The Effects of Resistance Band Training on Orthostatic Stress Response in Young Previously Physically Inactive Women

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Abstract

Orthostatic intolerance, or the inability of the cardiovascular system to appropriately adjust to the pull of gravity upon standing from a sitting or supine position due to decreased muscle tone or failure of baroreceptors and chemoreceptors, has been treated using either pharmacological methods or non-pharmacological methods. Studies of non-pharmacological interventions have included resistance training, strength training, and the use of compression garments. However, no study to date has investigated the potential impact of short term (4-week) home-based resistance training using elastic resistance bands on symptoms of OI and cardiovascular response to orthostasis. Thus, we conducted a study to determine the possible effects of resistance-based exercise training on orthostatic stress in college-aged females (n=7). Specifically, we looked to determine if a 4-week resistance band exercise program would affect the orthostatic stress response of participants during a classic supine to stand procedure, called the NASA Lean Test (NLT). Systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR) all factors in orthostatic response to stress and were assessed using the NLT. Data findings showed that there was a significant effect of time and time*group for SBP measurements and a significant effect of time and time*group for DBP measurements. HR measurements showed significant findings in effect of time, however, close to significant effects of intervention*group. Additionally, there was a significant effect of intervention, effect of intervention*group, and an effect of exercise for band strength, and a significant effect of exercise, along with exercise*group, for repetitions completed during the fitness assessment pre to post intervention. These findings suggest a possible correlation in short term resistance band exercise and its ability to decrease SBP and HR during orthostatic stress in young physically inactive females.