

Agreement between Estimated VO₂ max by 6-Minute Walk Test and Non-Exercise Equation in Physiotherapy Students

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Abstract

Aim: The aim of this study was to find out whether an agreement exists between two methods of estimating VO₂max. One method, developed by Burr et. Al., (2011) predicted VO₂max using Six minute walk test (VO₂max-6MWT), while the other method used a non-exercise equation (VO₂max-NEx) developed by Jackson et. al.,(1990).**Material and Method:** One hundred sixty two subjects (N= 162) comprising of 22 male and 140 female physiotherapy students, between ages 18 to 23 years volunteered for the study. Each subject answered the Physical Activity Rating (PA-R) scale and underwent a 6-minute walk test. Collected data was used to estimate VO₂max.**Results:** Mean age, BMI, PA-R score and 6-minute walk distance was 20.38 ± 1.3 years, 22.21 ± 4.14 kg/m², 2.95 ± 1.82 and 616.07 ± 49.83 meters respectively. Physical activity level was 'modest' in 40.12% subjects, 'low' in 30.86% and 'heavy' in 29.01% subjects. Mean VO₂max-6MWT and VO₂max-NEx was 42.98 ± 4.34 ml/kg/min and 38.73 ± 6.07 ml/kg/min respectively. Mean Difference (\bar{d}) between the two measures was 4.25 ± 4.11 ml/kg/min which exceeded the maximum acceptable difference of 3 ml/kg/min decided a priori. Standard error of mean was 0.32 ml/kg/min. Standard error of limits of agreement was 0.56 ml/kg/min. Bland Altman graphical analysis showed the line of equality (X axis) did not fall within the confidence interval of the mean difference. **Conclusion:**VO₂max estimated from 6-minute walk test and VO₂max estimated from non-exercise equation show no agreement with each other.

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Introduction

Physical fitness is the ability to perform occupational, recreational, and daily activities without becoming unduly fatigued (Heyward & Gibson, 2014). Cardiopulmonary endurance / Cardiorespiratory fitness (CRF) is one of the 'health related' components of physical fitness which refers to the dynamic exercise performance involving large muscles for prolonged periods, which