

Rehabilitation RESEARCH REVIEW™

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Issue 64 – 2023

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Abbreviation used in this issue

mTBI = mild traumatic brain injury

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Welcome to issue 64 of Rehabilitation Research Review.

A local study informs us of potential longer-term associations between mild traumatic brain injury (mTBI) and anti-social behaviour and that one-third of individuals are still affected by their mTBI 10 years later. In another NZ study, findings indicate that flexibility, unity and clarity between early intervention vocational rehabilitation services and the multidisciplinary team are important foundations for supporting individuals with spinal cord injury on their pathway to return to work. Other topics covered in this issue include digital technologies for pelvic floor muscle training, psychosocial well-being after stroke in NZ, factors associated with recovery from low back pain in elite athletes, equity of Māori access to the orthopaedic rehabilitation service, and patient, carer and health worker perspectives of stroke care.

I hope that you find the information in this issue useful in your practice and I welcome your comments and feedback.

Kind regards,

Professor Nicola Kayes

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Symptoms and engagement in anti-social behaviour 10 years following mild traumatic brain injury within a community civilian sample: A prospective cohort study with age-sex matched control group

Authors: Theadom A et al.

Summary: This prospective, community-based, cohort study assessed longer-term impacts on symptoms, health status, mood and behaviour in 184 adult patients (≥ 16 years) 10 years after mTBI and 184 age- and sex-matched non-injured controls. One-third of mTBI cases (34.8%) were still affected by their index mTBI after 10 years. After adjustment for education and ethnicity, the mTBI group had higher overall symptom burden ($p < 0.001$) than controls, which remained after excluding recurrent TBI. mTBI patients were more than three-fold more likely to have engaged in anti-social behaviour during the previous 12 months ($p = 0.02$), but there were no differences in health status, functioning, or problematic alcohol or substance use.

Comment: I think perhaps the most important finding here is that a large proportion (34.8%) of people with mTBI were still affected by their index mTBI 10 years following injury. While there is increasing awareness of mTBI, largely due to increased visibility and emphasis on sports-related mTBI, routine access to rehabilitation services for people experiencing persistent mTBI symptoms remains poor. Many people feel misunderstood, isolated and are left to grapple with the effects of mTBI without tailored support. The link to anti-social behaviour is interesting. To put some context around this finding: 16.3% (mTBI) compared to 6.5% (controls) reported engaging in anti-social behaviour in the last 12 months, with anti-social behaviour conceptualised as engagement in any one of seven listed behaviours including: threatening others, getting into a physical fight, stealing something from a person or building, carrying a weapon, selling illegal drugs, being suspended from school or work, damaging property or littering on purpose. As the variable was dichotomised (i.e., reporting engagement in any one of these behaviours versus not), it would be interesting to dig further into the types of behaviours most commonly endorsed to better understand the full implications of these findings. Nonetheless, these findings add to the growing body of evidence calling for improved access to early rehabilitation for those experiencing persistent symptoms following mTBI.

Reference: Arch Phys Med Rehabil. 2023;Aug 7 [Epub ahead of print]

[Abstract](#)

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United and flexible: A collaborative approach to early vocational rehabilitation on a spinal unit. A realist study

Authors: Timothy E et al.

Summary: This qualitative study using realist review examined early intervention vocational rehabilitation (EIVR) functions alongside multidisciplinary team (MDT) contexts during spinal cord injury (SCI) rehabilitation. Three contexts influenced EIVR delivery within the MDT: (1) united approach, (2) flexible approach, and (3) hesitant approach, with four work-related outcomes resulting; enhanced work self-efficacy, strengthened hope for work, maintained work identity, and increased uncertainty about work.

Comment: I really enjoyed this paper. The findings really illustrate the practical utility of realist methods to unpack nuances in what works, for whom and in what circumstances. As context, the authors highlight that in NZ, rates of paid employment for people with SCI are lower than the general population. They cited research which reported only 49% of a NZ SCI cohort had returned to work by 18 months. In NZ, EIVR is one approach used to proactively address this. The authors describe EIVR as “delivered in-person to people with SCI during their inpatient rehabilitation” and note “The NZ Spinal Trust EIVR service engages with 80% of people within the first three weeks of having an SCI”. They found that a unified and flexible approach provides the context for positive engagement with conversations about work. Critically, they highlight the importance of “a team culture that work was assumed as possible”, but where work is “discussed without agenda”. A unified and flexible approach enabled the seeds that work is possible to be sown, while also enabling flexibility to respond to the unique needs and situation of the person. Outcomes arising in the context of these approaches included enhanced work self-efficacy, strengthened hope for work, and maintained work identity. In contrast, a more hesitant approach resulted in a lack of coherence in conversations about work and increased uncertainty about work. These findings offer insights into team culture and environments which have the potential to optimise the benefits of EIVR following SCI.

Reference: *Spinal Cord Ser Cases* 2023;9(1):33
[Abstract](#)

Digital technologies for women’s pelvic floor muscle training to manage urinary incontinence across their life course: Scoping review

Authors: Woodley SJ et al.

Summary: This scoping review developed a narrative synthesis of digital technologies used to guide pelvic floor muscle training (PFMT) for the management of urinary incontinence (UI) in women across the life course based on 89 papers (45 primary; 44 supplementary) from 14 countries. In 41 primary studies, 28 types of digital technology were used, including mobile apps with or without portable vaginal biofeedback or accelerometer, smartphone messaging, internet programmes, and video conferencing. Overall, 22 studies supplied evidence for or testing of the technologies, and a similar proportion of PFMT programmes were based on a known evidence base. Most studies that reported UI symptoms identified improved outcomes and patient satisfaction with this treatment approach. Pregnancy and the postpartum period were the most common life stage focus, with more evidence required for different age ranges (e.g., adolescent and older women) and cultural context. Women’s perceptions and experiences were often considered during the development of the digital technologies; qualitative data highlighted factors that were facilitators and barriers.

Comment: There is a role for digital technologies for conservative management of UI in women. However, the exponential growth in the range of digital technologies available for this purpose makes it hard for clinicians and women to have confidence selecting and using these technologies. In the context of this increasingly complex landscape, this scoping review provides a detailed description and analysis of existing digital technologies for PFMT. If you are working in women’s health and rehabilitation, I highly recommend reading this review in full as it is incredibly thorough in its analysis and offers insights into a complex range of factors one should account for when making recommendations around the use of these technologies. Access to well designed, user-centred, and evidence-informed digital technologies to support management of UI in women may overcome persistent barriers to accessing PFMT.

Reference: *JMIR Mhealth Uhealth*. 2023;11:e44929
[Abstract](#)



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Comparing three coaching approaches in paediatric rehabilitation: Contexts, outcomes, and mechanisms

Authors: King G et al.

Summary: This study examined the understanding of coaching in paediatric rehabilitation through contrasting the theory underpinning coaching approaches for paediatric rehabilitation: coping with and caring for infants with special needs (COPCA), occupational performance coaching (OPC), and solution-focused coaching in paediatric rehabilitation (SFC-peds). These approaches come from different theoretical bases and are intended for specific contexts, but they have similar mechanisms of change and intended outcomes. There are important effects of coaching on patient goal achievement, empowerment, and capacity building. Stakeholders value coaching, and studies provide a preliminary understanding of mechanisms, including engagement and self-efficacy, with which these coaching approaches support self-directed and sustained change.

Comment: This is an excellent paper synthesising evidence regarding the conceptual basis, hypothesised mechanisms for change and outcomes for three coaching approaches. The findings articulate distinctive features of coaching interventions including that coaching is: a collaborative, relational, non-directive, goal-oriented, strength-based, and solutions-focused approach; built on a relationship characterised by trust and open communication; with an ecological orientation and tailored to the family's real-world context and environment. I particularly like that the authors have also drawn-out key ideas regarding practitioner mindsets important to effectively implement coaching interventions. This is important given that coaching requires a shift from "telling to guiding/facilitating", "focusing on problems to focusing on possibilities", mitigating impairments to desired goals and preferred futures, and director/trainer/educator to stimulator of ideas and actions. In adult rehabilitation, there is evidence that practitioners find this shift challenging. While this paper focuses on coaching approaches developed in paediatric rehabilitation, I would argue the findings have broader relevance for coaching interventions in rehabilitation.

Reference: *Disabil Rehabil.* 2023;Jun 29 [Epub ahead of print]

[Abstract](#)

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Psychosocial well-being after stroke in Aotearoa New Zealand: A qualitative metasynthesis

Authors: Bright FAS et al.

Summary: This NZ qualitative meta-synthesis, based on 18 studies, assessed the patient experience of well-being after a stroke using a model underpinned by He Awa Whiria (Braided Rivers), which prompts researchers to engage with Māori and non-Māori. Reflexive thematic analysis developed three themes reflecting experiences of well-being: connection in a constellation of relationships, being grounded in an enduring and evolving identity, and being in the present while envisioning the future. In Aotearoa, well-being is inherently collective and deeply personal and is achieved through connections with self, others, community and culture, and is embedded within personal and collective temporal worlds.

Comment: I like this paper (a lot!), both because of what it offers in terms of its substantive findings and because it offers a nice exemplar for drawing on He Awa Whiria when engaging with existing evidence. This paper does a deep dive into what constitutes psychosocial well-being after stroke in Aotearoa NZ. It is worth reading the full paper to fully appreciate the depth of analysis presented in the themes. Just engaging with the theme names does not do them justice. For example, connection in a constellation of relationships emphasises not just the importance of connection and relationship, but the multiplicity of relationships, what they make possible, the vulnerability of relationships post-stroke, the nature of relationships for whānau Māori, the value of being with others with stroke, and the importance of not just being a passive beneficiary of a relationship but also contributing to the well-being of others through relationship. Each theme similarly offers a rich and nuanced synthesis of evidence. A range of implications and recommendations for practice are discussed, alongside a caution to not assume that the sole responsibility for well-being resides within formal health services; and a challenge to services to also create space for whānau and communities to support well-being. I encourage anyone working in stroke rehabilitation in Aotearoa to read and engage with this paper and consider how you might more explicitly, actively, and routinely support psychosocial well-being after stroke.

Reference: *Disabil Rehabil.* 2023;May 17 [Epub ahead of print]

[Abstract](#)

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What factors do clinicians, coaches and athletes perceive are associated with recovery from low back pain in elite athletes? A Concept Mapping study

Authors: Trease L et al.

Summary: This study used concept mapping methodology to identify factors that elite sport clinicians, coaches, and athletes consider to be associated with recovery from low back pain (LBP), with participants (75% clinicians, 15% coaches, 10% athletes; 13 countries; 17 sports) involved in brainstorming ($n = 56$), thematically sorting ($n = 34$) and rating ("5-point Likert scales" importance and feasibility; $n = 33$). Overall, LBP recovery-related themes rated by participants as the most important recovery factors were athlete empowerment and psychology, coach-athlete and athlete-clinician relationship, care team communication, return to sport planning, and identifying red flags.

Comment: With my researcher hat on, I enjoyed this paper as it has introduced me to research methods I have not been exposed to before. I am not familiar with group concept mapping (or at least not in the way described) and I have not engaged with groupwisdom™ as a research tool before. The methods described have intrigued me, and I look forward to exploring both the method and the tool further. The paper also explores an interesting substantive area. While there is extensive research exploring the complexities of recovery in people with LBP generally, there is less focused explicitly on elite athletes as a unique subgroup of that population. The authors argue that the presentation of elite athletes with LBP is different from those presenting with LBP more generally and so there is a need to better understand their specific recovery-related factors. The factors identified largely map to biopsychosocial determinants of recovery. Both dyadic and team communication and relationships between clinicians, coaches and athletes was perceived to be important. "Athlete buy-in" was also identified as important reflecting a complex set of factors relevant to an athlete's "previous mental health and current mindset, patience, optimism, motivation, catastrophising, anxiety, fear, and honesty about symptoms". While further research is needed to further explore if and how these factors are associated with outcome, the authors recommend that a "co-designed, well communicated, and consistently messaged rehabilitation plan should be the focus of the inter-disciplinary team supporting an athlete with LBP".

Reference: *J Orthop Sports Phys Ther.* 2023;Aug 10 [Epub ahead of print]

[Abstract](#)

Exercise snacking to improve physical function in pre-frail older adult memory clinic patients: A 28-day pilot study

Authors: Western MJ et al.

Summary: This single-group design study examined the acceptability of "exercise snacking" (short bouts of sporadic muscle-strengthening exercise) for 28 days in 21 pre-frail older adults with mild-cognitive impairment (3-8 inclusive on the Short Physical Performance Battery; SPPB) and explored the effects on physical function. Follow-up data for 18 participants had 85% adherence (proportion of sessions completed out of a possible 56). Participants rated exercise snacking as highly acceptable (4.6/5), that it supported their self-efficacy (4.3/5), was enjoyable (4.1/5), and had a low burden (2.1/5). Qualitative results suggested ease of use, programme flexibility, and perceived effectiveness were important, and were particularly useful for non-exercisers. Changes between baseline and follow-up were observed in SPPB score (8 vs 9; $p < 0.01$), timed up-and-go (TUG; 11.32 vs 9.18 seconds; $p < 0.01$) and the 60-second sit-to-stand test (17 vs 23 repetitions; $p < 0.01$).

Comment: This research was carried out to explore the potential for exercise snacking to overcome barriers to exercise and improve function for older adults with cognitive impairment. The authors were particularly interested in this subgroup given they have been found to have reduced physical function and high falls risk. The authors define "exercise snacking" as "movements designed to increase muscle strength and balance, to be performed in the home environment over very short periods of time that fit with the current lifestyle of the patient". In this research, the specific exercise snacking intervention consisted of five exercises performed for one minute each, with one minute rest in between. Participants were expected to do this twice daily over the 28-day pilot period. The results are promising. While a more definitive randomised controlled trial is needed to confirm efficacy, exercise snacking appears to be a highly acceptable and accessible approach with beneficial effects for pre-frail older adults with cognitive impairment. It is worth considering what other populations would respond well to an exercise snacking intervention.

Reference: *BMC Geriatr.* 2023;23(1):471

[Abstract](#)

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Equity of Māori access to the orthopaedic rehabilitation service of the Bay of Plenty: A cross-sectional survey

Authors: Cate L et al.

Summary: This retrospective survey-based study contacted all patients who underwent total knee arthroplasty (TKA) in publicly funded Bay of Plenty hospitals to assess rehabilitation service access for Māori patients and sought to identify structural aspects that promote or restrict access for Māori. Māori patients accessed more rehabilitation (mean 9.75 hours) than non-Māori patients (mean 8.34 hours), driven in large part by a greater home-based proportion of rehabilitation (42.9% vs 16.4%).

Comment: These findings are interesting – the finding that Māori have comparable or greater access to rehabilitation following TKA is largely out of step with other research which highlights inequities in access favouring non-Māori. The authors unpack these findings in their discussion, suggesting they may reflect ongoing investment in equity-oriented strategies (such as delivery of rehabilitation in the home, actively involving whānau, and autonomy-supportive ways of working). In that respect, the authors proffer that the findings indicate that when "structurally acceptable access to care is provided for Māori, engagement and continued participation is strong". At the same time, they promote caution in interpretation given this research focuses narrowly on access to rehabilitation post-TKA and does not a) offer insights into access across the continuum of care, or b) explore impact on outcomes. Furthermore, the response rate was 51.7%. While this is not to be scoffed at, it does mean that Māori ultimately made up only a small proportion of the sample. Finally, it is also likely that non-responders were likely to be less engaged in rehabilitation. In essence, these findings are promising, but let's keep going and ensure structurally acceptable access to care is the norm.

Reference: *N Z Med J.* 2023;136(1581):44-50

[Abstract](#)

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Drivers and barriers to the development of musculoskeletal advanced physiotherapy practitioner roles in New Zealand

Authors: Naik L et al.

Summary: This NZ exploratory case study used semi-structured interviews to examine 19 participants' views on drivers and barriers to developing musculoskeletal advanced physiotherapy practitioner (APP) roles. Qualitative content analysis identified unique drivers for APP role development in NZ, in addition to global drivers, including surgeon engagement, legislative requirements, and professional issues. Barriers related to NZ's dual healthcare system that impact patients and physiotherapists were identified, while additional barriers included lack of title and recognition, funding and career pathway, training, and inter- and intra-professional barriers. Participants advocated development of APP roles as first-contact practitioners for musculoskeletal patients in order to improve the patient journey, streamline services, and to provide timely, effective, and efficient care.

Comment: Interesting research exploring what has helped or hindered the development and uptake of APP roles in Aotearoa NZ. Some interesting findings – many of which are consistent with international research, while others are specific to the NZ context. The findings highlight a range of complex, interacting and competing factors which need to be addressed for APP roles to flourish in NZ. The need to factor in the unique duality of our health system is perhaps not so surprising. However, I was interested in the perceived role of intra-professional factors – the authors referred to the risk of a “rift”, “professional jealousy”, and “turf wars”. If these issues persist then there is a risk of the profession becoming self-limiting. The findings highlight that the development and implementation of APP roles needs to take a whole-of-systems approach and needs careful and thoughtful management to mitigate the potential for unintended affects. The focus in this paper is on musculoskeletal APP roles. However, there is merit in also exploring this issue more widely given the potential for APP roles in other specialist areas. As an example, we could be focusing attention on physiotherapy roles that support professionals to work at top of scope within rural and remote settings where there is current unmet need and where recruitment and retention of allied health workforce is challenging.

Reference: *NZ J Physiother.* 2023; 51(2):125-137

[Abstract](#)

Patient, carer and health worker perspectives of stroke care in New Zealand: A mixed methods survey

Authors: Thompson S et al.

Summary: This NZ mixed methods survey on perceptions of stroke care, access barriers, and views on service centralisation assessed how 149 consumers (person with stroke/family member/carer) and 79 health workers perceive stroke care services. Responses were received from 53 (36.5%) consumers and 41 (51.8%) health workers, with 87% of consumers rating stroke care as 'good/excellent' compared to 58.6% of health workers; 72% of consumers preferred to transfer to a specialised hospital. Three major themes were identified by thematic analysis that were related to perceptions of stroke care: variability in care by stage of treatment, impact of health worker communication on care experience, and inadequate post-acute services for younger patients. Four access barriers were identified: geographic inequities, knowing what is available, knowledge of stroke and available services, and healthcare system factors.

Comment: This research identifies opportunities for improvements in stroke care from the perspectives of health workers and consumers. It is worth noting that the survey was undertaken in 2018/2019, before the move to Te Whatu Ora. Nonetheless, the findings draw attention to longstanding issues for stroke care in Aotearoa and provide recommendations which offer direction as we bed in the health reforms. Key issues that resonate strongly for me include: a) people are mostly satisfied with hyperacute and acute services, but gaps remain in care post-discharge from inpatient settings with a lack of, or untimely, follow-up and poor access to community-based rehabilitation services; b) access to services which are fit for purpose for <65 and/or working age adults, including vocational rehabilitation services, remain scarce leaving younger stroke patients with unmet needs; and c) geographic inequities are ongoing largely due to specialist care being located in main urban centres making it hard to recruit stroke specialists to regional centres and leading to variable access to care in some regions. While this research is specific to stroke care, these issues are likely symptomatic of system-wide issues relevant to rehabilitation access.

Reference: *Disabil Rehabil.* 2023;45(18):2957-2963

[Abstract](#)



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Independent commentary by Professor Nicola Kayes



Professor Nicola Kayes is Director of the Centre for Person Centred Research at Auckland University of Technology. Nicola has a background in health psychology and as such her research predominantly explores the intersection between health psychology and rehabilitation. She is interested in exploring the role of the rehabilitation practitioner and their way of working as an influencing factor in rehabilitation and whether shifting practice and the way we work with people can optimise rehabilitation outcomes. Nicola actively contributes to undergraduate and postgraduate teaching in rehabilitation at the School of Clinical Sciences at Auckland University of Technology.

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