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**Title:** Respiratory muscle training in the elderly: A strategy for preservation of inspiratory and expiratory pressures impacting on mobility and thickness of the diaphragm

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**Body:** BACKGROUND: The performance of the respiratory muscles decreases with aging process contributing to functional decline in the elderly. Inspiratory muscle training (IMT) may be an alternative additional to minimize or prevent the changes generated by senescence. OBJECTIVE: To evaluate the effects of IMT on respiratory strength, thickness and diaphragm mobility in older women. METHODS: A randomized and double-blind clinical trial was conducted with 22 participants divided in two groups: Training (TG) and Control (CG). The incremental IMT was performed in the TG using a pressure threshold device during 8 weeks and the CG underwent sham training using similar devices. The outcomes measures were: maximal inspiratory pressure (MIP), maximal expiratory pressure (MEP), diaphragmatic mobility and thickness at rest (E FRC), contracted (E TLC) beyond the thickening ratio (TR). RESULTS: The TG showed significant increases in MIP (CG =  $82.0 \pm 19.9$  and TG =  $99.6 \pm 13.8$ ), MEP (CG =  $96.5 \pm 17.3$  and TG =  $100.4 \pm 11.6$ ), E TLC (CG =  $4.6 \pm 0.5$  and TG =  $4.9 \pm 0.4$ ) and diaphragmatic mobility (CG =  $65.9 \pm 4.7$  and TG =  $68.8 \pm 6.3$ ) compared to GC. CONCLUSION: These findings suggest that incremental IMT produces increased respiratory strength, thickness and diaphragm mobility in community older women. Supported by FACEPE, CNPq and CAPES/PROCAD-NF.