

# Manual Therapy Research Review



Issue 16  
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## This issue:

Credibility of manual therapy is at stake. 'Where do we go from here?' - P1

Pressure pain threshold testing demonstrates predictive ability in people with acute whiplash - P2

Moderators of effects of internet-delivered exercise and pain coping skills training for people with knee osteoarthritis: Exploratory analysis of the IMPACT randomized controlled trial - P4

## Welcome

Welcome to the 16th edition of Research Review.

There are a few changes that hopefully will make this issue even more interesting. Firstly, we have good links with the Journal of Manual and Manipulative Therapy and with the Editor, Jean Michel Brismée's permission, we are providing direct links to some articles. In this case I am making a commentary on a recent editorial. Secondly, IFOMPT is trying to encourage other MO's to contribute to this review. We have now had a good response from the Canadian Academy of Manipulative Physiotherapy (CAMPT) and through Jason Taddeo, we are going to publish reviews from their own research review. Thirdly, we have a review from Dr Danial O'Brien, one of the musculoskeletal lecturing staff at AUT University in Auckland. I would encourage other MO's and musculoskeletal teaching teams to submit reviews for this publication. Enjoy. Duncan



## Paper One

**Rob A. B. Oostendorp (2018) Credibility of manual therapy is at stake. 'Where do we go from here?', Journal of Manual & Manipulative Therapy, 26:4, 189-192, DOI: 10.1080/10669817.2018.1472948**

<https://www.tandfonline.com/doi/full/10.1080/10669817.2018.1472948> (Click to follow link)

## Commentary:

There have been several editorials recently in JMMT on the current place of manual therapy (Reid et al 2017, Karas et al 2018, Mintken et al 2018). All of these reviews have tried to bring some balance to the debate. The latest editorial adds another well-argued commentary from Rob Oostendorp and brings together good critique, good use of the science and good suggestions for the future so we can move to paradigms of explanation that shape the future of manual therapy. A great read in my view and a great debate to keep having.

## References:

Paul E. Mintken, Jason Rodeghero & Joshua A. Cleland (2018) Manual therapists – Have you lost that loving feeling?!, Journal of Manual & Manipulative Therapy, 26:2, 53-54, DOI: 10.1080/10669817.2018.1447185  
Steve Karas, Paul Mintken & Jean-Michel Brismée (2018) We need to debate the value of manipulative therapy and recognize that we do not always understand from what to attribute our success, Journal of Manual & Manipulative Therapy, 26:1, 1-2, DOI: 10.1080/10669817.2018.1426241  
Duncan Reid, Chad Cook, Phillip S. Sizer, Frédéric Froment, Chris R. Showalter & Jean-Michel Brismée (2017) Is orthopaedic manipulative physical therapy not fashionable anymore? Lessons learned from 2016 IFOMPT meeting and future directions, Journal of Manual & Manipulative Therapy, 25:1, 1-2, DOI: 10.1080/10669817.2017.1272817

## Paper Two

**Pressure pain threshold testing demonstrates predictive ability in people with acute whiplash.**

**Walton DM, Macdermid JC, Nielson W, Teasell RW, Reese H, Levesque L.**

**J Orthop Sports Phys Ther. 2011 Sep;41(9):658-65. doi: 10.2519/jospt.2011.3668.**

**Epub 2011 Sep 1.**

**STUDY DESIGN:** Longitudinal cohort study.

**OBJECTIVES:** To determine whether pressure pain threshold (PPT), tested at 2 standardised sites, could provide additional prognostic ability to predict short-term outcomes in people with acute whiplash, after controlling for age, sex, and baseline pain intensity.

**BACKGROUND:** PPT may be a valuable assessment and prognostic indicator for people with whiplash-associated disorder. The extent to which PPT can predict short-term disability scores has yet to be explored in people with acute (of less than 30 days in duration) whiplash-associated disorder in a clinical setting.

**METHODS:** Eligible patients were recruited from community-based physiotherapy clinics in Canada. Baseline measurements included PPT, as well as pain intensity, age, and sex. Neck-related disability was collected with the Neck Disability Index 1 to 3 months after PPT testing. Multiple linear regression models were constructed to evaluate the unique contribution of PPT in the prediction of follow-up disability scores.

**RESULTS:** A total of 45 subjects provided complete data. A regression model that included sex, baseline pain intensity, and PPT at the distal tibialis anterior site was the most parsimonious model for predicting short-term Neck Disability Index scores 1 to 3 months after PPT testing, explaining 38.6% of the variance in outcome. None of the other variables significantly improved the predictive power of the model.

**CONCLUSION:** Sex, pain intensity, and PPT measured at a site distal to the injury were the most parsimonious set of predictors of short-term neck-related disability score, and represented promising additions to assessment of traumatic neck pain. Neither age nor PPT at the local site was able to explain significant variance beyond those 3 predictors. Limitations to interpretation are addressed.

Further thoughts on this ...

### **Early Prognostic Factors in Patients with Whiplash**

**Authors:** Robert Ferrari, MD, MSc (Med), FRCPC

**AFFILIATION:** Clinical Professor, Department of Medicine, University of Alberta, Edmonton, Alberta, Canada

Walton et al<sup>6</sup> have further opened up a useful research avenue in terms of identifying early prognostic factors in patients with whiplash. While their results need to be confirmed in population-based samples, with additional data gathered on confounders, the data are promising. Central sensitisation has been associated with chronic pain in patients with whiplash, although the extent to which it is a result or a cause of chronic pain (or both) has not been fully elucidated.<sup>3</sup> At the same time that Walton and colleagues are showing how a measure of central sensitivity may be prognostic, the answer to a single question that asks patients with whiplash about their expectations of recovery is also a predictor of rate of recovery.<sup>1</sup> In a large population-based cohort of more than 6000 patients with whiplash in the acute stage, the answer to the question "Do you think that your injury will..." with response options "Get better soon," "Get better slowly," "Never get better," or "Don't know," was prognostic. After adjusting for the effect of sociodemographic characteristics, post-crash symptoms and pain, prior health status, and collision-related factors, those who expected to get better soon recovered over 3 times more quickly (hazard rate ratio, 3.62; 95% confidence interval: 2.55, 5.13) than those who expected that they would never get better.<sup>1</sup> Findings were similar for resolution of pain-related limitations and resolution of neck pain intensity.

There are many methods reported to assess central sensitisation,<sup>1</sup> but most require specialised equipment. One method reported to be useful includes the brachial plexus provocation test (BPPT).<sup>5</sup> Although there is in fact no standard single test or combination of tests that represent the gold standard for a determination of central sensitisation, the BPPT has been shown to be abnormal (compared to controls) in patients with whiplash, who also have other abnormal (compared to controls) test results for measures such as cold and heat sensitivity.<sup>4</sup> In a recent study<sup>2</sup> that examined 91 patients with whiplash within 1 week of their collision for their expectations of recovery and 3 months later with the BPPT as a sign of central sensitisation, it was found that, after adjusting for a number of predictors, expectation of recovery predicted the results of the BPPT. In summary, those patients with whiplash who expect "never to get better" or "don't know" have a much higher likelihood of developing at least 1 sign of central sensitisation 3 months later. It would thus be of interest in the future to examine the correlation, in the acute stage, between measures like pressure pain thresholds and expectations for recovery, to understand the interrelation between these seemingly prognostic factors.

**Clinical Commentary:** *This commentary of provided by Jason Taddeo. Jason is a musculoskeletal physiotherapist and Vice President of CAMPT He is also in the process of pursuing his DHSC in Health Sciences through St. Augustine University.*

The included article by Walton et al. (2011) and commentary by Ferrari (2011) expands on the concept of treatment planning and risk stratification. Early identification of prognostic factors following acute neck injury is nothing new to the manual therapist. We are often called upon to provide judgement calls and “best guesses,” about recovery to patients, as well as 3rd-party payers and our medical colleagues. But where does our “best guess” become evidence-based in order to inform our clinical reasoning and treatment planning? Furthermore, which objective means of identifying favourable prognoses are available in order to improve patient outcomes in busy clinical settings?

Walton et al. (2011) has identified the prevalence of persistent disability in those patients with acute WAD. This was reported as approximately 50%. The prevalence of disability, and the resultant impact on the patient, as well as health care resources cannot be understated. As such, targeting interventions that consider predictive “yellow flags” that our patients may present with seems only logical. Historically, the identification of prognostic factors has largely been subjective. This has focused often on self-reported pain intensity as being predictive, as it includes both physiological and psychological features that influence pain perception. Various other factors have been identified, including sex, age, self-report measure scores (i.e. NDI) and sleep quality as being useful to the clinician to inform our “best guesses.” Publications have also attempted to “cluster” such factors into predictive algorithms to increase predictive ability when assessing acute WAD patients. The results of such studies are variable at the present time.

The current study by Walton et al. (2011) sought to control for such socio-demographic factors and utilise PPTs to predict short-term neck-related disability. The clinical utility of such an objective measure is important to consider in light of the prevalence of supporting evidence for use of PPT testing in outpatient, acute patients presenting with WAD. The results of the study supported the use of PPT at distal sites to that of injury; in this case, the tibialis anterior (TA) muscle. While the potential mechanisms for reduced PPTs in the TA were discussed by the authors, the salient feature to note here is that an easily accessible objective measure may be applied clinically in patients presenting with acute WAD beyond the acute stage. PPT testing of the TA with a digital algometre, in addition to consideration for self-reported pain intensity, may further increase our predictive ability around prognosis and further inform our ability to assess and treat under a biopsychosocial model of pain management. Components of the biopsychosocial model bare further consideration in our reasoning process.

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**IFOMPT will be attending the AAOMPT Conference in Reno, Nevada in November 2018. Please remember that IFOMPT MO and RIG Delegates can attend the Conference at the AAOMPT member rate and that we will be having an IFOMPT Member meeting at Peppermill Resort at 3pm on 8 November 2018**

Are you interested in networking, service, education, and research? Follow the link to see videos on how attending the AAOMPT Conference in Reno can foster growth in each of these areas. [#AAOMPT #DPT#AAOMPTReno2018 #ChangingThePainGame #DPTStudent](http://ow.ly/9QZI30IZ9iK)



### Paper Three

Lawford BJ1, Hinman RS1, Kasza J2, Nelligan R1, Keefe F3, Rini C4, and Bennell KL1. (2018) Moderators of Effects of Internet-Delivered Exercise and Pain Coping Skills Training for People with Knee Osteoarthritis: Exploratory Analysis of the IM-PACT Randomized Controlled Trial. *J Med Internet Res.* 2018 May 9;20(5):e10021. doi: 10.2196/10021.

<https://www.ncbi.nlm.nih.gov/pubmed/29743149>

**BACKGROUND:** Internet-delivered exercise, education, and pain coping skills training is effective for people with knee osteoarthritis, yet it is not clear whether this treatment is better suited to particular subgroups of patients.

**OBJECTIVE:** The aim was to explore demographic and clinical moderators of the effect of an internet-delivered intervention on changes in pain and physical function in people with knee osteoarthritis.

**METHODS:** Exploratory analysis of data from 148 people with knee osteoarthritis who participated in a randomized controlled trial comparing internet-delivered exercise, education, and pain coping skills training to internet-delivered education alone. Primary outcomes were changes in knee pain while walking (11-point Numerical Rating Scale) and physical function (Western Ontario and McMaster Universities Osteoarthritis Index function subscale) at 3 and 9 months. Separate regression models were fit with moderator variables (age, gender, expectations of outcomes, self-efficacy [pain], education, employment status, pain catastrophizing, body mass index) and study group as covariates, including an interaction between the two.

**RESULTS:** Participants in the intervention group who were currently employed had significantly greater reductions in pain at 3 months than similar participants in the control group (between-group difference: mean 2.38, 95% CI 1.52-3.23 Numerical Rating Scale units; interaction  $P=.02$ ). Additionally, within the intervention group, pain at 3 months reduced by mean 0.53 (95% CI 0.28-0.78) Numerical Rating Scale units per unit increase in baseline self-efficacy for managing pain compared to mean 0.11 Numerical Rating Scale units (95% CI -0.13 to 0.35; interaction  $P=.02$ ) for the control group.

**CONCLUSIONS:** People who were employed and had higher self-efficacy at baseline were more likely to experience greater improvements in pain at 3 months after an internet-delivered exercise, education, and pain coping skills training program. There was no evidence of a difference in the effect across gender, educational level, expectation of treatment outcome, or across age, body mass index, or tendency to catastrophize pain. Findings support the effectiveness of internet-delivered care for a wide range of people with knee osteoarthritis, but future confirmatory research is needed.

**Commentary by Dr Daniel O'Brien.** *Daniel is a lecturer in musculoskeletal physiotherapy at AUT University. He then completed his MHSoc. and explored exercise adherence of people with hip and knee osteoarthritis. In 2013 Daniel moved from being a clinical educator to a lecture in the physiotherapy programme and began a PhD exploring the health and illness beliefs of people with osteoarthritis and clinicians who manage the disease.*

Ten years ago, if you said to a colleague that in future patients would receive their physiotherapy treatment over the internet, you would have been laughed at, especially if that person was a manual therapist. However, today this is very much a reality, and I think that it is something that all physiotherapists should be mindful of because it has the potential to be a useful adjunct to treatment. Lawford et al. (2018) highlight some of the potential benefits. While I do not believe that internet-delivered services will ever replace the services and skills of a manual therapist, used effectively, they will enhance them.



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