Rehabilitation
Current Awareness Bulletin
September 2019

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Title: A nurse-led rheumatology telephone advice line: service redesign to improve efficiency and patient experience.

Citation: British Journal of Nursing; May 2019; vol. 28 (no. 10); p. 619-627

Author(s): Tomlinson, Pamela; Heaton, Helen; Medcalf, Patricia; Campbell, Jackie; Whiteside, Debbie

Background: nurse-led telephone advice line (TAL) services have been endorsed by the Royal College of Nursing (RCN) and provide patients and their carers with expert advice and self-management strategies. Identified helpline shortfalls in one rheumatology TAL included a high number of inappropriate calls, calls not recorded in patients’ records, and no formal process for assigning calls to nurses. Using RCN guidelines, the service was redesigned by specialist rheumatology nurses to address these issues.

Method: troubleshooting sessions were used to identify solutions to shortcomings in the helpline processes. Following service redesign, nurse/user feedback was collated, and efficiency savings achieved from reducing face-to-face appointments were calculated.

Results: the new TAL received fewer inappropriate calls, was received positively by staff and patients, and saved approximately £354 890 a year for the local clinical commissioning group.

Conclusion: rheumatology nurses successfully improved a TAL using RCN guidance. The approach could be used by other trusts to improve patient helplines and contribute to the NHS drive for efficiency.

Title: The clinical- and cost-effectiveness of functional electrical stimulation and ankle-foot orthoses for foot drop in Multiple Sclerosis: a multicentre randomized trial.

Citation: Clinical Rehabilitation; Jul 2019; vol. 33 (no. 7); p. 1150-1162

Author(s): Renfrew, Linda (Miller); Paul, Lorna; McFadyen, Angus; Rafferty, Danny; Moseley, Owen; Lord, Anna C; Bowers, Roy; Mattison, Paul

Objective: To compare the clinical- and cost-effectiveness of ankle-foot orthoses (AFOs) and functional electrical stimulation (FES) over 12 months in people with Multiple Sclerosis with foot drop.

Design: Multicentre, powered, non-blinded, randomized trial. Setting: Seven Multiple Sclerosis outpatient centres across Scotland. Subjects: Eighty-five treatment-naïve people with Multiple Sclerosis with persistent (>three months) foot drop.

Interventions: Participants randomized to receive a custom-made, AFO (n = 43) or FES device (n = 42). Outcome measures: Assessed at 0, 3, 6 and 12 months; 5-minute self-selected walk test (primary), Timed 25 Foot Walk, oxygen cost of walking, Multiple Sclerosis Impact Scale-29, Multiple Sclerosis Walking Scale-12, Modified Fatigue Impact Scale, Euroqol five-dimension five-level questionnaire, Activities-specific Balance and Confidence Scale, Psychological Impact of Assistive Devices Score, and equipment and National Health Service staff time costs of interventions.

Results: Groups were similar for age (AFO, 51.4 (11.2); FES, 50.4(10.4) years) and baseline walking speed (AFO, 0.62 (0.21); FES 0.73 (0.27) m/s). In all, 38% dropped out by 12 months (AFO, n = 21; FES, n = 11). Both groups walked faster at 12 months with device (P < 0.001; AFO, 0.73 (0.24); FES, 0.79 (0.24) m/s) but no difference between groups. Significantly higher Psychological Impact of Assistive Devices Scores were found for FES for Competence (P = 0.016; AFO, 0.85(1.05); FES, 1.53(1.05)), Adaptability (P = 0.001; AFO,
0.38(0.97); FES 1.53 (0.98)) and Self-Esteem (P = 0.006; AFO, 0.45 (0.67); FES 1 (0.68)). Effects were comparable for other measures. FES may offer value for money alternative to usual care.

**Conclusion:** AFOs and FES have comparable effects on walking performance and patient-reported outcomes; however, high drop-outs introduces uncertainty.

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**Title:** A cohort study of functional electrical stimulation in people with multiple sclerosis demonstrating improvements in quality of life and cost-effectiveness.

**Citation:** Clinical Rehabilitation; Jul 2019; vol. 33 (no. 7); p. 1163-1170

**Author(s):** Juckes, FM; Marceniuk, G; Seary, C; Stevenson, VL

**Objective:** The objective of this study was to determine the impact on health-related quality of life of functional electrical stimulation used to improve walking in people with multiple sclerosis and to explore cost-effectiveness.

**Design:** A retrospective analysis of patient records was conducted. Setting: This study used outpatient therapy service as the study setting.

**Subjects:** Data from 82 consecutive patients with multiple sclerosis attending for set up with functional electrical stimulation were analysed. Interventions: Patients were seen at baseline, three and six months for support in use of functional electrical stimulation, and data were collected at baseline and six months.

**Main measures:** The EQ-5D-5L and walking speed were collected at baseline and six months after using functional electrical stimulation. The Psychosocial Impact of Assistive Device Scale was collected at six months. EQ-5D-3L utilities were derived and cost-effectiveness analysis was completed utilizing a five-year time horizon and methodology published by National Institute for Health and Care Excellence.

**Results:** Significant differences (P < 0.001) were seen in walking speed (baseline 0.670 m/s; with stimulation 0.768 m/s) and maintained over six months (0.772 m/s with stimulation). EQ-5D data significantly improved over six months (baseline 0.486, six months 0.596, P < 0.001) and meaningful mean scores were seen in all aspects of the Psychosocial Impact of Assistive Device Scale. However, there were no correlations between measures. In the cost utility analysis, compared to standard care, functional electrical stimulation was more expensive and more effective with an incremental cost-effectiveness ratio of £6137.

**Conclusion:** Functional electrical stimulation is a cost-effective treatment to improve walking speed and health-related quality of life in people with multiple sclerosis.

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**Title:** A qualitative exploration of the effect of visual field loss on daily life in home-dwelling stroke survivors.

**Citation:** Clinical Rehabilitation; Jul 2019; vol. 33 (no. 7); p. 1264-1273

**Author(s):** Hazelton, Christine; Pollock, Alex; Taylor, Anne; Davis, Bridget; Walsh, Glyn; Brady, Marian C

**Objective:** To explore the effect of visual field loss on the daily life of community-dwelling stroke survivors. Design: A qualitative interview study.

**Participants:** Adult stroke survivors with visual field loss of at least six months' duration. Methods: Semi-structured interviews were conducted with a non-purposive sample of 12
stroke survivors in their own homes. These were recorded, transcribed verbatim and 
analyzed with the framework method, using an inductive approach.

**Results:** Two key analytical themes emerged. ‘Perception, experience and knowledge’ 
describes participant's conflicted experience of having knowledge of their impaired vision but 
lacking perception of that visual field loss and operating under the assumption that they were 
viewing an intact visual scene when engaged in activities. Inability to recognize and deal 
with visual difficulties, and experiencing the consequences, contributed to their fear and loss 
of self-confidence. 'Avoidance and adaptation' were two typologies of participant response to 
visual field loss. Initially, all participants consciously avoided activities. Some later adapted 
to vision loss using self-directed head and eye scanning techniques.

**Conclusions:** Visual field loss has a marked impact on stroke survivors. Stroke survivors 
lack perception of their visual loss in everyday life, resulting in fear and loss of confidence. Activity avoidance is a common response, but in some, it is replaced by self-initiated 
adaptive techniques.

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**Title:** Robot-assisted therapy for balance function rehabilitation after stroke: A 
 systematic review and meta-analysis.

**Citation:** International Journal of Nursing Studies; Jul 2019; vol. 95 ; p. 7-18

**Author(s):** Zheng, Qing-Xiang; Ge, Li; Wang, Carol Chunfeng; Ma, Qi-Shou; Liao, Yan-
Tan; Huang, Ping-Ping; Wang, Guan-Dong; Xie, Qiu-Lin; Rask, Mikael

**Abstract:** To identify the rehabilitative effects of robot-assisted therapy on balance function 
among stroke patients. A systematic review and meta-analysis of randomized controlled trials. 
Thirteen electronic databases were systematically searched from inception to March 2018: Web 
of Science, PubMed, EMBase, The Cochrane Library, Science Direct, CINAHL, MEDLINE, 
AMED, Physiotherapy Evidence Database, SPORTDiscus, WanFang Data, China National 
Knowledge Infrastructure and Chinese Scientific Journal Database. Randomized controlled trials 
were retrieved for identifying the effects of robot-assisted therapy on balance function among 
stroke patients. Two authors independently searched databases, screened studies, extracted 
data, and evaluated the methodological quality and risk bias of each included study. A 
standardized protocol and data-collection form were used to extract information. Effect size was 
evaluated by mean difference with corresponding 95% confidence intervals. Methodological 
quality and risk bias evaluation for each included study followed the quality appraisal criteria for 
randomized controlled trials that were recommended by Cochrane Handbook. Meta-analysis was 
conducted by utilizing Review Manager 5.3, a Cochrane Collaboration tool. Data was 
synthesized with descriptive analysis instead of meta-analysis where comparisons were not 
possible to be conducted with a meta-analysis. Thirty-one randomized controlled trials with a 
total of 1249 participants were included. The majority of the included studies contained some 
methodological flaws. The results of the meta-analysis indicated that robot-assisted therapy 
produced positive effects on balance function, as shown by an increase in the Berg balance 
scale score [random effects model, mean difference = 4.64, 95%CI = 3.22–6.06, P <0.01], as 
well as Fugl-Meyer  

balance scale scores [fixed effects model, mean difference = 3.57, 95%CI = 2.81–4.34, P < 
0.01]. After subgroup and sensitivity analyses, the positive effects were not influenced by 
different types of robotic devices, by whether robot-assisted therapy was combined with 
another intervention or not, or by differences in duration and intensity of intervention. 
Evidence in the present systematic review indicates that robot-assisted therapy may 
produce significantly positive improvements on balance function among stroke patients 
compared with those not using this method. More multi-center, high-quality and large-scale
randomized controlled trials following the guidelines of CONSORT are necessary to generate high-quality evidence in further research.

Title: Development and Validity Of An Innovative Test To Assess Guideline-Consistent Clinical Reasoning By Physical Therapists In Stroke Rehabilitation.

Citation: Journal of Rehabilitation Medicine (Stiftelsen Rehabiliteringsinformation); Jul 2019; vol. 51 (no. 6); p. 418-425

Author(s): Otterman, Nicoline M.; Maas, Marjo; Schiemanck, Sven K.; Van Der Wees, Philip J.; Kwakkel, Gert

Objective: To evaluate the validity of a script concordance test to assess guideline-consistent clinical reasoning by physical therapists in stroke rehabilitation, and to identify critical features of physical therapists specializing in stroke rehabilitation.

Methods: A script concordance test was developed according to current standards. Four subgroups of physical therapists (those specializing in neurology, those focusing on neurology or geriatrics, other, and non-specialized undergraduate students) were asked to complete the test. The construct validity of the script concordance test was evaluated with 1-way analysis of variance (ANOVA) to estimate differences between subgroups. Associations between physical therapist characteristics, and script concordance test scores were analysed with bivariate regression analysis followed by multivariate analyses.

Results: The script concordance test, with 59 items, was completed by 211 physical therapists. ANOVA analysis showed statistically significant differences between the script concordance test scores of the 4 groups (p < 0.001), with higher scores by the physical therapists specializing in neurology compared with the other, non-specialized, subgroups. The multivariate analysis showed that better guideline knowledge (B = 1.07; CI = 0.48--1.65; p = <0.001), successful completion of the Dutch Neurorehabilitation course (B = 4.1; CI = 1.37--6.87; p = 0.003), and participation in professional development activities (B = 2.4; CI = 0.05--4.68; p = 0.046) were associated with higher script concordance test scores.

Conclusion: The script concordance test has good construct validity. Greater self-reported guideline knowledge, successful completion of the post-bachelor Dutch Neurorehabilitation course, as well as systematic participation in professional development activities facilitate important factors that enhance specialization. The script concordance test is a valid feedback tool for physical therapists to support professional development in the domain of stroke rehabilitation.

Title: Comparison of Accelerometer-Based Arm, Leg And Trunk Activity At Weekdays And Weekends During Subacute Inpatient Rehabilitation After Stroke.

Citation: Journal of Rehabilitation Medicine (Stiftelsen Rehabiliteringsinformation); Jul 2019; vol. 51 (no. 6); p. 426-433

Author(s): Alt Murphy, Margit; Andersson, Sofi; Danielsson, Anna; Wipenmyr, Jan; Ohlsson, Fredrik

Objective: To determine whether there are differences in arm, leg and trunk activity measured by acceleration between weekdays and weekends in people undergoing rehabilitation in the subacute stage after stroke.

Design: Cross-sectional study.
**Patients:** Twenty-eight individuals with stroke (mean age 55.4 years; severe to mild impairment) and 10 healthy controls.

**Methods:** A set of 5 3-axial accelerometers were used on the trunk, wrists and ankles during 2 48-h sessions at weekdays and over a weekend. Day-time acceleration raw data were expressed as the signal magnitude area. Asymmetry between the affected and less-affected limb was calculated as a ratio.

**Results:** Participants with stroke used their both arms and legs less at weekends than on weekdays (p < 0.05, effect size 0.32-0.57). Asymmetry between the affected and less-affected arm was greater at weekends (p < 0.05, effect size 0.32). All activity measures, apart from the less-affected arm on weekdays, were lower in stroke compared with controls (p < 0.05, effect size 0.4-0.8). No statistically significant differences were detected between weekday and weekend activity for the control group. One-third of participants perceived the trunk sensor as inconvenient to wear.

**Conclusion:** Increased focus needs to be applied on activities carried out during weekends at rehabilitation wards.

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**Title:** Effect of High-Intensity Exercise on Multiple Sclerosis Function and Phosphorous Magnetic Resonance Spectroscopy Outcomes.

**Citation:** Medicine & Science in Sports & Exercise; Jul 2019; vol. 51 (no. 7); p. 1380-1386

**Author(s):** Orban, Anna; Garg, Bharti; Sammi, Manoj K.; Bourdette, Dennis N.; Rooney, William D.; Kuehl, Kerry; Spain, Rebecca I.

**Abstract:** Supplemental digital content is available in the text.

**Purpose:** We determined if a high-intensity aerobic exercise program would be safe, improve expected fitness and clinical outcomes, and alter exploratory phosphorous magnetic resonance spectroscopy (31P MRS) outcomes in persons with multiple sclerosis (PwMS).

**Methods:** This open-label prospective pilot study compared two cohorts of ambulatory PwMS matched for age, sex and V'O2max. Cohorts underwent 8 wk of high-intensity aerobic exercise (MS-Ex, n = 10) or guided stretching (MS-Ctr, n = 7). Aerobic exercise consisted of four 30-min sessions per week while maintaining ≥70% maximal HR. Changes in cardiorespiratory fitness, clinical outcomes, and 31P MRS of tibialis anterior (TA) muscle and brain were compared. Cross-sectional 31P MRS comparisons were made between all MS participants and a separate matched healthy control population.

**Results:** The MS-Ex cohort achieved target increases in V'O2max (mean, +12.7%; P = <0.001, between-group improvement, P = 0.03). One participant was withdrawn for exercise-induced syncope. The MS-Ex cohort had within-group improvements in fat mass (−5.8%; P = 0.04), lean muscle mass (+2.6%; P = 0.02), Symbol Digit Modalities Test (+15.1%; P = 0.04), and cognitive subscore of the Modified Fatigue Impact Scale (−26%; P = 0.03), whereas only the physical subscore of the Modified Fatigue Impact Scale improved in MS-Ctr (−16.1%; P = 0.007). 31P MRS revealed significant within-group increases in MS-Ex participants in TA rate constant of phosphocreatine (PCr) recovery (+31.5%; P = 0.03) and adenosine triphosphate/PCr (+3.2%; P = 0.01), and near significant between-group increases in TA PCr recovery rate constant (P = 0.05) but no significant changes in brain 31P MRS after exercise. Cross-sectional differences existed between MS and healthy control brain PCr/inorganic phosphate (4.61 ± 0.44, 3.93 ± 0.19; P = 0.0019).

**Conclusions:** High-intensity aerobic exercise in PwMS improved expected cardiorespiratory and clinical outcomes but provoked one serious adverse event. The 31P MRS may serve to explore underlying mechanisms by which aerobic exercise exerts cerebral benefits.
Title: Walking speed as a predictor of community mobility and quality of life after stroke.

Citation: Topics in Stroke Rehabilitation; Jul 2019; vol. 26 (no. 5); p. 349-358

Author(s): Grau-Pellicer, Montserrat; Chamarro-Lusar, Andrés; Medina-Casanovas, Josep; Serdà Ferrer, Bernat-Carles

Background: Community mobility (CM) is considered a part of community reintegration that enhances Quality of Life (QoL). Achieving an appropriate gait speed is essential in attaining an independent outdoor ambulation and satisfactory CM. Objective: The aim of this study was to identify whether gait speed is a predictor of CM and QoL in patients with stroke following a multimodal rehabilitation program (MRP).

Methods: This was a baseline control trial with 6-months follow-up in an outpatient rehabilitation setting at a university hospital. Twenty-six stroke survivors completed the MRP (24 sessions, 2 days/wk, 1 hr/session). The MRP consisted of aerobic exercise, task-oriented exercises, balance exercises and stretching. Participants also performed an ambulation program at home. Outcome variables were: walking speed (10-m walking test) and QoL (physical and psychosocial domains of Euroquol and Sickness Impact Profile).

Results: At the end of the intervention, comfortable and fast walking speed increased by an average of 0.16 (SD 0.21) (*p <.05) and 0.40 (SD 0.51) (**p <.001) m/s, respectively. After the intervention, all participants achieved independent outdoor ambulation with an increase of 34.14 of walking minutes/day in the community and a decrease of sitting time of 95.45 minutes/day. Regarding QoL, there were increased mean scores on the physical and psychosocial dimensions of Euroquol and the Sickness Impact Profile, respectively (**p <.001).

Conclusions: The results suggest that improved walking speed after the MRP is associated with CM and higher scores in QoL. These findings support the need to implement rehabilitation programs to promote increased speed.

Title: Assessment of backward walking unmasks mobility impairments in post-stroke community ambulators.

Citation: Topics in Stroke Rehabilitation; Jul 2019; vol. 26 (no. 5); p. 382-388

Author(s): Hawkins, Kelly A.; Balasubramanian, Chitralakshmi K.; Vistamehr, Arian; Conroy, Christy; Rose, Dorian K.; Clark, David J.; Fox, Emily J.

Background: While over half of stroke survivors recover the ability to walk without assistance, deficits persist in the performance of walking adaptations necessary for safe home and community mobility. One such adaptation is the ability to walk or step backward. Post-stroke rehabilitation rarely includes backward walking (BW) assessment and BW deficits have not been quantified in post-stroke community ambulators.

Objective: To quantify spatiotemporal and kinematic BW characteristics in post-stroke community ambulators and compare their performance to controls.

Methods: Individuals post-stroke (n = 15, 60.1 ± 12.9 years, forward speed: 1.13 ± 0.23 m/s) and healthy adults (n = 12, 61.2 ± 16.2 years, forward speed: 1.40 ± 0.13 m/s) performed forward walking (FW) and BW during a single session. Step characteristics and peak lower extremity joint angles were extracted using 3D motion analysis and analyzed with mixed-method ANOVAs (group, walking condition).
Results: The stroke group demonstrated greater reductions in speed, step length and cadence and a greater increase in double-support time during BW compared to FW (p < .01). Compared to FW, the post-stroke group demonstrated greater reductions in hip extension and knee flexion during BW (p < .05). The control group demonstrated decreased plantarflexion and increased dorsiflexion during BW, but these increases were attenuated in the post-stroke group (p < .05).

Conclusions: Assessment of BW can unmask post-stroke walking impairments not detected during typical FW. BW impairments may contribute to the mobility difficulties reported by adults post-stroke. Therefore, BW should be assessed when determining readiness for home and community ambulation.

Title: The Effects of Virtual Reality Training on Function in Chronic Stroke Patients: A Systematic Review and Meta-Analysis.

Citation: BioMed Research International; Jun 2019; p. 1-12

Author(s): Lee, Han Suk; Park, Yoo Junk; Park, Sun Wook

Objective: The aim of this study was to perform a meta-analysis to examine whether virtual reality (VR) training is effective for lower limb function as well as upper limb and overall function in chronic stroke patients.

Methods: Three databases, OVID, PubMed, and EMBASE, were used to collect articles. The search terms used were "cerebrovascular accident (CVA)," "stroke," and "virtual reality". Consequently, twenty-one studies were selected in the second screening of meta-analyses. The PEDro scale was used to assess the quality of the selected studies.

Results: The total effect size for VR rehabilitation programs was 0.440. The effect size for upper limb function was 0.431, for lower limb function it was 0.424, and for overall function it was 0.545. The effects of VR programs on specific outcomes were most effective for improving muscle tension, followed by muscle strength, activities of daily living (ADL), joint range of motion, gait, balance, and kinematics.

Conclusion: The VR training was effective in improving the function in chronic stroke patients, corresponding to a moderate effect size. Moreover, VR training showed a similar effect for improving lower limb function as it did for upper limb function.

Title: Clinical Decision Making in Patients with Stroke-Related Dysphagia.

Citation: Seminars in Speech & Language; Jun 2019; vol. 40 (no. 3); p. 188-202

Abstract: This article aims to highlight stroke considerations in the evaluation and management of dysphagia. Although dysphagia was previously thought to occur only following brainstem or bilateral cortical strokes, the development of brain imaging and dynamic swallowing studies has revealed small, unilateral supratentorial strokes can produce dysphagia. In this article, screening, evaluation, and management of dysphagia are outlined, as well as the clinical decision making that occurs when taking into account cognitive and communication deficits that may be present. For the clinical swallow examination, chart review, interview, informal evaluation of cognition and communication, observation of posture, oral cavity inspection, cranial nerve examination, and the direct swallowing assessment are reviewed along with tailoring of each according to the deficits observed. Specific compensation and rehabilitation strategies are discussed along with how cognitive and communication deficits can guide the clinician's decision-making process to
select an appropriate plan of care. A case study is provided to synthesize the process into a real-world scenario.

Title: The Effect of Noninvasive Brain Stimulation on Poststroke Cognitive Function: A Systematic Review.

Citation: Neurorehabilitation & Neural Repair; May 2019; vol. 33 (no. 5); p. 355-374

Author(s): van Lieshout, Eline C. C.; van Hooijdonk, Roel F.; Dijkhuizen, Rick M.; Visser-Meily, J. M. Anne; Nijboer, Tanja C. W.

Introduction: Cognitive impairment after stroke has been associated with lower quality of life and independence in the long run, stressing the need for methods that target impairment for cognitive rehabilitation. The use of noninvasive brain stimulation (NIBS) on recovery of language functions is well documented, yet the effects of NIBS on other cognitive domains remain largely unknown. Therefore, we conducted a systematic review that evaluates the effects of different stimulation techniques on domain-specific (long-term) cognitive recovery after stroke.

Methods: Three databases (PubMed, EMBASE, and PsycINFO) were searched for articles (in English) on the effects of NIBS on cognitive domains, published up to January 2018.

Results: A total of 40 articles were included: randomized controlled trials (n = 21), studies with a crossover design (n = 9), case studies (n = 6), and studies with a mixed design (n = 4). Most studies tested effects on neglect (n = 25). The majority of the studies revealed treatment effects on at least 1 time point poststroke, in at least 1 cognitive domain. Studies varied highly on the factors time poststroke, number of treatment sessions, and stimulation protocols. Outcome measures were generally limited to a few cognitive tests.

Conclusion: Our review suggests that NIBS is able to alleviate neglect after stroke. However, the results are still inconclusive and preliminary for the effect of NIBS on other cognitive domains. A standardized core set of outcome measures of cognition, also at the level of daily life activities and participation, and international agreement on treatment protocols, could lead to better evaluation of the efficacy of NIBS and comparisons between studies.

Title: Barriers and facilitators to physical activity participation for children with physical disability: comparing and contrasting the views of children, young people, and their clinicians.

Citation: Disability & Rehabilitation; Jun 2019; vol. 41 (no. 13); p. 1499-1507

Author(s): Wright, Annemarie; Roberts, Rachel; Bowman, Grace; Crettenden, Angela

Purpose: Existing research has explored the barriers and facilitators of physical activity participation for young people with disability from the perspective of young people and their families. However, little research has investigated the views of clinicians who facilitate access to physical activity programs and compared this with their child client's perspectives.

Method: Interviews were conducted with six allied health and sports development professionals associated with a programme which supports access to recreation and sporting activities. Interviews explored facilitators and barriers to physical activity experienced by their clients. Open-ended survey questions investigating barriers and facilitators of physical activity participation were also completed by 28 young people with disability aged 10–17 years who were clients of this programme.
Results: The most salient facilitator of participation described by clinicians was "planning programs to promote success and inclusion." Young people described two main facilitators; "the right people make physical activity fun!" and, similar to clinicians, "appropriate and inclusive opportunities to be active." The most salient barriers identified by clinicians were "practical limitations" and "time constraints and priorities," and a novel barrier raised was "whose choice?" The "lack of accessible and inclusive opportunities" was the most pertinent barrier for young people.

Conclusions: Clinicians should determine both parent and young person commitment to a physical activity before enrolment. Lack of commitment can act as a barrier to physical activity and a more appropriate intervention could focus on increasing awareness of the benefits of being active, drawing on a Stages of Change based model of service delivery. Rehabilitation professionals seeking to increase physical activity participation for young people with physical disability should discuss readiness and motivation to change prior to any activity/sports referral. Different behaviour change processes are required for young people and for their parents and both are important to achieve physical activity participation. Regular monitoring is important to identify on-going physical and psychological barriers to participation, even for those who were already active. Clinicians should be aware that teenagers may be more ready to be active as they develop greater independence and should raise awareness of the benefits of physical activity.

Title: Reliability and validity of the de Morton Mobility Index in individuals with sub-acute stroke.

Citation: Disability & Rehabilitation; Jun 2019; vol. 41 (no. 13); p. 1561-1570

Author(s): Braun, Tobias; Marks, Detlef; Thiel, Christian; Grüneberg, Christian

Purpose: To establish the validity and reliability of the de Morton Mobility Index (DEMMI) in patients with sub-acute stroke.

Methods: This cross-sectional study was performed in a neurological rehabilitation hospital. We assessed unidimensionality, construct validity, internal consistency reliability, inter-rater reliability, minimal detectable change and possible floor and ceiling effects of the DEMMI in adult patients with sub-acute stroke.

Results: The study included a total sample of 121 patients with sub-acute stroke. We analysed validity (n = 109) and reliability (n = 51) in two sub-samples. Rasch analysis indicated unidimensionality with an overall fit to the model (chi-square = 12.37, p = 0.577). All hypotheses on construct validity were confirmed. Internal consistency reliability (Cronbach's alpha = 0.94) and inter-rater reliability (intraclass correlation coefficient = 0.95; 95% confidence interval: 0.92–0.97) were excellent. The minimal detectable change with 90% confidence was 13 points. No floor or ceiling effects were evident.

Conclusions: These results indicate unidimensionality, sufficient internal consistency reliability, inter-rater reliability, and construct validity of the DEMMI in patients with a sub-acute stroke. Advantages of the DEMMI in clinical application are the short administration time, no need for special equipment and interval level data. The de Morton Mobility Index, therefore, may be a useful performance-based bedside test to measure mobility in individuals with a sub-acute stroke across the whole mobility spectrum. The de Morton Mobility Index (DEMMI) is an unidimensional measurement instrument of mobility in individuals with sub-acute stroke. The DEMMI has excellent internal consistency and inter-rater reliability, and sufficient construct validity. The minimal detectable change of the DEMMI with 90% confidence in stroke rehabilitation is 13 points. The lack of any floor or ceiling effects on hospital admission indicates applicability across the whole mobility spectrum of patients with sub-acute stroke.
Title: Quality of life perceptions of family caregivers of older adults stroke survivors: A longitudinal study.

Citation: Applied Nursing Research; Jun 2019; vol. 47; p. 57-62
Author(s): Bierhals, Carla C.B.K.; Low, Gail; Paskulin, Lisiane M.G.

Abstract: There are few formal outreach and out-patient support services to help family caring for older adults who have had a stroke in developing countries. Family caregivers experience negative changes in their quality of life. To assess quality of life perceptions of spouse and non-spouse caregivers of older adult stroke survivors. A longitudinal survey study. A convenience sample of forty-eight family caregivers was recruited from the Special Care Stroke Unit at a University Hospital in South Brazil. Quality of life was measured using the World Health Organization’s Quality of Life BREF survey upon discharge from the hospital (Time 1) and two months after (Time 2). Non-spouse caregivers had the lowest Social Relationship scores at Time 1 (p <.001) and at Time 2 (p =.005), both in terms of personal relationship, the quality of their sex lives and support received from others. Unfortunately, formal community support programs for family caregivers in Brazil are lacking. Post-stroke caregiving is largely a family affair. Quality of Life assessments among family caregivers of older adult stroke survivors are crucial, particularly after discharge. • Non-spouse caregivers of older adults stroke survivors have lower quality of life regarding social relationships. • QOL among family caregivers should be assessed before and after discharge from a Stroke Care Unit. • Our findings provide knowledge of the QOL priorities of family caregivers and recommendations for nurse practitioners.

Title: Predictors of upper limb spasticity after stroke? A systematic review and meta-analysis.

Citation: Physiotherapy; Jun 2019; vol. 105 (no. 2); p. 163-173
Author(s): Tedesco Triccas, Lisa; Kennedy, Niamh; Smith, Toby; Pomeroy, Valerie

Abstract: To determine the predictive markers for the occurrence of upper limb spasticity in the first 12 months after stroke. A systematic review was undertaken of the databases MEDLINE, EMBASE, CINAHL and PEDRO to 31st December 2017. Non-experimental or experimental studies that included a control group with spasticity who did not receive an experimental intervention which investigated at least one variable (explanatory variable) measured at baseline against the development (or not) of spasticity at a future time point within 12 months post stroke were selected independently by two reviewers. Eleven papers met the selection criteria. Data were extracted into tabular format using predefined data fields by two reviewers. Study quality was evaluated using the modified Downs and Black tool. Data were analysed using a meta-analysis or narrative review. Ten studies, including 856 participants were analysed. The predictive markers of upper limb spasticity at one month post stroke were: motor 11.25 (odds ratio, OR); [95% CI:2.48, 51.04] and sensory impairments 4.91 (OR); [1.24, 19.46]; haemorrhagic stroke 3.70 (OR); [1.05, 12.98] and age 0.01 (OR) [0.00, 69.89]. Only motor impairment was found as a significant predictor at six months post stroke 30.68 (OR); [1.60, 587.06]. Low number of studies exploring biomechanical and neurophysiological in addition to behavioural predictors of spasticity were included. Using the results, the identified predictive markers have potential to better inform clinical decision-making and to plan specific rehabilitation interventions by physiotherapists for stroke survivors with upper limb spasticity. Systematic Review Registration Number PROSPERO (ID: CRD42016027642).
Title: Treadmill training may be an effective form of task-specific training for improving mobility in people with Parkinson’s disease and multiple sclerosis: a systematic review and meta-analysis.

Citation: Physiotherapy; Jun 2019; vol. 105 (no. 2); p. 174-186

Author(s): Robinson, Alexandra G.; Dennett, Amy M.; Snowdon, David A.

Abstract: Task-specific training is an effective form of rehabilitation for improving mobility in neurological conditions. However, it remains unclear if task-specific training is effective in people with progressive disease. To establish the efficacy of task-specific training on the mobility of individuals with progressive neurological conditions. Electronic databases MEDLINE, EMBASE, CINAHL and Cochrane Database of Systematic Reviews. Randomised controlled trials investigating the effect of task-specific training on mobility and falls rate in individuals with progressive neurological conditions. Risk of bias of individual studies was assessed using the Physiotherapy Evidence Database (PEDro) Scale. Mean differences (MD) and 95% confidence intervals were calculated and combined in meta-analysis. Analysis of 16 trials found treadmill training improved comfortable walking velocity (m/second) in people with Parkinson’s disease (MD 0.21 m/second, 95%CI 0.15 to 0.27) and multiple sclerosis (MD 0.36 m/second, 95%CI 0.20 to 0.52). Treadmill training improved stride length (m) (MD 0.12 m, 95%CI 0.02 to 0.23) and step length (m) (MD 0.12 m, 95%CI 0.01 to 0.23) in people with Parkinson's disease and walking endurance in people with multiple sclerosis (MD 26.53 m, 95%CI 12.23 to 40.84). Treadmill training had no effect on cadence and did not improve walking endurance in Parkinson's disease. Over-ground walking did not improve mobility in Parkinson's disease or multiple sclerosis. Study sample sizes were small and findings must be interpreted with caution. Treadmill training may be effective for improving mobility in people with Parkinson's disease and multiple sclerosis. The effectiveness of over-ground walking is uncertain.

Title: Virtual reality exergaming as adjunctive therapy in a sub-acute stroke rehabilitation setting: facilitators and barriers.

Citation: Disability & Rehabilitation: Assistive Technology; May 2019; vol. 14 (no. 4); p. 317-324

Author(s): Nguyen, Ai-Vi; Ong, Yau-Lok Austin; Luo, Cindy Xin; Thuraisingam, Thiviya; Rubino, Michael; Levin, Mindy F.; Kaizer, Franceen; Archambault, Philippe S.

Purpose: To identify the facilitators and barriers perceived by clinicians to using an Exergaming Room as adjunct to conventional therapy.

Design: Phenomenological qualitative study using an interpretive description methodology. Subjects: Ten clinicians (four physical therapists, six occupational therapists) from the Stroke Program at the Jewish Rehabilitation Hospital (nine female, one male, age range 25–50 years old) who referred clients to the Exergaming Room.

Methods: Ten to twenty minute semi-structured interviews were conducted with each clinician. Convenience sampling was used. A thematic analysis was performed on the data collected by grouping all the open codes into facilitators and barriers, and then categorized into levels, themes and subthemes.

Results: Facilitators and barriers were divided into three levels: organizational, individual and technological. Major facilitators at the organizational level were: institutional support; at the individual level: personal experience of referring clinician, presence of an expert clinician, and relevance of the Exergaming Room for stroke clients; and at the technological
level: perceived ease of use of the exergames and possibility of providing additional therapy. Key barriers to successful implementation of the Exergaming Room at the organizational level were: scheduling difficulties and lack of staffing; at the individual level: client functional limitations; at the technological level: low precision in motion capture of the exergame systems.

Conclusions: Multiple factors affect the implementation of new technology in rehabilitation settings. In order to successfully integrate exergame systems into practice, institutions are encouraged to take the identified factors (facilitators and barriers) into account. Clinicians who have referred individuals with stroke to an "exergames" room over a 1-year period at a rehabilitation hospital found the service to be highly relevant to their clients. The presence of an expert clinician, who evaluates the clients and builds an exergames activity program, was seen as an important facilitator by referring clinicians in the use of this service. An ideal Exergames Room should offer a wide variety of activities, including some that focus on motor, cognitive and/or communications abilities

Title: Managing cognitive difficulties after traumatic brain injury: a review of online resources for families.

Citation: Disability & Rehabilitation; Aug 2019; vol. 41 (no. 16); p. 1955-1965

Author(s): Poulin, Valérie; Dawson, Deirdre R.; Bottari, Carolina; Verreault, Cynthia; Turcotte, Samantha; Jean, Alexandra

Purpose: To identify and critically appraise the content, readability, reliability and usability of websites providing information for managing cognitive difficulties in everyday life for the families of adults with moderate to severe traumatic brain injury.

Method: Systematic searches on the Internet for relevant websites were conducted using five search engines, and through consultation of the lists of resources published on websites of traumatic brain injury organizations. Two team members assessed eligibility of the websites. To be included, they had to provide information related to management of cognitive difficulties following moderate to severe traumatic brain injury, to be in English or French and available free of charge. Two reviewers evaluated each website according to: (1) its readability using Flesch–Kincaid Grade Level; (2) the quality of its content using a checklist of eight recommendations for managing memory, attention and executive function problems; (3) its usability (e.g., clear design) and reliability (e.g., currency of information) using the Minervation Validation Instrument for Health Care Web Sites.

Results: Of the 38 websites included, 10 provide specific tips for families that cover several domains of cognitive function, including memory, attention and executive function. The most frequent recommendations focused on the use of environmental supports for memory problems (n = 33 websites). The readability of information is below the recommended grade 7 for only nine of the websites. All sites show acceptable usability, but their quality is variable in terms of reliability of the information.

Conclusions: This review provides useful information for selecting online resources to educate families about the management of cognitive difficulties following moderate to severe traumatic brain injury, as a complement to information and training provided by the rehabilitation team. This review describes standardized criteria for the evaluation of the content, readability, reliability and usability of websites for family education post-TBI. Given the variability in the content, the readability and the reliability of websites providing information for families about the management of cognitive difficulties post-TBI, careful attention to the selection of appropriate resources is required. Findings from this review may facilitate clinicians’ identification of relevant websites to educate families about the management of cognitive difficulties post-TBI, as a complement to other information and training from the rehabilitation team.
Title: Racial and ethnic disparities in stroke outcomes: a scoping review of post-stroke disability assessment tools.

Citation: Disability & Rehabilitation; Jul 2019; vol. 41 (no. 15); p. 1835-1845

Author(s): Burns, Suzanne Perea; White, Brandi M.; Magwood, Gayenell; Ellis, Charles; Logan, Ayaba; Jones Buie, Joy N.; Adams, Robert J.

Purpose: To identify how post-stroke disability outcomes are assessed in studies that examine racial/ethnic disparities and to map the identified assessment content to the International Classification of Functioning, Disability, and Health (ICF) across the time course of stroke recovery.

Methods: We conducted a scoping review of the literature. Articles published between January 2001 and July 2017 were identified through Scopus, PubMed, CINAHL, and PsycINFO according to predefined inclusion and exclusion criteria.

Results: We identified 1791 articles through database and hand-searching strategies. Of the articles, 194 met inclusion criteria for full-text review, and 41 met inclusion criteria for study inclusion. The included studies used a variety of outcome measures encompassing domains within the ICF: body functions, activities, participation, and contextual factors across the time course of stroke recovery. We discovered disproportionate representation among racial/ethnic groups in the post-stroke disability disparities literature.

Conclusions: A wide variety of assessments are used to examine disparities in post-stroke disability across the time course of stroke recovery. Several studies have identified disparities through a variety of assessments; however, substantial problems abound from the assessments used including inconsistent use of assessments, lacking evidence on the validity of assessments among racial/ethnic groups, and inadequate representation among all racial/ethnic populations comprising the US. An enhanced understanding of racial/ethnic disparities in post-stroke disability outcomes is inherently important among rehabilitation practitioners who frequently engage with racial/ethnic minority populations across the time course of stroke recovery. Clinicians should carefully consider the psychometric properties of assessment tools to counter potential racial bias. Clinicians should be aware that many assessments used in stroke rehabilitation lack cultural sensitivity and could result in inaccurate assessment findings.

Title: Adherence of physical therapy with clinical practice guidelines for the rehabilitation of stroke in an active inpatient setting.

Citation: Disability & Rehabilitation; Jul 2019; vol. 41 (no. 15); p. 1855-1862

Author(s): M. S., Ajimsha; Kooven, Smithesh; Al-Mudahka, Noora

Background: Clinical guidelines are systematically developed statements designed to help practitioners and patients to make decisions about appropriate health care. Clinical practice guideline adherence analysis is the best way to fine tune the best practices in a health care industry with international benchmarks.

Objective: To assess the physical therapist's adherence to structured stroke clinical practice guidelines in an active inpatient rehabilitation center in Qatar. Setting: Department of Physical therapy in the stroke rehabilitation tertiary referral hospital in Qatar.

Method: A retrospective chart audit was performed on the clinical records of 216 stroke patients discharged from the active inpatient stroke rehabilitation unit with a diagnosis of stroke in 2016. The audit check list was structured to record the adherence of the
assessment, goal settings and the management domains as per the "Physical Therapy After Acute Stroke" (PAAS) guideline.

Result: Of the 216 case files identified during the initial search, 127 files were ultimately included in the audit. Overall adherence to the clinical practice guideline was 71%, a comparable rate with the studies analyzing the same in various international health care facilities. Domains which were shared by interdisciplinary teams than managed by physical therapy alone and treatments utilizing sophisticated technology had lower adherence with the guideline. A detailed strength and weakness breakdown were then conducted.

Conclusion: This audit provides an initial picture of the current adherence of physical therapy assessment and management with the stroke physical therapy guideline at a tertiary rehabilitation hospital in the state of Qatar. An evaluation of the guideline adherence and practice variations helps to fine tune the physical therapy care to a highest possible standard of practice. • An evaluation of the guideline adherence and practice variations helps to fine tune the rehabilitation care to the highest possible standard of practice. • Proper assessments of the relationship between the process of rehabilitation care and outcomes with a comprehensive set of process indicators will improve the quality of the care. • An agreement needs to be established between rehabilitation teams engage in interdisciplinary stroke care regarding the shared responsibilities and team functioning. • It is recommendable to develop a specialty based clinical practice guidelines that can be aligned at a higher 'comprehensive rehabilitation level' to provide the best possible and evidence based stroke care.

Title: Robotic-Assisted Shoulder Rehabilitation Therapy Effectively Improved Poststroke Hemiplegic Shoulder Pain: A Randomized Controlled Trial.

Citation: Archives of Physical Medicine & Rehabilitation; Jun 2019; vol. 100 (no. 6); p. 1015-1022

Author(s): Kim, Min-Su; Kim, Sung Hoon; Noh, Se-Eung; Bang, Heui Je; Lee, Kyoung-Moo

Abstract: The purpose of this study was to investigate the therapeutic effects of a newly developed shoulder robot on poststroke hemiplegic shoulder pain. Prospective, single-blind randomized controlled trial. Inpatient department of a tertiary university hospital. Hemiplegic shoulder pain patients (N=38) were consecutively recruited and randomly assigned to an intervention or control group. A newly developed robot was designed to perform joint mobilization and stretching exercises with patients lying in the supine position. Conventional physical therapy directed at both improving upper extremity mechanics and reducing neurologic injury was performed twice per day in both groups. In the intervention group, additional robotic-assisted shoulder rehabilitation therapy was administered for 30 minutes per day, 5 times per week for 4 weeks. The visual analog scale was the primary outcome, and the pain-free passive range of motion of the shoulder joint, the Korean version of the Shoulder Disability Questionnaire, and ultrasonographic grades were the secondary outcomes. The outcomes were evaluated at baseline (T0), postintervention (T1), and a 4-week follow-up (T2). Significant time and group interaction effects were found on the visual analog scale, in the abduction passive range of motion, and on the Shoulder Disability Questionnaire (F 2,33 =16.384, P =.002; F 2,33 =10.609, P =.012; F 2,33 =32.650, P =.008, respectively). Significantly higher improvements in these outcome measures were observed in the intervention group than in the control group at T1 after post hoc analysis (P <0.05, all). These improvements were sustained at T2 when the intervention group was compared with the control group (P <.05, all). A prototype shoulder rehabilitation robot as an adjuvant therapy improves hemiplegic shoulder pain and self-reported shoulder-related disability. • We developed a novel shoulder pain rehabilitation robot with 1 arm that was capable of performing abduction range of motion exercises within the limits of pain tolerance. • After a
4-week rehabilitation therapy using this robot, visual analog scale scores were significantly lower, and the abduction passive range of motion and disability caused by shoulder pain were improved. Robotic-assisted shoulder pain rehabilitation therapy was beneficial for the treatment of hemiplegic shoulder pain.

Title: Gait Impairments in Patients Without Lower Limb Hypertonia Early Poststroke Are Related to Weakness of Paretic Knee Flexors.

Citation: Archives of Physical Medicine & Rehabilitation; Jun 2019; vol. 100 (no. 6); p. 1091-1101

Author(s): Chow, John W.; Stokic, Dobrivoje S.

Abstract: To describe gait characteristics of patients without clinical evidence of lower limb hypertonia within 2 months of stroke and explore the relationship between gait and residual motor function. Cohort study. Motion analysis laboratory in a tertiary-care free-standing rehabilitation hospital. Consecutive sample of 73 eligible inpatients (first-known stroke <2 months postonset, walking independently, modified Ashworth score of 0 in the paretic lower limb) and 27 healthy controls (N=100). Not applicable. Gait speed, stride and step lengths and cadences, stance time, single-support and double-support times, and associated symmetry measures in patients at self-selected normal speed and controls at very slow speed (51.1±32.6 cm/s and 61.9±21.8 cm/s, respectively, P = .115); Fugl-Meyer lower extremity motor score (FM-LE) and isometric knee flexion and extension strength in patients. Except the stride/step cadence, all temporospatial parameters significantly differed between the stroke and control participants. Furthermore, significantly greater asymmetries were found in the patients for the overall stance time, initial double-support and single-support times, and step cadence, reflecting smaller values in the paretic than nonparetic limb. Most temporospatial parameters moderately to strongly correlated with the gait speed (| r |: .72-.94, P < .0001), FM-LE (| r |: .42-.62, P ≤ .0005), and paretic knee flexor strength (| r |: .47-.57, P ≤ .0004). Gait of patients without clinical evidence of lower limb hypertonia within 2 months of stroke is characterized by many temporospatial deviations and asymmetries. The self-selected normal gait speed, FM-LE, and paretic knee flexor strength can discriminate gait impairments in these patients shortly before inpatient discharge. It remains to be determined whether the observed relationships between paretic knee flexor strength and gait measures warrant the development of interventions for strengthening of the paretic knee flexors in order to improve gait early poststroke.

Title: Benchmarks of Significant Change After Aphasia Rehabilitation.

Citation: Archives of Physical Medicine & Rehabilitation; Jun 2019; vol. 100 (no. 6); p. 1131-1131

Author(s): Gilmore, Natalie; Dwyer, Michaela; Kiran, Swathi

Abstract: To establish benchmarks of significant change for aphasia rehabilitation outcome measures (ie, Western Aphasia Battery-Aphasia Quotient [WAB-AQ], Communicative Effectiveness Index [CETI], Boston Naming Test [BNT]) and assess if those benchmarks significantly differ across subgroups (ie, time post onset, dose frequency, treatment type). A comprehensive literature search of 12 databases, reference lists of previous reviews, and evidence-based practice materials was conducted. Randomized controlled trials, quasi-experimental studies, single-subject design, and case studies that used a standardized outcome measure to assess change were included. Titles and full-text articles were
screened using a dual review process. Seventy-eight studies met criteria for inclusion. Data were extracted independently, and 25% of extractions were checked for reliability. All included studies were assigned quality indicator ratings and an evidence level. Random-effects meta-analyses were conducted separately for each study design group (ie, within-/between-group comparisons). For within-group designs, the summary effect size after aphasia rehabilitation was 5.03 points (95% confidence interval, 3.95-6.10, P <.001) on the WAB-AQ, 10.37 points (6.08-14.66, P <.001) on the CETI, and 3.30 points (2.43-4.18, P <.001) on the BNT. For between-group designs, the summary effect size was 5.05 points (1.64-8.46, P =.004) on the WAB-AQ and 0.55 points (-1.33 to 2.43, P =.564) on the BNT, the latter of which was not significant. Subgroup analyses for the within-group designs showed no significant differences in the summary effect size as a function of dose frequency or treatment type. This study established benchmarks of significant change on 3 standardized outcome measures used in aphasia rehabilitation.

**Title:** From Hospital to Home to Participation: A Position Paper on Transition Planning Poststroke.

**Citation:** Archives of Physical Medicine & Rehabilitation; Jun 2019; vol. 100 (no. 6); p. 1162-1175

**Author(s):** Miller, Kristine K.; Lin, Susan H.; Neville, Marsha

**Abstract:** Based on a review of the evidence, members of the American Congress of Rehabilitation Medicine Stroke Group's Movement Interventions Task Force offer these 5 recommendations to help improve transitions of care for patients and their caregivers: (1) improving communication processes; (2) using transition specialists; (3) implementing a patient-centered discharge checklist; (4) using standardized outcome measures; and (5) establishing partnerships with community wellness programs. Because of changes in health care policy, there are incentives to improve transitions during stroke rehabilitation. Although transition management programs often include multidisciplinary teams, medication management, caregiver education, and follow-up care management, there is a lack of a comprehensive and standardized approach to implement transition management protocols during poststroke rehabilitation. This article uses the Transitions of Care (TOC) model to conceptualize how to facilitate a comprehensive patient-centered hand off at discharge to maximize patient functioning and health. Specifically, this article reviews current guidelines and provides an evidence summary of several commonly cited approaches (Early Supported Discharge, planned predischarge home visits, discharge checklists) to manage TOC, followed by a description of documented barriers to effective transitions. Patient-centered and standardized transition management may improve community integration, activities of daily living performance, and quality of life for stroke survivors while also decreasing hospital readmission rates during the transition from hospital to home to community

**Title:** Occupational Challenges in Military Service Members With Chronic Mild Traumatic Brain Injury.

**Citation:** American Journal of Occupational Therapy; May 2019; vol. 73 (no. 3); p. 1-8

**Author(s):** Cogan, Alison M.; Haines, Christine E.; Devore, Maria D.; Lepore, Karla M.; Ryan, Margaret

**Objective:** The purpose of this study was to identify the needs of military service members with chronic symptoms after mild traumatic brain injury (mTBI) that fall within the scope of occupational therapy practice.
**Method:** In this qualitative descriptive study, service members with a history of mTBI (N = 12) participated in semistructured interviews about their injury history, symptoms, daily routines, challenges, and plans.

**Results:** Two main themes were identified: occupational changes and plans for the future. Occupational changes contains six subthemes: (1) rest and sleep, (2) activities of daily living and instrumental activities of daily living, (3) work, (4) social participation, (5) play and leisure, and (6) education. Plans for the future contains three subthemes: (1) supports, (2) barriers, and (3) fears.

**Conclusion:** Occupational therapists who work with this population should consider all areas of occupation, especially sleep, during assessment and treatment planning. Some clients may require additional support for preparing for civilian life.

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**Title:** Optimizing Participation of Older Adults with Cognitive Deficits Post-stroke: Types of Help and Caregiver Burden.

**Citation:** Canadian Journal on Aging; Jun 2019; vol. 38 (no. 2); p. 222-235

**Author(s):** Viscogliosi, Chantal; Desrosiers, Johanne; Belleville, Sylvie

**Abstract:** This longitudinal mixed-method study examined the types of help provided by caregivers to optimize participation of older adults with cognitive deficits post-stroke (care recipients), and how these types of help varied with caregiver's burden. Twelve family caregivers of care recipients post-stroke completed a burden questionnaire and semi-structured interviews one month, three months, and six months following care recipient's discharge home from acute care, rehabilitation, or day hospital. Care recipients completed cognitive tests and a social participation questionnaire. Types of help caregivers provided differed according to the amount of daily living support, degree of concern for care recipient's well-being, and impact on caregivers' social life. Interestingly, types of help fostering care recipient's social participation, self-esteem, and abilities were unrelated to a negative impact on caregivers' social life. Understanding how different types of help relate to caregiver burden could improve the types of help to optimize care recipients' social participation without overburdening caregivers.

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**Title:** No evidence of effectiveness of mirror therapy early after stroke: an assessor-blinded randomized controlled trial.

**Citation:** Clinical Rehabilitation; May 2019; vol. 33 (no. 5); p. 885-893

**Author(s):** Antoniotti, Paola; Veronelli, Laura; Caronni, Antonio; Monti, Alessia; Arididou, Evdoxia; Montesano, Maria; Corbo, Massimo

**Objective:** The aim of this study was to investigate the efficacy of mirror therapy on upper-limb recovery in early post-stroke patients.

**Design:** Assessor-blinded randomized controlled trial.

**Setting:** Inpatient rehabilitation clinic.

**Subjects:** A total of 40 patients with upper-limb impairment due to a first-ever ischaemic or haemorrhagic stroke, within four weeks from the cerebrovascular accident.

**Intervention:** The intervention group received mirror therapy, while the control group received sham therapy. During mirror therapy, patients' sound hand was reflected by a mirror. During sham therapy, an opaque surface replaced the mirror-reflecting surface. Both the mirror therapy and sham therapy groups practised their sound hand with exercises,
ranging from the simple elbow flexion–extension to complex tasks (e.g. reaching and grasping). Mirror therapy and sham therapy were added to conventional rehabilitation.

**Main measures:** Primary outcome includes Fugl–Meyer upper extremity scale. Secondary outcomes include action research arm test (ARAT) and functional independence measure (FIM) scale. Outcomes were measured at the beginning (T0) and end (T1) of the treatment.

**Results:** At baseline, both groups (sham therapy vs. mirror therapy; mean (SD)) were comparable for Fugl–Meyer (30.9 (23.9) vs. 28.5 (21.8)), ARAT (25.1 (25.5) vs. 23.5 (24)) and FIM (71.0 (20.6) vs. 72.9 (17.8)) scores. At the end of the treatment, both groups significantly improved in the Fugl–Meyer (40.6 (21.3) vs. 38.3 (23.4)), ARAT (31.9 (23.0) vs. 30 (24.1)) and FIM (100.3 (21.9) vs. 99.4 (22.6)) scores. However, at T1, no significant difference was observed between the sham therapy and mirror therapy groups, neither for the Fugl–Meyer, nor for ARAT and FIM scores.

**Conclusion:** Compared with sham therapy, mirror therapy did not add additional benefit to upper-limb recovery early after stroke.
Objectives: To investigate whether there is an association between severe communication impairment and falls among patients receiving inpatient rehabilitation after stroke.

Methods: A retrospective audit of 149 records of consecutive patients admitted to an inpatient rehabilitation facility after stroke over a two-year period was conducted. The relationship between falls and severe communication impairment was explored using (1) direct comparison of falls in patients with and without functional communication for the inpatient ward environment and (2) multivariate logistic regression to examine factors that may predict falls, including presence or absence of functional communication. In each analysis, falls were examined both as a binary outcome (fall or no fall), and the rate of falls per day.

Results: The 32 patients in the sample (21.7%) who were unable to communicate their basic needs were almost twice as likely to fall in hospital as those with functional communication (RR 1.94, 95% CI 1.15 to 3.24). Several commonly assessed factors were not significant predictors of falls (including falls history, polypharmacy, and cognitive impairment) in this population. Lack of functional communication was the strongest independent predictor of falls rate.

Conclusions: Findings suggest that severe communication disorders may be under recognized as a falls risk factor after stroke.

Title: Self-management of aphasia: a scoping review.

Citation: Aphasiology; Aug 2019; vol. 33 (no. 8); p. 903-942

Author(s): Nichol, Leana; Hill, Annie J.; Wallace, Sarah J.; Pitt, Rachelle; Baker, Caroline; Rodriguez, Amy D.

Background: Self-management approaches are routinely used in chronic conditions to enable patients to take responsibility for their own care. A self-management approach may be appropriate for individuals with aphasia, but this has not been systematically investigated. The purpose of this review was to explore self-management in relation to aphasia. Aims: The study aimed to explore existing research and intervention approaches for aphasia that incorporate self-management principles. A secondary aim was to examine the presence of the term self-management in the research literature and online resources relating to aphasia.

Methods & Procedures: A scoping review methodology was selected to explore literature relating to self-management of aphasia. Five databases were systematically searched in May 2017: PubMed, Embase, CINAHL, PsycINFO, and Linguistics & Language Behaviour Abstracts. Search terms used were aphasia OR dysphasia AND self-management OR self-directed OR self-care OR self-efficacy OR independence OR independent AND intervention OR treatment OR rehabilitation. A structured website search of aphasia, speech pathology and stroke associations from four Englishspeaking countries was performed in September 2017.

Outcomes & Results: A total of 43 studies met inclusion criteria for the literature review. Analysis of eligible studies showed three areas of aphasia intervention which incorporated principles self-management: 1) technology-based interventions, 2) group/community-based interventions, and 3) communication partner training. The structured website search revealed no information relating specifically to aphasia self-management.

Conclusions: Principles of self-management are being used in some aphasia interventions, but there is little evidence of a self-management approach being applied in aphasia. The term self-management is not widely present in aphasia literature and when it has been used tends to refer to self-administered treatment rather than a structured self-management approach.
Title: Can Resistance Training Improve Upper Limb Postural Tremor, Force Steadiness and Dexterity in Older Adults? A Systematic Review.

Citation: Sports Medicine; Aug 2019; vol. 49 (no. 8); p. 1199-1216

Author(s): Keogh, Justin W. L.; O'Reilly, Sinead; O'Brien, Ethan; Morrison, Steven; Kavanagh, Justin J.

Background: The ageing process and several health conditions may increase tremor and reduce force steadiness and dexterity, which can severely impact on function and quality of life. Resistance training can evoke a range of neuromuscular adaptations that may significantly reduce tremor and/or increase force steadiness and/or dexterity in older adults, irrespective of their health condition.

Objectives: The objective of this study was to systematically review the literature to determine if a minimum of 4 weeks’ resistance training can reduce postural tremor and improve force steadiness and/or dexterity in older adults, defined as aged 65 years and over.

Methods: An electronic search using Ovid, CINAHL, SPORTDiscus and EMBASE was performed. Risk of bias was assessed using the Cochrane Risk of Bias Tool.

Results: Fourteen studies met the eligibility criteria, including six randomised controlled trials and two quasi-randomised controlled trials. All eight studies that recruited healthy older adults reported significant reductions in postural tremor and/or improvements in force steadiness and dexterity. Five out of seven studies that examined older adults with a particular health condition reported some improvements in force steadiness and/or dexterity. Specifically, significant benefits were observed for older adults with chronic obstructive pulmonary disease and essential tremor; however, small or no changes were observed for individuals with osteoarthritis or stroke.

Conclusions: Resistance training is a non-pharmacological treatment that can reduce tremor and improve force steadiness and dexterity in a variety of older adult populations. Future research should employ randomised controlled trials with larger sample sizes, better describe training programme methods, and align exercise prescription to current recommendations for older adults.

Title: Energy Conservation Management for People With Multiple Sclerosis–Related Fatigue: Who Benefits?

Citation: American Journal of Occupational Therapy; Jul 2019; vol. 73 (no. 4); p. 1-9

Author(s): Blikman, Lyan J. M.; van Meeteren, Jetty; Twisk, Jos W. R.; de Laat, Fred A. J.; de Groot, Vincent; Beckerman, Heleen; Stam, Henk J.; Bussmann, Johannes B. J.

Objective: We investigated whether demographic, disease-related, or personal baseline determinants can predict a positive response to energy conservation management (ECM).

Method: We conducted a secondary analysis of a single-blind, two-parallel-arms randomized controlled trial that included ambulatory adults with severe MS-related fatigue. Therapy responders and nonresponders were categorized by Checklist Individual Strength fatigue change scores between baseline and end of treatment. Logistic regression analyses were used to assess the determinants of response.

Results: Sixty-nine participants were included (ECM group, n = 34; control group, n = 35). In the ECM group, fatigue severity, perception of fatigue, illness cognitions about MS, and social support discrepancies were related to the probability of being a responder.
**Conclusion:** The results suggest that people with MS-related fatigue who had a less negative perception of fatigue and who perceived fewer disease benefits and a higher discrepancy in social support had the best response to ECM treatment.

**Sources Used:**
The following databases are used in the creation of this bulletin: Amed, Cinahl & Medline.

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