ABSTRACT

THESIS PAPER: Response Of 24-Hour Ambulatory Central Blood Pressure After Vigorous Exercise

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Purpose: The purpose of this study was to investigate the response of central ambulatory blood pressure (cABP) after vigorous intensity exercise in apparently healthy older adults. We hypothesized that cABP would be lower after a single bout of vigorous intensity exercise over a 24-hour period when compared to a non-exercise control trial.

Methods: Seven apparently healthy older adults (4 females, 3 males), age 64.9 ± 7.9 years performed two trials in a counterbalanced order: control and exercise. The exercise session consisted of a graded maximal cardiopulmonary exercise test (GXT) on a treadmill. Ambulatory brachial and central hemodynamics were measured over 24-hours using the Suntech Oscar 2 with SphygmoCor and compared between trials via paired T-tests to determine the influence of exercise over 24-hours. The variables measured were: brachial systolic blood pressure (bSBP), brachial diastolic BP (bDBP), brachial pulse pressure (bPP), central SBP, central DBP, central pulse pressure (cPP), mean arterial pressure (MAP), augmentation pressure (AP), augmentation index (AIx), and AIx normalized heart rate (HR) at 75bpm, Statistical significance was set at an alpha level of p≤0.05.
Results: No differences (P>0.05) were found between trials for any brachial or central hemodynamic variable when analyzed over 24 hours.

Conclusion: Males and females 50-75 years of age do not appear to respond to an acute bout of vigorous intensity aerobic exercise over 24-hours. Future research should investigate the response of 24-hour ABP in older adults that are classified as prehypertensive or hypertensive after vigorous intensity exercise or High Intensity Interval Training (HIIT).