

# Manual Therapy Research Review



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## Welcome

Welcome to the 14th edition of Research Review. I have been on sabbatical leave from the University for the last three months. A great time to recharge the batteries but I also caught up with some of my IFOMPT friends in Italy (Davide Albertoni) and Greece (Kostas Sakelariou and Alexandros Sideris). Great hospitality from these folks. I have also been teaching in Sweden and Korea. Quite a different experience but great to be with enthusiastic manual therapists. In this edition, I have provided a range of papers from anatomical studies (e.g. Kennedy et al, 2017) to systematic reviews (e.g. Smith et al, 2017) to a great editorial in the BJSM (Hegedus et al, 2017). I hope you enjoy these.



Wishing you all a Merry Christmas and prosperous New Year. Duncan

## Paper One

**Kennedy, E Albert, M, Nicholson, H. Do longus capitis and colli really stabilise the cervical spine? A study of their fascicular anatomy and peak force capabilities. Musculoskeletal Science and Practice 32 (2017) 104–113**

**Background:** Longus capitis and colli are proposed to play a role in stabilising the cervical spine, targeted in clinical and research practice with cranio-cervical flexion. However, it is not clear if these muscles are anatomically or biomechanically suited to a stabilising role.

**Objectives:** To describe the fascicular morphology of the longus capitis and colli, and estimate their peak force generating capabilities across the individual cervical motion segments.

**Study design:** Biomechanical force modelling based on anatomical data.

**Methods:** Three-part design including cadaveric dissection ( $n = 7$ ), in vivo MRI muscle volume calculation from serial slices in young healthy volunteers ( $n = 6$ ), and biomechanical modelling of the peak force generating capacities based on computed tomography scans of the head and neck.

**Results:** Longus capitis and colli are small muscles spanning multiple cervical motion segments. Bilateral peak flexion torque estimates were higher in the upper cervical spine (0.5 Nm), and unlikely to affect motion below the level of C5 ( $< 0.2$  Nm). Peak shear estimates were negligible ( $< 20$  N), while peak compression estimates were small ( $< 80$  N).

**Conclusions:** These data highlight the complex anatomy and small force capacity of longus capitis and colli, and have implications for their function. In particular, the small peak compression forces indicate that these muscles have a limited capacity to contribute to cervical stability via traditional mechanisms. This implies that the mechanism(s) by which cranio-cervical flexion exercises produce clinical benefits is worth exploring further.

## Commentary:

It is great to see well-constructed anatomical studies that challenge clinical thinking and

assumptions. While there are a large number of studies that have used the deep cervical flexor group of muscles as both tests and treatments, this study questions the capacity of these muscles to provide sufficient force generation to improve cervical stability, that has previously been suggested. However, it is also important not to throw away current concepts but perhaps to consider the complex functions of how muscles provide both stability and mobility. Normal function requires an orchestra of muscles to work. It is good to challenge the assumptions around how we think exercises work and this study will provide a stimulus for other researchers to look at the muscle actions in non-cadaveric studies.

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### Paper Two

**Hutting, N., Kerry, R., Coppieters, M., Scholten-Peeters, G. Considerations to improve the safety of cervical spine manual therapy. *Musculoskeletal Science and Practice* 33 (2018) 41–45**

**PURPOSE:** Manipulation and mobilisation of the cervical spine are well established interventions in the management of patients with headache and/or neck pain. However, their benefits are accompanied by potential, yet rare risks in terms of serious adverse events, including neurovascular insult to the brain. A recent international framework for risk assessment and management offers directions in the mitigation of this risk by facilitating sound clinical reasoning.

The aim of this article is to critically reflect on and summarize the current knowledge about cervical spine manual therapy and to provide guidance for clinical reasoning for cervical spine manual therapy.

**Commentary:**

This paper written by one of the IFOMPT MO Delegates (Nathan Cutting) provides a good overview of the considerations required to provide safe therapy for patients presenting with cervical spine pain. This is a useful extension of the IFOMPT Cervical Screening documents available on the website: <http://www.ifompt.org/ReportsDocuments/Cervical+Framework+Document.html> These types of papers and documents need to be standard teaching and clinical resources for all manual therapists dealing with neck pain

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### Paper Three

**Smith BE, Hendrick P, Smith T, et al. Should exercises be painful in the management of chronic musculoskeletal pain? A systematic review and meta-analysis. *Br J Sports Med* 2017;51:1679–1687**

**Background:** Chronic musculoskeletal disorders are a prevalent and costly global health issue. A new form of exercise therapy focused on loading and resistance programmes that temporarily aggravates a patient's pain has been proposed. The object of this review was to compare the effect of exercises where pain is allowed/encouraged compared with non-painful exercises on pain, function or disability in patients with chronic musculoskeletal pain within randomised controlled trials.

**Methods:** Two authors independently selected studies and appraised risk of bias. Methodological quality was evaluated using the Cochrane risk of bias tool, and the Grading of Recommendations Assessment system was used to evaluate the quality of evidence.

**Results:** The literature search identified 9081 potentially eligible studies. Nine papers (from seven trials) with 385 participants met the inclusion criteria. There was short-term significant difference in pain, with moderate quality evidence for a small effect size of  $-0.27$  ( $-0.54$  to  $-0.05$ ) in favour of painful exercises. For pain in the medium and long term, and function and disability in the short, medium and long term, there was no significant difference.

**Conclusion:** Protocols using painful exercises offer a small but significant benefit over pain-free exercises in the short term, with moderate quality of evidence. In the medium and long term there is no clear superiority of one treatment over another. Pain during therapeutic exercise for chronic musculoskeletal pain need not be a barrier to successful outcomes. Further research is warranted to fully evaluate the effectiveness of loading and resistance programmes into pain for chronic musculoskeletal disorders.

**Commentary:**

Both patients and clinicians are often challenged by how hard to push into pain when someone has a chronic pain condition. This well constructed systematic review offers a good answer. Moving into pain on the short term offers significant benefit over not moving into pain. Not surprisingly there appears to be less obvious benefit in the medium to long term. But as we all know, showing these patients that pain does not equal harm is an important first step in them taking control of the pain and their lives.

## Paper Four

**Eric J Hegedus, Alexis A Wright, & Chad Cook. Orthopaedic special tests and diagnostic accuracy studies: house wine served in very cheap containers. British Journal Sports Medicine Volume 51, Issue 22 2017 page 1578**

Commentary:

Finally, in this version of the Research Review I would like to draw your attention to this eloquent editorial written by three people who really know their stuff when it comes to diagnostics!! I really like the following comments from these authors:

“Clinicians should quit looking for overly simplistic answers. Clinical diagnosis, like producing a great wine, is complex and requires an appreciation of the data that can be gathered within the nuances of patient interaction. Like a good wine connoisseur who understands what varietal matches each selected food, the clinician can refine his or her examination by using meaningful tests and measures that may serve a variety of purposes”

Life is too short to drink bad wine so let's get better with our tests!

## Reciprocal Recognition

IFOMPT is working towards reciprocal recognition of members of IFOMPT Member Organisations. All IFOMPT Member Organisation's educational programmes are required to meet IFOMPT educational standards in advanced orthopaedic manual physical therapy in order to obtain membership in IFOMPT. Member Organisations of each country are encouraged to accept individuals who have trained in other Member Organisation countries as full, voting members in their countries' OMPT organisation.



### What is reciprocal recognition?

Reciprocal recognition is when OMPT organisations of two countries agree that a member of one Member Organisation is able to become a member of another

Member Organisation without added requirements such as further examination, portfolio review, or additional education. Reciprocal recognition is linked to allowing the OMPT trained physical therapist to have the same rights and privileges within the Member Organisation as others within the organisation who have successfully completed an IFOMPT approved OMPT educational programme.

### Which countries have reciprocal recognition?

The Member Organisations from Australia, Canada, New Zealand, the UK, USA, Germany, Denmark, Sweden, and Finland accept all graduates of IFOMPT approved OMPT programmes as OMPT specialists within their organisations. This essentially expands the concept of "Reciprocal Recognition" to "Universal Recognition" of the expertise of physical therapists trained in IFOMPT approval programmes for all the Member Organisations that represent these countries.

### Registration and license to practice

Reciprocal recognition is not linked to registration or licensure to practice in a Member Organisation country. The physical therapist must still meet the country's registration or licensure requirements to work and practice physical therapy

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