

THE EFFECTS OF INSPIRATORY MUSCLE TRAINING ON LUNG FUNCTION - A PILOT STUDY

Siatkowski S.^{1,2}, Sikora M.^{1,2}, Hall B.^{1,2}, Terbalyan A.³ and Grabowska A.⁴

¹ *Institute of Healthy Living, The Jerzy Kukuczka Academy of Physical Education, Mikolowska Street 72a, 40-065 Katowice, Poland.*

² *School of Physiological and Medical Sciences, Department of Physiology, The Jerzy Kukuczka Academy of Physical Education, Mikolowska Street 72a, 40-065 Katowice, Poland.*

³ *Chair of Sports Theory and Practice Department of Statistics, Methodology and Informatics, The Jerzy Kukuczka Academy of Physical Education, Mikolowska Street 72a, 40-065 Katowice, Poland.*

⁴ *Doctoral School, Faculty of Medical Sciences in Katowice, Medical University of Silesia in Katowice, Katowice, Poland.*

Background: The inspiratory muscles training (IMT) is one of the new methods for improving respiratory capacity. This work discusses the effects of the IMT on the lung function and mechanical properties of the bronchi of a group of healthy individuals.

Methods: Twenty-five participants (13 men and 12 women with a mean age of 21 years) performed a 6-week IMT using a breathing trainer (POWERbreathe International Ltd., UK). Their lung function was assessed before and after the training using a *Pony FX Spirometer* (Cosmed Ltd., Italy) and the mechanical properties of the airway using a Resmon Pro V3 Oscillometer (RESTECH Srl, Italy).

Results: The analysis showed a significant improvement of the forced expiratory volume in one second (FEV₁, p=0.007, d=0.32), the peak expiratory flow (PEF, p=0.047, d=0.34), the forced vital capacity (FVC, p=0.006, d=0.21) and the maximum expiratory flow at 50% (MEF50, p=0.047, d=0.23) in response to the 6-week IMT. There were no significant changes in the oscillometry variables.

Conclusions: The 6-week IMT had a positive effect on the lung and the small bronchi function of the studied individuals, without a significant impact on their respiratory impedance measured by oscillometry.