

Five Weeks of Online Blood Flow Restricted Resistance Training on Postural Stability of Older Adults

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ABSTRACT

Falls affect approximately 1 in 3 older adults each year [1], with recurrent fallers displaying reduced postural stability [2] and lower limb strength [3]. While it is known that low-intensity exercise with blood flow restriction (BFR) improves strength [4], it is unknown whether benefits extend to postural stability. **PURPOSE:** Investigate whether 5 weeks of online low-intensity resistance training combined with BFR can stimulate improvements in postural stability under dual-task conditions among adults aged 60 and above. **METHODS:** 24 community-dwelling adults (69.6 ± 5.8 years) completed a pre-post randomized controlled trial (BFR group $n=14$; control group $n=10$). Resistance training classes were held on Zoom twice per week by a registered Kinesiologist. Exercises focused on the lower limb and core, using primarily bodyweight or a maximum of 5-pound dumbbells. During the classes, the BFR group wore 2-inch elasticized BFR cuffs on their proximal thighs. 30-second trials of quiet standing with a concurrent serial subtraction task was used to evaluate postural stability in eyes-open, eyes-closed, and foam-pad conditions. Center of pressure excursions, area and velocity were obtained, and significance was evaluated using non-parametric Wilcoxon Signed-Rank Tests, $p \leq .05$. **RESULTS:** The BFR group demonstrated significant reductions in anteroposterior excursion during foam-pad conditions, $p=.030$. While not significant, trends of lower anteroposterior velocity were observed in foam-pad ($p=.074$) and eyes-closed conditions ($p=.064$). No improvements or trends were found in the control group. **CONCLUSION:** Online resistance training with BFR demonstrates preliminary efficacy as a safe and easily implementable fall prevention program. The combination of online and BFR training provides increased accessibility to those who face barriers to in-person participation, such as lack of transport or living in remote locations. Ongoing studies are extending the intervention length to determine whether further reductions in fall risk can be observed.