







## TEACHING (UPPER) CERVICAL MANIPULATIONS: WHAT, WHEN, AND WHY?

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## INTRODUCTION

- The safety of upper cervical manipulation techniques has been a big issue over the past year in the Netherlands as they were faced with three patients that had severe complications due to cervical manipulation.
- This has opened the debate whether or not to abandon (upper) cervical manipulations
- In 2008, IFOMPT developed a sound framework aiming to guide clinical reasoning for the assessment of the cervical spine region focusing on techniques including high velocity thrust manipulation interventions (Rushon et al., 2013).
- Although this document is praised for conducting a clinical reasoning framework, little or no attention has been given to the (upper) cervical manipulation techniques itself, including what kind of techniques should be taught and how and when this should be implemented in the curriculum.







## RESEARCH QUESTIONS

In order to have insights into the prerequisites and the different types of manipulation that are nowadays taught in manual therapy courses an online survey was done.



All Dutch postgraduate educations in manual therapy (Belgium and the Netherlands) were inquired about:

1. the place of cervical manipulations within the curriculum
2. the required theoretical background before teaching manipulations
3. The type of upper cervical techniques that are taught (in terms of starting position, hand placement, direction of thrust and indication).

## PROTOCOL

- All known MTLIs were requested by email to participate and to fill in an online questionnaire:
  - 7/9 institutions (BE: 3; NE: 6) who meet the IFOMPT Educational Standards
  - 2/3 private institutions (BE: 2; NE: 1)
- 2 MTLIs did not join as they indicated that they stopped teaching upper cervical manipulation techniques.







## THE PLACE OF SPINAL MANIPULATIONS WITHIN THE CURRICULUM

Only 7 MTLIs provided us with more details regarding their education in view of manipulations.

**Spinal manipulations**

- 4 MTLIs start with manipulations of the lower back, followed by thoracic manipulations and end with cervical manipulation

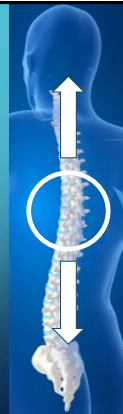






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**Spinal manipulations**

- 4 MTLIs start with manipulations of the lower back, followed by thoracic manipulations and end with cervical manipulation
- 1 MTLI start with thoracic manipulations, followed by lumbar manipulations and end with cervical manipulations
- 2 MTLIs start with cervical manipulation, followed by thoracic manipulations and end with lumbar manipulations




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### THE PLACE OF CERVICAL MANIPULATIONS WITHIN THE CURRICULUM

**Cervical manipulations:**

- 5 MTLIs start with low-cervical manipulations, followed by mid-cervical spine manipulations
- 2 MTLIs start off with mid-cervical manipulations followed by low-cervical manipulations.
- All MTLIs save upper cervical manipulations till the end.



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### THE NUMBER OF CONTACT HOURS FOR SPINAL MANIPULATION

**Spinal manipulations:**

- 53.3 ± 28.8 hours (range 30 – 96 hours)

**Cervical manipulations:**

- Mid/low cervical manipulations: 16.7 ± 8.2 (range: 8-32)
- Upper cervical manipulations: 8.7 ± 5.2 (range: 3-18)



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### REQUIRED THEORETICAL BACKGROUND BEFORE STARTING TO TEACH MANIPULATIONS

The following items were indicated as a prerequisite to start teaching (cervical) manipulations:

- Knowledge of the anatomy of the (upper) cervical spine
- Biomechanics, with specific focus on coupled motions
- Underlying mechanisms and principles of spinal manipulation, including positioning, locking, ...
- Pathophysiology in relation to indications and contra-indications of (upper) cervical manipulations
- Precautions and risk factors of (upper)cervical manipulations
- Advanced clinical reasoning
- Premanipulative screening including upper cervical instability tests, VBI-tests, neurological tests, ...

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### OVERVIEW OF THE DIFFERENT TECHNIQUES ACQUIRED AT THE DIFFERENT MTLIS

- Different terminologies to classify the different techniques are used by the different MTLIs.
- In an attempt to list all upper cervical manipulation techniques of the different MTLIs, manipulation techniques are classified
  - per segment (C0-C1, C1-C2 and C2-C3),
  - per direction of thrust ((dis)traction, translation/rotation or gapping/sidebending)
  - per starting position (sitting/loaded or supine/unloaded).
- For each technique, the number of MTLIs where the technique is acquired and the used terminology is mentioned.

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		(dis)traction manipulation	Translation (rotation) manipulation	Gapping (sidebending) manipulation
C0-C1	Supine	Number of MTLIs Terminology N = 9 traction (n=9)	N = 1 Translation contra-technique	N=5 Sidebending (n=5)
	Sitting	Number of MTLIs Terminology N = 4 Traction (n=4)		N = 5 Sidebending (n=5)
C1-C2	Supine	Number of MTLIs Terminology N = 3 Traction (n=4)	N = 6 * PA-thrust (n=1) rotation (n=3) translation (n=1) rotation contra-technique (n=1) rotation miltremer (n=1)	N = 2 Gapping (n=1) Side bending (n=1)
	Sitting	Number of MTLIs Terminology N = 2 Traction (n=2)	N = 3 Rotation (n=1) Translation (n=1) Rotation miltremer (n=1)	
C2-C3	Supine	Number of MTLIs Terminology N = 5 Traction (n=5)	N = 6 * Flexion gliding (upslope) (n=4) extension gliding (downslope) (n=3) Rotation miltremer (n=2) Flexion flick (up- + downslope) (n=1)	N = 4 Gapping (n=2) Side bending (n=1) Transverse thrust (n=1)
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## RESULTS

Some marked differences and similarities within the different techniques and between the MTLIs:

- 2 MTLIs reported to avoid extension as this is 'dangerous'
- 1 MTLI taught remarkably much more loaded (sitting) techniques compared to the other MTLIs. This MTLI also used techniques with end-range rotation.
- It's not always clear whether a focus technique is used or a locking technique.
- Most unloaded techniques (supine) are performed using a 'chin hold'.

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## IMPLICATIONS

It is striking that the number of contact hours to teach (upper)cervical manipulations varies largely between MTLIs, ranging from 11 to 50 contact hours:

⇒ In order to protect the profession of manual therapy and guarantee the safety of manipulative procedures, it is crucial to define minimum hours that are required to teach these techniques.

Most MTLIs starts off with lumbar or thoracic manipulations:

⇒ a clear point of view on the order of teaching manipulation techniques should be put forward.

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## DISCUSSION

Most MTLIs cope with the recommendations of the IFOMPT framework:

1. The application of minimal force
2. The avoidance end of range of cervical manipulations (extension and rotation)
  - There is overall consensus on the use of distraction techniques, mainly the C0-C1 segment.
  - These techniques can be regarded as 'safe' due to the lack of end range movement and the direction of the thrust.
3. Use of the supine position with the patient's head supported on a pillow
  - MTLIs: both supine and sitting positions are equally used
  - The different effect of cervical manipulation performed in a loaded versus unloaded position is not known.
  - The choice of using a different position, is probably mainly dependent from the desired position of both the therapist (mainly) and patient.

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## DISCUSSION

It is not only important to know what is taught at the different MTLIs, but also to have knowledge of the implementation of the learned techniques in clinical practice.

⇒ a next step is to inquire all manual therapists about the kind of (upper) cervical manipulation techniques they still use in clinical practice.



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## THANK YOU



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