Fatigability during a Standardized Walk Can Identify Older Adults in Early Stage of Functional Decline
Kristen G. Lindsay, Devon D. Dobrosielski, Nicolas D. Knuth
Towson University, Towson, MD

Fatigue in older adults is believed to be responsible for the well-established age-related decline in physical activity and functional capacity; however, there are limited objective assessments for measuring fatigue. Fatigability, a newly developed construct of fatigue assessment, is defined as the degree of fatigue experienced while performing a standardized task. PURPOSE: To determine whether measured fatigability during a standardized walking task can be used to identify well-functioning elderly individuals in early stage of functional decline. METHODS: Fatigability was assessed using the Borg rating of perceived exertion (RPE) scale (range 6-20) after 5 minutes of treadmill walking at 1.5 mile per hour (0.67 m/s) in 11 older members (5 women, aged 68±7 yrs) of the Towson University Wellness Center. Functional capacity was assessed using components of the expanded Short Physical Performance Battery (SPPB) test consisting of time to complete 5 repeated chair stands, standing balance (semi-, full-tandem, and one-legged standing), and two measures of gait speed over 6 meters (normal walk and narrow walk). Aerobic capacity was assessed as time to complete the 400 meter portion of the Long Distance Corridor Walk. RESULTS: RPE after treadmill walking was inversely correlated with gait speed during the narrow walk ($r = -0.59$, $P = 0.05$), indicating that those who experienced greater fatigability required more time to complete this higher level functional task. Also, longer time to walk 400 meters showed a trend towards a higher degree of fatigability ($r = 0.53$, $P = 0.09$). The other components of the SPPB (chair stands, balance, and normal walk) were not significantly related to RPE. CONCLUSION: Greater fatigability assessed using a simple standardized treadmill test is associated with reduced performance during a higher level functioning task and reduced aerobic capacity, and thus may be used to identify well-functioning elderly individuals in the early stage of function decline.