

Manual Therapy Research Review



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Welcome

Welcome to the 17th issue of the Manual Therapy Review. It is now seven years since the first review was published in March 2012. The number of contributors to the review is growing nicely. In this issue we have a contribution from Nick Kendrick as part of the Musculoskeletal Physiotherapy Australia (MPA) MO; we have a paper reviewed by Dr Richard Ellis from the AUT University Musculoskeletal teaching team and former President of the NZ MO, the NZMPA; and the usual review from me. You will see that the review from Nick Kendrick and his team is much bigger than those in the past, but this is great as we have no fixed structure for the review. I would encourage other MO's and musculoskeletal teaching teams to submit reviews for this publication. Enjoy. Duncan



Paper One

Dr. Richard Ellis (PhD), Associate Head of Research and Senior Lecturer, Department of Physiotherapy, School of Clinical Sciences, Auckland University of Technology, Auckland, New Zealand

Fernández-de-las-Peñas et al. (2019). Cost-effectiveness evaluation of manual physical therapy versus surgery for carpal tunnel syndrome: evidence from a randomised clinical trial. *Journal of Orthopaedic and Sports Physical Therapy*, 49(2), 55-63. doi:10.2519/ jospt.2019.8483

Background: Carpal tunnel syndrome (CTS) results in substantial societal costs and can be treated either by nonsurgical or surgical approaches.

Objective: To evaluate differences in cost-effectiveness of manual physical therapy versus surgery in women with CTS.

Methods: In this randomised clinical trial, 120 women with a clinical and an electromyographic diagnosis of CTS were randomised through concealed allocation to either manual physical therapy or surgery. Interventions consisted of 3 sessions of manual physical therapy, including desensitisation manoeuvres of the central nervous system, or decompression/release of the carpal tunnel. Societal costs and health-related quality of life (estimated by the European Quality of Life-5 Dimensions [EQ-5D] scale) over 1 year were used to generate incremental cost per quality-adjusted life year ratios for each treatment.

Results: The analysis was possible for 118 patients (98%). Incremental quality-adjusted life years showed greater cost-effectiveness in favour of manual physical therapy (difference, 0.135; 95% confidence interval: 0.134, 0.136). Manual therapy was significantly less costly than surgery (mean difference in cost per patient, €2576; $P < .001$). Patients in the surgical group received a greater number of other treatments and made more visits to medical doctors than those receiving manual physical therapy ($P = .02$). Absenteeism from paid work was significantly higher in the surgery group ($P < .001$). The major contributors to societal costs were the treatment protocol (surgery versus manual therapy mean difference, €106 980) and absenteeism from paid work (surgery versus manual physical therapy mean difference, €42 224).

Conclusion: Manual physical therapy, including desensitisation manoeuvres of the central nervous system, has been found to be equally effective but less costly (i.e. more cost-effective) than surgery for women with CTS. From a cost-benefit perspective, the proposed CTS manual physical therapy intervention can be considered.

Level of Evidence: Economic and decision analyses, level 1b. *J Orthop Sports Phys Ther* 2019;49(2):55–63. Epub 30 Nov 2018. doi:10.2519/jospt.2019.8483

Keyword: [carpal tunnel syndrome](#), [cost-effectiveness](#), [physical therapy](#), [surgery](#)

Commentary:

There is a plethora of research that has tried to determine the best management approach for carpal tunnel syndrome (CTS). This mountain of evidence is yet to clearly ascertain whether conservative versus surgical management provides the best efficacy. Many of the studies that have sought to answer this question have done so using outcome measures associated with subjective symptoms (e.g. pain, paraesthesias, etc.), clinical tests (e.g. orthopaedic tests, electrodiagnostic studies etc.), and/or medical imaging (e.g. ultrasound, MRI, etc.). The unique aspect of this recent paper, by Prof. [César Fernández-de-las-Peñas](#) and his team, is the use of a health economic and cost-effectiveness analysis of conservative (“manual physical therapy”) versus surgical treatment for the management of CTS in a cohort of middle-aged women, within a hospital setting in Madrid.¹ The original randomised clinical trial of this same cohort was published in 2015.² There is a detailed description of what constituted “manual physical therapy” within this paper.² The findings of the original study indicated that manual physical therapy was equally as effective as surgery, for outcome measures of pain and function, for women with CTS.² What is compelling in the recent paper is the finding that, in spite of equal clinical efficacy, the conservative treatment was less expensive and therefore had significantly greater cost-effectiveness compared to surgery.¹ The average costs of the treatments and days of absenteeism from work both significantly favored those people receiving the manual physical therapy.¹ The use of specific clinical outcomes in studies which aim to assess efficacy of physiotherapeutic treatments will continue. However, I think it is exciting to see a move towards simultaneous assessment of health economics, which should enable a richer understanding of best management strategies.

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2. Fernández-de-las-Peñas et al. (2015). Manual physical therapy versus surgery for carpal tunnel syndrome: a randomized parallel-group trial. *Journal of Pain*, 16(11), 1087-1094, doi:10.1016/j.jpain.2015.07.012

Paper Two

Ruud Groeneweg, Luite van Assen, Hans Kropman, Huco Leopold, Jan Mulder, Bouwien C. M. Smits-Engelsman, Raymond W J. G. Ostelo, Rob A. B. Oostendorp and Maurits W. van Tulder. Manual therapy compared with physical therapy in patients with non-specific neck pain: a randomised controlled trial. *Chiropractic & Manual Therapies* (2017) 25:12 DOI 10.1186/s12998-017-0141-3

Background: Manual therapy according to the School of Manual Therapy Utrecht (MTU) is a specific type of passive manual joint mobilization. MTU has not yet been systematically compared to other manual therapies and physical therapy. In this study the effectiveness of MTU is compared to physical therapy, particularly active exercise therapy (PT) in patients with non-specific neck pain.

Methods: Patients neck pain, aged between 18–70 years, were included in a pragmatic randomized controlled trial with a one-year follow-up. Primary outcome measures were global perceived effect and functioning (Neck Disability Index), the secondary outcome was pain intensity (Numeric Rating Scale for Pain). Outcomes were measured at 3, 7, 13, 26 and 52 weeks. Multilevel analyses (intention-to-treat) were the primary analyses for overall between-group differences. Additional to the primary and secondary outcomes the number of treatment sessions of the MTU group and PT group was analyzed. Data were collected from September 2008 to February 2011.

Results: A total of 181 patients were included. Multilevel analyses showed no statistically significant overall differences at one year between the MTU and PT groups on any of the primary and secondary outcomes. The MTU group showed significantly lower treatment sessions compared to the PT group (respectively 3.1 vs. 5.9 after 7 weeks; 6.1 vs. 10.0 after 52 weeks).

Conclusions: Patients with neck pain improved in both groups without statistical significantly or clinically relevant differences between the MTU and PT groups during one-year follow-up.

Trial registration: ClinicalTrials.gov Identifier: NCT00713843.

Commentary

This is quite an interesting study based in Netherlands that compared two different types of physiotherapy for patients with neck pain as the main complaint lasting for more than two weeks and no longer than one year. The study was a multicentre trial that compared exercise therapy (determined as PT) and a novel manual therapy training provided at the School of Manual Therapy Utrecht (MTU). The approach taught at this school is to provide non thrust manual therapy to the complete chain of joints of the spine, pelvis and extremities, independently of patient's complaints, based on analysis of the individual movement patterns. Most other studies into the management of neck pain have usually provided treatment to the specific region of the neck or to the neck and upper thoracic spine. The treatment sessions were 30 to 60 mins repeated after one or two weeks up to a maximum number of six sessions over a six-week treatment period. The outcomes of the study found that there were no long-term differences in each group as measured by the NDI and NPRS but the MTU group required a smaller number of treatments than the exercise group.

Whilst it is commendable that these researchers have subjected a particular treatment philosophy to the rigor of an RCT overall the study had a group of reasonably similar patients with neck pain, not that severe (with a low NDI scores) who one would hope to respond to movement in the wider sense. Therefore it might not be that surprising that movement (MT) via one philosophy was the same a movement with another philosophy (Exercise PT). Both groups responded to therapies that physical therapist can provide and the results were similar to previous studies by Hoving et al (2006) and Pool et al (2010) as quoted in the paper.

Another nice part of this study was the economic evaluation. Whilst the MTU group received approximately half of the number of treatments of the PT group, there was no difference in the cost of health care. The authors therefore felt this allowed the clinician to make a choice of care best for the patient.

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Paper Three

A submission by the Musculoskeletal Physiotherapy National Group (MPA) Queensland Branch Committee of the Australian Physiotherapy Association (APA). Contributors Brendan Buldo, Dr Helen Land, Ben Kasehagen and Nick Kendrick.

Sterling, M., Smeets, R., Keijzers, G., Warren, J., & Kenardy, J. (2019). Physiotherapist-delivered stress inoculation training integrated with exercise versus physiotherapy exercise alone for acute whiplash-associated disorder (StressModex): a randomised controlled trial of a combined psychological/physical intervention. *Br J Sports Med, bjsports-2018.*

Objective There are few effective treatments for acute whiplash-associated disorders (WAD). Early symptoms of postinjury stress predict poor recovery. This randomised controlled trial (StressModex) investigated whether physiotherapist-led stress inoculation training integrated with exercise is more effective than exercise alone for people with acute WAD.

Methods 108 participants (<4 weeks) at risk of poor recovery (moderate pain-related disability and hyperarousal symptoms) were randomly assigned by concealed allocation to either physiotherapist-led stress inoculation training and guideline-based exercise (n=53) or guideline-based exercise alone (n=55). Both interventions comprised 10 sessions over 6 weeks. Participants were assessed at 6 weeks and at 6 and 12 months post-randomisation. Analysis was by intention to treat using linear mixed models.

Results The combined stress inoculation training and exercise intervention was more effective than exercise alone for the primary outcome of pain-related disability at all follow-up points. At 6 weeks, the treatment effect on the 0–100 Neck Disability Index was (mean difference) –10 (95% CI –15.5 to –9.0), at 6 months was –7.8 (95% CI –13.8 to –1.8) and at 12 months was –10.1 (95% CI –16.3 to –4.0). A significant benefit of the stress inoculation and exercise intervention over exercise alone was also found for some secondary outcomes.

Conclusion A physiotherapist-led intervention of stress inoculation training and exercise resulted in clinically relevant improvements in disability compared with exercise alone—the most commonly recommended treatment for acute WAD. This contributes to the case for physiotherapists to deliver an early psychological intervention to patients with acute WAD who are otherwise at high risk of a poor outcome

COMMENTARY

The publication of this high-quality (PEDro rating 8/10) randomised controlled trial (RCT) is the result of years of hard work by Professor Sterling and colleagues.^[1] Physiotherapists involved in treating patients with acute whiplash-associated disorder (WAD) may know that these injuries are the most common non-hospitalised injuries following a road traffic crash. Research has shown that up to 50% of individuals who experience a whiplash injury will not fully recover and 30% of patients will report ongoing moderate to severe pain and disability.^[2] This trial presents an exciting opportunity for physiotherapists, as this is the first high-quality RCT to demonstrate sustained clinically meaningful improvements in neck pain-related disability in patients with acute WAD.

One of the strengths of this trial is that it incorporates the concept of stratified healthcare, a process that subgroups participants by their predicted prognosis, thereby allowing more effective treatment to be prescribed. Efficacy of stratified care for patients with musculoskeletal pain has previously been demonstrated for low back pain (LBP) in the STarT Back Trial.^[3] By using a validated prognostic clinical prediction rule (CPR), the researchers were able to stratify participants and only provide care to those that were identified as having moderate to high risk of having long-term moderate-to-severe disability as a result of their injury.^[4,5] The current trial's CPR combined the following variables: age, neck disability index score and Posttraumatic Stress Diagnostic Scale (PDS) hyperarousal subscale score.^[4,5]

Improving outcomes in patients with acute WAD has historically been very difficult. Intensive physiotherapy (MINT trial) and multi-disciplinary care (PROMISE trial) RCT's demonstrate limited efficacy above simple advice.^[6,7] The StressModex trial incorporates Stress-Inoculation Training (SIT) combined with physiotherapy interventions. SIT is a cognitive behavioral approach that facilitates general problem solving and coping strategies to manage stress-related anxiety with physiotherapy. Three days of training was provided to trial therapists for them to deliver SIT competently.

The StressModex trial may present a challenge to some physiotherapists, as it requires physiotherapists to provide psychological treatment.^[1] This is not wholly new ground as physiotherapists have previously delivered psychological interventions for musculoskeletal pain. Previous trials have focused on chronic conditions such as non-specific LBP, WAD and knee osteoarthritis.^[8-10] These trials suggest physiotherapists can achieve improved patient outcomes by incorporating a psychological intervention into their treatment for chronic conditions. However, few trials have investigated physiotherapists delivering psychological interventions in the acute stage of an injury and none have addressed stress related symptoms.

The researchers appear to have anticipated the challenge that providing psychological treatment by physiotherapists poses to the physiotherapy profession. A secondary qualitative study was undertaken, whereby the 11 physiotherapists who provided the combined intervention in the StressModex trial discussed their perceptions and experiences of providing psychological treatment.^[11] This second study was deemed to be high-quality after fulfilling nine out of 10 criteria using the CASP qualitative research appraisal tool.^[12,13] Three main themes were identified: perceived value; capacity to deliver; and adaptation and implementation. Broadly, these themes captured that the treating therapists saw value in providing SIT to their patients. That with appropriate training, they felt confident to deliver SIT, and that SIT falls within their scope of practice. Finally, that it should be included in education early in a professional's career. The areas of SIT that were most foreign to the trial therapists were the problem solving and positive coping statements components, suggesting that developing these skills would likely require the most effort.

The biopsychosocial approach to physiotherapy assessment and treatment is strongly advocated. These studies suggest physiotherapists are well placed to deliver psychological interventions. However, standard training in these interventions is not included within the physiotherapy curriculum, and many physiotherapists may not feel confident in problem solving with their patients regarding stressful situations.^[11]

These papers provide further discussion regarding the use of psychological interventions by physiotherapists, which interventions are appropriate in what conditions, and the need for further training at under-graduate and post-graduate levels. The effort required to incorporate training in these interventions is warranted, given the sustained, clinically meaningful results observed in a cohort historically recalcitrant to improvement.

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The arrangements for IFOMPT 2020 in Melbourne are gaining momentum and the website has gone live. Have a look at the website [here](http://www.ifomptconference.org)

The following keynote presenters have all been confirmed: Associate Prof Annina Schmid, Prof Deborah Falla, Prof Michele Stirling, Prof Kim Bennell, Prof Paul Hodges, Associate Prof Mark Hancock and Dr Tania Pizzari.

The podium, poster, symposium and masterclass abstract submissions are open, and all the details are available at <https://ifomptconference.org/abstracts/>



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IFOMPT will be hosting a day of meetings and workshops for its members at the Hotel NH Avenue de Mategnin 21 1217 Meyrin, Geneva Airport on 10 May 2019. The day will run from 9 am to 5pm. We will also have a trade stand at the WCPT Congress and host a Manual Therapy Networking Session in Room T+U, Palexpo at 7:15am on Sunday, 12 May 2019.