

The Effect of Blood Flow Restriction Therapy on Performance in Recreational Runners: An Experimental Study

SAURABH SHARMA¹, JASOBANTA SETHI², MAYANK SHARMA³

ABSTRACT

Introduction: Muscle performance, especially lower limb strength and endurance, is essential for recreational runners. While performance is improved by traditional high-load training, mechanical stress may be increased. As Blood Flow Restriction Therapy (BFRT) produces a hypoxic muscular environment, low-load exercise can cause changes that are comparable to those caused by high-intensity training.

Aim: To find out the effect of BFRT on performance in recreational runners.

Materials and Methods: An experimental study was conducted on 42 recreational runners, randomly allocated into a control group (n=21) and an experimental group (n=21). The intervention lasted 6 weeks. BFR was provided to the experimental group, with both groups engaging in strength training. Outcome measures included lower limb muscle strength assessed by the 1RM squat test and

lower limb endurance assessed by the single-leg sit-to-stand test. Statistical analysis was performed using paired and unpaired t-tests with significance set at $p < 0.05$.

Results: Both groups showed improvements; however, substantial gains were observed in the experimental group. Muscle strength improved from 59.95 ± 4.37 to 71.33 ± 4.87 kg in the control group and from 56.76 ± 4.72 to 85.38 ± 5.97 kg in the experimental group. Endurance increased from 19.66 ± 1.35 to 23.76 ± 1.67 reps (left) and 20.00 ± 1.64 to 24.47 ± 1.72 reps (right) in controls, compared to 20.80 ± 1.20 to 28.80 ± 1.16 reps (left) and 19.66 ± 1.35 to 23.76 ± 1.67 reps (right) in the experimental group ($p = 0.001$).

Conclusion: BFRT is more effective than conventional training in improving lower limb strength and endurance in recreational runners, offering a safe and efficient low-load training alternative.

Keywords: Endurance, Muscle strength, Recreational runners, Sit-to-stand test.

PARTICULARS OF CONTRIBUTORS:

1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, GOPT India, Noida, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jssethi@amity.edu; jasobantsethi@yahoo.co.in