

Keywords: Low back pain; Beliefs; Clinimetrics

Funding acknowledgements: Not applicable.

Ethics approval: This study has ethics approval from Pontificia Universidade Católica de Minas Gerais.

Research Report Poster Display

Number: RR-PO-206-1-Thu **Thursday 23 June 13:00**
RAI: Exhibit Halls 2 & 3

THE INFLUENCE OF UPPER LIMB BILATERAL FLEXION ON THORACIC EXTENSORS STRENGTH AND MUSCULAR ACTIVITY

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Purpose: The main objective of this study was to verify the effect of a bilateral upper limb flexion exercise (180° gleno-humeral flexion, with straight elbows) with isometric contraction at the end of the range of motion, on the thoracic extensors strength and muscle activity.

Relevance: Increased thoracic spine curve are frequent in clinical practice leading to problems in balance and respiratory system. Bilateral upper limb flexion reduces actively thoracic curve, and is used as an exercise by Physiotherapists, but until now the influence on the thoracic extensors muscles have not been determined.

Participants: Twenty young healthy volunteers aged 18–26 years were randomly allocated into an intervention group (IG) ($N=12$) and a control group (CG) ($N=8$).

Methods: An electronic isometric dynamometer was used (Ergo Meter® by Globus) to measure muscular strength and an Electromyography Biopac MP100 system to measure the muscular activity in the Longissimus and Iliocostalis Thoracic parts. The IG undertook a 10 weeks home based exercise of bilateral upper limb flexion with straight elbows and the fist in a neutral position, with an isometric contraction in the end of the range of motion during 6 seconds, followed by 6 seconds of rest, without equipment. The exercise began with 10 repetitions once a day, four days a week, during the first 3 weeks. On the second period of 3 weeks the participants doubled the number of repetitions. On the last 4 weeks daily exercises were repeated 30 times, four days a week. The CG performed normal activities during the experimental period. Participants were evaluated before the implementation of the exercise and after the 10 weeks programme.

Analysis: For quantitative variables with an asymmetrical distribution, Mann–Whitney test for differences between groups and Wilcoxon test for differences inside groups was used among IG and CG. For symmetrical distributions a t test was used. Two tailed tests were used and statistical significance was set at $p < 0.05$.

Results: After 10 weeks there were no significant differences in the thoracic extensors strength and muscular activity between groups ($p > 0.05$). Nevertheless when comparing thoracic extensors strength and muscular activity in the IG at the beginning and after 10 weeks, a significant strength increased was observed ($Z = -3.059$; $p = 0.02$) as well as a significant difference muscular activity ($Z = -2.667$ $p = 0.008$). Comparing the right and left Longissimus Thoracic at the beginning of the exercise it was found a significant difference on muscular activity between them ($t = -2.249$; $p < 0.05$) but after 10 weeks of exercise this difference disappeared ($p > 0.05$).

Conclusions: Bilateral flexion of upper limbs with isometric contraction in the end of the range of motion, did not improve strength nor muscle activity in this sample of young people. Nevertheless the exercise seems to reveal a way to achieve the correction of asymmetries of muscular activity.

Implications: the outcomes of this study do not permit to say that the exercise (used in clinical practice) has an influence in thoracic extensors, nevertheless the possible corrections of muscular activity asymmetries in the extensors must be retained.

Keywords: Strength; Muscular activity; Dorsal extensors

Funding acknowledgements: None.

Ethics approval: Ethical approval was obtained from the ethics committee of the school and all participants signed an individual informed consent.

Research Report Platform Presentation

Number: RR-PL-1624 **Wednesday 22 June 11:30**
RAI: Elicium 1

LONG-TERM FOLLOW-UP OF DIABILITY PENSIONERS HAVING MUSCULOSKELETAL PAIN

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Purpose: The purpose was to investigate whether disability pensioners reporting to have entered a return to work process at 1-year follow-up actually went back to work within the next 2 years. The secondary purpose was to investigate if there were differences in return to work between the participants in the RCT and the population they were recruited from, and the third aim was to examine if disability pensioners with a back pain diagnosis differed from pensioners with other musculoskeletal disorders.