**Relation between Exercise Central Hemodynamic Load and Resting Cardiac Structure and Function in Young Men**

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Left ventricular (LV) mass is a predictor of cardiovascular mortality. LV mass is well documented to be related to resting peripheral hemodynamic load in older adults. The central hemodynamic response to exercise may reveal stronger associations with LV structure and function than resting measures in a younger population. **PURPOSE:** Examine correlations between acute exercise induced changes in arterial stiffness and wave reflections and measures of resting LV structure and function. **METHODS:** Nine healthy men (age 27±6 yr; BMI 24.6±1.9 $kg \cdot m^{-2}$) had measures of central hemodynamic load measured pre/post a 30 second Wingate anaerobic test (WAT). Common carotid artery stiffness was assessed using the elastic modulus (Ep) via Doppler-ultrasound. Reflected wave intensity (negative area; NA) was assessed via wave intensity analysis. Resting LV structure (LV mass) and function (fractional shortening, FS) were assessed using M-mode echocardiography in the parasternal short-axis view. LV mass was adjusted for body surface area (BSA). **RESULTS:** Results are presented in Table 1. Of particular interest are the strong association between resting NA and FS ($r = 0.652$, $p = 0.029$) and the WAT-induced change in Ep and FS ($r = -0.713$, $p = 0.015$). There were no significant inter-associations with measures of LV mass ($p > 0.05$). **CONCLUSION:** Resting and exercise central hemodynamic load has disparate associations with resting LV function. Higher wave reflection intensity at rest is associated with higher resting LV function. Conversely, greater exercise-induced increases in arterial stiffness are associated with lower resting LV function. Resting and exercise central hemodynamic load is not associated with resting LV structure in healthy young men.

**Table 1:** Pearson correlations between resting/exercise central hemodynamic load and LV structure and function

| | **Fractional Shortening** | **LV Mass** |
|---|---|---|
| *Resting Negative Area* | 0.652* | 0.119 |
| *Resting Elastic Modulus* | 0.171 | -0.180 |
| *Exercise Negative Area* | -0.490 | -0.142 |
| *Exercise Elastic Modulus* | -0.713* | -0.267 |