

Performance in Recreational Runners: A Pilot Study

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ABSTRACT

Introduction: Recreational running has cardiovascular and musculoskeletal benefits, but muscle fatigue from prolonged or repetitive running may lead to reduced performance and slower recovery. Blood Flow Restriction Training (BFRT) creates a hypoxic muscle environment, allowing for low-load exercise to mimic the physiological responses of higher-load strength training. BFR training has shown promise in strength training and rehabilitation, but there are currently few published studies examining BFRT and its effect on muscle fatigue and performance in recreational runners.

Aim: To evaluate the effects of BFRT on muscle fatigue and physical performance in recreational runners.

Materials and Methods: Eighteen male recreational runners aged 20 to 35 years were randomised into a control group (n=9) and a BFRT group (n=9). The control and BFR groups trained three times a week for four weeks. Blood lactate, 1-RM squat strength, 12-minute Cooper test distance, and single-leg sit-to-stand endurance were measured pre-test and post-test. Values are presented as means±Standard Deviations (SD).

Results: The group's base data was recorded. At four weeks, we saw post-exercise lactate levels drop in the BFR group (13.5±1.2 to 10.8±0.8 mmol/L), which in the control group (11.9±1.2 to 10.9±0.8 mmol/L). Also, in relation to the controls (2222.2±117.3 to 2358.3±115.7 m), the BFR group performed better in the Cooper test, which saw improvements go from (2163.3±119.5 to 2394.4±130.5 m). Additionally, the BFR group saw greater improvement in lower limb strength, which went from (56.8±4.8 to 68.9±5.3 kg) as opposed to the controls' which improved from (60.4±3.6 to 65.9±4.2 kg). Also, we saw the BFR group do better in sit-to-stand repetitions, which improved from (40.0±3.8 to 46.0±3.8), whereas the control group improved slightly from (39.1±2.5 to 42.3±1.7). There were no reported adverse events.

Conclusion: This pilot study provides results to suggest that BFRT is a safe and effective low-load exercise intervention for increasing strength, endurance, and running performance in recreational runners with decreased muscle fatigue. These data add to the evidence for the use of BFRT and further strengthen the rationale for performing a larger randomised controlled trial.

Keywords: Cooper test, Recreational runner, Strength training.

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