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## The Effects of Ballistic Exercise on Cognitive Function

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A strong connection between physical activity and cognition has been well documented in health science. Prior research suggests a strong relationship between both aerobic exercise training and slow-controlled resistance training with improvements in cognitive function (CF). Little research exists on the influence of high-force production (ballistic) strength training on CF. **PURPOSE:** To determine the effects of ballistic strength training on CF in an apparently healthy, college-aged population. **METHODS:** 21 low-risk participants (age 18-25 years) who had refrained from any ballistic strength training for at least six months were recruited to the treatment group. 19 individuals (age 18-25 years) served as controls. Treatment and control groups continued previous aerobic and traditional (slow-controlled) resistance training during the study. Both groups completed congruent (CONG) and incongruent (INCONG) sections of The Stroop Test, and the Trail Making Test, Part B (TMT-B), at baseline, and eight weeks later. The Stroop Test assessed the number of correct answers on CONG and INCONG questions and the completion time of the test. The TMT-B measured the correct completion time of the test. The treatment group met twice weekly for eight weeks and completed a ballistic training protocol. Pre- and post-test comparisons within and between subjects on CF were assessed. **RESULTS:** Completion time for both CONG and INCONG sections of The Stroop Test significantly improved from baseline to post-test for all participants ( $1.65 \pm 3.59$ ,  $p = .006$ ;  $2.17 \pm 4.60$ ,  $p = .005$ , respectively); however, there was no significant difference in between groups ( $F = .921$ ,  $p = .847$ ;  $F = 2.696$ ,  $p = .450$ , respectively). All participants significantly improved from baseline to post-test on the TMT-B ( $9.74 \pm 10.48$ ,  $p < .001$ ); however, there was no significant difference between the treatment and control group from baseline to post-test ( $1.82 \pm 3.08$ ,  $p = .564$ ). **CONCLUSION:** CF improved in the treatment and control group but was not statistically different. Future research could investigate if ballistic strength training influences CF in sedentary individuals.