Source: Topics in stroke rehabilitation; Oct 2017 ; p. 1-5

Publication Type(s): Journal Article

Abstract:Background Aerobic exercise, even for short durations, may promote an increase in serum concentrations of brain-derived neurotrophic factor (BDNF). However, it is necessary to determine the optimal exercise types and intensities to increase BDNF levels. Objectives This aim of this study was investigate the effects of mild and moderate intensity acute aerobic exercise on serum BDNF levels in patients in the chronic post-stroke phase. Methods The participants answered a socio-demographic questionnaire, cognitive assessment (Mini Mental State Examination), assessment of depressive symptoms (Hamilton Depression Scale), fatigue (Fatigue Severity Scale) and functional capacity (6-minute walk test). Blood samples were collected before and after each session. The measurement of the concentration of BDNF was performed using the enzyme-linked immunosorbent assay . Patients were asked to walk for 30-min in the target training zone (mild intensity, 50-63% of maximum heart rate, and moderate intensity, 64-76% of maximum heart rate), once each week for 2 consecutive weeks. Results Our results indicate that 30 min of acute aerobic exercise at a moderate intensity, but not at a mild intensity, increases serum BDNF levels in the chronic post-stroke phase. Conclusions This study suggests a potential mechanism for the beneficial effects of exercise as a component of recovery from stroke, and provides the basis for future studies that will elucidate the specific parameters for clinical applications.

Cognitive performance and aphasia recovery.

Author(s): Fonseca, José; Raposo, Ana; Martins, Isabel Pavão

Source: Topics in stroke rehabilitation; Oct 2017 ; p. 1-6

Publication Type(s): Journal Article

Abstract:Objectives This study assessed cognitive performance of subjects with aphasia during the acute stage of stroke and evaluated how such performance relates to recovery at 3 months. Materials & methods Patients with aphasia following a left hemisphere stroke were evaluated during the first (baseline) and the fourth-month post onset. Assessment comprised non-verbal tests of attention/processing speed (Symbol Search, Cancellation Task), executive functioning (Matrix Reasoning, Tower of Hanoi, Clock Drawing, Motor Initiative), semantic (Camel and Cactus Test), episodic and immediate memory (Memory for Faces Test, 5 Objects Memory Test, and Spatial Span.

Recovery was measured by the Token Test score at 3 months. The impact of baseline performance on recovery was evaluated by logistic regression adjusting for age, education, severity of aphasia and the Alberta Stroke Program Early CT (ASPECT) score. Results Thirty-nine subjects (with a mean of 66.5 ± 10.6 years of age, 17 men) were included. Average baseline cognitive performance was within normal range in all tests except in memory tests (semantic, episodic and immediate memory) for which scores were ≤ -1.5 sd. Subjects with poor aphasia recovery ($N = 27$) were older and had fewer years of formal education but had identical ASPECT score compared to those with favorable recovery. Considering each test individually, the score obtained on the Matrix Reasoning test was the only one to predict aphasia recovery ($\text{Exp}(B)=24.085$ $p = 0.038$). Conclusions The Matrix Reasoning Test may contribute to predict aphasia recovery. Cognitive performance is a measure of network disruption but may also indicate the availability of recovery strategies.

Berg Balance Scale score at admission can predict walking suitable for community ambulation at discharge from inpatient stroke rehabilitation.

Author(s): Louie, Dennis R; Eng, Janice J

Source: Journal of rehabilitation medicine; Oct 2017

Publication Type(s): Journal Article

Available at [Journal of Rehabilitation Medicine](#) - from EBSCO (MEDLINE Complete)

Abstract:OBJECTIVE This retrospective cohort study identified inpatient rehabilitation admission variables that predict walking ability at discharge and established Berg Balance Scale cut-off scores to predict the extent of improvement in walking. METHODSParticipants ($n=123$) were assessed for various cognitive and physical outcomes at admission to inpatient stroke rehabilitation. Multivariate logistic regression identified admission predictors of regaining community ambulation (gait speed ≥ 0.8 m/s) or unassisted ambulation (no physical assistance) after 4 weeks. Receiver operating characteristic curve analysis identified cut-off admission Berg Balance Scale scores. RESULTSMini-Mental State Examination (odds ratio (OR) 1.60, 95% confidence interval (95% CI) 1.19-2.14) was a significant predictor when coupled with admission walking speed for regaining community ambulation speed; stroke type (haemorrhagic/ischaemic) was a significant predictor (OR=0.19, 95% CI 0.05-0.77) when coupled with Berg Balance Scale (OR 1.14, 95% CI 1.09-1.20). Only Berg Balance Scale was a significant predictor of regaining unassisted ambulation (OR 1.11, 95% CI 1.05-1.17). A cut-off Berg Balance Scale score of 29 on admission predicts that an individual will go on to achieve community walking speed ($n=123$, area under the curve (AUC)=0.88, 95% CI 0.81-0.95); a cut-off score of 12 predicts a non-ambulator to regain unassisted ambulation ($n=84$, AUC 0.73, 95% CI 0.62-0.84). CONCLUSION The Berg Balance Scale can be used at rehabilitation admission to predict the degree of improvement in walking for patients with stroke.

Validation of the R2CHADS2 and CHADS2 Scores for Predicting Post-stroke Cognitive Impairment.

Author(s): Washida, Kazuo; Kowa, Hisatomo; Hamaguchi, Hirotooshi; Kanda, Fumio; Toda, Tatsushi

Source: Internal medicine (Tokyo, Japan); Oct 2017; vol. 56 (no. 20); p. 2719-2725

Publication Type(s): Journal Article

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

Abstract:Objective Post-stroke cognitive impairment often afflicts stroke survivors and is a major obstacle both for cognitive and physical rehabilitation. Stroke risk scores ["Congestive heart failure, Hypertension, Age ≥ 75 years, Diabetes mellitus, Stroke" (CHADS2) and "CHADS2 + creatinine clearance < 60 mL/min" (R2CHADS2)] are used to assess the future risk of cardioembolic stroke in patients with atrial fibrillation (AF). However, congestive heart failure, hypertension, aging, diabetes mellitus, stroke, and renal dysfunction are also risk factors for cognitive impairment. Methods Sixty-

two patients with nonvalvular AF-induced cardioembolic stroke underwent cognitive testing, including the Japanese version of the Montreal Cognitive Assessment (MoCA-J), Mini-Mental State Examination (MMSE), and Apathy Scale. The correlations between the MoCA-J/MMSE/Apathy Scale scores and stroke risk scores were examined. Results The average CHADS2 and R2CHADS2 scores were 4.1 ± 1.0 and 5.6 ± 1.6 , respectively. The average MoCA-J, MMSE, and Apathy Scale scores were 17.4 ± 6.2 , 22.0 ± 5.3 , and 20.0 ± 8.9 , respectively. The CHADS2 and R2CHADS2 scores were negatively correlated with the MoCA-J/MMSE and positively correlated with the Apathy Scale. The R2CHADS2 score was more sensitive to poststroke cognitive impairment than the CHADS2 score. This correlation was stronger for MoCA-J than for MMSE, as the MMSE scores were skewed toward the higher end of the range. The results for individual MoCA-J and MMSE subtests indicated that the visuoexecutive, calculation, abstraction, and remote recall functions were significantly decreased after cardioembolic stroke. Conclusion These results suggest that the R2CHADS2 and CHADS2 scores are useful for predicting post-stroke cognitive impairment.

Investigating cognitive ability and self-reported driving performance of post-stroke adults in a driving simulator.

Author(s): Blane, Alison; Falkmer, Torbjörn; Lee, Hoe C; Dukic Willstrand, Tania

Source: Topics in stroke rehabilitation; Oct 2017 ; p. 1-10

Publication Type(s): Journal Article

Abstract:Background Safe driving is a complex activity that requires calibration. This means the driver can accurately assess the level of task demand required for task completion and can accurately evaluate their driving capability. There is much debate on the calibration ability of post-stroke drivers. Objectives The aim of this study was to assess the cognition, self-rated performance, and estimation of task demand in a driving simulator with post-stroke drivers and controls. Methods A between-groups study design was employed, which included a post-stroke driver group and a group of similarly aged older control drivers. Both groups were observed driving in two simulator-based driving scenarios and asked to complete the NASA Task Load Index (TLX) to assess their perceived task demand and self-rate their driving performance. Participants also completed a battery of psychometric tasks to assess attention and executive function, which was used to determine whether post-stroke cognitive impairment impacted on calibration. Results There was no difference in the amount of perceived task demand required to complete the driving task. Despite impairments in cognition, the post-stroke drivers were not more likely to over-estimate their driving abilities than controls. On average, the post-stroke drivers self-rated themselves more poorly than the controls and this rating was related to cognitive ability. Conclusion This study suggests that post-stroke drivers may be aware of their deficits and adjust their driving behavior. Furthermore, using self-performance measures alongside a driving simulator and cognitive assessments may provide complementary fitness-to-drive assessments, as well as rehabilitation tools during post-stroke recovery.

Improving post-stroke cognitive and behavioral abnormalities by using virtual reality: A case report on a novel use of nirvana.

Author(s): De Luca, Rosaria; Torrisi, Michele; Piccolo, Adriana; Bonfiglio, Giovanni

Source: Applied neuropsychology. Adult; Oct 2017 ; p. 1-5

Publication Type(s): Journal Article

Abstract:Cognitive impairment, as well as mood and anxiety disorders, occur frequently in patients following stroke. Aim of this study was to evaluate the effects of a combined rehabilitative treatment using conventional relaxation and respiratory techniques, in a specific rehabilitative virtual environment (by using Bts-Nirvana). A 58-year-old woman, affected by hemorrhagic stroke,

underwent two different rehabilitation trainings, including either standard relaxation techniques alone in a common clinical setting or the same psychological approach in a semi-immersive virtual environment with an augmented sensorial (audio-video) and motor feedback (sensory motor-interaction). We evaluated the patient's cognitive and psychological profile before and after the two different trainings, by using a specific psychometric battery, aimed to assess cognitive status, attention processes and to estimate the presence of mood alterations, anxiety and coping strategies. Only at the end of the combined approach, we observed a significant improvement in attention and memory functions, with a nearly complete relief of anxiety symptoms and an improvement in coping strategies. Relaxation and respiratory techniques in a semi-immersive virtual reality environment, using Bts-Nirvana, may be a promising tool in improving attention process, coping strategies, and anxiety in individuals with neurological disorders, including stroke.

Higher Adiposity Is Associated With Slower Cognitive Decline in Hypertensive Patients: Secondary Analysis of the China Stroke Primary Prevention Trial.

Author(s): Zhang, Jun; Tang, Genfu; Xie, Haiqun; Wang, Binyan; He, Mingli; Fu, Jia; Shi, Xiuli; Zhang, Chengguo; Huo, Yong; Xu, Xiping; Wang, Kai

Source: Journal of the American Heart Association; Oct 2017; vol. 6 (no. 10)

Publication Type(s): Journal Article

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

Abstract:BACKGROUND Obesity is a risk factor for many diseases. However, the potential association between adiposity and cognitive decline in hypertensive patients is inconclusive. We performed a secondary data analysis of the CSPPT (China Stroke Primary Prevention Trial) to examine whether adiposity is correlated with longitudinal cognitive performance in hypertensive adults. . **[ABSTRACT EDITED]**

Asymmetric Cerebrovascular Collateral Supply Affects Cognition in Patients with Unilateral Carotid Artery Stenosis.

Author(s): Huang, Kuo-Lun; Chang, Ting-Yu; Chang, Chien-Hung; Liu, Ho-Ling; Chang, Yeu-Jhy

Source: Current neurovascular research; Oct 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND The time to maximum of the residue function (TMax) has been employed to identify the penumbra in acute ischemic stroke. Cognitive impairment in patients with carotid artery stenosis (CAS) has been attributed to chronic cerebral hypoperfusion. The study aimed to examine whether cognitive impairment can be detected based on a preliminary TMax cutoff in patients with unilateral CAS. **[Abstract Edited]**

Korean Version of the Mini-Mental State Examination Using Smartphone: A Validation Study.

Author(s): Park, Hae-Yeon; Jeon, Sung-Soo; Lee, Jin-Youn; Cho, Ah-Ra; Park, Joo Hyun

Source: Telemedicine journal and e-health : the official journal of the American Telemedicine Association; Oct 2017; vol. 23 (no. 10); p. 815-821

Publication Type(s): Journal Article

Abstract:BACKGROUND Stroke often leads to disability, and poststroke survivors often have limited accessibility to medical facilities. INTRODUCTION For such patients, mobile videoconferencing technology offers an opportunity to perform follow-up assessment and appropriate management of cognitive impairment. We aimed to determine the validity of the Korean version of the Mini-Mental

State Examination (MMSE-K) when administered using a smartphone. MATERIALS AND [Abstract Edited]

Asymptomatic carotid stenosis is associated with cognitive impairment.

Author(s): Lal, Brajesh K; Dux, Moira C; Sikdar, Siddhartha; Goldstein, Carly; Khan, Amir A

Source: Journal of vascular surgery; Oct 2017; vol. 66 (no. 4); p. 1083-1092

Publication Type(s): Journal Article

Abstract:BACKGROUND Cerebrovascular risk factors (eg, hypertension, coronary artery disease) and stroke can lead to vascular cognitive impairment. The Asymptomatic Carotid Stenosis and Cognitive Function study evaluated the isolated impact of asymptomatic carotid stenosis (no prior ipsilateral or contralateral stroke or transient ischemic attack) on cognitive function. Cerebrovascular hemodynamic and carotid plaque characteristics were analyzed to elucidate potential mechanisms affecting cognition. [ABSTRACT EDITED]

Cognitive assessment in stroke: feasibility and test properties using differing approaches to scoring of incomplete items.

Author(s): Lees, Rosalind A; Hendry Ba, Kirsty; Broomfield, Niall; Stott, David; Lerner, Andrew J

Source: International journal of geriatric psychiatry; Oct 2017; vol. 32 (no. 10); p. 1072-1078

Publication Type(s): Journal Article

Abstract:OBJECTIVES Cognitive screening is recommended in stroke, but test completion may be complicated by stroke related impairments. We described feasibility of completion of three commonly used cognitive screening tools and the effect on scoring properties when cognitive testing was entirely/partially incomplete. [ABSTRACT EDITED]

Reaction time for processing visual stimulus in a computer-assisted rehabilitation environment.

Author(s): Sanchez, Yerly; Pinzon, David; Zheng, Bin

Source: Disability and rehabilitation. Assistive technology; Oct 2017; vol. 12 (no. 7); p. 725-729

Publication Type(s): Journal Article

Abstract:PURPOSE To examine the reaction time when human subjects process information presented in the visual channel under both a direct vision and a virtual rehabilitation environment when walking was performed. [Abstract Edited]

Post-stroke fatigue and depressive symptoms are differentially related to mobility and cognitive performance

Author(s): MacIntosh, Bradley J.; Edwards, Jodi D.; Kang, Mani; Cogo-Moreira, Hugo; Chen, Joyce L.

Source: Frontiers in Aging Neuroscience; Oct 2017; vol. 9

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available at [Frontiers in aging neuroscience](#) - from Europe PubMed Central - Open Access

Abstract:Background: Fatigue and depressive symptoms are common and often inter-related stroke sequelae. This study investigates how they are related, directly or indirectly, to mobility and cognitive outcomes within 6 months of stroke. [Abstract Edited]

Quality improvement in neurology: Stroke and Stroke Rehabilitation Quality Measurement Set update

Author(s): Latorre, Julius Gene S.; Flanagan, Steven; Phipps, Michael S.; Shenoy, Anant M.

Source: *Neurology*; Oct 2017; vol. 89 (no. 15); p. 1619-1626

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available at [Neurology](#) - from Ovid (Journals @ Ovid)

Abstract: The goal of quality measures is to guide their users to evidence-based improvements in care and, eventually, health care outcomes. It is the hope of the work group that implementation of the measures will lead to measurable improvements in the care of patients following a stroke. The results of this work group consensus development process emphasize (1) the gains made in inpatient process of care for patients with stroke by existing stroke measures and (2) the lack of stroke quality measures in other care settings and those addressing outcomes. To reduce burden on providers and to focus on measures where gaps in care exist, every effort was made to bundle, retire, or harmonize American Academy of Neurology (AAN) stroke measures that were similar to those of other organizations. However, opportunities for quality improvement in ET, potentially avoidable complications, cognitive screening, rehabilitation assessment, and functional outcomes in stroke exist, and the work group used current guidelines of care to fashion measures with the intention to be meaningful to patients and families. In addition, it was believed that bundles of existing measures may be more useful to providers and systems evaluating care than the individual measures, and would reflect the quality for the entire episode of care for stroke. Many other measures were considered, but due to lack of guidelines or evidence, feasibility concerns, or duplicative efforts by other organizations, these were not created. Measures developed apply to individual providers, practices, or systems. The AAN will evaluate development of stroke unit level measures during future measurement updates if advances have been made in the field to establish a corresponding standard and unified documentation. (PsycINFO Database Record (c) 2017 APA, all rights reserved)

Predicting gains from aphasia rehabilitation using measures of language and cognition

Author(s): Johnson J.; Meier E.; Gilmore N.; Roches C.D.; Kiran S.

Source: *Archives of Physical Medicine and Rehabilitation*; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract: Research Objectives: To investigate how participants' baseline cognitive-linguistic abilities predict language therapy outcomes. Design Retrospective analysis of multiple baseline treatment data. Setting: University clinic. Participants: Sixty-four persons with aphasia (PWA) completed one of four aphasia treatment studies. Participants (males=41) were 26-86 years old (mean=60.07; SD=12.63) and averaged 49.31 months post onset of aphasia (MPO; range=5-167 months). Interventions: One treatment targeted sentence comprehension (n=27 PWA) and three treatments targeted naming via a semantic feature approach (n=37 PWA). All participants attended therapy twice per week for 10-12 weeks or until they reached criterion. Main Outcome Measure(s) Standardized language and cognitive assessments (Boston Naming Test, Pyramids and Palm Trees Test, Cognitive Linguistic Quick Test, Revised Western Aphasia Battery) were administered before therapy. Effect sizes (ES) were calculated based on study-specific pre/post treatment measures. A principal components analysis (PCA) was conducted to reduce multiple assessment scores into process-specific components; component scores were entered into a linear regression predicting effect size. Results: Most participants improved in treatment (ES: M=5.59, SD=4.73). The PCA resulted in two process-specific components, a language-centric component (L.Comp) and a cognition-centric component (C.Comp). A backward elimination regression predicting ES from L.Comp, C.Comp, age, MPO, and treatment type eliminated all variables except L.Comp and C.Comp. The final model explained 17% of treatment outcome variance ($F[2,60]=7.35, p < .01$,

adjusted R-squared=.17). L.Comp and C.Comp significantly predicted ES (both $p < .03$) such that a one point increase in L.Comp and C.Comp predicted a 1.41 and 1.10 point increase in ES, respectively. Conclusions: These results support emerging findings that post-stroke cognitive skills, in addition to language skills, predict patients' response to treatment. Thus, the thorough evaluation of cognitive domains appears to be a valuable prognostic tool for clinical and research purposes.

Montreal cognitive assessment in inpatient stroke rehabilitation: Diagnostic accuracy and optimal cutoff points

Author(s): Jaywant A.; Togliola O.; Gunning F.; O'Dell M.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract: Research Objectives: To determine the diagnostic accuracy, sensitivity, specificity, and optimal cutoff point of the Montreal Cognitive Assessment (MoCA) in individuals with mild stroke in an acute inpatient rehabilitation setting. Design Receiver operating characteristic (ROC) curve analysis was performed. The criterion was the 30-minute National Institute of Neurological Disorders and Stroke-Canadian Stroke Network (NINDS-CSN) neuropsychological battery and included phonemic fluency (FAS), semantic fluency (Animals), and the Hopkins Verbal Learning Test-Revised (Immediate Recall, Delayed Recall, and Recognition). The battery was modified to include the Trail Making Test A & B, as well as the Symbol-Digit Modalities Test in lieu of the Wechsler Adult Intelligence Scale Coding subtest. Setting: Acute inpatient rehabilitation unit of an academic medical center. Participants: 95 inpatients with a diagnosis of stroke from a consecutively recruited cohort; mean age of 69, median of 7 days post-stroke. Interventions: Not applicable. Main Outcome Measure(s) Cognitive screening was conducted using the MoCA. The criterion neuropsychological assessment was the modified NINDS-CSN battery. Results: The MoCA had moderately strong diagnostic accuracy in ROC analyses, and was statistically better than chance ($p < .01$) in detecting cognitive impairment. Areas under the curve ranged from .80 to .89 depending on the threshold for impairment on the criterion battery. Sensitivity was generally greater than specificity. The optimal cutoff on the MoCA for detecting mild or greater cognitive impairment was $< 25/30$. The optimal cutoff using more conservative thresholds for cognitive impairment ranged from $< 23-24/30$. Conclusion/Discussion The MoCA has strong diagnostic accuracy in detecting cognitive impairment in individuals with mild stroke severity on an inpatient rehabilitation unit. A cutoff score of $< 25/30$ is sensitive to mild cognitive deficits and optimally balances sensitivity and specificity.

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