

## The Effects of Blood Flow Restriction Training on Measures of Strength and Body Composition in College Age Females

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### ABSTRACT

Blood flow restriction (BFR) training is a non-invasive technique that uses wraps, bands, or inflated blood pressure cuffs to alter blood flow within targeted muscles. BFR has been seen as a means to potentially help people build muscle mass and strength faster while they are exercising. **PURPOSE:** The purpose of this study was to compare the body composition and strength changes resulting from traditional resistance training without BFR to the changes resulting from resistance training combined with BFR.

**METHODS:** 21 females with at least one year of resistance training experience were recruited to participate in the study. Participants were randomly split into two different groups: occluded (OC) and non-occluded (NOC). Each participant was provided with a 4 days/week training protocol for 8 weeks of total training under either OC or NOC conditions. Participants underwent a DEXA scan, thigh girth measurement, blood draw pre- and post-workout, one-repetition max testing, and an acute bout of lower extremity exercise using a hammer strength leg press at weeks 0, 4, and 8. Participants assigned to the OC group had their 50% occlusion percentage determined during each testing session and were required to utilize BFR cuffs during all training sessions with 50% occlusion on all lower extremity exercises.

**RESULTS:** Data are presented as change over time. After data analysis, there was a statistically significant time effect between pre- and post-performance testing on muscular strength (OC =  $124 \pm 54$ , NOC =  $171 \pm 43$ ,  $p = 0.00$ ) and body fat (OC =  $-1.517 \pm 1.377$ , NOC =  $-1.138 \pm 1.544$ ,  $p = 0.022$ ). However, there was no significant difference between groups ( $p > 0.05$ ). There was no time or interaction effect for weight (OC =  $0.627 \pm 0.946$ , NOC =  $0.725 \pm 1.414$ ,  $p = 0.183$ ) or thigh girth (OC =  $0.514 \pm 1.137$ , NOC =  $-0.369 \pm 2.022$ ,  $p = 0.146$ ). **CONCLUSION:** Eight weeks of lower-body BFR training at 50% occlusion does not appear to have an added effect on measures of muscular strength or body composition in resistance-trained females.