SWACSM Abstract

Walking with Blood Flow Restriction Elicits Postexercise Hypotension in Prehypertensive Individuals

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ABSTRACT

It is well documented that prehypertension is associated with increased risk of developing into the future hypertension and cardiovascular events. Exercise is well known as one of the best nonpharmacological treatments for prehypertension to prevent future hypertension development. Blood flow restriction (BFR) training have been known to improve health-related components of physical fitness such as body composition, muscular strength and endurance, and aerobic capacity. However, there is still paucity of research that BFR exercise induces postexercise hypotension. **PURPOSE:** accordingly, the goal of this study was to assess that BFR exercise is more effective in reducing blood pressure (BP) compared to traditional aerobic exercise. **METHODS:** 9 healthy prehypertensive individuals were assigned to either 10 min walking (6.2 kph at 0% grade) with or without BFR via a cross-over design. Participants were outfitted with a specialized pressure cuff on their proximal thigh with high pressure applied by the cuff (~ 140 mmHg). The exercise trials were separated by 48-72 h. The systolic BP (SBP), diastolic BP (DBP), mean arteria pressure (MAP), heart rate (HR), stroke volume (SV), cardiac output (CO), and total peripheral resistance (TPR) were assessed before, every 10 min immediately after exercise for 1 h. **RESULTS:** compared with non-BFR condition, BFR walking significantly reduced SBP and MAP at 10 min (SBP: 122±3 vs. 119±4; MAP: 94±3 vs.91±2). This observation persisted throughout the experiment. These results were mainly due to a reduction in TPR. **CONCLUSION:** our study suggests that BFR walking could be safe and effective in eliciting postexercise hypotension in prehypertensive individuals.