Rehabilitation Research Review™

Making Education Easy

Issue 43 – 2017

In this issue:

Abbreviations used in this issue
MOOSE = Model of Occupational Self-Efficacy
RTW = return to work
SCI = spinal cord injury
TBI = traumatic brain injury

Rehabilitation Counsellors are tertiary qualified allied health professionals who work with individuals with disability, injury or social disadvantage, along with their families, organisations and other health professionals, to deliver work, life and career solutions. The core skills and expertise of Rehabilitation Counsellors include: vocational assessment, job placement support, and career development; rehabilitation and return-to-work services; workplace disability prevention and management.

Welcome to issue 43 of Rehabilitation Research Review.

The American Congress of Rehabilitation Medicine (ACRM) supports and provides a platform for interdisciplinary rehabilitation research. It hosts annual conferences, has special interest groups and publishes the *Archives of Physical Medicine and Rehabilitation Journal*. This year, the conference was held from 23-28 October in Atlanta, Georgia, USA. This conference is considered the largest interdisciplinary rehabilitation conference in the world, and with good reason! There were approximately 2,400 delegates, 19 interest areas such as stroke, brain injury, pain, policy, technology, geriatric rehabilitation, spinal cord injury (SCI), neurodegenerative diseases, and up to 30 concurrent sessions. For this issue, I invited New Zealand delegates to share some of their reflections from the conference. I have also provided commentary on a selection of papers relevant to vocational rehabilitation.

I hope that you find the research in this issue useful in your practice and I welcome your comments and feedback. In the meantime, I do hope you enjoy a safe and happy holiday season!

Kind regards,

Associate Professor Nicola Kayes
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Defining rehabilitation treatments: Implications for clinical training, treatment planning, and interdisciplinary communication

Presenters: John Whyte and Tessa Hart, Moss Rehabilitation Research Institute, Pennsylvania, PA; Marcel Dijkers, Research Consultant

Summary: These researchers talked about how the current definition of rehabilitation treatments emphases what the provider contributes (e.g. "1 hour of occupational therapy") or the problem being treated ("gait training"). As they explained, this definition has little scope for including the actual contents of the treatment experience that ultimately determine its efficacy and effectiveness. Whyte and colleagues described their efforts to develop a standardised system for defining rehabilitation treatments of all disciplines with respect to their known or hypothesised active ingredients. Such a system would support clinical education and training by enabling it to focus on the delivery of the treatment ingredients that matter; supervision can verify the appropriate delivery of those ingredients and, moreover, this system is relevant to clinical reasoning and planning, as it highlights the relationship between the treatment ingredients selected by the clinician and predicted functional changes.

Comment (Nicola Kayes): This is a piece of work I have been following with interest for a while now. John Whyte and others wrote a series of papers some time ago now relating to this work (see papers in *Archives of Physical Medicine and Rehabilitation*, Vol. 95, Issue 1, Supplement, 2014, if this is of interest). Rehabilitation has been criticised for being largely atheoretical. While this may seem inconsequential on an everyday basis, our lack of understanding of how and why things work has the potential to limit further advances in the field. As such, this group has set out to develop a Rehabilitation Treatment Specification System (RTSS), which aims to specify for a range of treatment targets (patient functioning intended for change), the key active ingredients (what the clinician says, does, provides), and mechanisms of action (how it is expected to work). In rehabilitation this is tricky, as 'treatment' is often multi-component (frequently referred to as the 'black box' of rehabilitation). As such, the RTSS aims to focus on the component parts. There is great potential for a system such as the RTSS to inform clinical education and treatment planning, as well as improve clarity regarding what treatments are most likely to be effective and why. I do have some cautions, primarily relating to how active ingredients are currently conceptualised as being ALWAYS observable and measurable. I am biased of course, given that much of the work that I do is looking at those critical rehabilitation processes that transcend disciplinary boundaries, such as therapeutic relationship – the human factors, which are often less visible. As a consequence, I think it is important to consider what necessarily becomes privileged, or assumed, when we focus only on the measurable. We need to also ensure that a system of this nature remains dynamic and open to challenge as we develop new insights over time. That said, I don't think the authors are oblivious to these challenges even if they don't yet have all the answers. Indeed, it is an enormous undertaking, and must at times feel insurmountable! Watch this space.

294063 – Special Symposium.
Abstract

Time spent reading this publication has been approved for CME for Royal New Zealand College of General Practitioners (RNZCGP) General Practice Educational Programme Stage 2 (GPEP2) and the Maintenance of Professional Standards (MOPS) purposes, provided that a Learning Reflection Form is completed. Please **CLICK HERE** to download your CPD MOPS Learning Reflection Form. One form per review read would be required.

Time spent reading this publication has been approved for CNE by The College of Nurses Aotearoa (NZ) for RNs and NPs. For more information on how to claim CNE hours please **CLICK HERE**

Developing health and wellness community programs after SCI – lessons learned

Presenters: Shari McDowell, Kelly Edens, and Rebecca Washburn, Shepherd Center, Atlanta, GA

Summary: This presentation described the development and components of a recent US-based community initiative, "From Injury to Integration: Closing the Healthcare Gap after SCI". This initiative is seeking to address health and wellness education in individuals with a spinal cord injury (SCI), to create resources and community access programmes, and to foster collaboration with communities serving people with SCI. The presenters talked about the implementation and successes of the programmes, with examples from individual case studies.

Comment (Verna Stavric: Lecturer at Auckland University of Technology): This presentation resonated with me for many reasons. Firstly, the program was focused on a population of interest to me – not that difficult to find at this conference, as there were so many to choose from! Secondly, although the programme was based on high-level policy, governmental initiatives and evidence, it was translated and targeted not to 'clinical practice' but to populations and communities, making the most use of the evidence. Thirdly was the interdisciplinary approach in which they appeared to operate to work toward the main goals of both the project and also in each of the components of the programme. Physiotherapists, recreation therapists and promotion managers were the key personnel in the programme who linked with personal trainers, community workers, family, and occupational therapists. Although each one had a clear role, the responsibilities seemed to shift as the need of that component or situation demanded. Next was the absolute focus on finding or creating community resources for collaboration and support initially and then for continued support once the formal programme ended. A cornerstone of health promotion is to create supportive environments and this programme made attempts to find these support systems within communities that serve people with SCI. Lastly, and refreshingly in contrast to many of the other talks, the presenters reflected on the process and commented on what they had learned, what they were pleased with and what they would do differently. Their own critical thinking about the programme helped me, as a listener and clinician, appreciate the complexities of what they had to deal with while also hinting at what future steps could look like.

295733: Spinal Cord Injury.
Abstract

Stroke rehabilitation at a crossroads: Will we be just good or will we be great?

Presenter: Robert W. Teasell, Parkwood Institute Research, St. Joseph's Health Care London, ON, Canada

Summary: Dr Teasell highlighted important changes and challenges in stroke rehabilitation, which is increasingly emphasising the key drivers of neuroplasticity; early admission to rehabilitation, therapy intensity, talk-specific therapy and stroke specialised interdisciplinary teams. It is appreciated that screening and assessment tools should be standardised and specific stroke deficits have to better reflect the heterogenicity of presenting stroke deficits. Meta-analysis data are increasingly informing clinical practice. Cognitive rehabilitation is becoming better understood and technology is increasingly being integrated into rehabilitation. Rehabilitation is more often taking place outside the inpatient stroke rehabilitation unit.

Comment (Dr Felicity Bright: Senior Lecturer at Auckland University of Technology): With over 20 sessions running at any one time, there were many different presentations to choose from. One that stood out was Robert Teasell's session on motor recovery after stroke. It was so helpful to hear a clear review of the evidence, drawing together many studies in a way that was accessible and not overwhelming. At the same time, his talk highlighted that while we are making strides in diagnosis, early medical management of stroke and predicting recovery, we must make sure the human side of care and rehabilitation isn't forgotten. There were two reasons this jumped out at me. First, the evidence that having a caregiver at home improved outcomes and the likelihood of discharge home. This made me reflect on the role change implicit in the term 'caregiver' – this is someone's wife, husband, child. How do we ensure their identity, their interpersonal relationship, and their wellbeing isn't subsumed by the new role of 'caregiver'? Second was the increasing evidence that we can predict recovery of impairments. As a hope researcher, this raised a number of questions. I couldn't help but wonder how might this impact on the patient's hope or the therapist's hope (which is important for supporting patient hope). How can we ensure we keep the door open for hope? And how do we make sure we focus on all the outcomes that matter to patients, many of which we can't predict?

302293: Special Symposium.
Abstract

Hyperbaric oxygen and traumatic brain injury: Caveats, controversies and challenges

Presenters: Min Jeong P. Graf and Sarah B. Rockswold, Hennepin County Medical Center/University of Minnesota, MN; David X. Cifu, Virginia Commonwealth University School of Medicine, Nathan D. Zasler, Concussion Care Centre of Virginia, VA, USA

Summary: This presentation discussed the mechanism of hyperbaric/normobaric oxygen (HBO_2) therapy in the acute stage of severe traumatic brain injury (TBI), oxygen toxicity and safety concerns, and the theoretical benefit of hyperbaric oxygen for individuals with persistent symptoms after concussion. Of the few cases in the literature reporting HBO_2-related complications, all have been reversible. The presenters also discussed the controversies surrounding the use of HBO_2 for individuals with persistent symptoms after combat exposure, including those with co-occurring concussion exposure and post-traumatic stress disorder. Moreover, clinical studies have provided equivocal support for HBO_2 in mild TBI (mTBI). The presentation ended with proposals for future research in the use of HBO_2 in the treatment of TBI.

Comment (Jonathan Armstrong: Occupational Therapist and Director of Rehabilitation at ABI Rehabilitation, Auckland): As they say in some of the southern States, this is not my first rodeo! I have been fortunate to attend the ACRM conference three times now and I tend to gravitate towards symposia that focus on innovative, "non-traditional" interventions for neurological rehabilitation. This year this session on hyperbaric oxygen (HBO) and TBI attracted my attention. I have always been sceptical about the use of HBO, and the little reading that I have done about its use after brain injury felt like "fake news". However, the public in NZ are becoming more aware of this as a treatment strategy and have approached our therapists for advice on where to find hyperbaric chambers for their family member with brain injury. My purpose for attending the symposia was to get a more evidence-based perspective on the possibilities of this intervention.

Dr Rockswold presented the research that her team has been completing in relation to the use of HBO in the acute stages (within 24 hours) after severe brain injury; progressing the work that her father had undertaken in the 1980s. The cascade of neurobiological changes in the brain directly after injury and the need for improved oxygen metabolism at a microchondrial level was the main justification for choosing this very acute stage for treatment. Results have been positive with this population, however, the first RCT has only just got under way and the main aim of this is to test treatment protocols – how "deep" to "dive" the patient and for how long. Dr Cifu's research focused on Department of Defense-funded research in the mTBI/concussion population and he also presented data from civilian trials in a similar patient population. To cut a long presentation short, the conclusion he made was "do not recommend this treatment to your patients". No studies have been completed in the more chronic stages of moderate/severe brain injury, as the mechanisms as to why it would work are only present in the acute phase. The only studies into hypoxic injuries have been completed on rats, and have shown some limited positive results.

So, there you go, if researchers who have spent hundreds of thousands of dollars on clinical trials are telling us not to recommend HBO treatment to our patients, I feel justified in being sceptical, at least on the basis of current evidence!

297337: Special Symposium.
Abstract

Is home based therapy as effective as in-clinic therapy for patients with aphasia?

Authors: Godlove J et al.

Summary: This poster reported outcomes from a retrospective analysis performed in 2013/2014 of anonymously aggregated data collected for over 4,500 patients with post-stroke aphasia. All participants downloaded and used a mobile therapy platform, Constant Therapy, which includes over 60 evidence-based therapies for language and cognitive skills. The programme was delivered either only at home (n=2,438) or only in the clinic (n=2,105) and was individualised for each patient, with targeted tasks that dynamically adapted to each individual's progress. Patients with <60% accuracy were analysed to determine how long it took them to reach >90% accuracy after eliminating the first 3 items. Home-based therapy was as effective as patients practicing under the guidance of a clinician, with both cohorts reaching 90% accuracy on their tasks in a median of 3 sessions, but 50% of home users were able to receive therapy at least every 2 days, whereas 50% of clinic patients only had therapy once every 7 days ($p<0.001$). Thus, home-therapy users took much less time than clinic patients to master tasks (median, 6 days vs 13 days; $p<0.001$).

Comment (Associate Professor William Levack: Academic Head of the Rehabilitation Teaching and Research Unit at the University of Otago, Wellington): If rehabilitation technology is to add real value to the majority of rehabilitation service users it has to be able to provide something that is not already available through traditional therapy activities and it has be relatively low cost. When done right, rehabilitation technology has the potential to democratise rehabilitation – putting the tools for therapy into the hands of patients and their family/whānau and allowing them to practice as often and as intensively as they wish. The argument presented in this study is compelling: technology like this can accelerate recovery by offering people more frequent access to therapy than they would otherwise get through mainstream, clinic-based services. The other attractive feature here is the potential for patients to continue to have access to therapeutic activities even after being discharged from hospital services. Information on the technology being researched in this study can be found here: http://constanttherapy.com/.

Reference: Arch Phys Med Rehabil. 2017;98(10):e77-8
Abstract

Absence of initial evaluation and neurorehabilitation of TBI in neuropsychologically-impaired adult offenders

Authors: Juliano A et al.

Summary: These US researchers investigated the prevalence of acquired brain injury in an incarcerated population in a State Correctional Institution. The 85 males (mean age, 39.5 years) were administered the Traumatic Brain Injury Questionnaire-2 (TBIQ-2) for the purpose of identifying any possible TBIs and the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) to estimate global neuropsychological functioning. The TBIQ-2 identified 345 incidents that could have yielded a brain injury. Around half (56%) of these incidents had no immediate care. One-third (n=32) of the participants had an impaired total RBANS score, suggesting global impairments in neuropsychological functioning; none of these men received follow-up neurorehabilitation for their cognitive impairments following their TBI(s).

Comment (Associate Professor William Levack: Academic Head of the Rehabilitation Teaching and Research Unit at the University of Otago, Wellington): Similar to this study, there is some excellent research coming out of New Zealand on the burden and management of TBI in adult prison populations. Alice Theadom's (AUT University) recent work in this area springs to mind. Like other countries, New Zealand has an extraordinarily high prevalence of TBI in prisons, with approximately two-thirds of the incarcerated population having sustained at least one TBI in the past. Identifying and treating problems arising from TBI should be an essential part of all other activities to reduce reoffending rates and to help prisoners successfully reintegrate into society on release. For instance, TBI will directly influence the effectiveness and uptake of alcohol & drug programmes, mental health programmes, violence prevention, and work skills training. Knowing about TBI in prison is the first step; providing appropriate rehabilitation services for prisoners with TBI is also needed.

Reference: Arch Phys Med Rehabil. 2017;98(10):e28-9
Abstract

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Effectiveness of workplace interventions in return-to-work for musculoskeletal, pain-related and mental health conditions: An update of the evidence and messages for practitioners

Authors: Cullen KL et al.

Summary: These researchers systematically reviewed the evidence on the effectiveness of workplace-based return-to-work (RTW) interventions and work disability management (DM) interventions designed to assist workers with musculoskeletal (MSK) and pain-related conditions and mental health (MH) conditions with RTW. The evidence was evaluated from 36 studies describing 12 different intervention categories across 3 broad domains: health-focused, service coordination, and work modification interventions. The evidence strongly supported the contention that duration away from work from both MSK or pain-related conditions and MH conditions were significantly reduced by multi-domain interventions encompassing ≥2 of the 3 domains. The evidence indicated that these multi-domain interventions positively impacted upon cost outcomes. The evidence strongly indicated that cognitive behavioural therapy (CBT) interventions that do not also include workplace modifications or service coordination components are not effective in helping workers with MH conditions in RTW.

Comment (Nicola Kayes): This review updates and builds on a prior review of workplace-based return to work (RTW) interventions (Franche RL et al. J Occup Rehabil. 2005;15(4):607-31). I enjoyed reading this paper and encourage you to access and read the full paper if you can. They have some very clear practical recommendations – perhaps the two key recommendations being the implementation of: a) multi-domain interventions for musculoskeletal and pain-related conditions; and b) work-focused CBT for mental health conditions. Importantly, conventional CBT without an explicit work focus is not effective at reducing lost time. This is an important take home message, particularly given the lack of routinely available work-focused interventions for people with mental health conditions in NZ. With my researcher hat on, a unique approach taken in this review is the engagement of a stakeholder group from the outset in determining the scope of the review and being actively involved in data interpretation. This proved a particularly useful approach for ensuring the production of meaningful findings, which are digestible and actionable by providers and policy makers.

Reference: J Occup Rehabil. 2017 Feb 21. [Epub ahead of print]
Abstract

Evaluating the effectiveness of Facebook to impact the knowledge of evidence-based employment practices by individuals with traumatic brain injury: A knowledge translation random control study

Authors: Inge KJ et al.

Summary: These researchers compared the effect of a knowledge translation (KT) strategy and the use of a secret Facebook group, on the knowledge of evidence-based employment research by people with TBI. The US-based study randomly assigned 60 people with TBI to one of two groups. Over a 3-month period, both groups received information on evidence-based employment practices for people with TBI. One group received the information via participation in a secret Facebook group while the comparison group received information as an "e-news" email blast. Pre- and post-intervention assessments, using a Likert scale instrument designed to measure knowledge of evidenced-based employment information for TBI, revealed that both groups gained a significant amount of knowledge over the study period; there were no significant between-group differences in knowledge gained at post-intervention.

Comment (Nicola Kayes): We increasingly use social media to connect with friends and family and to share information. As such, it is interesting to consider the potential for using social media to support these processes within a traumatic brain injury survivor community – or indeed within other health populations. However, people engage with social media in diverse ways, and for multiple purposes. As such, it is tricky to wrap research around what is usually a very organic process. In this case, the research context perhaps falsified the conditions under which someone would engage with social media. For example, randomly allocating people to intervention groups, inviting them to join a 'secret' Facebook group, and embedding a peer mentor to facilitate group processes and add content. This highlights that we need to find alternate ways of capturing the impact of a more naturalistic engagement with social media. I think we are yet to truly understand how we can leverage off digital communities to support recovery and adaptation following significant injury or illness.

Reference: Work. 2017;58(1):73-81
Abstract

Cognition and return to work after mild/moderate traumatic brain injury: A systematic review

Authors: Mani K et al.

Summary: This systematic review included 30 studies on cognitive rehabilitation related to RTW post-TBI that were published between 2000 and 2015. All studies involved people with mild-to-moderate TBI. Ten studies highlighted cognition as a predictor variable, 7 studies demonstrated support for cognitive testing in RTW assessments, and 13 studies demonstrated that cognitive rehabilitation has efficacy in facilitating RTW post-TBI.

Comment (Nicola Kayes): The findings of this research will resonate with many of you involved in delivering vocational rehabilitation services for people with mild-to-moderate TBI. This relatively comprehensive review indicates the evidence consistently supports a relationship between cognition and RTW outcomes in this population group (albeit acknowledging with caution the heterogeneity of the individual papers synthesised). It is no surprise that executive functioning was the most commonly cited predictor of RTW, likely given the critical role that it plays in successfully navigating goal-directed behaviour. This review also highlights the beneficial impact of including cognitive rehabilitation as part of the vocational rehabilitation process. However, I would argue that we need to also think beyond cognitive rehabilitation as a stand-alone intervention. Rather, we need to look at how we can integrate some of the general tenets of cognitive rehabilitation into some of our core rehabilitation processes (such as goal planning) to support the development of self-regulatory skill and capability from the outset.

Reference: Work. 2017;58(1):51-62
Abstract

The use of the Model of Occupational Self Efficacy in improving the cognitive functioning of individuals with brain injury: A pre- and post-intervention study

Author: Soeker S

Summary: Outcomes are reported from this investigation into whether people with a TBI experience improved cognitive functioning after participating in an intervention programme that utilises the Model of Occupational Self-Efficacy (MOOSE). The study recruited 10 people with a mild-to-moderate TBI, all of whom underwent testing with the Montreal Cognitive Assessment (MOCA) to determine their cognitive functioning. After participating in a vocational rehabilitation model called the Model of Occupational Self Efficacy (MOOSE), MOCA test scores improved from baseline in all study participants. MOOSE was found to have a statistically significant effect on cognitive functioning, when measured by the Montreal Cognitive Assessment $F(4, 6)=15.95$ ($p=0.002$).

Comment (Nicola Kayes): The Model of Occupational Self-Efficacy is proposed as an alternative to more biomedically-driven approaches – arguing for a shift from an explicit focus on impairment, to a focus on supporting re-integration into the community, and in particular, re-engagement in meaningful occupation. In the current study the focus is on self-efficacy – a construct repeatedly associated with outcome across a range of conditions and interventions. It is important to note that there is a difference between Generalised self-efficacy (one's confidence in the ability to manage demands across a range of situations) and Task-specific self-efficacy (one's confidence in the ability to carry out a specific task). The evidence is more in favour of task-specific self-efficacy as a predictor of outcome, hence the specific focus in the current study on occupational self-efficacy. Findings from this particular study should be interpreted with caution, given the design and sample size limit what conclusions one can draw regarding the effectiveness of this particular intervention. However, I think the way in which this approach has been operationalised in practice provides a good example of how rehabilitation practitioners can draw on relevant theory regarding important psychosocial factors to inform strategies for practice.

Reference: Work. 2017;58(1):63-72
Abstract

Independent commentary by Associate Professor Nicola Kayes

Associate Professor Nicola Kayes is Director of the Centre for Person Centred Research at Auckland University of Technology.
For full bio CLICK HERE