Rehabilitation Current Awareness Bulletin
December 2020

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Title: Direct supervision of physiotherapists improves compliance with clinical practice guidelines for patients with hip fracture: a controlled before-and-after study.

Citation: Disability and Rehabilitation; Dec 2020; vol. 42 (no. 26); p. 3825-3832

Author(s): Snowdon, David A; Leggat, Sandra G; Harding, Katherine E; Scroggie, Grant; Hau, Raphael; Darzins, Peteris; Taylor, Nicholas F

Purpose: To determine if the addition of direct supervision to usual clinical supervision practice of physiotherapists can improve compliance with clinical practice guidelines and post-surgical outcomes for inpatients with hip fracture.

Methods: A controlled before-and-after study was conducted on two acute orthopedic wards. Junior and mid-level physiotherapists on one ward were provided with direct supervision during their post-operative management of patients with hip fracture. Physiotherapists on the comparison ward received usual reflective supervision. The primary outcome was patient compliance with the hip fracture guideline to mobilize on the day following surgery. Secondary patient outcomes included physical function on the fifth post-operative day.

Results: Data were collected from 290 patients with acute hip fracture. Patients at the direct supervision site were more likely to mobilize on the day after surgery (OR 3.14, 95% confidence interval (CI) 1.41-7.01; p = 0.005) and by the second post-operative day (OR 4.62, 95% CI 2.31-9.23; p < 0.001) compared to patients at the comparison site. Patients walked further on the fifth post-operative day (p < 0.001) with less assistance from therapists (p = 0.044).

Conclusions: The addition of direct supervision improved physiotherapists’ compliance with hip fracture guidelines and walking endurance and independence in hospitalized patients with hip fracture.

Implications for rehabilitation: The addition of a direct supervision model, where physiotherapists are directly observed in their management of patients with hip fracture, to usual practice supervision improved early mobilization of patients with hip fracture. Direct supervision appears to be an effective guideline implementation strategy that can improve care and outcomes for hospitalized patients with hip fracture.

Title: Can Pulmonary Function Testing Predict the Functional Outcomes of Poststroke Patients?: An Observational Study.

Citation: American Journal of Physical Medicine & Rehabilitation; Dec 2020; vol. 99 (no. 12); p. 1145-1149

Author(s): Jeong ; Kim, Gyu Seong; Jeong, Yeon Gyu; Moon, Hyun Im

Abstract: Supplemental digital content is available in the text. Objective: Patients with stroke may experience pulmonary dysfunction that reduces movement of the muscles involved in postural control and respiration. This study aimed to evaluate the relationship between postural control and respiratory muscle strength using pulmonary function testing. We sought to identify the respiratory function parameters that predict the functional outcomes patients with stroke at discharge. Design: We prospectively recruited 52 patients with first-ever stroke within 6 mos of onset. Peak cough flow, maximal inspired pressure, maximal expired pressure, forced vital capacity, and forced expiratory volume in 1 sec were measured at baseline and after 4 wks of rehabilitation. The primary outcomes were trunk balance measured using the Trunk Impairment Scale and functional outcomes measured using the Berg Balance Scale and functional independence measure. Results: The initial
Title: Prediction of Psychological Distress Among Persons With Spinal Cord Injury or Acquired Brain Injury and Their Significant Others.

Citation: Archives of Physical Medicine & Rehabilitation; Dec 2020; vol. 101 (no. 12); p. 2093-2102

Author(s): Scholten ; Ketelaar, Marjolijn; Visser-Meily, Johanna M.A.; Roels, Ellen H.; Kouwenhoven, Mirjam; Post, Marcel W.M.

Abstract: To identify intra- and interpersonal sociodemographic, injury-related, and psychological variables measured at admission of inpatient rehabilitation that predict psychological distress among dyads of individuals with spinal cord injury (SCI) or acquired brain injury (ABI) and their significant others (ie, individuals close to the individual with a disability, mostly family members) 6 months after discharge. Differences in predictors were investigated for persons with SCI or ABI and their significant others and were compared between diagnoses. Prospective longitudinal study. Twelve Dutch rehabilitation centers. Dyads (N=157) consisting of adults with SCI or ABI who were admitted to inpatient rehabilitation and their adult significant others. Not applicable. Psychological distress (Hospital Anxiety and Depression Scale). Sociodemographic and injury-related variables were not or were only weakly associated with psychological distress among individuals with SCI or ABI and their significant others 6 months after discharge. Bivariately, higher baseline psychological distress, lower scores on adaptive psychological characteristics (combination of self-efficacy, proactive coping, purpose in life, resilience), and higher scores on maladaptive psychological characteristics (combination of passive coping, neuroticism, appraisals of threat and loss) were related to higher psychological distress, as well as crosswise between individuals with SCI or ABI and their significant others, although less strongly. Combined prediction models showed that psychological distress among persons with SCI or ABI was predicted by education level of their significant other, their own baseline psychological distress, and their own maladaptive psychological characteristics (explained variance, 41.9%). Among significant others, only their own baseline psychological distress predicted psychological distress (explained variance, 40.4%). Results were comparable across diagnoses. Although a dyadic connection was shown, primarily one’s own baseline psychological distress and psychological characteristics were important in the prediction of later psychological distress among both individuals with SCI or ABI and their significant others. Screening based on these variables could help to identify persons at risk for psychological distress.


Citation: International Journal of Environmental Health Research; Dec 2020; vol. 30 (no. 6); p. 661-676

Author(s): Vibholm ; Christensen, Jeanette Reffstrup; Pallesen, Hanne
Abstract: The objective of this review was to provide an overview of the existing knowledge of the benefits of nature-based rehabilitation for patients with impairments after acquired brain injury. Systematic searches were conducted across PubMed, CINAHL, PsycINFO and Scopus, and seven studies were found to be included for review. Results suggest that nature-based rehabilitation may benefit individuals with acquired brain injury, as both motor and sensory-motor functions, as well as cognitive functions were significantly improved. Furthermore, two studies found an improvement in quality of life. The benefits on anxiety and depression were not clear. The studies used different approaches, outcome measures and study designs that made comparisons difficult. Recommendations for future studies are offered.

Title: Exploratory analysis of randomized clinical trials in physiotherapy aimed at improving walking speed after stroke.

Citation: International Journal of Rehabilitation Research; Dec 2020; vol. 43 (no. 4); p. 361-368
Author(s): Menezes; Nascimento, Lucas R.; Avelino, Patrick R.; Teixeira-Salmela, Luci F.

Abstract: The purpose of the present study was to examine the main characteristics of clinical trials in physiotherapy aimed at improving walking speed after stroke, as well as the correlation between trials' methodological quality and journals' Impact Factor. Searches were conducted on Physiotherapy Evidence Database for all randomized controlled trials aiming at improving walking speed after stroke. Data extracted from the studies were: continent, language, methodological quality, year of publication, number of normalized citations, open access, sample size, measurements of walking speed, interventions, comparators, and prior registration. Data extracted from the journals were: 2018 Impact Factor, open access, endorsement of CONSORT recommendations, predatory classification, PubMed indexing, and Journal Citation Reports category. The main outcomes were journals' Impact Factor, open access, CONSORT recommendations endorsement by the journal, and methodological quality. Spearman correlation coefficients were calculated to explore the relationships between trials’ methodological quality and journals' Impact Factor. Two hundred twenty-seven trials were published in 62 journals. The number of trials has increased over the last years. Most of these trials had citations, moderate methodological quality, were published in English, in open access journals, which endorse the CONSORT recommendations, and had Impact Factor ≥2.0. The results indicated a positive, but weak correlation between methodological quality and journals' Impact Factor. Thus, trials in physiotherapy aimed at improving walking speed after stroke have increased over the last years. Overall, trials had moderate methodological quality and were published in journal with moderate-to-high Impact Factor. Best trials were not necessarily published in journals with high Impact Factor.

Title: Pilot Study of Videos to Deliver Mindfulness-Based Art Therapy for Adults With Multiple Sclerosis.

Citation: Journal of Neuroscience Nursing; Dec 2020; vol. 52 (no. 6)
Author(s): Newland; Miller, Rebecca; Bettencourt, B. Ann; Hendricks-Ferguson, Verna

Abstract: Supplemental digital content is available in the text.
Background: Mindfulness-based art therapy (MBAT) has been shown to provide a strategy for adults with multiple sclerosis (MS) to self-manage their symptoms. There is a need for
the use of an MBAT intervention that can be delivered in any setting for adults with MS. The purpose of this pilot feasibility study was to test the feasibility and acceptability of an MBAT intervention delivered via videoconference.

**Methods:** We developed an MBAT intervention to be delivered by videoconference to adults with MS recruited from an academic center registry. We also conducted phone interviews to collect acceptability data.

**Results:** Most of the participants (n = 5) were very positive about the MBAT video sessions and stated content as clear and easy to follow and understand. The time and delivering method were acceptable.

**Conclusion:** Mindfulness-based art therapy sessions delivered through videoconference are acceptable and feasible for adults with MS.

**Title:** Ankle-foot orthoses and continuous functional electrical stimulation improve walking speed after stroke: a systematic review and meta-analyses of randomized controlled trials.

**Citation:** Physiotherapy; Dec 2020; vol. 109 ; p. 43-53

**Author(s):** Nascimento ; da Silva, Layla Alvarenga; Araújo Barcellos, João Victor Matos; Teixeira-Salmela, Luci Fuscaldi

**Abstract:** Foot-drop is a common impairment after stroke, which reduces walking ability. To examine the efficacy of interventions aimed at reducing foot-drop, i.e., ankle-foot orthoses and functional electrical stimulation, on walking speed and balance after stroke. MEDLINE, EMBASE, Cochrane, PsycINFO, and PEDro databases. The review included only parallel, randomized trials. Participants were ambulatory adults after stroke. The experimental interventions were the use of an ankle-foot orthosis or functional electrical stimulation. Outcome data related to walking speed and balance were extracted from the eligible trials and combined in random-effects meta-analyses. The quality of trials was assessed by the PEDro scores and the quality of evidence was determined according the Grading of Recommendations Assessment, Development, and Evaluation system. Eleven trials involving 1135 participants were included. The mean PEDro score of the trials was 5.8 (ranging from 4 to 7). Ankle-foot orthoses (MD 0.24 m/s; 95% CI 0.06 to 0.41) and functional electrical stimulation (MD 0.09 m/s; 95% CI 0.03 to 0.14) significantly increased walking speed, compared with no intervention/placebo. Results regarding balance were inconclusive. Ankle-foot orthoses were not superior to functional electrical stimulation for improving walking speed (MD 0.00 m/s; 95% CI -0.06 to 0.05) or balance (MD 0.27 points on the Berg Balance Scale; 95% CI -0.85 to 1.39) after stroke. This systematic review provided moderate-quality evidence that both ankle-foot orthoses and functional electrical stimulation improve walking speed after stroke, but the effects on balance remain unclear. PROSPERO CRD42019130988

**Title:** Physical therapist's clinical reasoning in patients with gait impairments from hemiplegia.

**Citation:** Physiotherapy Theory & Practice; Dec 2020; vol. 36 (no. 12); p. 1379-1389

**Author(s):** Seale ; Utsey, Carolyn

**Background:** During stroke rehabilitation, physical therapists (PTs) perform gait analysis and design treatments based on this analysis.
Objectives: To investigate the current trends in PTs clinical reasoning in assessing and managing gait in persons with hemiplegia.

Design: A qualitative study using a phenomenological approach using a semi-structured interview protocol with FG. Methods: Participants consisted of expert and novice PTs working in a neurologic rehabilitation setting. FG were conducted in person and via web. Constant comparative qualitative analysis was used to analyze the qualitative data.

Results: A total of 22 PTs participated in five FG (2 novice and 3 expert groups). From the analysis of qualitative data, five themes emerged. Novice and experienced clinicians: 1) take a systematic approach to examination and evaluation of persons with hemiplegia; 2) are in agreement in common gait deficits found in persons with hemiplegia; 3) may differ in their approach to treatment based on the amount of experience of the clinician; 4) generally agree on the manner in which orthotics are used in the management of persons with hemiplegia; and 5) demonstrate professional accountability to patients concerning the use of orthotic devices.

Conclusions: This qualitative study provided insight into the variability in PTs’ strategies for gait analysis, and their identification and interpretation of common deviations and impairments in persons with hemiplegia following stroke. Reluctance to utilize orthotics for patients with hemiplegia was a consistent theme across FG.

Title: Depression in Post stroke Aphasia.

Citation: American Journal of Speech-Language Pathology; Nov 2020; vol. 29 (no. 4); p. 1798-1810

Author(s): Laures-Gore ; Dotson, Vonetta M.; Belagaje, Samir

Purpose: The aim of this tutorial is to provide speech-language pathologists with foundational knowledge of poststroke depression comorbidly occurring with aphasia. Given the negative effect of depression on functional outcomes and mortality, it is crucial that speech-language pathologists possess this knowledge in order to better advocate for and treat their patients.

Method and Results: Three areas of complementary expertise (speech-language pathology, psychology, and neurology) collaborated on this tutorial to address the following areas: (a) provide terminology associated with depression and related mood disorders, (b) describe the potential underlying pathophysiology of depression in the general population, (c) provide an overview of our existing understanding of comorbid poststroke depression and aphasia, and (d) summarize current assessment methods and interventions for poststroke depression in adults with aphasia.

Conclusion: Given the compounding impact aphasia and depression have on rehabilitation outcomes, it is imperative that speech-language pathologists understand terminology, assessment, and treatment practices for depression.

Title: Clinical outcomes for moderate and severe stroke survivors receiving early supported discharge: A quasi-experimental cohort study.

Citation: British Journal of Occupational Therapy; Nov 2020; vol. 83 (no. 11); p. 680-689

Author(s): Leach ; Neale, Sharon; Steinfort, Sarah; Hitch, Danielle

Introduction: The aim of this study was to compare outcomes for functional independence, activities of daily living participation and balance achieved by moderate and severe stroke
survivors receiving an early supported discharge model of care with those receiving standard treatment.

Method: A quasi-experimental cohort method was utilised, with a control group of convenience. Forty-one patients (n = 28 early supported discharge group, n = 13 control group) who were medically stable post stroke, safe for discharge home, able to be treated in the home environment and requiring intensive rehabilitation from at least two disciplines participated.

Results: There was no significant difference in outcomes between early supported discharge and control groups for functional independence, activities of daily living participation or balance from baseline to 4 weeks, or 4 weeks to 8 weeks. However, patients receiving early supported discharge made further improvements across the study period, while those receiving standard care made limited improvement between 4 weeks and 8 weeks. All minimal clinically important differences on outcome measures were identified between baseline and 4 weeks.

Conclusions: Moderate and severe stroke survivors can achieve comparable outcomes when receiving early supported discharge or standard treatment. Early supported discharge models of care may also enhance ongoing improvement during the early phases of stroke recovery.

Title: Exercise-based interventions for post-stroke social participation: A systematic review and network meta-analysis.

Citation: International Journal of Nursing Studies; Nov 2020; vol. 111
Author(s): Zhang ; Schwade, Mark; Smith, Yvonne; Wood, Racheal; Young, Lufei
Abstract: Resuming participation in society is an important goal of post-stroke rehabilitation. Exercise-based interventions have been shown to be effective non-pharmacological methods for improving social participation in post-stroke survivors, however it is unclear what the most effective types of exercise interventions are. To assess the comparative effects and ranks of all exercise-based interventions in improving social participations in patients after a stroke. A random-effects network meta-analysis was performed to identify evidence from relevant randomized control trials. We searched MEDLINE, CINAHL, EMBASE, PsycINFO, CINHAL, Cochrane Library, AMED, SPORTDiscus, Web of Science and Clinical Trials.gov from their earliest records to January 2020. Included trials must include at least one types of exercise for patients with stroke. The primary e was social participation. Bias will be assessed according to the revised Cochrane risk of bias tool. Data were analysed using Stata v14.0. Registration number of this study is CRD42020152523. A total of 16 randomized control trials involving 1704 patients and 12 intervention arms were included in our study. We performed three subgroup analyses divided based on follow up time (1 to 90%, cognitive-based exercise ranked the best (SUCRCV: 100%, SMD: 2.64, 95% CI: 1.62 to 3.66). Interventions that emerged with the highest ranks in our analysis might be considered in practice when resources allow. More large, well-designed multicentre trials are needed to support the conclusion of this study.

Title: Functional changes in the lower extremity after non-immersive virtual reality and physiotherapy following stroke.

Citation: Journal of Rehabilitation Medicine (Stiftelsen Rehabiliteringsinformation); Nov 2020; vol. 52 (no. 11); p. 1-10
Author(s): Kiper ; Luque-Moreno, Carlos; Pernice, Salvatore; Maistrello, Lorenza; Agostini, Michela; Turolla, Andrea
Objective: To analyse the effect of virtual reality (VR) therapy combined with conventional physiotherapy on balance, gait and motor functional disturbances, and to determine whether there is an influence on motor recovery in the subacute (6 months) phases after stroke.

Methods: A total of 59 stroke inpatients (mean age 60.3 years (standard deviation (SD) 14.8); 14.0 months (SD 25.7) post-stroke) were stratified into 2 groups: subacute (n = 31) and chronic (n = 28). Clinical scales (Fugl-Meyer lower extremity (FM LE); Functional Independence Measure (FIM); Berg Balance Scale (BBS); Functional Ambulation Category (FAC); modified Ashworth scale (MAS); 10-metre walk test (10MWT); and kinematic parameters during specific motor tasks in sitting and standing position (speed; time; jerk; spatial error; length) were applied before and after treatment. The VR treatment lasted for 15 sessions, 5 days/week, 1 h/day.

Results: The subacute group underwent significant change in all variables, except MAS and length. The chronic group underwent significant improvement in clinical scales, except MAS and kinematics. Motor impairment improved in the severe ≤ 19 FM LE points, moderate 20-28 FM LE points, mild ≥ 29 FM LE points. Neither time since stroke onset nor affected hemisphere differed significantly between groups. The correlations were investigated between the clinical scales and the kinematic parameters of the whole sample. Moreover, FM LE, BBS, MAS, and speed showed high correlations (R²> 0.70) with independent variables.

Conclusion: VR therapy combined with conventional physiotherapy can contribute to functional improvement in the subacute and chronic phases after stroke.

Title: Healthcare Utilization After Stroke: A 1-Year Prospective Study.

Citation: Journal of the American Medical Directors Association; Nov 2020; vol. 21 (no. 11); p. 1684-1688
Author(s): Minet ; Peterson, Elizabeth; von Koch, Lena; Ytterberg, Charlotte

Abstract: This study was undertaken to investigate the predictive value of disease-related factors, contextual factors, and functioning on the use of healthcare for 1 year after stroke. A prospective study. In total, 219 patients with stroke admitted to a hospital stroke unit were included. Data were obtained through medical records, structured interviews, and assessments. Multivariable regression analyses were used to explore the association between the independent variables (stroke severity, comorbidity, age, sex, civil status, private financing, sense of coherence, cognitive function, walking ability, social everyday activities prestroke, and recent fall) and the use of inpatient or outpatient care 0 to 3, 3 to 6 and 6 to 12 months after stroke. Mean age of the participants was 70 years, 43% were women, and 71% experienced mild stroke severity. All participants received inpatient care at 0 to 3 months, about one-fifth used inpatient care at 3 to 6 or 6 to 12 months, and all received outpatient care all 3 time periods. Moderate-severe stroke (P <.001), a lower age (P =.002), and walking disability (P <.001) were associated with a higher use of inpatient care 0 to 3 months after stroke. Living alone (P =.025) and recent fall (P =.05) were associated with a higher use of inpatient care 3 to 6 months after stroke. None of the independent variables were associated with use of inpatient care 6 to 12 months. Moderate-severe stroke (0–3; 3–6 months: P <.001, 6–12 months: P =.004), a lower age (0–3 months: P =.002, 3–6 months: P =.001, 6–12 months: P =.006), and walking disability (P <.001) were associated with a higher use of outpatient care in all 3 time periods. Moderate-severe stroke, lower age, and walking disability are important predictors of healthcare utilization after stroke. The findings inform efforts to identify and support people with stroke who have the potential for high healthcare utilization in the year post stroke.
Title: A Music-Based Digital Therapeutic: Proof-of-Concept Automation of a Progressive and Individualized Rhythm-Based Walking Training Program After Stroke.

Citation: Neurorehabilitation & Neural Repair; Nov 2020; vol. 34 (no. 11); p. 986-996

Author(s): Hutchinson; Sloutsky, Regina; Collimore, Ashley; Adams, Benjamin; Harris, Brian; Ellis, Terry D.; Awad, Louis N.

Background: The rhythm of music can entrain neurons in motor cortex by way of direct connections between auditory and motor brain regions.

Objective: We sought to automate an individualized and progressive music-based, walking rehabilitation program using real-time sensor data in combination with decision algorithms.

Methods: A music-based digital therapeutic was developed to maintain high sound quality while modulating, in real-time, the tempo (ie, beats per minute, or bpm) of music based on a user's ability to entrain to the tempo and progress to faster walking cadences in-sync with the progression of the tempo. Eleven individuals with chronic hemiparesis completed one automated 30-minute training visit. Seven returned for 2 additional visits. Safety, feasibility, and rehabilitative potential (ie, changes in walking speed relative to clinically meaningful change scores) were evaluated.

Results: A single, fully automated training visit resulted in increased usual ($\Delta 0.085 \pm 0.027$ m/s, $P =.011$) and fast ($\Delta 0.093 \pm 0.032$ m/s, $P =.016$) walking speeds. The 7 participants who completed additional training visits increased their usual walking speed by $0.12 \pm 0.03$ m/s after only 3 days of training. Changes in walking speed were highly related to changes in walking cadence ($R^2 > 0.70$). No trips or falls were noted during training, all users reported that the device helped them walk faster, and 70% indicated that they would use it most or all of the time at home.

Conclusions: In this proof-of-concept study, we show that a sensor-automated, progressive, and individualized rhythmic locomotor training program can be implemented safely and effectively to train walking speed after stroke. Music-based digital therapeutics have the potential to facilitate salient, community-based rehabilitation.

Title: Stroke Prevention: Education and Barriers for Physical and Occupational Therapists Caring for Older Adults.

Citation: Physical & Occupational Therapy in Geriatrics; Dec 2020; vol. 38 (no. 4); p. 338-354

Author(s): Perry; Billek-Sawhney, Barbara; Schreiber, Jodi

Aims: Describe the frequency of common stroke prevention education topics provided by occupational and physical therapists (OTs/PTs) to individuals at risk for stroke; summarize barriers to such education

Methods: OT/PT professional association subgroups were surveyed regarding prevention education for individuals with risk factors, transient ischemic attack, and stroke, and barriers to such education.

Results: A total of 293 therapists completed the survey, 11% OTs and 89% PTs. Education about risk/symptoms (61% of respondents) and activity/exercise (60%) was most commonly provided. The most frequently cited barriers to education were compromised health literacy of the patient/caregiver (62%), lack of interest by the patient/caregiver (51%), and lack of time (46%).
Conclusion: The proportion of OTs/PTs providing stroke prevention education appears to be suboptimal. Therapist knowledge, patient characteristics, and institutional constraints were common barriers. Since stroke risk increases with age, reducing risk by identifying and eliminating barriers may help improve health of older adults.

Title: Motivational Strategies for Stroke Rehabilitation: A Delphi Study.

Citation: Archives of Physical Medicine & Rehabilitation; Nov 2020; vol. 101 (no. 11); p. 1929-1936
Author(s): Oyake ; Suzuki, Makoto; Otaka, Yohei; Momose, Kimito; Tanaka, Satoshi

Abstract: The primary objective was to provide a list of effective motivational strategies based on consensus among rehabilitation experts, generated using the Delphi technique. The secondary objective was to identify the types of information that are important when selecting motivational strategies. Delphi study. On-site survey at academic conferences and web-based survey. Rehabilitation experts (N=198) including physicians, physical therapists, occupational therapists, and speech-language-hearing therapists who had worked in stroke rehabilitation for at least 5 years. Not applicable. Panelists were asked to rate the effectiveness of motivational strategies and to rate the importance of different types of information using a 5-point Likert scale. Consensus was defined as having been reached for items with an interquartile range of 1 or less. A total of 116 experts (58.6%) completed the third round of the Delphi survey. Consensus was reached on all of the 26 presented strategies. Seven strategies, such as control of task difficulty and goal setting, were considered to be very effective in increasing patient motivation. In addition, all 11 of the presented types of information regarding patient health status, environmental factors, and personal factors were deemed very important or important in determining which motivational strategies to use. We generated a list of effective motivational strategies for stroke rehabilitation based on expert consensus. Our results suggest that experts consider a comprehensive range of patient information when choosing motivational strategies. These findings represent a group of consensus-based recommendations for increasing patient adherence to stroke rehabilitation programs, which may be beneficial to many medical professionals working in stroke rehabilitation.

Title: An audit of dressing practice by occupational therapists in acute stroke settings in England.

Citation: British Journal of Occupational Therapy; Nov 2020; vol. 83 (no. 11); p. 664-673
Author(s): Worthington ; Whitehead, Phillip; Li, Zhaoying; Golding-Day, Miriam; Walker, Marion

Introduction: Dressing independence is commonly affected after stroke, with clinical guidelines recommending that dressing practice should routinely be provided for those with dressing difficulties. The aim of this study was to update the literature on current practice in the treatment of dressing problems in stroke rehabilitation units.
Method: A questionnaire survey of occupational therapists experienced in stroke care was sent to 157 stroke units in England.
Results: Responses were received from 70 stroke units. Frequency and duration of dressing practice varied substantially between units, with respondents typically providing dressing practice for six to 10 patients per week and spending 30 to 45 minutes per treatment session. Only 17 respondents (24.3%) stated that they regularly used
standardised assessments of dressing ability. The functional approach was used more widely than the remedial approach. Service priorities, working environment and limitations of time and staffing were reported to influence dressing practice.

**Conclusion:** There is widespread variability in dressing practice. There is a lack of use of standardised dressing assessments, and therapists' rationale for their choice of approach is unclear.

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**Title:** A pilot randomized controlled trial comparing online versus face-to-face delivery of an aphasia communication partner training program for student healthcare professionals.

**Citation:** International Journal of Language & Communication Disorders; Nov 2020; vol. 55 (no. 6); p. 852-866

**Author(s):** Power ; Falkenberg, Kate; Barnes, Scott; Elbourn, Elise; Attard, Michelle; Togher, Leanne

**Background:** Training conversation partners of people with aphasia who use facilitative communication strategies is one method that can improve access to healthcare for people with aphasia. However, the efficacy of communication partner training (CPT) has been investigated almost exclusively in the context of face-to-face (F2F) delivery. Online training may offer more cost-effective and accessible options to a wider range of conversation partners, including student healthcare professionals.

**Aims:** To conduct a pilot randomized controlled trial with student healthcare professionals comparing (1) an online aphasia CPT program, (2) a F2F CPT program and (3) no program (control group) on outcomes relating to attitudes and knowledge of aphasia.

**Methods & Procedures:** A 45-min introductory aphasia CPT program was developed using the theories and techniques of Supported Conversations for Adults with Aphasia (SCA)™. A total of 30 first-year undergraduates studying occupational therapy at The University of Sydney were randomly allocated to one of three conditions: online CPT delivery, F2F delivery or delayed training control (no program). Outcomes measures included pre-post-testing with the Aphasia Attitudes, Strategies and Knowledge (AASK) survey. Outcomes & Results: A significant difference existed for the AASK survey pre-post-change scores between the online, F2F and control groups ($\chi^2(2) = 20.038, p = 0.000$). Post-hoc analysis revealed that, compared with the control (Ctrl) group, participants in both the online and F2F groups had significantly higher knowledge of aphasia (Online versus Ctrl: $p = 0.000$; F2F versus control: $p = 0.002$), knowledge of facilitative strategies (Online versus Ctrl: $p = 0.000$; F2F versus Ctrl: $p = 0.002$), and positive attitudes towards aphasia (Online versus Ctrl: $p = 0.031$; F2F versus Ctrl: $p = 0.032$). No significant difference was observed between the online and F2F groups for the Total or any subtotals ($p = 1.000$).

**Conclusions and Implications:** The results from this pilot randomized controlled trial indicate that online delivery of the 45-min introductory CPT is equally as efficacious as F2F delivery, and thus may be a viable mode of delivery for future aphasia CPT programs. These pilot results pave the way for a larger study that will comprehensively evaluate the efficacy of an online aphasia CPT program for improving attitudes, knowledge and skills in a broad range of student healthcare professionals. What this paper adds

**What is already known on this subject:** The efficacy of F2F CPT for aphasia is well established. Online delivery of CPT programs may offer more cost-effective and accessible services when compared with F2F approaches; however, there is a need to explore the efficacy of online programs.
What this paper adds to existing knowledge: The 45-min online aphasia CPT program was found to be efficacious for improving student healthcare professionals' knowledge and attitudes towards aphasia and communication, and produced equally successful outcomes when compared with F2F delivery. This is the first study to report the efficacy of an online CPT program that is aligned with SCA for use with student healthcare professionals that also uses a self-report outcome measure with validated psychometric properties.

What are the potential or actual clinical implications of this work?: Online CPT programs may be useful in both clinical and education contexts to support improved efficiency of services and to enhance communication environments for people with aphasia in healthcare contexts.

Title: Feedback-guided exercises performed on a tablet touchscreen improve return to work, function, strength and healthcare usage more than an exercise program prescribed on paper for people with wrist, hand or finger injuries: a randomised trial.

Citation: Journal of Physiotherapy (Elsevier); Oct 2020; vol. 66 (no. 4); p. 236-242

Author(s): Blanquero ; Cortés-Vega, Maria-Dolores; Rodríguez-Sánchez-Laulhé, Pablo; Corrales-Serra, Berta-Pilar; Gómez-Patricio, Elena; Díaz-Matas, Noemi; Suero-Pineda, Alejandro

Abstract: In people with bone and soft tissue injuries of the wrist, hand and/or fingers, do feedback-guided exercises performed on a tablet touchscreen hasten return to work, reduce healthcare usage and improve clinical recovery more than a home exercise program prescribed on paper? Randomised, parallel-group trial with concealed allocation, assessor blinding and intention-to-treat analysis. Seventy-four workers with limited functional ability due to bone and soft tissue injuries of the wrist, hand and/or fingers. Participants in the experimental and control groups received the same in-patient physiotherapy and occupational therapy. Participants in the experimental group received a home exercise program using the ReHand tablet application, which guides exercises performed on a tablet touchscreen with feedback, monitoring and progression. Participants in the control group were prescribed an evidence-based home exercise program on paper. The primary outcome was the time taken to return to work. Secondary outcomes included: healthcare usage (number of clinical appointments); and functional ability, pain intensity, and grip and pinch strength 2 and 4 weeks after randomisation. Compared with the control group, the experimental group: returned to work sooner (MD –18 days, 95% CI –33 to –3); required fewer physiotherapy sessions (MD –7.4, 95% CI –13.1 to –1.6), rehabilitation consultations (MD –1.9, 95% CI –3.6 to 0.3) and plastic surgery consultations (MD –3.6, 95% CI –6.3 to –0.9); and had better short-term recovery of functional ability and pinch strength. In people with bone and soft-tissue injuries of the wrist, hand and/or fingers, prescribing a feedback-guided home exercise program using a tablet-based application instead of a conventional program on paper hastened return to work and improved the short-term recovery of functional ability and pinch strength, while reducing the number of required healthcare appointments. ACTRN12619000344190

Title: Managing the Rehabilitation Wave: Rehabilitation Services for COVID-19 Survivors.

Citation: Archives of Physical Medicine & Rehabilitation; Dec 2020; vol. 101 (no. 12); p. 2243-2249

Author(s): Kim ; Kumble, Sowmya; Patel, Bhavesh; Pruski, April D.; Azola, Alba; Tatini, Anisa L.; Nadendla, Kavita; Richards, Laryssa; Keszler, Mary S.; Kott, Margaret; Friedman,
Abstract: The coronavirus disease 2019 (COVID-19) pandemic is having a profound effect on the provision of medical care. As the curve progresses and patients are discharged, the rehabilitation wave brings a high number of postacute COVID-19 patients suffering from physical, mental, and cognitive impairments threatening their return to normal life. The complexity and severity of disease in patients recovering from severe COVID-19 infection require an approach that is implemented as early in the recovery phase as possible, in a concerted and systematic way. To address the rehabilitation wave, we describe a spectrum of interventions that start in the intensive care unit and continue through all the appropriate levels of care. This approach requires organized rehabilitation teams including physical therapists, occupational therapists, speech-language pathologists, rehabilitation psychologists or neuropsychologists, and physiatrists collaborating with acute medical teams. Here, we also discuss administrative factors that influence the provision of care during the COVID-19 pandemic. The services that can be provided are described in detail to allow the reader to understand what services may be appropriate locally. We have been learning and adapting real time during this crisis and hope that sharing our experience facilitates the work of others as the pandemic evolves. It is our goal to help reduce the potentially long-lasting challenges faced by COVID-19 survivors. • Rehabilitation care of coronavirus disease 2019 (COVID-19) recovering patient can be safely provided starting in the intensive care unit. • Redeployment of outpatient therapy workforce was useful to provide rehabilitation to patients recovering from COVID-19 in the acute medical care. • Objective functional assessments allowed for a tailored rehabilitation approach based on the individual patient's needs. • Changes in Medicare regulation allowed for the provision of acute inpatient rehabilitation services outside the rehabilitation unit. COVID-19 patients were able to receive acute comprehensive inpatient rehabilitation level of care while still recovering from the acute infection.

Title: A Pilot Study Exploring the Impact of Interprofessional Simulation on Role Clarity and Student Readiness for Collaborative Clinical Practice.

Citation: Internet Journal of Allied Health Sciences & Practice; Oct 2020; vol. 18 (no. 4); p. 1-15

Author(s): Weiner ; Hagan, Laura; Kardachi, Julie F.

Purpose: Interprofessional collaboration is recognized as a healthcare practice paradigm that may decrease overall costs and minimize errors. Yet it remains common for practitioners to provide care within silos, inadequately considering the impact of their decisions on other providers and overall costs, which ultimately may negatively impact the patient. Integrating interprofessional collaboration in school curricula can establish the importance of this approach to healthcare. For optimal efficacy, every professional in the healthcare team must recognize their unique role and the roles of others, to allow for seamless interprofessional collaboration. Simulation is a teaching tool that provides students with the opportunity to experience and reflect upon their responses to real-world clinical encounters in an environment that is safe to them and to patients. The purpose of this pilot study was to investigate the effect of interprofessional simulation on occupational therapy and physical therapy students' role clarity and perceived readiness for collaborative practice.

Method: A mixed methods study design was used with occupational and physical therapy students matriculated in the same college. Two surveys were given to the participants pre- and post-interprofessional simulation: the Readiness for Interprofessional Learning Scale (RIPLS; evaluates student readiness for interprofessional learning) and the Interdisciplinary
Education Perception Scale (IEPS; evaluates student perceptions of interprofessional training). Focus groups followed the interprofessional simulation to explore the subjects' experience.

**Results:** Statistically significant changes were noted in the RIPLS pre-post simulation. Five themes emerged from the focus groups including: students value simulation; students value interprofessional education; interprofessional experience facilitates an understanding of role clarity; teamwork has value and challenges; and, students value providing patient centered care.

**Conclusion:** Simulation is a teaching resource that may prepare occupational therapy and physical therapy students for interprofessional collaboration in patient care. The results of this study can inform interprofessional curricular development for both occupational therapy and physical therapy programs.

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**Title:** A cohort investigation of patient-reported function and satisfaction after the implementation of advanced practice occupational therapy–led care for patients with chronic hand conditions at eight Australian public hospitals.

**Citation:** Journal of Hand Therapy; Oct 2020; vol. 33 (no. 4); p. 445-454

**Author(s):** Glasgow; Cox, Ruth; Laracy, Sue; Green, Kathy; Ross, Leo

**Abstract:** Patients referred to medical specialist outpatient clinics in Australian public hospitals often wait longer than the recommended timeframe for their first appointment. This study examines the use of advanced hand therapy practitioners to facilitate access to care for long-waitlisted patients with chronic hand conditions. To examine patient-reported function and satisfaction outcomes with advanced practice hand therapy. Data was collected from eight public hospital outpatient departments in Queensland, Australia. Patients with chronic hand conditions were screened from waitlists at each site and invited to participate in the hand therapy program while waiting to see a medical practitioner. A total of 1947 patients were screened from the waitlists, and 1116 patients completed advanced practice therapy. Patients completing hand therapy were older (P ≤ .001) and more likely to have more than one diagnosis (P ≤ .001). They reported a significant improvement in function using the Michigan Hand Questionnaire (P ≤ .001) and demonstrated increased grip strength (left injuries P = .016, right injuries P = .001). Ninety-three percent were satisfied or highly satisfied with hand therapy care. Some variation in Michigan Hand Questionnaire scores was observed across different diagnoses, with those with carpal tunnel syndrome and trigger finger reporting the best outcomes. Advanced practice hand therapy for long-waitlisted patients with chronic hand conditions was associated with improvements in patient function and satisfaction. Further research is warranted to study the specific response of different diagnostic groups to intervention using this model of care.

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**Title:** Prediction of Falls in Acute Care Using The Morse Fall Risk Scale.

**Citation:** Occupational Therapy in Health Care; Oct 2020; vol. 34 (no. 4); p. 307-319

**Author(s):** Jewell; Capistran, Katherine; Flecky, Kathleen; Qi, Yongyue; Fellman, Sarah

**Abstract:** The high number of patient falls occurring within acute care hospitals throughout the United States has led to increased patient impairment and contributed to rising healthcare costs. The Morse Fall Risk Scale is a commonly used assessment tool for prediction of a patient's potential for experiencing a fall while in a healthcare facility. This retrospective study reviewed the use of the Morse Fall Risk Scale in a 300+ bed acute care
hospital setting to determine adequacy for patient fall predictions over a four-month period. Use of multivariate regressions and Chi-Square test statistics revealed the Morse Fall Risk Scale was a predictor of patients' fall risk in this setting with other significant predictors of fall risk potential including male gender and diagnosis (neurologic, cardiac, general medical/surgical conditions). Patients experiencing a fall had a statistically significant longer hospital stay. Occupational therapy practitioners play an important role on the interdisciplinary team by providing a comprehensive fall assessment, developing fall prevention programs, and providing discharge recommendations.

Title: Merging Yoga and Occupational Therapy for Parkinson's Disease: A Feasibility and Pilot Program.

Citation: Occupational Therapy in Health Care; Oct 2020; vol. 34 (no. 4); p. 351-372
Author(s): Swink ; Fling, Brett W.; Sharp, Julia L.; Fruhauf, Christine A.; Atler, Karen E.; Schmid, Arlene A.

Abstract: The purpose of this study was to assess feasibility and changes in outcome measures following the Merging Yoga and Occupational Therapy for Parkinson's Disease (MY-OT for PD) program: a 14-session program which combined community-based yoga for PD, and fall-risk focused group occupational therapy sessions. Seventeen participants completed an 8-week control period consisting of their normal participation, and an 8-week intervention period (14 MY-OT for PD sessions). There were fewer self-reported falls in the intervention (6) vs. control periods (10). One fall risk factor management scale (the Fall Prevention and Management Questionnaire, p=.02), and balance (p<.01) showed significant improvement between the control and intervention. The MY-OT for PD program is an encouraging occupational therapist-led program, which may improve balance and reduce self-reported falls.

Title: Barriers and facilitators influencing adherence to occupational therapy home assessment recommendations: a mixed methods systematic review protocol.

Citation: JBI evidence synthesis; Nov 2020
Author(s): Harper, Kristie J; Taylor, Susan L; Parsons, Dave N

Objective: To identify and describe the barriers and facilitators that influence adherence to recommendations provided as part of an occupational therapy home assessment.

Introduction: Home assessments, including environmental interventions, are commonly used by occupational therapists. Home assessment recommendations aim to support a patient's independence in their occupational roles and improve safety in the home. Research evaluating home assessments and adherence to recommended strategies is limited. However, low adherence has been associated with poorer outcomes including falls, deconditioning, and decreased function. This research aims to synthesize factors that influence adherence to home assessment recommendations.

Inclusion Criteria: This review will consider all qualitative and quantitative studies that report on adherence to recommendations provided during occupational therapy home assessments. Studies will include adults (>18) and/or their caregivers, who live in the community and receive an occupational therapy home assessment.

Methods: A mixed methods systematic review will be undertaken. Eight databases will be searched for studies published in English reporting on adherence following home assessments completed by occupational therapists published after January 2000. Study
quality will be assessed using standardized JBI critical appraisal tools dependent on study design. Data extraction will be performed using a standardized tool, followed by data transformation. Data synthesis will follow the convergent integrated approach. All findings will be tabulated to explore factors that influence adherence.

**Systematic Review Registration Number:** This review has been submitted with PROSPERO.

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**Title:** Perceptions of current occupational therapy practice with older adults experiencing delirium.

**Citation:** Australasian journal on ageing; Nov 2020  
**Author(s):** Strecker, Cheri; Hitch, Danielle

**Objectives:** To describe the perceptions of Australian occupational therapists of their role, knowledge and skills in enabling older adults with delirium to participate in meaningful occupations.  
**Methods:** This is a mixed-methods cross-sectional study. Participants (n = 91) completed an online survey, with quantitative data analysed descriptively and qualitative data subjected to content analysis.  
**Results:** Occupational therapists had good general delirium knowledge, but less understanding of specific risk factors. Participants asserted the importance of occupational therapy assessment and treatment for older people experiencing delirium and generally felt confident or somewhat confident in their skills. While all participants provided collaborative care with multidisciplinary team members, only a minority thought colleagues had a satisfactory knowledge of the occupational therapy role with delirium.  
**Conclusion:** Currently, the role of occupational therapy with older people experiencing delirium remains emerging rather than established, and there are many opportunities for further research and development in this practice area.

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**Title:** Physiotherapy treatment approaches for survivors of critical illness: a proposal from a Delphi study.

**Citation:** Physiotherapy theory and practice; Dec 2020; vol. 36 (no. 12); p. 1421-1431  
**Author(s):** Kwakman, Robin C H; Major, Mel E; Dettling-Ihenfeldt, Daniela S; Nollet, Frans; Engelbert, Raoul H H; van der Schaaf, Marike

**Purpose:** The aim of this study was to develop practical recommendations for physiotherapy for survivors of critical illness after hospital discharge.  
**Methods:** A modified Delphi consensus study was performed. A scoping literature review formed the basis for three Delphi rounds. The first round was used to gather input from the panel to finalize the survey for the next two rounds in which the panel was asked to rank each of the statements on an ordinal scale with the objective to reach consensus. Consensus was defined as a SIQR of ≤ 0.5. Ten Dutch panelists participated in this study: three primary care physiotherapists, four intensive care physiotherapists, one occupational therapist, one ICU-nurse and one former ICU-patient. All involved professionals have treated survivors of critical illness. Our study was performed in parallel with an international Delphi study with hospital-based health-care professionals and researchers.  
**Results:** After three Delphi rounds, consensus was reached on 95.5% of the statements. This resulted in practical recommendations for physiotherapy for critical illness survivors in
the primary care setting. The panel agreed that the handover should include information on 14 items. Physiotherapy treatment goals should be directed toward improvement of aerobic capacity, physical functioning, activities in daily living, muscle strength, respiratory and pulmonary function, fatigue, pain, and health-related quality of life. Physiotherapy measurements and interventions to improve these outcomes are suggested. **Conclusion:** This study adds to the knowledge on post-ICU physiotherapy with practical recommendations supporting clinical decision-making in the treatment of survivors of critical illness after hospital discharge.

**Title:** Everyday activities at home: Experiences of older repeatedly readmitted people.

**Citation:** Scandinavian journal of occupational therapy; Nov 2020 ; p. 1-8

**Author(s):** Jönnson, Marie; Holmefur, Marie; Fredriksson, Carin

**Introduction:** Limitations in everyday activities are a risk factor for hospital readmission. Despite this, few studies have focussed on everyday activities of repeatedly readmitted older people. The experiences and specific needs of this group have been poorly described regarding their everyday activities at home. A deeper understanding may help occupational therapists and other health professions to facilitate readiness for this group at and after discharge. The aim of this study was, therefore, to describe the experiences of performing everyday activities of older people repeatedly readmitted to hospital and discharged to home.

**Methods:** A qualitative interview study was used to collect data from sixteen participants (75 years and older). Data were analysed using qualitative content analysis.

**Results:** One theme 'trying to manage an unpredictable everyday life' and two categories describe experiences of everyday activities at home. The participants expressed the importance of continuing everyday activities after discharge where support from relatives and healthcare seemed to be of importance.

**Conclusion:** It was found that performance of everyday activities and contact with family members were of importance in their everyday life. Therefore, assessments and support were of particular importance for the group of older people who do not have close social relations at home.

**Title:** Virtual Reality in Pain Rehabilitation for Youth With Chronic Pain: Pilot Feasibility Study.

**Citation:** JMIR rehabilitation and assistive technologies; Nov 2020; vol. 7 (no. 2); p. e22620

**Author(s):** Griffin, Anya; Wilson, Luke; Feinstein, Amanda B; Bortz, Adeline; Heirich, Marissa S; Gilkerson, Rachel; Wagner, Jenny Fm; Menendez, Maria; Caruso, Thomas J; Rodriguez, Samuel; Naidu, Srinivas; Goliath, Brenda; Simons, Laura E

**Background:** In the field of pain, virtual reality (VR) technology has been increasingly common in the context of procedural pain management. As an interactive technology tool, VR has the potential to be extended beyond acute pain management to chronic pain rehabilitation with a focus on increasing engagement with painful or avoided movements.

**Objective:** We outline the development and initial implementation of a VR program in pain rehabilitation intervention to enhance function in youth with chronic pain.

**Methods:** We present the development, acceptability, feasibility, and utility of an innovative VR program (Fruity Feet) for pediatric pain rehabilitation to facilitate increased upper and
lower extremity engagement. The development team was an interdisciplinary group of pediatric experts, including physical therapists, occupational therapists, pain psychologists, anesthesiologists, pain researchers, and a VR software developer. We used a 4-phase iterative development process that engaged clinicians, parents, and patients via interviews and standardized questionnaires.

**Results:** This study included 17 pediatric patients (13 female, 4 male) enrolled in an intensive interdisciplinary pain treatment (IIPT) program, with mean age of 13.24 (range 7-17) years, completing a total of 63 VR sessions. Overall reports of presence were high (mean 28.98; max 40; SD 4.02), suggestive of a high level of immersion. Among those with multisession data (n=8), reports of pain (P<.001), fear (P=.003), avoidance (P=.004), and functional limitations (P=.01) significantly decreased. Qualitative analysis revealed (1) a positive experience with VR (eg, enjoyed VR, would like to utilize the VR program again, felt VR was a helpful tool); (2) feeling distracted from pain while engaged in VR; (3) greater perceived mobility; and (4) fewer clinician-observed pain behaviors during VR. Movement data support the targeted impact of the Fruity Feet compared to other available VR programs.

**Conclusions:** The iterative development process yielded a highly engaging and feasible VR program based on qualitative feedback, questionnaires, and movement data. We discuss next steps for the refinement, implementation, and assessment of impact of VR on chronic pain rehabilitation. VR holds great promise as a tool to facilitate therapeutic gains in chronic pain rehabilitation in a manner that is highly reinforcing and fun.

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**Title:** Determinants of Antidepressant Treatment and Outpatient Rehabilitation Within the First Year After Stroke.

**Citation:** Journal of geriatric psychiatry and neurology; Nov 2020; p. 891988720973749

**Author(s):** Ladwig, Simon; Werheid, Katja

**Abstract:** This study aims to identify individual determinants of antidepressant treatment and outpatient rehabilitation after stroke. People with ischemic stroke (N = 303) recruited at 2 inpatient rehabilitation clinics were included into a prospective longitudinal study with follow-up telephone interviews 6 and 12 months later. Participants reported on their use of antidepressant medication and psychotherapy as well as physical, occupational, speech, and neuropsychological therapy. The use of antidepressants at discharge (n = 65, 23.8%) was predicted by the severity of depressive symptoms, severity of stroke, history of depression, and use of antidepressants at admission (all p < .05, R 2=.55). The number of outpatient rehabilitation services used at follow-ups was predicted by higher functional and cognitive impairment, higher education, younger age, severity of depressive symptoms, and lower self-efficacy (all p < .05; R 2 6M = .24, R 2 12M = .49). The relevance of identified determinants for the improvement of treatment rates after stroke is discussed.

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**Title:** Commercial head-mounted display virtual reality for upper extremity rehabilitation in chronic stroke: a single-case design study.

**Citation:** Journal of neuroengineering and rehabilitation; Nov 2020; vol. 17 (no. 1); p. 154

**Author(s):** Erhardsson, Mattias; Alt Murphy, Margit; Sunnerhagen, Katharina S

**Background:** Rehabilitation is crucial for maximizing recovery after stroke. Rehabilitation activities that are fun and rewarding by themselves can be more effective than those who are not. Gamification with virtual reality (VR) exploits this principle. This single-case design
study probes the potential for using commercial off-the-shelf, room-scale head-mounted virtual reality for upper extremity rehabilitation in individuals with chronic stroke, the insights of which can inform further research.

**Methods:** A heterogeneous volunteer sample of seven participants living with stroke were recruited through advertisement. A single-case design was employed with a 5-week baseline (A), followed by a 10-week intervention (B) and a 6-month follow-up. Upper extremity motor function was assessed with validated kinematic analysis of drinking task. Activity capacity was assessed with Action Research Arm Test, Box and Block Test and ABILHAND questionnaire. Assessments were done weekly and at follow-up. Playing games on a VR-system with head-mounted display (HTC Vive) was used as rehabilitation intervention. Approximately 300 games were screened and 6 tested. Visual analysis and Tau-U statistics were used to interpret the results.

**Results:** Visual analysis of trend, level shift and overlap as well as Tau-U statistics indicated improvement of Action Research Arm Test in six participants. Four of these had at least a moderate Tau-U score (0.50-0.92), in at least half of the assessed outcomes. These four participants trained a total of 361 to 935 min. Two out of four participants who were able to perform the drinking task, had the highest training dose (> 900 min) and showed also improvements in kinematics. The predominant game played was Beat Saber. No serious adverse effects related to the study were observed, one participant interrupted the intervention phase due to a fall at home.

**Conclusions:** This first study of combining commercial games, a commercial head-mounted VR, and commercial haptic hand controls, showed promising results for upper extremity rehabilitation in individuals with chronic stroke. By being affordable yet having high production values, as well as being an easily accessible off-the-shelf product, this variant of VR technology might facilitate widespread adaption. Insights garnered in this study can facilitate the execution of future studies. Trial registration The study was registered at researchweb.org (project number 262331, registered 2019-01-30, https://www.researchweb.org/is/vgr/project/262331 ) prior to participant enrolment.

**Title:** Predicting discharge walking function with high-intensity stepping training during inpatient rehabilitation in non-ambulatory patients post-stroke.

**Citation:** Archives of physical medicine and rehabilitation; Nov 2020

**Author(s):** Henderson, Christopher E; Fahey, Megan; Brazg, Gabi; Moore, Jennifer L; Hornby, T George

**Objective:** This cohort investigation identified primary predictors of discharge walking function of non-ambulatory individuals post-stroke with high-intensity training (HIT) during inpatient rehabilitation.

**Design:** Observational cohort investigation.

**Setting:** Inpatient rehabilitation.

**Participants:** Data were collected from 257 individuals < 6 months post-stroke who required assistance to walk at admission.

**Intervention:** Clinical physical therapy interventions attempted to maximize stepping practice at higher intensities (HIT).

**Main Outcome Measures:** Primary outcomes included the discharge level of assistance required during walking (minimal or no assistance) and attainment of specific gait speed thresholds (0.4 and 0.8 m/s) during the 10-meter walk test (10MWT). Independent predictors were demographics, training interventions (including steps/day), baseline Berg Balance Scale (BBS) and paretic leg strength.
**Results:** Participants performed a median (IQR) of 1270 (533-2297) steps/day throughout inpatient rehabilitation, with significant differences between those who walked with vs without assistance at discharge. Logistic regressions indicate steps/day was a primary predictor of unassisted walking recovery; removal of steps/day resulted in primary predictors of baseline BBS and strength. Receiver operating characteristic (ROC) analyses indicate significant areas under the curve for BBS, and relatively low cut-off scores of 5.5 points at admission to walk without assistance at any speed. ROC analyses performed using 1-week outcomes indicate BBS scores of 5-17 points were needed to achieve locomotor thresholds.

**Conclusion:** Stepping activity, BBS and paretic leg strength were primary predictors of walking outcomes in patients performing HIT, and ROC analyses indicated recovery of independent walking could be achieved in low functioning patients early post-stroke.

**Title:** Exploratory study of how Cognitive Multisensory Rehabilitation restores parietal operculum connectivity and improves upper limb movements in chronic stroke.

**Citation:** Scientific reports; Nov 2020; vol. 10 (no. 1); p. 20278

**Author(s):** Van de Winckel, A; De Patre, D; Rigoni, M; Fiecas, M; Hendrickson, T J; Larson, M; Jagadeesan, B D; Mueller, B A; Elvendahl, W; Streib, C; Ikramuddin, F; Lim, K O

**Abstract:** Cognitive Multisensory Rehabilitation (CMR) is a promising therapy for upper limb recovery in stroke, but the brain mechanisms are unknown. We previously demonstrated that the parietal operculum (parts OP1/OP4) is activated with CMR exercises. In this exploratory study, we assessed the baseline difference between OP1/OP4 functional connectivity (FC) at rest in stroke versus healthy adults to then explore whether CMR affects OP1/OP4 connectivity and sensorimotor recovery after stroke. We recruited 8 adults with chronic stroke and left hemiplegia/paresis and 22 healthy adults. Resting-state FC with the OP1/OP4 region-of-interest in the affected hemisphere was analysed before and after 6 weeks of CMR. We evaluated sensorimotor function and activities of daily life pre- and post-CMR, and at 1-year post-CMR. At baseline, we found decreased FC between the right OP1/OP4 and 34 areas distributed across all lobes in stroke versus healthy adults. After CMR, only four areas had decreased FC compared to healthy adults. Compared to baseline (pre-CMR), participants improved on motor function (MESUPES arm p = 0.02; MESUPES hand p = 0.03; MESUPES total score p = 0.006); on stereognosis (p = 0.03); and on the Frenchay Activities Index (p = 0.03) at post-CMR and at 1-year follow-up. These results suggest enhanced sensorimotor recovery post-stroke after CMR. Our results justify larger-scale studies.

**Title:** International consensus recommendations for outcome measurement in poststroke arm rehabilitation trials.

**Citation:** European journal of physical and rehabilitation medicine; Nov 2020

**Author(s):** Duncan Millar, Julie; van Wijck, Frederike; Pollock, Alex; Ali, Myzoon

**Background:** Existing randomised controlled trials (RCTs) of arm rehabilitation interventions after stroke use a wide range of outcome measures, limiting ability to pool data to determine efficacy. Published recommendations also lack stroke survivor, carer and clinician involvement specifically about perceived relevance and importance of outcomes and measures.

**Aim:** To generate international consensus recommendations for selection of outcome measures for use in future stroke RCTs in arm rehabilitation considering outcomes important
to stroke survivors, carers and clinicians. The recommendations are the Standardising Measurement in Arm Rehabilitation Trials [SMART] toolbox.

**Design:** Two-round international e-Delphi survey and consensus meeting.

**Setting:** Online and University.

**Population:** Fifty-five researchers and clinicians with expertise in stroke upper limb rehabilitation from 18 countries (e-Delphi); n=13 researchers and clinicians, n=2 stroke survivors, n=1 carer (consensus meeting).

**Methods:** Using systematically identified outcome measures from published RCTs, we conducted a two-round international e-Delphi survey with researchers and clinicians to identify the most important measures for inclusion in the toolbox. Measures that achieved ≥60% consensus were categorised using the International Classification of Functioning, Disability and Health framework (ICF); psychometric properties were ascertained from literature and research resources. At a final consensus meeting, expert stakeholders selected measures for inclusion in the toolbox.

**Results:** E-Delphi participants recommended 28/170 measures for discussion at the final consensus meeting. Expert stakeholders (n=16) selected the Visual Analogue Scale for pain/0-10 Numeric Pain Rating Scale, Dynamometry, Action Research Arm Test, Wolf Motor Function Test, Barthel Index, Motricity Index and Fugl-Meyer Assessment (upper limb section of each), Box and Block Test, Motor Activity Log 14, Nine Hole Peg Test, Functional Independence Measure, EQ-5D, and Canadian Occupational Performance Measure for inclusion in the toolbox.

**Conclusions:** The SMART Toolbox provides a refined selection of measures that capture outcomes considered important by stakeholders for each ICF domain.

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**Title:** The effectiveness of home-based therapy on functional outcome, self-efficacy and anxiety among discharged stroke survivors.

**Citation:** Medicine; Nov 2020; vol. 99 (no. 47); p. e23296

**Author(s):** Pui Kei, Chong; Mohd Nordin, Nor Azlin; Abdul Aziz, Aznida Firzah

**Introduction:** Stroke survivors are commonly at risk of functional decline following discharge from rehabilitation, which increase their susceptibility to falls, dependency in activities of daily living and emotional disturbances. To combat these, continued therapy is important. Home-based therapy (HBT) has been shown to be useful in maintaining functional performance and quality of life of chronic stroke survivors. However, evidence on its effectiveness remains limited, while no studies are available to date which report the benefit of HBT on stroke survivors self-efficacy and emotional status. Therefore, this study aims to assess the effectiveness of post-discharge HBT in comparison to usual practice on functional outcome (mobility and gait speed), self-efficacy and anxiety level among stroke survivors.

**Methods:** This is an assessor-blinded randomized control trial comparing 2 types of intervention which are HBT (experimental group) and usual practice (UP) (control group). Based on sample size calculation using GPower, a total number of 42 participants will be recruited and allocated into either the HBT or the UP group. Participants in HBT group will receive a set of structured exercise therapy consisting of progressive strengthening, balance and task-related exercises. While participants in UP group will receive a usual "intervention" practised by rehabilitation professional prior to discharging stroke patients from their care.
Both groups are advised to perform the given interventions for 3 times per week for 12 weeks under the supervision of their caregiver. Outcomes of interventions will be measured using timed up and go test (for mobility), ten-meter walk test (for gait speed), stroke self-efficacy questionnaire (for self-efficacy) and hospital anxiety and depression scale (for anxiety level). All data will be analyzed using descriptive and inferential statistics.

**Discussion:** This study will provide the information on the effectiveness of HBT in comparison to UP among stroke population who are discharged from rehabilitation. Findings from the study will enable rehabilitation professionals to design effective discharge care plan for stroke survivors in combating functional decline when no longer receiving hospital-based therapy.

**Trial Registration:** Australian New Zealand Clinical Trials Registry, ACTRN12619001182189 (last updated 22/11/2019).

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**Title:** Machine learning to predict mortality after rehabilitation among patients with severe stroke.

**Citation:** Scientific reports; Nov 2020; vol. 10 (no. 1); p. 20127

**Author(s):** Scrutinio, Domenico; Ricciardi, Carlo; Donisi, Leandro; Losavio, Ernesto; Battista, Petronilla; Guida, Pietro; Cesarelli, Mario; Pagano, Gaetano; D'Addio, Giovanni

**Abstract:** Stroke is among the leading causes of death and disability worldwide. Approximately 20-25% of stroke survivors present severe disability, which is associated with increased mortality risk. Prognostication is inherent in the process of clinical decision-making. Machine learning (ML) methods have gained increasing popularity in the setting of biomedical research. The aim of this study was twofold: assessing the performance of ML tree-based algorithms for predicting three-year mortality model in 1207 stroke patients with severe disability who completed rehabilitation and comparing the performance of ML algorithms to that of a standard logistic regression. The logistic regression model achieved an area under the Receiver Operating Characteristics curve (AUC) of 0.745 and was well calibrated. At the optimal risk threshold, the model had an accuracy of 75.7%, a positive predictive value (PPV) of 33.9%, and a negative predictive value (NPV) of 91.0%. The ML algorithm outperformed the logistic regression model through the implementation of synthetic minority oversampling technique and the Random Forests, achieving an AUC of 0.928 and an accuracy of 86.3%. The PPV was 84.6% and the NPV 87.5%. This study introduced a step forward in the creation of standardisable tools for predicting health outcomes in individuals affected by stroke.

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**Title:** Barriers and facilitators to implementing stepped psychological care for people with aphasia: Perspectives of stroke health professionals.

**Citation:** Topics in stroke rehabilitation; Nov 2020 ; p. 1-13

**Author(s):** Baker, Caroline; Rose, Miranda L; Ryan, Brooke; Worrall, Linda

**Background:** Concomitant aphasia and depression after stroke is highly prevalent, but there is a lack of psychological care in stroke rehabilitation for people with aphasia and family members. Evidence-based frameworks such as stepped psychological care may be viable, but the barriers and facilitators to translating this framework into aphasia rehabilitation practice are unknown. Aim The aim of this study was to identify, from the perspective of stroke health professionals, the barriers and facilitators to implementing stepped psychological care for depression after post-stroke aphasia.
Method: Five semi-structured focus groups of stroke health professionals were conducted (n = 39) across the stroke care continuum. Verbatim transcripts were analyzed using Interpretive Description.

Results: Barriers and facilitators were identified within three core themes: knowledge, skills, and attitudes have the most impact on implementing stepped psychological care; the physical environment impacts on managing depression and communication disability for people with aphasia; and the support and leadership of the health organization influence change in any implementation of a stepped psychological care approach. Barriers included: no experience with stepped psychological care; limited understanding of aphasia and communication support; lack of adequate physical space and resources; lack of psychologists. Facilitators included: specialist training; enhancement of physical spaces; communication tools; leadership; funding; specialized staff.

Conclusion: Addressing the identified barriers and facilitators to stepped psychological care will improve the viability of implementing this evidence-based framework after post-stroke aphasia. Change may be driven through specialist training for health professionals in communication support; mood assessment and treatments; modification of physical space; and accessible resources.

Title: Strength training to improve walking after stroke: how physiotherapist, patient and workplace factors influence exercise prescription.

Citation: Physiotherapy theory and practice; Nov 2020 ; p. 1-9
Author(s): Tole, Genevieve; Raymond, Melissa J; Williams, Gavin; Clark, Ross A; Holland, Anne E

Background: Muscle weakness is well established as the primary impairment that affects walking after stroke and strength training is an effective intervention to improve this muscle weakness. Observation of clinical practice however has highlighted an evidence-practice gap in the implementation of evidence-based strength training guidelines.

Objective: To explore perceived barriers and facilitators that influence Australian physiotherapy practices when prescribing strength training with stroke survivors undergoing gait rehabilitation.

Methods: Semi-structured interviews were conducted with a convenience sample of physiotherapists currently providing rehabilitation services to patients following stroke in Australia. Interviews were transcribed verbatim and line-by-line thematic analysis was undertaken to create themes and sub-themes.

Results: Participants were 16 physiotherapists (12 females) with 3 months - 42 years experience working with people after stroke. Major themes identified were 1) patient factors influence the approach to strength training; 2) interpretation and implementation of strength training principles is diverse; and 3) workplace context affects the treatment delivered. Physiotherapists displayed wide variation in their knowledge, interpretation and implementation of strength training principles and strength training exercise prescription was seldom evidence or guideline based. Workplace factors included the clinical preference of colleagues, and the need to modify practice to align with workforce resources.

Conclusions: Implementation of strength training to improve walking after stroke was diverse. Therapist-related barriers to the implementation of effective strength training programs highlight the need for improved knowledge, training and research engagement. Limited resourcing demonstrates the need for organizational prioritization of stroke education and skill development. Narrowing the evidence-practice gap remains a challenge.
Title: Telerehabilitation After Stroke Using Readily Available Technology: A Randomized Controlled Trial.

Citation: Neurorehabilitation and neural repair; Nov 2020; p. 1545968320971765
Author(s): Saywell, Nicola L; Vandal, Alain C; Mudge, Suzie; Hale, Leigh; Brown, Paul; Feigin, Valery; Hanger, Carl; Taylor, Denise

Background: The number of people living with stroke has increased demand for rehabilitation. A potential solution is telerehabilitation for health care delivery to promote self-management. One such approach is the Augmented Community Telerehabilitation Intervention (ACTIV). This structured 6-month program uses limited face-to-face sessions, telephone contact, and text messages to augment stroke rehabilitation.

Objective: To investigate whether ACTIV improved physical function compared with usual care.

Methods: This 2-arm, parallel randomized controlled trial was conducted in 4 New Zealand centers. Inclusion criteria were patients with first-ever stroke, age >20 years, and discharged home. A blinded assessor completed outcome measurement in participants' homes at baseline, postintervention, and 6 months postintervention. Stratified block randomization occurred after baseline assessment, with participants allocated to ACTIV or usual care control.

Results: A total of 95 people were recruited (ACTIV: n = 47; control: n = 48). Postintervention intention-to-treat analysis found a nonsignificant difference between the groups in scores (4·51; P = .07) for physical function (measured by the physical subcomponent of the Stroke Impact Scale). The planned per-protocol analysis (ACTIV: n = 43; control: n = 48) found a significant difference in physical function between the groups (5·28; P = .04). Improvements in physical function were not maintained at the 12-month follow-up.

Conclusions: ACTIV was not effective in improving physical function in the ACTIV group compared with the usual care group. The per-protocol analysis raises the possibility that for those who receive more than 50% of the intervention, ACTIV may be effective in preventing deterioration or even improving physical function in people with stroke, in the period immediately following discharge from hospital.

Title: Creating therapeutic relationships through communication: a qualitative metasynthesis from the perspectives of people with communication impairment after stroke.

Citation: Disability and rehabilitation; Nov 2020; p. 1-13
Author(s): Bright, F A S; Reeves, B

Purpose: Communication between patients and clinicians influences the development of therapeutic relationships. Communication is disrupted when the patient has communication impairments after stroke. However, how these communication disruptions influence therapeutic relationships is not well-understood. This qualitative metasynthesis explores the perspectives of people with communication impairment to understand how interpersonal communication influences therapeutic relationships.

Material and Methods: Four databases were searched for qualitative studies which discussed how communication influenced therapeutic relationships from the perspectives of people with aphasia, dysarthria or apraxia of speech. Additional papers were identified
through citation searching and subject experts. Nineteen eligible papers were included and analysed using thematic analysis.

**Results:** Four themes were constructed from the analysis: (1) Relationships provide the foundation for rehabilitation; (2) Different relational possibilities arise from "reading" the clinician; (3) Creating therapeutic relationships through validating interactions and connections; and (4) Creating therapeutic disconnections through invalidating, exclusionary interactions.

**Conclusions:** A therapeutic relationship develops, at least in part, in response to the clinician's communication and how this is received and experienced by the patient. Understanding the characteristics of relationship-fostering communication and knowing how communication influences relationships can help clinicians critically reflect on their communication and better develop therapeutic relationships with people with communication impairment.

**Implications For Rehabilitation:** Practitioner-patient communication can facilitate therapeutic relationships or create therapeutic disconnections. Communication patterns that are commonly evident when a patient has communication impairments can impede therapeutic relationships. Clinicians need to attend to how their communication is received and how it influences people's sense of self. Communication partner training should address the existential and relational needs of people with communication impairment after stroke.

**Title:** Effect of constraint-induced movement therapy on persons-reported outcomes of health status after stroke: a systematic review and meta-analysis.

**Citation:** International journal of rehabilitation research. Internationale Zeitschrift fur Rehabilitationsforschung. Revue internationale de recherches de readaptation; Nov 2020

**Author(s):** Abdullahi, Auwal; Van Criekinge, Tamaya; Umar, Naima A; Zakari, Usman U; Truijen, Steven; Saeys, Wim

**Abstract:** Constraint-induced movement therapy (CIMT) is used for the rehabilitation of motor function after stroke. The aim of this review was to investigate its effect on persons-reported outcomes of health status (PROsHS) compared with conventional therapy. The study was a systematic review and meta-analysis registered in PROSPERO (CRD42019142279). Five databases PubMed, PEDro, OTSeeker, CENTRAL and Web of Science were searched. Randomized controlled trials were included if they assessed PROsHS. Mean scores of PROsHS, sample size and dose of CIMT and control groups interventions were extracted. The result was analyzed using qualitative and quantitative syntheses. Nine studies (n = 558) were included in the review. From the result, CIMT significantly improved PROsHS postintervention. However, postintervention, there was no statistically significant difference between groups for the upper limb [Mean difference (MD) = 6.67, 95% confidence interval (CI) = -2.09 to 15.44, P = 0.14] and the lower limb (MD = -1.86, 95% CI = -16.29 to 12.57, P = 0.80). Similarly, there was no statistically significant percentage of variation across studies, upper limb (I = 0%, P = 0.92) and lower limb (I = 0%, P = 0.86). For the lower limb at follow-up, there was no statistically significant difference between groups (MD = 0.97, 95% CI = -13.59 to 15.53, P = 0.90). When upper and lower limbs studies were pooled, there was no statistically significant difference between groups postintervention (MD = 0.22, 95% CI = -0.15 to 0.58, P = 0.24) and at follow-up (MD = 0.03, 95% CI = -0.43 to 0.49, P = 0.90). CIMT improves PROsHS after stroke. However, it is not superior to conventional therapy based on the current literature.
Sources Used:

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

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