Introduction

While it has already been demonstrated that the 30-foot walk test has good discriminative validity as a function of age and gender, it remains to be determined whether it can also discriminate between older adults who engage in more versus less physical activity. Age associated gait changes have been associated with increased disability and fall-risk in the older adults.1 It has also been shown that a certain level of fitness protects individuals from a number of chronic diseases (e.g., heart disease, diabetes, cancer) and makes performing daily activities of living considerably easier.2 Studies demonstrate that balance, flexibility, and strength training improve mobility and also reduce the risk of falling.3-6

Purpose

To investigate the extent to which the level of physical activity influences age-associated changes in performance on the 30-foot walk test performed at a preferred and maximum speed.

Methods

A total of 397 community-dwelling male and female adults (77.7 ± 6.5 years) performed the 30-foot walk test at a preferred and maximum speed in a single test session. Participants were divided into five age groups (65-69; 70-74; 75-79; 80-84; 85-89). The only stipulations for inclusion were that participants were residing independently in the community, were relatively healthy, and able to perform both walking conditions without the use of an assistive device. Mean Gait Velocity (GV), Stride Length (SL), Cadence (C), Gait Adaptation (GA), and Gait Stability Ratio (GSR) measures were used to investigate the discriminative validity of the test.

Data Analysis

In order to investigate the discriminative validity of the 30-ft walk, participants were divided into five age groups (65-69; 70-74; 75-79; 80-84; 85-89) and three Physical Activity (PA) levels (low vs moderate vs high). As part of the health history and physical activity questionnaire participants were asked how many days per week they currently participate in regular physical exercise (such as walking, sports, exercise classes, house work or yard work) that is strenuous enough to cause a noticeable increase in breathing, heart rate, or perspiration. The following PA level categories were developed:

- Less than 3 days per week - Low physical activity level;
- 3-5 days per week - Moderate physical activity level;
- More than 5 days per week - High physical activity level.

Mean Gait Velocity (GV, distance/time), Stride Length (SL, distance/steps), Cadence (C, steps/time), Gait Adaptation (GA, the difference in mean gait velocity between the preferred and maximum speed condition), and Gait Stability Ratio (GSR, cadence/velocity) measures were calculated. A 5 (Age) X 3 (Physical Activity Level) MANOVA was conducted to investigate the extent to which the level of physical activity influences the age-associated changes. Follow-up ANOVAs were conducted in the case of significant multivariate findings. Significance was accepted at p<.05.

Results

Significant multivariate effects were obtained for Age and Physical Activity (PA) level (low vs moderate vs high). No significant multivariate interactions were observed for age by PA level. Low active adults performed significantly worse than adults who engaged in moderate and high levels of physical activity on all gait variables across all age groups. No significant differences were evident for any of the gait measures at either walking speed between the moderate and high active groups across the five age groups tested.

Conclusion

The 30-foot walk test is able to discriminate between older adults on the basis of physical activity levels. The results also indicate that engaging in moderate to high levels of physical activity is important for preserving multiple gait parameters well into the older adult years.

References