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WALKING TRAINING IMPROVES CARDIOVASCULAR FUNCTION AND AUTONOMIC REGULATION IN INTERMITTENT CLAUDICATION: A RANDOMIZED CONTROLLED TRIAL

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Objectives

To assess the effect of walking training (WT) on cardiovascular function and autonomic regulation in intermittent claudication (IC).

Methods

Forty-two IC patients were randomly assigned to 2 groups: Control (CG, n=20) and WT (n=22). Patients undertook 30 min classes of stretching (CG) or moderate intensity interval walking (WT) twice/week for 3 months. Walking capacity, blood pressure (BP), cardiac output (CO, CO₂ rebreathing), heart rate (HR, ECG), stroke volume (SV), systemic vascular resistance (SVR), forearm and leg vascular resistances (VR, plethysmography), low- (LF) and high-frequency (HF) components of HR variability and spontaneous baroreflex sensitivity (SBS) were assessed prior to and following the study period. Significant changes (P<0.05) over time and between groups were assessed by 2-way ANOVA for repeated measures.

Results

WT significantly increased walking capacity ($\Delta=+302\pm85$ m) and decreased mean BP ($\Delta=-5\pm2$ mmHg), CO ($\Delta=-0.37\pm0.24$ L/min), HR ($\Delta=-4\pm2$ bpm) and rate pressure product (RPP, $\Delta=-1056\pm408$ mmHg.bpm). SVR ($\Delta=0.91\pm0.26$ U) and leg VR ($\Delta=0.0\pm10.5$ U) were unchanged following WT, and forearm VR ($\Delta=-8.5\pm2.8$ U) decreased significantly. LF/HF ratio ($\Delta=-1.24\pm0.99$) was significantly reduced and SBS ($\Delta=+2.13\pm1.07$ ms/mmHg) increased after WT. No significant changes for any variable were noted for the CG.

Conclusions

WT enhances walking capacity, cardiovascular function (BP, RPP, forearm VR) and autonomic regulation (LF/HF, SBS) in IC patients. These changes provide further support for the benefits of regular WT in treating IC.