Balance Differences Between Active Middle-Aged Adults on the Berg Balance Scale and Dynamic Gait Index

Anna Hiller, Adam Gauzy, Tom Pham, Kenny Tien
Faculty Advisor: Dr. Elizabeth Tew, PT
Department of Physical Therapy, College of Health Professions

Introduction: Fall prevention is a major component of geriatric physical therapy intervention with $50 billion spent annually on medical care related to falls. Different forms of fall prevention exist but are often implemented after a fall has occurred. There is a lack of research that determines when balance diminishes in relation to age and when early intervention can be implemented to reduce future risks.

Purpose: The purpose of this study is to identify balance differences between adults aged 40-60 on the Berg Balance Scale (BBS) and Dynamic Gait Index (DGI) and determine if there are differences related to age or workout frequency in performance on static and dynamic tests.

Methods: Participants were recruited from Wichita and the surrounding communities as a sample of convenience. Participants were asked to engage in a onetime data collection session after completing an eligibility survey online. 26 participants completed the data collection session. Each participant completed the BBS and DGI in the same order with age, BBS score, DGI score, testing deductions, and weekly exercise frequency being recorded for data analysis. T-tests and correlational analysis were completed based on age and exercise frequency.

Results: Participants who engaged in physical activity three times or more per week performed better on the two tests with a significant difference in means. Means on the BBS were 54.75±1.21 for the lower frequency exercise group and 55.85±.534 for the high frequency group DGI scores for the two groups were 21.83±1.11and 23.00±1.35 respectively. Two-sided p-scores for the BBS and DGI were .005 and .026 respectively.

A negative correlation coefficient with age was found with both the BBS and DGI at -1.93 and -.483 respectively. The correlation between age and BBS was insignificant with a p of .345. The moderate negative correlation coefficient for the DGI was significant with a p of .012.

Conclusion: The data suggests age has a significant effect on dynamic balance more so than static balance, and that participants who engaged in more frequent exercise have better dynamic balance ability with age progression. Static balance is not significantly impacted by age and appears more affected by exercise frequency. Data also suggested that dual-tasking may be a factor that affects balance ability in middle-aged adults. This could guide further research in early intervention programs that focus on the dual-tasking during balance activities to maximize efficacy in the target age group and fall-risk long-term.