Abstract

Background: The literature emphasizes the need for studies to provide reference values and equations able to predict respiratory muscle strength of Brazilian subjects at different ages and from different regions of Brazil. Objectives: To develop prediction equations for maximal respiratory pressures (MRP) of Brazilian adolescents. Method: In total, 182 healthy adolescents (98 boys and 84 girls) aged between 12 and 18 years, enrolled in public and private schools in the city of Natal-RN, were evaluated using an MVD300 digital manometer (Globalmed®) according to a standardized protocol. Statistical analysis was performed using SPSS Statistics 17.0 software, with a significance level of 5%. Data normality was verified using the Kolmogorov-Smirnov test, and descriptive analysis results were expressed as the mean and standard deviation. To verify the correlation between the MRP and the independent variables (age, weight, height and sex), the Pearson correlation test was used. To obtain the prediction equations, stepwise multiple linear regression was used. Results: The variables height, weight and sex were correlated to MRP. However, weight and sex explained part of the variability of MRP, and the regression analysis in this study indicated that these variables contributed significantly in predicting maximal inspiratory pressure, and only sex contributed significantly to maximal expiratory pressure. Conclusion: This study provides reference values and two models of prediction equations for maximal inspiratory and expiratory pressures and sets the necessary normal lower limits for the assessment of the respiratory muscle strength of Brazilian adolescents.

Keywords
Adolescent, respiratory muscles, spirometry, muscle strength, reference values, movement.