

Report by Evdokia Billis for MACP IFOMPT Award 2024

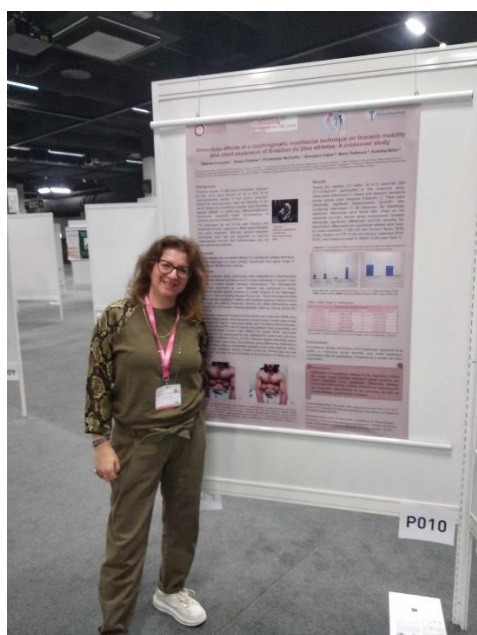
I am very grateful to the MACP for supporting my attendance at the IFOMPT Congress, being held in Basel, Switzerland between 4th-6th July 2024. It was certainly a very successful conference, coinciding with the Federation's 50th anniversary celebration, including over 1600 participants and 100 speakers from 57 countries.

The main topic of the congress was "*Crossing Bridges*", aiming at bringing together leading scientists and promoting evidence-based educational, research and clinical practice, all focusing on human-centered approaches for promoting more effective management.

It was of great importance for both, my academic and clinical experience, to attend presentations and participate in workshops/focused symposia organized by leading experts worldwide on topics relating to recent advances in musculoskeletal care, such as in promoting non-pharmacologic care, integrating cognitive, communication etc. skills in complex case presentations, managing chronic spinal pain, bridging current pain neuroscience to specific clinical presentations etc.

I also had the opportunity to meet and exchange views with academics and clinicians from all over the world; this precious networking which is only happening in conferences of this breadth.

Finally, I was honored to present a crossover study conducted at the Department of Physiotherapy, University of Patras, Greece, being deeply thankful again to the MACP for supporting my attendance and giving me the opportunity to present our work in IFOMPT 2024.



Immediate effects of a diaphragmatic myofascial technique on thoracic mobility and chest expansion of Brazilian jiu jitsu athletes: A crossover study

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Background

Thoracic injuries, in high level competitive, Brazilian jiu jitsu (BJJ) sport account for up to 25% of all musculoskeletal injuries in that cohort. Important factors for reducing injury rates are flexibility of the spine, thorax and hamstring muscles. Good flexibility assists athletes in performing offensive/defensive techniques, especially under circumstances of extreme physical pressure (Picture 1).



Picture 1. Offensive /defensive positioning techniques in Jiu Jitsu.

The diaphragm, as one of the main thoracic and breathing muscles, appears to affect spinal flexibility and chest expansion. Although several treatment techniques exist that are purported to improve diaphragmatic function their effectiveness has not been extensively explored.

Purpose

To investigate the immediate effects of a myofascial release technique of the diaphragm on chest mobility (expansion) and spinal range of movement (ROM) in BJJ athletes.

Methods

In this crossover study, participants were subjected to a diaphragmatic myofascial release technique and to a sham technique, in random order, across a 2-week interval (between interventions). The diaphragmatic technique (described by Leon Chaitow) was performed in sitting; therapist applied gentle pressure on costal margins of the diaphragm, aiming to relax underlying tissues (Picture 2a). Sham technique entailed diaphragmatic breathing in sitting with therapist applying manual contact on lower ribs (without pressure), (Picture 2b). Both interventions were applied for 4-5 minutes following athletes' warm-up during typical BJJ training.

Outcomes measured included thoracic flexion and extension ROM using bubble inclinometers, chest expansion at two thoracic levels using a tape measure (T5 level-3rd intercostal space and T10 level-xiphoid process), fingertip to floor (FTF) test for spinal and posterior thigh extensibility and Modified-Modified Shober's test (MMST) for lumbar ROM. Intra-tester reliability for all measurements was satisfactorily tested with interclass correlation coefficient (ICC_{S,K} >0.75). Wilcoxon signed rank tests before and after each intervention and between-group differences (intervention versus sham) utilizing independent sample's t-test were explored. Effect sizes were calculated utilizing Cohen's *d* formula. Ethical approval was provided from the Ethical Committee of the University of Patras (ref. nu: 15204).

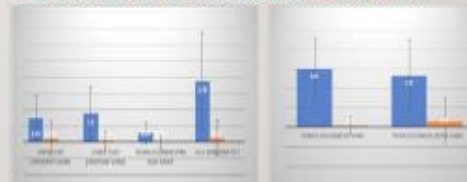


Picture 2. Application of the Leon Chaitow's diaphragmatic myofascial release technique (a) and the sham technique (b). In the diaphragmatic technique therapist applied gentle pressure on costal margins of the diaphragm, aiming to facilitate/relax underlying tissues whilst deep breathing whereas, sham technique entailed similar to the interventional technique hand positioning with diaphragmatic breathing without applying any manual facilitation pressure in lower ribs' costal margins (b).

Results

Twenty BJJ athletes (13 males, 30.1±7.8 years-old, BMI 25.1±3.6kg/cm²) participated in this crossover study. Observable differences in means and standard deviations across groups were observed (Diagram 1). There were statistically significant improvements ($p < 0.05$) after myofascial intervention in all outcomes. No statistically significant differences were found after sham on the outcomes ($p > 0.05$). Across group comparisons revealed statistically significant differences ($p < 0.05$) favoring the intervention; effect sizes for myofascial release were large for chest expansion (1.38-1.03) and thoracic flexion ROM (0.98), medium for FTF (0.56) and thoracic extension ROM (0.67), and medium to small for MMST (0.48) (see Table 1).

Diagram 1. Comparative differences (mean and standard deviations) between groups in Chest Expansion and Spine ROM outcome measurements.



Where, Blue Bar : Myofascial technique Group, Orange bar : Sham technique Group, ROM: Range of Motion, MMST: Modified-Modified Shober, FTF: Fingert to Floor test

Table 1. Effect Sizes in both groups.

| Variables | EFFECT SIZES IN BOTH GROUPS | |
|--------------------|-----------------------------|----------------------|
| | MYOFASCIAL TECHNIQUE GROUP | SHAM TECHNIQUE GROUP |
| Upper Chest | Large (1.38) | Small (0.20) |
| Lower Chest | Large (1.03) | Small (0.09) |
| ROM spine MMST | Small (0.48) | Small (0.03) |
| ROM spine FTF | Medium (0.56) | Small (0.04) |
| Thoracic Flexion | Large (0.98) | Small (0.02) |
| Thoracic Extension | Medium (0.67) | Small (0.09) |

Where, MMST : Modified-Modified Shober test, FTF : Fingert to floor test, ROM: Range of Motion

Conclusions

A myofascial release technique of the diaphragm appeared to be helpful in improving spinal flexibility and chest expansion, immediately after its application, compared to a similar but sham intervention.

Implications

Application of myofascial release of the diaphragm before BJJ match could facilitate short-term spinal flexibility and chest expansion, thus, potentially influencing athletes' movement performance. Further research on exploring mid- and long-term effectiveness of the technique as well as overall athletes' performance is needed.

Acknowledgments: This work was supported by the MACP IFOMPT award 2024, awarded by the Musculoskeletal Association of Chartered Physiotherapists (MACP).

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