

Manual Therapy Research Review



Issue 28
September 2022

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Welcome

Welcome to the 28th Edition of the MT Research Review. Whilst I am always happy to produce these research reviews, I am also happy to receive reviews from other IFOMPT MO members. If maybe you have read a paper recently that has a good impact on clinical practice, either provide a review yourself, or send the paper to me and I can review this. It would be great to have other contributors going forward!



In this review we have a paper by *Hutting et al (2022)* on the use of the Cervical Framework in IFOMPT Member Organisations, a study by *Osmotherly et al (2022)* on ligament testing in the upper cervical spine, a survey by *Bergamino et al (2022)* on patients' expectations of the cavitation with HVT, and a paper by *Mourad, et al (2022)* looking at the knowledge and attitudes of Italian physiotherapist to the use of HVT in the spine. Enjoy! Duncan Reid

Paper One

Hutting, N., Kranenburg, R., Taylor, A., Wilbrink, W., Kerry, R., & Mourad, F. (2022). Implementation of the International IFOMPT Cervical Framework: A survey among educational programmes. *Musculoskeletal Science and Practice*, 62, 102619. <https://doi.org/10.1016/j.msksp.2022.102619>

Abstract

Background: Orthopaedic Manual Therapy (OMT) is a specialised area of physiotherapy for the management of neuromusculoskeletal conditions. Although rare, adverse events after OMT are reported in literature. In 2020, the International Framework for Examination of the Cervical Region for potential of vascular pathologies of the neck prior to OMT Intervention was presented.

Objective: To evaluate the knowledge and implementation status of OMT educational programmes regarding the 2020 International IFOMPT Cervical Framework.

Methods: An international survey with closed- and open-ended questions was conducted among all IFOMPT educational programmes using an online survey. Formal informed consent was requested at the beginning of the survey and all data were collected anonymously.

Results: Thirty-nine educational programmes filled in the survey. Twenty-four programmes (61.5%) had already implemented the new Framework. Four programmes (10.3%) answered that they will not implement the new Framework in their educational programme. Positional testing will be kept in about 54% of the programmes. Craniovertebral ligament testing will be kept in about 90% of the programmes. A

considerable number of educational programmes still teach end range manipulations in the middle and lower cervical spine (33.3%) and upper cervical spine (25.5%).

Conclusions: The dissemination and implementation of the International IFOMPT Cervical Framework among educational programmes has been successful. However, although positional testing and cranio-vertebral ligament testing are excluded from the Framework, most educational programmes will keep these tests in their curriculum, which raises some concern regarding the success and impact of international consensus frameworks. C

Commentary

It is always nice to showcase research that has involved the IFOMPT family. This survey by Nathan Hutting and his team looking at the use of the Cervical Framework, used data from 39 IFOMPT approved educational programmes. It was heartening to see that the guidance from IFOMPT in the form of the cervical framework has generally been well received with 2/3rds of the programmes using this. However, there were some interesting findings with over 50% of some programmes still using positional testing despite the evidence suggesting this is not that helpful at identifying risk of arterial dysfunction. In contrast, over 90% are using cervical ligament testing. There has also been a lot of discussion in recent years about the value of manual therapy and some anxiety around assessing and treating the upper cervical spine. This survey indicates that upper cervical mobilisations and manipulations are being taught 90 -100% of the time, but of some concern is that there is a percentage of programmes (30%) still teaching these as end range techniques that may have some potential for harm. Overall, a very useful survey!

Paper Two

Osmotherly, P. G., Folbigg, S. L., & Symonds, J. T. (2022). Normal Range of Movement During Rotation Stress Testing for the Alar Ligaments: An Observational Study. *Journal of Manipulative and Physiological Therapeutics*, 45(2), 137-143. <https://doi.org/10.1016/j.jmpt.2022.03.023>

Abstract

Objective: The purpose of this study was to determine the normal range of rotation occurring during rotation stress testing for alar ligament integrity and to ascertain whether rotation range on testing is affected by an individual's age.

Method: In this observational study, 88 people aged 18 to 86 years old with no current neck problems or known risk factors for craniocervical instability underwent rotation stress testing for the alar ligaments. The test was performed in each direction in neutral, flexion, and extension, with the participant both sitting and supine. Rotation range was recorded using an electromagnetic movement tracking system. Range was assessed overall and then compared by 10- year age groups using analysis of variance. Reliability of measurements was assessed by intraclass correlation coefficient (2,1) and standard error of measurement.

Results: Mean angles of upper cervical rotation ranged between 10.91° (standard deviation 3.38°) to 16.12° (standard deviation 5.13°). Overall measured rotation ranged from 1.37° to 33.22°. Participants in older age groups generally displayed reduced rotation; however, the reduction was less than 4°. Reliability of rotation measurements was good to excellent, with the intraclass correlation coefficient ranging from 0.80 to 0.99.

Conclusions: Normal range of rotation measured during stress testing for the alar ligament varied widely but did not exceed 33 degrees. All values measured in this study fell below recommendations for ligament integrity. Age-related change was not clinically significant in the interpretation of this test in this asymptomatic population.

Commentary

This is a great study from Peter Osmotherly and his team in Australia. Peter has published widely on the anatomy and testing of the ligaments of the upper cervical spine. This study shows that the average range of rotation motion with ligament testing in the upper cervical spine is approximately 11- 16 degrees, whether done in sitting or lying positions. This is a range that I would expect to see as a clinician in a normal population. It is also useful to know that this can have a range as wide as 33 degrees. This work also fits in nicely with the work of Toby Hall et al (2008) that shows the flexion rotation test (an active test) has a range of approximately 45 degrees in normal populations. A reduction to around 35 degrees is seen as indicative of a C1/2 joint problem often linked with symptoms of cervicogenic headache. The tests in this paper are useful in patients with suspected upper cervical ligament injuries, and hopefully the next study in this group will produce values meaningful in that population.

Reference

Hall, Briffa and Hopper Clinical Evaluation of Cervicogenic Headache: A Clinical Perspective *J Man Manip Ther.* 2008; 16(2): 73–80

Paper Three

Bergamino, M., Vongher, A., Mourad, F., Dunning, J., Rossetini, G., Palladino, M., ... & Maselli, F. (2022). Patient Concerns and Beliefs Related to Audible Popping Sound and the Effectiveness of Manipulation: Findings From an Online Survey. *Journal of Manipulative and Physiological Therapeutics*, 45(2), 144-152. <https://doi.org/10.1016/j.jmpt.2022.03.021>

Abstract

Objective: The purpose of this study was to assess whether beliefs about the origin of the popping sound and the effects of thrust manipulation (TM) were in agreement with current scientific evidence and whether a practitioner's explanation could influence patient beliefs of theoretical mechanisms.

Methods: A cross-sectional online survey was conducted in Italy from January 7, 2019 to April 20, 2019. The questionnaire was sent to 900 Italian adults through online recruitment, including people with and without a history of manipulation, such as given by physiotherapists, chiropractors, osteopaths, and manual medicine physicians to manage musculoskeletal disorders. The questionnaire consisted of 11 multiple-choice questions and could be completed within 15 weeks. The Likert scale was used to investigate participants' attitudes. Sex and previous experience of TM variables were evaluated using a Student's t-test; a 1-way F analysis of variance test was performed to evaluate age, educational qualification, and the professional who performed the TM.

Results: We retrieved 478 questionnaires, including 175 participants with no TM history and 303 with TM history. There were 31% of participants (n = 94) with a history of TM who reported they did not receive explanations regarding manipulation. The participants' beliefs mostly disagreed with the current hypotheses provided by the scientific literature on the theoretical mechanisms of popping sound (tribonucleation and cavitation). There were 9.9% (n = 30) of participants who answered "realignment of bone positional fault" to explain the mechanism behind TM. There was a high degree of agreement with the belief that the popping sound should be present for a successful TM (respectively, 2.8 standard deviation [SD; 1.2] and 2.6 SD [1.2] for TM+ and TM_ participants). No statistically significant differences were found between participants with and without a history of TM.

Conclusion: The participants in this study reported a belief that popping was related to effectiveness of TM. A high percentage of this sample had beliefs about TM mechanisms for the audible popping sound that were inconsistent with current literature. Beliefs were similar between groups, suggesting that instructions given by TM practitioners did not seem to be an influence on these patients' beliefs.

Commentary

This is a nice survey to understand what our patients think about the cavitation with HVT. What we know that the cavitation is not a definition of success Cleland et al (2007), the public still places some weight on this event as the indication of success. If you couple this with the work of Bishop et al (2013) where the expectation of patients that HVT to manage neck pain will work, is strongly linked with a good outcome, it seems we need to meet the expectations of the patient but frame this in such a way that they understand the definition of success is not always the pop!

References

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- Cleland, J. A., Flynn, T. W., Childs, J. D., & Eberhart, S. (2007). The audible pop from thoracic spine thrust manipulation and its relation to short-term outcomes in patients with neck pain. *Journal of Manual & Manipulative Therapy*, 15(3), 143-154.

Paper Four

Mourad, F., Yousif, M. S., Maselli, F., Pellicciari, L., Meroni, R., Dunning, J., ... & Kranenburg, H. A. (2022). Knowledge, beliefs, and attitudes of spinal manipulation: a cross-sectional survey of Italian physiotherapists. *Chiropractic & Manual Therapies*, 30(1), 1-18.

Abstract

Background and Objective: High-velocity low-amplitude thrust spinal manipulation (SM) is a recommended and commonly used manual therapy intervention in physiotherapy. Beliefs surrounding the safety and effectiveness of SM have challenged its use, and even advocated for its abandonment. Our study aimed to investigate the knowledge and beliefs surrounding SM by Italian physiotherapists compared with similar practitioners in other countries.

Methods: An online survey with 41 questions was adapted from previous surveys and was distributed via a mailing list of the Italian Physiotherapists Association (March 22–26, 2020). The questionnaire was divided into 4 sections to capture information on participant demographics, utilisation, potential barriers, and knowledge about SM.

Questions were differentiated between spinal regions. Attitudes towards different spinal regions, attributes associated with beliefs, and the influence of previous educational background were each evaluated.

Results: Of the 7398 registered physiotherapists, 575 (7.8%) completed the survey and were included for analysis. The majority of respondents perceived SM as safe and effective when applied to the thoracic (74.1%) and lumbar (72.2%) spines; whereas, a smaller proportion viewed SM to the upper cervical spine (56.8%) as safe and effective. Respondents reported they were less likely to provide and feel comfortable with upper cervical SM (respectively, 27.5% and 48.5%) compared to the thoracic (respectively, 52.2% and 74.8%) and lumbar spines (respectively, 46.3% and 74.3%). Most physiotherapists (70.4%) agreed they would perform additional screening prior to upper cervical SM compared to other spinal regions. Respondents who were aware of clinical prediction rules were more likely to report being comfortable with SM (OR 2.38–3.69) and to perceive it as safe (OR 1.75–3.12). Finally, physiotherapists without musculoskeletal specialization, especially those with a traditional manual therapy background, were more likely to perform additional screening prior to SM, use SM less frequently, report being less comfortable performing SM, and report upper cervical SM as less safe ($p < 0.001$).

Discussion: The beliefs and attitudes of physiotherapists surrounding the use of SM are significantly different when comparing the upper cervical spine to other spinal regions. An educational background in traditional manual therapy significantly influences beliefs and attitudes. We propose an updated framework on evidence-based SM.

Commentary

The results of this paper do not surprise me in the current manual therapy climate. This survey (although a low response rate) demonstrates that physiotherapists were more comfortable and likely to use manipulation on the lumbar and thoracic spine than the cervical spine. The cervical spine also required more screening prior to using manipulation. This may reflect to the first paper in this review where IFOMPT MO's are teaching screening based on the Cervical Framework. However, there are also some challenges here. The above paper by Bergamino et al (2022) shows patients equate success with HVT via the cavitation, and the Bishop paper et al (2013) suggests those patients with neck pain who have an expectation that HVT will help and then receive this, get a better outcome. I find it interesting that some physiotherapists are still reluctant to use an effective technique (HVT) in the cervical spine to get a good outcome the patient expects. I still teach upper cervical manipulation in our post graduate programme (supported by the results of the Hutting study), but there seems to be a lack of translation of this into clinical practice. I realise this might be a controversial area, but it is one we must continue to debate.

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