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Respiratory muscle strength: a systematic review with equation testing in Portuguese healthy adults

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Abstract

Respiratory muscle weakness is frequent in chronic respiratory diseases. Several equations exist to predict maximum respiratory pressures but there are no recommendations of which should be used and none was developed for Portugal.

This study revised predictive equations of maximum inspiratory (MIP) and expiratory (MEP) pressure for healthy adults and explored their suitability for the Portuguese population.

A systematic review was conducted. Studies were eligible if they presented at least 1 equation for MIP or MEP developed for healthy adults. For equation testing, MIP/MEP were collected from healthy adults. Predicted values were computed from the equations and compared with actual values using Wilcoxon tests and Bland-Altman plots.

19 studies were included. 36 MIP and 30 MEP equations were found but only 32 and 25 were possible to test in 229 subjects (62%♂, 101.8±20.5FEV1pp, 66.7±9.7yrs). 4 MIP equations showed no significant differences between actual and predicted values (p>0.05, rs=0.32-0.47, R2=9-47%). From these, 3 overestimated (bias=0.19-4.06 cmH2O, men) and 1 underestimated (bias=0.99 cmH2O, women) the actual values (Fig. 1). All MEP equations showed significant differences between actual and predicted values.

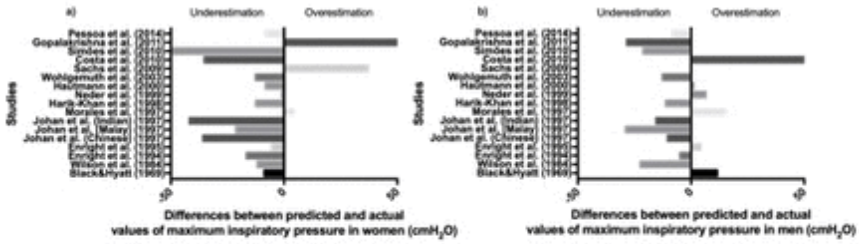

Figure 1. Estimation differences across studies between predicted and actual values of a) maximum inspiratory pressure in women; b) maximum inspiratory pressure in men.

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Respiratory muscle Adults

Footnotes

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