Abstract

Background: It is important to include large sample sizes and different factors that influence the six-minute walking distance (6MWD) in order to propose reference equations for the six-minute walking test (6MWT). Objective: To evaluate the influence of anthropometric, demographic, and physiologic variables on the 6MWD of healthy subjects from different regions of Brazil to establish a reference equation for the Brazilian population. Method: In a multicenter study, 617 healthy subjects performed two 6MWTs and had their weight, height, and body mass index (BMI) measured, as well as their physiologic responses to the test. Delta heart rate (HR), perceived effort, and peripheral oxygen saturation were calculated by the difference between the respective values at the end of the test minus the baseline value. Results: Walking distance averaged 586±106m, 54m greater in male compared to female subjects (p<0.001). No differences were observed among the 6MWD from different regions. The quadratic regression analysis considering only anthropometric and demographic data explained 46% of the variability in the 6MWT (p<0.001) and derived the equation: $6MWD \text{ pred} = 890.46 - (6.11 \times \text{age}) + (0.0345 \times \text{age}^2) + (48.87 \times \text{gender}) - (4.87 \times \text{BMI})$. A second model of stepwise multiple regression including HR explained 62% of the variability (p<0.0001) and derived the equation: $6MWD \text{ pred} = 356.658 - (2.303 \times \text{age}) + (36.648 \times \text{gender}) + (1.704 \times \text{height}) + (1.365 \times \text{HR})$. Conclusion: The equations proposed in this study, especially the second one, seem adequate to accurately predict the 6MWD for Brazilians.

Keywords
Walking, exercise test, reference values, regression analysis, rehabilitation.