



# Rehabilitation Research Review™

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Issue 24 - 2012

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### Abbreviations used in this issue

SCI = spinal cord injury  
TBI = traumatic brain injury.



## Welcome to the Christmas issue of Rehabilitation Research Review.

Several of the papers in this issue relate to fatigue and brain injury, others cover psychological aspects of pain and personally meaningful pain ratings, experiences around the return to employment after spinal cord injury, and evidence showing that functional capacity is about more than physical impairment. Our final piece highlights the shortcomings of evidence-based policy.

I wish you a Merry Christmas and Happy New Year and I look forward to your feedback through the coming year. I would also like to take this opportunity to thank our sponsors for their continuing support.

Kind regards,

**Kath McPherson**

Professor of Rehabilitation (Laura Fergusson Chair),  
The Health and Rehabilitation Institute, AUT University

[kathmcperson@researchreview.co.nz](mailto:kathmcperson@researchreview.co.nz)

## Patient-focused goal planning process and outcome after spinal cord injury rehabilitation: quantitative and qualitative audit

**Authors:** Byrnes M et al

**Summary:** Outcomes are reported from a clinical audit of 100 newly injured spinal cord injury patients participating in a multidisciplinary inpatient goal planning rehabilitation programme at a specialist spinal injury unit in Perth, Australia. The audit evaluated the process and outcome of the programme upon the patients' physical, social and psychological functioning. 547 goal planning meetings were held with 8531 goals stipulated in total. Seventy-five percent of the goals set at the first goal planning meeting were achieved by the second meeting; the rate of goal achievements at subsequent goal planning meetings dropped to 56%. Significant improvements from baseline occurred in physical, social and psychological functioning by discharge. Patients consistently reported that the programme had improved their physical, social and psychological adjustment to injury.

**Comment:** Goal setting is now pretty much embedded into rehabilitation practice. However – despite the ubiquitous nature of the words, they describe a wide variety of activities. I liked this paper because it describes a pragmatic audit of goals activity in the clinical setting (something all service could or arguably should do) and in so doing highlights some very interesting things about the nature of those goals and patients' perspectives of being involved in goal setting. The rather surprising thing to me was that so many goals set were achieved by the next goal-setting meeting for that patient... raising the question as to whether goals can be 'too easy'? Research would indicate that yes they can and that goals are most helpful when they are challenging but where progress towards achieving them is possible. Part of staying motivated is staying challenged. It's a hard balance to achieve but increasingly seems important in rehabilitation.

**Reference:** *Clin Rehabil* 2012;26(12):1141-9

<http://cre.sagepub.com/content/26/12/1141.abstract>

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## “The final piece of the puzzle to fit in”: an interpretative phenomenological analysis of the return to employment in New Zealand after spinal cord injury

**Authors:** Hay-Smith EJ et al

**Summary:** This paper documents experiences of people with spinal cord injury (SCI), and vocational rehabilitation (VR) professionals working for a VR programme, in pursuing a return to employment in New Zealand post-SCI. When interview transcripts from 12 people with SCI (4 employed, 3 job-seeking, 5 unemployed) and 6 VR professionals were subjected to an Interpretative Phenomenological Analysis, it revealed that the core meaning of employment post-SCI was a sign to self and others of living a normal life. Work advantages were social connectedness, a sense of self-worth, earning a living, and being occupied. Employment was the zenith of rehabilitation but not the first priority post-SCI. Employment barriers and facilitators were congruent with those found in similar studies. The role of VR was to sow the seeds of return to employment and to partner with the SCI client.

**Comment:** New Zealand has a lot to be proud of when it comes to rehabilitation research. I think we are up there with the world leaders in some areas and one of those is in capturing the experience of recovery and re-engagement in important areas of participation like work and serious injury. This work, along with other NZ work by Jo Fadyl, Will Levack and others, provides an insightful picture of the importance of work for people with SCI and TBI, but also the struggle for people of trying to re-engage. The bottom line of course is that the physical impairment is only a part of the picture, and ‘physical’ rehabilitation meets only part of the need. A good example of where the ‘bio-psycho-social’ approach needs to be real and not just ‘in name only’.

**Reference:** *Disabil Rehabil* 2012 Nov 20. [Epub ahead of print]

<http://informahealthcare.com/doi/abs/10.3109/09638288.2012.737079>

## Perceived injustice moderates the relationship between pain and depressive symptoms among individuals with persistent musculoskeletal pain

**Authors:** Scott W, Sullivan M

**Summary:** This Canadian investigation examined whether perceived injustice moderates the relationship between pain and depressive symptoms, in a cohort of 107 subjects with persistent musculoskeletal pain who completed self-report measures of pain severity, depressive symptoms, perceived injustice and catastrophising. In a hierarchical regression analysis, the interaction between pain severity and perceived injustice contributed an additional 6% of the variance to the prediction of depressive symptoms, beyond the main effects of these variables. Further analyses indicated a significant association existed between pain and depressive symptoms at high levels of perceived injustice, which persisted after controlling for pain catastrophising; no such relationship was found with low levels of perceived injustice.

**Comment:** Perhaps we should not be surprised that people who feel badly treated by the system (or us), will do badly when it comes to long-term recovery. Injustice does happen, and perceived injustice will happen even in situations where all that can be done has been done. We can’t stop it all but surprisingly – evidence suggests that relatively small steps can reduce the risk and help people move on. A big problem for many people in this situation is that they feel no-one has heard their story and, research suggests we feel we don’t have time to do so. However, if a small investment of time up front to listen potentiates the ability of the patient to engage in our treatments, maybe we can’t afford not to listen. Just for a bit.

**Reference:** *Pain Res Manag* 2012;17(5):335-40

<http://tinyurl.com/perceived-injustice-and-pain>

**Disclaimer:** This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.

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## When does pain matter? Acknowledging the subjectivity of clinical significance

**Authors:** Birnie KA et al

**Summary:** This paper proposes personalised approaches to the definition of pain, in contrast to the widely-held perspective that it is up to the investigator to provide cut-points for the measurement of pain in study subjects. This research argues for pain treatment thresholds that accommodate an individual’s experience of pain and that person’s unique desire for treatment. The paper concludes that a more personalised approach to pain management is consistent with personalised patient-centred care and the International Association for the Study of Pain definition of pain.

**Comment:** Pain means different things to different people. It can be quite difficult to understand or articulate levels of pain even though we have increasingly adopted visual analogue scales and graphic terms like burning, searing, stabbing, dull and so on. Indeed, when I have had pain, I have found it almost impossible to rate its severity on the VAS or select the words that capture my experience – I have a feeling that it is not just me who struggles. Anyway – this brief paper raises some interesting questions about how to best to capture meaningful changes in pain and proposes a more personalised approach – one that gets away from what is ‘satisfactory’ improvement for most people, to what is personally meaningful for each person. Whilst we rightly aim for improvements in function and participation and take those to indicate successful treatment outcome, the experience of pain is a personal and meaningful thing that at times we seem to not understand, or respond to, at all well.

**Reference:** *Pain* 2012;154(12):2311-4

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## Factors contributing to chronic fatigue after traumatic brain injury

**Authors:** Schnieders J et al

**Summary:** These researchers sought to identify both hormonal and nonhormonal causes of posttraumatic brain injury chronic fatigue (pTBI-CF). They subjected 90 patients with pTBI-CF to endocrine testing and an evaluation of sleep, attention, coping style, daily activity and dependency, physical performance, emotional well-being, and quality of life. Factors associated with pTBI-CF included vitamin D deficiency (in 65% of patients), poor sleep quality (54%), anxiety disorders (36%), growth hormone deficiency (16%) and gonadal hormone deficiencies (9%). Positive correlations were seen between fatigue severity and poor sleep ( $r = +0.65$ ;  $p < 0.0001$ ), serum 25-hydroxy vitamin D levels ( $r = -0.50$ ;  $p < 0.0001$ ) and anxiety ( $r = +0.50$ ;  $p < 0.0001$ ) but not with growth hormone deficiency or gonadal hormone deficiencies. Vitamin D deficiency combined with poor sleep quality and anxiety explained 59% of the fatigue score variance.

**Comment:** Fatigue is a very troublesome long-term consequence of TBI for many people. It's probably not too surprising that for this population, fatigue was associated with sleep disturbance, vitamin D deficiency and anxiety, with these being common correlates in people without TBI. However, what is perhaps surprising is that many people report their sleep disturbance is rarely proactively managed. A colleague at AUT (Alice Theadom) is leading a couple of studies exploring new ways of helping to manage sleep disturbance after TBI, so watch this space.

**Reference:** *J Head Trauma Rehabil* 2012 Nov;27(6):404-12

<http://tinyurl.com/fatigue-after-TBI>

## In-person versus telehealth assessment of discourse ability in adults with traumatic brain injury

**Authors:** Turkstra LS et al

**Summary:** In-person and telehealth conditions were compared in this assessment of discourse ability in 20 adults with moderate-to-severe TBI, who participated in conversation, picture description, story-generation and procedural description tasks. No significant differences were apparent between conditions, and feedback from participants was positive.

**Comment:** I've always been someone who has argued for face-to-face assessment of people with TBI and/or other neurological problems where communication and cognition complicate matters, so was interested in this study perhaps challenging some of my own assumptions. Telehealth is increasingly proving to be a useful tool and this study adds to the evidence that I may have been wrong in my assumptions. However – I am still cautious... there is something about seeing someone and being able to observe the non-verbal cues (and respond to them) that seems to me to be important. Maybe we just need to find the right times for telehealth, so we have enough resources and time for when we really need the face-to-face.

**Reference:** *J Head Trauma Rehabil* 2012;27(6):424-32

<http://tinyurl.com/discourse-ability-after-TBI>

## Insomnia, fatigue, and sleepiness in the first 2 years after traumatic brain injury: an NIDRR TBI model system module study

**Authors:** Cantor JB et al

**Summary:** This US paper describes the relationship between post-TBI fatigue (PTBIF) and insomnia and their associations with outcomes in a cohort of 334 patients with moderate-to-severe TBI participating in a comprehensive system of service delivery provided by five TBI Model Systems funded by the National Institute on Disability and Rehabilitation Research. The study participants completed 1-year ( $n=213$ ) or 2-year ( $n=121$ ) follow-up interviews between 2008 and 2012. Insomnia was diagnosed in 11–24% and PTBIF in 33–44% of the patients. Both conditions were associated with sleep disturbance, sleep hygiene, satisfaction with life, anxiety, and depression. PTBIF was associated with greater disability and sleepiness. Insomnia without fatigue was rare (2–3%); PTBIF without insomnia was much more common (21–23%). Comorbidity occurred in 9% to 22% of the individuals.

**Comment:** You could be forgiven for thinking that fatigue and brain injury were my sole interest this month. And – it is indeed an interest – at least partly because one of my family had a significant brain injury a year ago and fatigue remains a big problem, so I am always interested. However, this paper is of value not just because it explores the complexity of these consequences of TBI but because it demonstrates what can happen when services are supported to work together to collect data (as in the Model Systems collaborative in the USA). It's something we could do here...

**Reference:** *J Head Trauma Rehabil* 2012;27(6):E1-E14

<http://tinyurl.com/post-TBI-fatigue>



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**Rehabilitation Research Review**

### Independent commentary by Professor Kath McPherson,

Professor of Rehabilitation (Laura Fergusson Chair) at the Health and Rehabilitation Institute, AUT University in Auckland. Kath has been at AUT since 2004 and has been building a research, teaching and consultancy programme focused on improving interventions and outcomes for people experiencing disability.

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## Incidence of traumatic brain injury in New Zealand: a population-based study

Authors: Feigin VL et al

**Summary:** The BIONIC (Brain Injury Outcomes New Zealand In the Community) study examined data from all cases of TBI (admitted to hospital or not, fatal or non-fatal) registered in an urban (Hamilton) and rural (Waikato District) population over a 1-year period (from 1 March 2010 to 28 Feb 2011) and estimated the burden of TBI in rural and urban populations in New Zealand across all ages and TBI severities. The total incidence of TBI per 100,000 person-years was 790 cases (749 mild TBI and 41 moderate-to-severe TBI). Almost 70% of all TBI cases were in children (0–14 years) and younger adults (15–34 years). Males were nearly twice as likely as females to have a TBI (rate ratio 1.77). The leading causes of TBI were falls (38%), mechanical forces (21%), transport accidents (20%) and assaults (17%). Compared with New Zealand Europeans, Māori had a 23% greater risk of mild TBI. People living in rural areas were twice as likely to have moderate-to-severe TBI (73 per 100,000 person-years) compared with people living in urban areas (31 per 100,000 person-years).

**Comment:** This is an important study. It's a world first using comprehensive data acquisition to highlight how common brain injury is. And it's a NZ study. The most interesting thing from the data for me so far is just how many people with 'mild' TBI (according to traditional classification) present like those with moderate injury. Could our classification systems be wrong? Now there's a thought...

Reference: *Lancet Neurol* 2012 Nov 21. pii: S1474-4422(12)70262-4. [Epub ahead of print]

[http://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(12\)70262-4/abstract](http://www.thelancet.com/journals/laneur/article/PIIS1474-4422(12)70262-4/abstract)

## Do workers with chronic nonspecific musculoskeletal pain, with and without sick leave, have lower functional capacity compared with healthy workers?

Authors: Soer R et al

**Summary:** Functional capacity evaluations were conducted with 122 sick-listed workers with chronic nonspecific musculoskeletal pain (CMP) referred for rehabilitation (SL-Rehab group), with 119 workers with CMP staying at work (SAW group) and with 701 healthy workers (HW group). Insufficient functional capacity was defined as functional capacity lower than the 5<sup>th</sup> percentile of the HW group's functional capacity. Functional capacity was significantly lower in the SL-Rehab and SAW groups compared with the HW group, with 15–71% having insufficient functional capacity. Factors relating to insufficient functional capacity were group status (SL Rehab group: OR 6.5; SAW group: OR 7.2), having physically highly demanding work (OR 35.1), being a woman (OR 35.7), being older (OR 1.2) and demonstrating a lower effort level during the functional capacity evaluation (OR 1.9). In the CMP cohort, kinesiophobia, physical health and perceived disability were associated with having an insufficient functional capacity for work.

**Comment:** As if we need more evidence – this paper highlights that 'functional capacity' is about more than 'physical impairment'. It is time surely to ensure our services and our assessments are also about more than this.

Reference: *Arch Phys Med Rehabil* 2012;93(12):2216-22

[http://www.archives-pmr.org/article/S0003-9993\(12\)00504-7/abstract](http://www.archives-pmr.org/article/S0003-9993(12)00504-7/abstract)

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## Parachute use to prevent death and major trauma related to gravitational challenge

Authors: Smith GCS, Pell JP

**Summary:** This satirical piece pokes fun at evidence-based policy and impact evaluation by highlighting the shortcomings of the claim that randomised, controlled trial evidence is necessary to comment upon the safety or efficacy of a treatment and that the treatment remains unproven in the absence of evidence.

**Comment:** OK – it's Christmas and – a tradition in some journals is to present a spoof research article. This is one of my favourites, pointing out the pointlessness of some research whilst at the same time highlighting the validity of some (and I mean some) common sense (common sense often being completely wrong). Let's all keep our wits about us over Christmas and may common sense reign (appropriately supported and challenged by good research) in 2013.

Reference: *BMJ* 2003;327:1459-61

<http://www.bmj.com/content/327/7429/1459>

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