

Development of a prediction equation for the six-minute walk test in African American Adults

ABSTRACT: The six-minute walk test (6MWT) measures the total distance that an individual walk in a time frame of six minutes. It is a rough estimate of the functional exercise capacity of a patient and can be a predictor of mortality and morbidity. The goal of the 6MWT is to walk as fast as possible to cover as much ground as possible in six minutes. Given that there are about 25 studies that developed prediction equations to estimate the 6MWT distance in an individual, only ~10% of the subject pool were African-American (AA). As such, this study aimed to establish a prediction equation for six-minute walk distance (6 MWD) in healthy AA adults. A total of 60 healthy AA adults (28 male, 32 female) aged between 18 to 67 year old and a body mass index ranging from 17.8 to 32.3 kg/m² performed 6 MWT using American Thoracic Society guidelines for the 6MWT. Heart rate (HR) at rest was 80 (SD 10) beats/min and the mean HR for the full 6MWT was 137 (20) beats/min (72% of predicted HR_{max}). Males walked for a total distance of 709 (68) m (range of 603 to 841 m) while females walked for a total of 627 (55) m (range of 498 to 764 m). The multiple regression model for healthy AA adults was: Distance traveled over six minutes = $(-0.67 \cdot \text{age in years}) + (55.25 \cdot \text{sex; males}=1 \text{ and females}=0) + (1.50 \cdot \text{height in cm}) + 403$, adjusted R² = 0.27, SEE = 62.5 m, $p < 0.001$. In conclusion, this regression model best predicts distance walked in AA subjects < 40 years of age.

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