Hi there Ahmad

Here is the latest edition of the OCE Research Bulletin from Bodleian Health Care Libraries. The bulletin covers the latest information on rehabilitation medicine and comes out monthly. Next edition is due in January 2020. Older editions are available as pdfs on the Keeping Up To Date library guide (http://libguides.bodleian.ox.ac.uk/Keeping_up_to_date)

I would like to make this bulletin as relevant as possible to you. Please let me know what you would like to see in the content.

Please also pass the bulletin on to other interested people and encourage them to sign up. Anyone can be added to the mailing list. Email library@ouh.nhs.uk

To support you further in keeping up to date, the library has a current awareness service, KnowledgeShare. You let us know about the different areas you are interested in (for example lung cancer, leadership, orthopaedics, infection control, patient safety, etc.) and we send out an email fortnightly with any new high-level reports, studies, guidelines which match. This is a free service. For more information see our guide. To sign up, fill out our form: https://ox.libguides.com/ld.php?content_id=31673730

---

**Upper Limb Robotic Rehabilitation After Stroke: A Multicenter, Randomized Clinical Trial.**
Aprile I; et al.
*Journal of neurologic physical therapy : JNPT*; Jan 2020; vol. 44 (no. 1); p. 3-14

After stroke, only 12% of survivors obtain complete upper limb (UL) functional recovery, while in 30% to 60% UL deficits persist. Despite the complexity of the UL, prior robot-mediated therapy research has used only one robot in comparisons to conventional therapy. We evaluated the efficacy of robotic UL treatment using a set of 4 devices, compared with conventional therapy. Robotic treatment using a set of 4 devices significantly improved UL motor function, activities, and participation in subjects with subacute stroke to the same extent as a similar amount of conventional therapy.

**Outcome Evaluation of Highly Challenging Balance**

---

**Effect of cycling and functional electrical stimulation with linear and interval patterns of timing on gait parameters in patients after stroke: a randomized clinical trial.**
Shariat A; et al
*Disability and rehabilitation*; Nov 2019 ; p. 1-7

Patients in the chronic phase after a stroke are an underrepresented group in the literature. Therefore, the aim of this study was to compare the effects of cycling and functional electrical stimulation with linear versus interval patterns of timing on gait parameters in patients after stroke. The functional electrical stimulation with cycling protocols improved in a number of tests and scales. An interval protocol of timing was more effective than the linear protocol in terms of spasticity and active range of motion. Cycling + functional electrical stimulation training with an interval pattern of timing seems superior to cycling + functional electrical stimulation training with
Clinical Practice Guideline to Improve Locomotor Function Following Chronic Stroke, Incomplete Spinal Cord Injury, and Brain Injury.
Hornby TG; et al
Journal of neurologic physical therapy : JNPT; Jan 2020; vol. 44 (no. 1); p. 49-100
Individuals with acute-onset central nervous system (CNS) injury, including stroke, motor incomplete spinal cord injury, or traumatic brain injury, often experience lasting locomotor deficits, as quantified by decreases in gait speed and distance walk over a specific duration (timed distance). The goal of the present clinical practice guideline was to delineate the relative efficacy of various interventions to improve walking speed and timed distance in ambulatory individuals greater than 6 months following these specific diagnoses. As walking speed and distance were primary outcomes, the research participants included in the studies walked without substantial physical assistance. This guideline may not apply to patients with limited ambulatory function, where provision of walking training may require substantial physical assistance. The guideline suggests that task-specific walking training should be performed to improve walking speed and distance in those with acute-onset CNS injury although only at higher intensities or with augmented feedback. Future studies should clarify the potential utility of specific training parameters that lead to improved walking speed and distance in these populations in both chronic and subacute stages following injury. These recommendations are intended as a guide for clinicians to optimize rehabilitation outcomes for persons with chronic stroke, incomplete spinal cord injury, and traumatic brain injury to improve walking speed and distance.

Training for People With Parkinson Disease: A Multicenter Effectiveness-Implementation Study.
Leavy B; et al
Journal of neurologic physical therapy : JNPT; Jan 2020; vol. 44 (no. 1); p. 15-22
In order for people with Parkinson disease (PwPD) to benefit from neurorehabilitation research, interventions tested in research settings require assessment in real-world clinical practice. There is little evidence for whether efficacious exercise interventions for PwPD remain effective when transferred to standard clinical settings. The aim of this study was to assess the clinical effectiveness of the adapted HiBalance program on balance control and gait among PwPD. Highly challenging balance training is effective at improving balance, gait, and dual-task performance when delivered at a clinically feasible dose, in a range of rehabilitation settings, without direct involvement of the research group.

Systematic Review and Meta-Analysis of Home-Based Rehabilitation on Improving Physical Function Among Home-Dwelling Patients With a Stroke.
Chi NF; et al
Archives of physical medicine and rehabilitation; Nov 2019
We evaluate the effects of home-based rehabilitation on improving physical function in home-dwelling patients after a stroke. Home rehabilitation can improve functional outcome in survivors of stroke and should be considered appropriate during discharge planning if continuation care is required.

Ergometer training in stroke rehabilitation: systematic review and meta-analysis.
Veldema J; Jansen P
Archives of physical medicine and rehabilitation; Nov 2019
Ergometer training is routinely used in stroke rehabilitation. How robust is the evidence of its effects? Ergometer training can support motor recovery after stroke. However, current data is insufficient for evidence-based rehabilitation. More data is required about the effects of ergometer training on cognitive abilities, emotional status, and quality of life in stroke subjects.

Straudi S; et al
Archives of physical medicine and rehabilitation; Nov 2019
We compare the effects of unilateral, proximal arm robot-assisted therapy combined with hand functional electrical stimulation with intensive conventional therapy for restoring arm function in survivors of subacute stroke. Robot-assisted arm therapy and hand functional electrical stimulation (RAT+FES) was no more effective than intensive conventional arm training. However, at the same level of arm impairment and corticospinal tract integrity, it induced a higher level of arm recovery.

Content and Effectiveness of Interventions Focusing on Community Participation Poststroke: A Systematic Review.
Lee D; et al
Archives of physical medicine and rehabilitation; Nov 2019
A linear pattern. Interval protocol has positive effects on spasticity and range of motion after 12 sessions in patients post stroke. Cycling + functional electrical stimulation improves functional mobility and speed in stroke survivors and the effects of this intervention lasted in follow-up assessment after one month.
interventions provided to stroke patients and evaluate whether personal smart technologies on outcomes in adults with acquired brain injury. We investigate the content and effectiveness of interventions that address poststroke community participation. A limited number of studies showed an effect on participation, depression, and health-related quality of life outcomes. There were gaps in intervention content indicating that current community participation interventions fall short in addressing full inclusion and citizenship of people with stroke. Future interventions should focus on civic- and societal-level participation and community activities beyond leisure.

Neuropsychological rehabilitation; Jan 2020; vol. 30 (no. 1); p. 130-161
This paper updates guidelines for effective treatments of children with specific types of acquired brain injury (ABI) published in 2007 with more recent evidence. A systematic search was conducted for articles published from 2006 to 2017. There was strong evidence for family/caregiver-focused interventions, as well as direct interventions to improve attention, memory, executive functioning, and emotional/behavioural functioning. A majority of the practice standards and guidelines provided evidence for the use of technology in delivery of interventions, representing an important trend in the field.

Effectiveness of ReSET; a strategic executive treatment for executive dysfunctioning in patients with Parkinson’s disease.
Vlagsma TT; et al
Neuropsychological rehabilitation; Jan 2020; vol. 30 (no. 1); p. 67-84
In this multicentre randomised controlled trial (RCT), 43 patients with Parkinson’s disease (PD) were randomly allocated to either the experimental condition receiving cognitive rehabilitation including strategy training (ReSET; Strategic Executive Treatment, n = 24) or to the control condition receiving computerised repetitive practice training for attention (Cogniplus, n = 16). We expected that strategy training (ReSET) would be more effective than cognitive training (Cogniplus) in improving patients’ everyday life executive functioning. We conclude that both strategy training and cognitive training for impairments in EF might be beneficial and feasible for PD patients.

Technology-based interventions for mental health support after stroke: A systematic review of their acceptability and feasibility.
Shek AC; et al
Neuropsychological rehabilitation; Dec 2019 ; p. 1-21
Mental health disturbances are common after stroke and linked to a slower recovery. Current face-to-face treatment options are costly and often inaccessible. Technology advances have made it possible to overcome some of these barriers to deliver technology-based mental health interventions remotely, but we do not know how acceptable and feasible they are. This systematic review aims to provide an examination of the acceptability and feasibility of technology-based mental health interventions provided to stroke patients and evaluate their outcomes in stroke survivors.
any barriers to their adoption. Overall, the literature displays early evidence of using technology to deliver mental health interventions to patients with stroke. This review has identified factors that the design of future studies should take into consideration.

**Effectiveness of Virtual Reality- and Gaming-Based Interventions for Upper Extremity Rehabilitation Post-Stroke: A Meta-Analysis.**
Karamians R; et al
Archives of physical medicine and rehabilitation; Dec 2019
We investigate the efficacy of virtual reality (VR)- and gaming-based interventions for improving upper extremity function post-stroke, and to examine demographic and treatment-related factors that may moderate treatment response. Overall, VR/gaming-based upper extremity rehabilitation post-stroke appears to be more effective than conventional methods. Further in-depth study of variables impacting improvement, such as individual motor presentation, treatment dose, and the relationship between the two, are needed.

**Effect of aerobic training on vascular and metabolic risk factors for recurrent stroke: a meta-analysis.**
Brouwer R; et al
Disability and rehabilitation; Dec 2019; p. 1-8
This meta-analysis aimed to determine the effect of aerobic training, compared to non-aerobic interventions, on vascular and metabolic risk factors for recurrent stroke. Aerobic training results in a significant positive effect on systolic blood pressure and fasting glucose after stroke when compared to non-aerobic usual care or non-aerobic exercise. Aerobic training has a positive effect on two of the most important vascular risk factors for recurrent stroke (i.e., systolic blood pressure and fasting glucose). The effect of solely aerobic training seems to be comparable to the effect of combined strength exercise and aerobic training for systolic blood pressure and fasting glucose. Since aerobic training has a significant effect on risk factors for recurrent stroke, implementation of aerobic training in daily life is important to reduce long-term stroke risk. Previous research has shown that other metabolic risk factors can be altered by other interventions (e.g., strength exercise or lifestyle coaching), therefore, post-stroke prevention programs should be tailored in order to target specific risk-factors for individual patients.

**Effectiveness of Intervention Based on End-effector Gait Trainer in Older Patients With Stroke: A Systematic Review.**
Maranesi E; et al
Journal of the American Medical Directors

Cognitive function following stroke was identified as an important, but relatively neglected area during the first Stroke Recovery and Rehabilitation Roundtable (SRRR I), leading to a Cognition Working Group being convened as part of SRRR II. There is currently insufficient evidence to build consensus on specific approaches to cognitive rehabilitation. However, we present recommendations on the integration of cognitive assessments into stroke recovery studies generally and define priorities for ongoing and future research for stroke recovery and rehabilitation. A number of promising interventions are ready to be taken forward to trials to tackle the gap in evidence for cognitive rehabilitation. However, to accelerate progress requires that we coordinate efforts to tackle multiple gaps along the whole translational pathway.

**The effects of ankle-foot orthoses on walking speed in patients with stroke: a systematic review and meta-analysis of randomized controlled trials.**
Shahabi S; et al
Clinical rehabilitation; Dec 2019; p. 269215519887784
The aim of this study was to evaluate the effects of ankle-foot orthoses on speed walking in patients with stroke. Despite reported positive effects in some studies, there is no firm evidence of any benefit of ankle-foot orthoses on walking speed.

**Clinical non-superiority of technology-assisted gait training with body weight support in patients with subacute stroke: A meta-analysis.**
Hsu CY; et al
Annals of physical and rehabilitation medicine; Oct 2019
Technology-assisted gait training (TAGT) with body weight support (BWS) has been designed to provide high numbers of repetitions during stepping practice, but its benefits have been inconclusive. TAGT with BWS was not superior to COT in improving post-stroke recovery in patients with subacute stroke. Strategies other than simply increasing the repetitions by external assistance may be considered to augment the treatment effects of TAGT.

**The reliability and validity of the Timed Up and Go as a clinical tool in individuals with and without disabilities across a lifespan: a systematic review.**
Christopher A;
Disability and rehabilitation; Oct 2019; p. 1-15
We summarize the available literature related to reliability and validity of the Timed Up and Go in typical adults and children, and individuals diagnosed with the following pathologies: Huntington's disease, stroke, multiple sclerosis, Parkinson's disease, spinal cord injury, Down syndrome, or cerebral palsy. Based on the literature assessed, the Timed Up and Go is
The objective of the article is to analyze the effects of the end-effector technology for gait rehabilitation on acute, subacute, and chronic stroke in order to verify the efficacy of the treatment in older people, based on evidence from randomized controlled trials, and thus increase the clinical knowledge for future applications in the hospital setting. The use of robotic-assisted gait trainer, together with a conventional treatment, seems to improve the walking capability of patients. Future research trials should take into account the impact of the robotic end-effector gait training on the oldest population, as this target was only partially included in the studies examined. Availability of new evidence will support the design of innovative assistive models for the clinical rehabilitation setting, which will take into account the need of personalizing the intervention to support the growing oldest old population.

Evaluating the effectiveness of aquatic therapy on mobility, balance, and level of functional independence in stroke rehabilitation: a systematic review and meta-analysis. Iliescu AM; et al

Clinical rehabilitation; Oct 2019 ; p. 269215519880955

We meta-analyze and systematically review the effectiveness of aquatic therapy in improving mobility, balance, and functional independence after stroke. While the effect of aquatic therapy on mobility and balance is statistically significant compared to land-based therapy, the clinical significance is less clear, highly variable, and outcome measure dependent.

The application of Strategy-based Training to Enhance Memory (STEM) in multiple sclerosis: A pilot RCT. Chiaravalloti ND; et al

Neuropsychological rehabilitation; Nov 2019 ; p. 1-24

New learning and memory (NLM) impairments are common in multiple sclerosis (MS), negatively impacting daily life. Few studies seek to remediate these deficits to improve everyday functioning. Self-generation, spaced learning and retrieval practice have been shown to improve NLM in healthy persons and be incorporated into an 8-session treatment protocol, Strategy-based Training to Enhance Memory (STEM). Significant treatment effects were noted on self-report measures of daily functioning (primary outcome). Objective neuropsychological testing approached significance, showing a medium-large effect on verbal NLM. Results suggest that STEM may improve everyday functioning in individuals with MS. A full-scale RCT is warranted to validate findings in a larger sample so that findings may be generalized to the broader MS community.

Measurement Properties of the Hand Grip Strength clinically applicable and reliable across multiple populations. The Timed Up and Go has a wide variety of clinical use making it a diverse measure that should be considered when choosing an outcome an activity based outcome measure. However, there are some limitations in the validity of the utilization of the Timed Up and Go to some populations due to a lack of data and/or poor choice of comparison outcome measures when assessing validity. Additional research is needed for young to middle aged adults.

Participation Restrictions and Satisfaction With Participation in Partners of Patients With Stroke. Cox V; et al

Archives of physical medicine and rehabilitation; Oct 2019

We investigate participation restrictions and satisfaction with participation in partners of patients with stroke. There is great variety in restrictions experienced by partners regarding different activities and in their satisfaction with these activities. Specific assessment is therefore important when supporting partners of patients with stroke.

Contextual determinants of participation after stroke: a systematic review of quantitative and qualitative studies. Della Vecchia C; et al

Disability and rehabilitation; Oct 2019 ; p. 1-13

From a patient's perspective, participation is a major determinant of quality of life. We aimed to review contextual factors, both personal and environmental, potentially associated with post-stroke participation. Personal factors, particularly psychological and psychosocial factors, were identified as positively associated with post-stroke participation. Environmental factors such as support, relationships, and positive attitudes towards patients were major facilitators of participation as well as physical environment and accessibility to appropriate services. Most of these factors are modifiable and should be addressed to improve patient participation. Implications for Rehabilitation Psychosocial factors (motivational aspects, acceptance of a new condition, self-esteem) and environmental factors (social support, attitudes towards the patient, physical environment, access to health, social services and policies) were identified as determinants of post-stroke participation. A structured evaluation of determinants of participation may be used in clinical practice to propose appropriate support and then improve patients' recovery Programs to improve patients' psychosocial skills such as self-esteem, acceptance, motivation should be tested and implemented, and policies to develop appropriate services accessibility should be encouraged.
The aim of this study was to critically appraise, compare, and summarize the quality of the measurement properties of grip strength (GS) in patients with musculoskeletal, neurologic, or systemic conditions and healthy participants without these conditions. Our synthesized evidence indicated that GS assessment is a reliable and valid procedure among healthy participants as well as across various clinical populations. Furthermore, our MCID summary scores provided useful information for evaluating (clinical importance) new interventions regarding hand GS.

**Efficacy and Safety of High-Frequency Repetitive Transcranial Magnetic Stimulation for Poststroke Depression: A Systematic Review and Meta-analysis.**
Liu C; et al
*Archives of physical medicine and rehabilitation*; Oct 2019; vol. 100 (no. 10); p. 1964-1975
We summarize and systematically review the efficacy and safety of high-frequency repetitive transcranial magnetic stimulation (HF-rTMS) for depression in patients with stroke. HF-rTMS is an effective intervention for poststroke depression, although treatment safety should be further verified via large sample multicenter trials.

**Patients with neuropsychological disorders short after stroke have worse functional outcome: a systematic review and meta-analysis.**
Revet M; et al
*Disability and rehabilitation*; Nov 2019; p. 1-20
We investigate if patients with neuropsychological disorders (neglect, aphasia, or cognitive dysfunction measured with the Mini-mental state examination) short after stroke have different functional outcome at follow-up compared to patients without these disorders. Patients with neglect or aphasia, especially aphasia with comprehension deficits, short after stroke have significant worse functional outcome. Clinicians should perform an extensive screening for neglect, aphasia, and cognitive disorders to make sure to diagnose the different neuropsychological disorders correctly. When patients with neuropsychological disorders are referred for rehabilitation, it can be expected that they need a longer rehabilitation period or may never reach the same level of functioning. Clinicians should pay attention to instructions of training moments outside therapy and involve caregivers and patients family making these training moments more effective.

**Effects of aerobic exercise using cycle ergometry on...**

**Awareness of deficit following traumatic brain injury: A systematic review of current methods of assessment.**
Brown L; et al
*Neuropsychological rehabilitation*; Oct 2019; p. 1-35
Awareness of deficit plays an important role in adjustment following a brain injury and has been noted to impact on engagement with and outcome of rehabilitation. However, there are challenges associated with the assessment of awareness. We systematically review all instruments used to assess intellectual awareness of deficits following Traumatic Brain Injury (TBI) in adults, and evaluate instrument characteristics (e.g., the format and focus of measures of awareness) and assessment methods adopted. There is no consensus on the preferred instrument to assess intellectual awareness of deficits after TBI. Continued instrument development should attempt to incorporate multiple perspectives and assessment should take into account demographic and injury-related factors. An insightful avenue for future research would be to determine which factors are likely to impact awareness measurement.

**Effect of extracorporeal shock wave therapy on muscle spasticity in patients with cerebral palsy: meta-analysis and systematic review.**
Kim HJ; et al
*European journal of physical and rehabilitation medicine*; Oct 2019
Recently, clinical trials have been performed to evaluate the efficacy of extracorporeal shock wave therapy (ESWT) in patients with cerebral palsy (CP). However, various studies adopted different clinical scales, making it insufficient to draw a definite conclusion about the efficacy of ESWT in reducing spasticity after cerebral palsy. The purpose of this meta-analysis was to assess the effects of ESWT on reducing spasticity after applying ESWT in patients with CP. ESWT may be a valid alternative to existing treatment options targeting spasticity diminishment and ROM improvement in CP patients to maintain healthy lifestyles and normalize spastic gait pattern. Further standardization of treatment protocols including treatment intervals and intensities needs to be established and long-term follow up studies are needed to verify our results.

**Moving stroke rehabilitation evidence into practice: a systematic review of randomized controlled trials.**
Bird ML; et al
*Clinical rehabilitation*; Oct 2019; vol. 33 (no. 10); p. 1586-1595
The aim of this study was to investigate the effectiveness of interventions aimed at moving research evidence into stroke rehabilitation practice...
balance and functional capacity in post-stroke patients: a systematic review and meta-analysis of randomised clinical trials.
Da Campo L; et al
Disability and rehabilitation; Oct 2019 ; p. 1-7
Previous studies have shown that aerobic exercise with cycle ergometer improves motor control. The objective of this systematic review and meta-analysis are to evaluate evidence about the effects of aerobic exercise with cycle ergometer on the balance of post-stroke patients, evaluated by the Berg Balance Scale (BBS), and functional capacity, evaluated by the maximal oxygen intake and six-minute walk test (6MWT). The cycle ergometer aerobic exercise did not seem to improve balance or functional capacity in post-stroke patients. Aerobic exercise with cycle ergometer does not improve balance in patients after chronic stroke, but the results for functional capacity are more promising. Beneficial changes in functional capacity can be seen after 12-4 weeks of training, and are dependent on the initial level of physical fitness of each individual. The use of the cycle-ergometer to improve balance and functional capacity was not superior when compared to conventional physiotherapy; therefore, a combination of therapeutic modalities would be ideal for rehabilitation and post-stroke patients.

Validation of Upper Extremity Motor Function as a Key Predictor of Bladder Management After Spinal Cord Injury.
Elliott CS; et al
Archives of physical medicine and rehabilitation; Oct 2019; vol. 100 (no. 10); p. 1939-1944
We validate if better upper extremity (UE) motor function predicts clean intermittent catheterization (CIC) adoption and adherence after spinal cord injury (SCI) using a validated instrument (as opposed to prior research using scales based on expert opinion). In persons with SCI who are unable to volitionally void, UE motor function is highly associated with CIC. These results validate prior findings and continue to suggest that following SCI, the degree of preserved UE motor function is associated with CIC more than any other factor.

through changing the practice of clinicians. A large range of interventions are used to facilitate clinical practice change. Education is commonly used, but in isolation is not effective. Multicomponent interventions including facilitation and tailoring to local settings can change clinical practice and are more effective when targeting fewer changes.

Noninvasive Brain Stimulation for Rehabilitation of Pediatric Motor Disorders Following Brain Injury: Systematic Review of Randomized Controlled Trials.
Elbanna ST; et al
Archives of physical medicine and rehabilitation; Oct 2019; vol. 100 (no. 10); p. 1945-1963
We assess the evidence of the effectiveness of noninvasive brain stimulation (NIBS) for rehabilitation of pediatric motor disorders after brain injury. Pediatric patients with brain injury can be safely stimulated by NIBS, and there is evidence for the efficacy of rTMS in improving upper limb function, and tDCS in improving balance and majority of gait variables with persisted effects for 1 month. The efficacy of spasticity is uncertain.

Lankhorst K; et al
Archives of physical medicine and rehabilitation; Oct 2019
We systematically review the evidence evaluating validity or reliability of self-reported and device-based instruments, to measure physical activity (PA) in individuals who use a wheelchair, and to make recommendations for the selection of PA outcomes tools. The Physical Activity Scale for Individuals with Disabilities (PASIPD) and The Physical Activity Recall Assessment for People with Spinal Cord Injury (PARA-SCI) seem the most promising self-reported instruments for measuring the intensity of PA. Device-based instruments that can be used for measuring both the intensity and type of PA are the GENEActiv, Actigraph GT3X+, Actiheart, or the Physical Activity Monitor System (PAMS), showing moderate evidence for a positive rating of criterion validity. For measuring the type of PA, the PAMS and VitaMove are suitable, showing both good evidence for a positive rating of criterion validity.

Need further help? The outreach team at the Bodleian Health Care Libraries is here to support the information needs of all OUH Trust staff.
We’re happy to help you with literature searches, search skills training and advice, keeping you up to date, and general references enquiries.

Contact us:
Register for OpenAthens to access e-resources:
https://openathens.nice.org.uk/

To subscribe/unsubscribe from this bulletin please email library@ouh.nhs.uk or reply to this email.

Please see our privacy notice https://libguides.bodleian.ox.ac.uk/Keeping_up_to_date/privacynotice