

Effects of a 6-week Resistance Training Program on Muscular Strength and Endurance in Older Adults

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It is estimated that nearly one in five U.S. residents will be aged 65 years or older in 2030. Through the aging process, both muscular strength and endurance decline. Decreased muscular strength may increase the risk of falling and contribute to an overall reduction in functional ability. Functional strength training may increase muscular strength and thus, decrease the risk of falling and fall related injuries. **PURPOSE:** To determine the effects of a 6-week resistance training program in community-dwelling older adults enrolled in an interdisciplinary fall prevention program. **METHODS:** The study design was a one-group pretest-posttest design. Participants included community-dwelling older adults. Pre- and post-intervention assessments were taken before and after the 6-week program. Assessments included 30-second chair stand, handgrip strength and timed up and go. The 20-minute, twice a week, resistance training program consisted of functional upper and lower extremity strength and endurance exercises (i.e. sit to stand, marching, squats, bicep curls). Exercises were progressed by increasing weight, number of sets, and speed. *t* tests were used to determine statistical significance from pre- to post-intervention for each variable. **RESULTS:** 24 participants completed the program (58.3% white, 79.2% female, mean age 76.5 years; SD=7.10). *t* tests revealed no statistical significance pre-intervention to post-intervention in any of the variables measured. Mean grip strength decreased by 1.33kg (SD \pm 6.79kg, $t(22)=.92$, $p=0.37$). Mean up-and-go test time decreased by 0.58 seconds (SD=1.98, $t(17)=1.25$, $p=0.22$), 30-second chair stand test increased by 0.58 completed rises (SD=2.23, $t(19)=1.15$, $p=0.265$). **CONCLUSION:** There was no statistical significance observed in any of the variables examined. However, the up and go time decrease and chair stand increase may be clinically relevant in the older adult population that is focused on maintaining independence and activities of daily living. Future studies should increase intervention frequency, duration, and intensity to achieve further improvements in strength and endurance.