
Blood Flow Restriction on Grip Strength and Forearm Hypertrophy Division III Collegiate Baseball Players

Exercise Science

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Purpose

The purpose of this study was to compare the effects of blood flow restriction (BFR) training vs. high intensity training in forearm grip strength and hypertrophy in Division III collegiate baseball players.

Methods

Twelve current male NCAA Division III collegiate baseball players (mean age = 19.00 ± 1.0 yrs; height = 181.3 ± 4.1 cm; body mass = 85.4 ± 9.2 kg) who were enrolled in a 3-days a week weight training program participated in this investigation. All participants were enrolled in a standardized resistance training program. Participants completed a 4-week protocol of 4 sets of 10 repetitions of supinated wrist curls over a bench followed by a fifth set to failure at the end of the regularly scheduled resistance training session. All participants completed 8 trials meeting at least two times a week. Prior to the 4-week protocol baseline grip strength and forearm circumference measures was taken along with an estimated 1-repetition maximum wrist curl. Following the 4-week protocol grip strength and wrist circumference were assessed. The BFR group utilized 37% of 1RM and the HIT group used 70% of 1 RM. Additionally, the BFR group were exposed to blood pressure cuffs (American Diagnostic Corporation, Hauppauge, NY) at the proximal end of both biceps with 100 to 120 mmHg of pressure applied. The blood pressure cuffs remained on the participant during the exercise, during the one-minute rest period between sets, and one minute after their final set. Peak CMJ from each assessment group was used for statistical analysis. An independent samples *t*-test was performed to compare the amount of change (pre to post) for the BFR and control groups and practical significance was evaluated with Cohen's *d* effect size estimates.

Results

There was a statistically significant increase in left (0.32, -0.37; $p = 0.02$) and right (0.9, 0.03; $p = 0.01$) forearm circumference between the BFR protocol and the HIT protocol. There were no statistically significant differences in grip strength between the groups.

Conclusion

Based on our findings and the circumstances of the current study design BFR training compared to high intensity training resulted in increased forearm circumference and equal increased in grip strength in well-trained Division III collegiate baseball players. BFR training of the forearms may serve as an adequate alternative to high intensity training.

Link: <https://s3.us-east-2.amazonaws.com/lagrangecollegecitations/BFR.pdf>