

Effects of Handgrip Isometric Training in Blood Pressure of Patients with Peripheral Artery Disease

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Abstract : Patients with peripheral arterial disease (PAD) have a high prevalence of hypertension, which contributes to a high risk of acute cardiovascular events and cardiovascular mortality. Strategies to reduce cardiovascular risk of these patients are needed. Meta-analysis studies have shown that isometric handgrip training promotes reductions in clinical blood pressure in normotensive, pre-hypertensive and hypertensive individuals. However, the effect of this exercise training on other cardiovascular function indicators in PAD patients remains unknown. Thus, the aim of this study was to analyze the effects of isometric handgrip training on blood pressure in patients with PAD. In this clinical trial, 28 patients were randomly allocated into two groups: isometric handgrip training (HG) and control (CG). The HG conducted the unilateral handgrip training three days per week (four sets of two minutes, with 30% of maximum voluntary contraction with an interval of four minutes between sets). CG was encouraged to increase their physical activity levels. At baseline and after eight weeks blood pressure and heart rate were obtained. ANOVA two-way for repeated measures with the group (HG and CG) and time (pre- and post-intervention) as factors was performed. After 8 weeks of training there were no significant changes in systolic blood pressure (HG pre 141 ± 24.0 mmHg vs. HG post 142 ± 22.0 mmHg; CG pre 140 ± 22.1 mmHg vs. CG post 146 ± 16.2 mmHg; $P=0.18$), diastolic blood pressure (HG pre 74 ± 10.4 mmHg vs. HG post 74 ± 11.9 mmHg; CG pre 72 ± 6.9 mmHg vs. CG post 74 ± 8.0 mmHg; $P=0.22$) and heart rate (HG pre 61 ± 10.5 bpm vs. HG post 62 ± 8.0 bpm; CG pre 64 ± 11.8 bpm vs. CG post 65 ± 13.6 bpm; $P=0.81$). In conclusion, our preliminary data indicate that isometric handgrip training did not modify blood pressure and heart rate in patients with PAD.

Keywords : blood pressure, exercise, isometric, peripheral artery disease

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