Effect of an 8-Week Static and Dynamic Exercise Program on Older Adults in Reducing Fall Risk

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**Context:** Older adults in the United States have a high morbidity and mortality rate due to a high incidence of falls. Rising rate of falls and the subsequent injuries and medical costs are a growing public health problem that needs to be addressed. More preventable treatment options need to be provided to older adults to reduce the rate of falls and resulting injuries. Athletic Trainers whose traditional setting is working with athletes have transferable skills that they can use with this non-traditional population of older adults. Studies have assessed various exercise interventions to preserve proprioception, balance and increase strength in older adults. However, few studies have assessed the effects of static and dynamic balance exercises in older adults using a stable surface. **Objective:** To assess the effect of an 8-week static and dynamic balance-training fall prevention program on older adults in reducing risk of falls. **Design:** A single group pre-post test study. **Setting:** This study was performed at two local community senior centers. **Participants:** 25 older adults (4 males, 21 females) with a mean age of 77.05 years, SD=6.74 years. **Intervention:** 15 minutes of static and dynamic balance exercises; standing bilaterally, standing tandem, calf raises, standing unilaterally, standing leg abduction, ball toss (standing bilaterally and unilaterally); 3 sets of 10 repetitions or 3 sets of 30 seconds and progressively increased repetitions, progression from exercises performed with eyes open (EO) to eyes closed (EC). **Main Outcome Measures:** Fall risk was measured using the Berg Balance Scale (BBS) containing 14 items each scored from 0-4 for a total score of 56. Total scores of 0-20=high fall risk, 21-40=medium fall risk and 41-56=low fall risk. Pre-test and post-test measurements were taken 1-week pre-intervention and again at 1-week post-intervention. Paired t-tests were conducted on BBS with statistical p-value set at less than .05. **Results:** Participants' BBS (total) were significantly higher post-test (M=53.32, SD=2.824) compared to pre-test (M=50.04, SD=5.248), t(24)=−2.818, p=.010. Participants' scored statistically higher for three of the fourteen items of the BBS post-intervention compared to baseline. Turning 360 degrees, pre-test (M=3.72, SD=.458), post-test (M=4.00, SD=.000), t(24)=−3.055, p=.005; Placing alternate foot on stool, pre-test (M=3.44, SD=.917), post-test (M=3.92 SD=.277), t(24)=−2.613, p=.015; Standing with one foot in front, pre-test (M=2.64, SD=1.186), post-test (M=3.36 SD=.952), t(24)=−2.979, p=.007. **Conclusion:** Fall prevention is an opportunity for athletic trainers to expand their professional role in the healthcare arena. The 8-week static and dynamic balance training fall prevention program was effective in reducing fall risk in older adults. Future research should be done focusing on strengthening the muscles about the hip to see if improvements in hip strength decrease fall risk in older adults after a static and dynamic balance training program. **Word Count:** 442