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Left Ventricular Mass in Physically Active Adults with a Family History of Hypertension

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Having a positive family history of hypertension (+FHH) is associated with pre-pathologic increases in left ventricular mass (LVM); potentially due to high-normal blood pressure (BP). Regular physical activity can lead to non-pathological changes in left ventricular (LV) morphology and decreased BP. It is possible that the lower BP due to habitual physical activity may counteract some of the influence of having a +FHH. **PURPOSE:** To determine if young physically active adults with a +FHH will have greater LVM compared to young active adults with a negative family history of hypertension (-FHH). **METHODS:** Healthy young (18-32yrs) subjects were asked to self-report family history of hypertension status and habitual physical activity behavior. Subjects then underwent an echocardiogram. Subjects were excluded from this retrospective analysis if there was a prior diagnosis of cardiovascular-related disease, hypertension, or if they did not participate in regular physical activity. **RESULTS:** Of the 41 subjects, 54% (n=22: M=13, 59%; W=9, 41%) reported +FHH and the remaining 46% (n=19: M=11, 58%; W=8, 42%) reported a -FHH. There were no differences between groups for systolic BP (-FHH 116±14; +FHH 119±12 mmHg; p=0.42), diastolic BP (-FHH 68±7; +FHH 68±7 mmHg; p=0.87), or heart rate (-FHH 67±15; +FHH 63±8 bpm; p=0.28). The +FHH group had greater LV posterior wall thickness (-FHH 0.92±0.15; +FHH 1.02±0.15 cm; p=0.04), but similar LV septal wall (-FHH 0.93± 0.18; +FHH 1.02±0.19 cm; p=0.15), and LV diastolic diameter (-FHH 4.53±0.40; +FHH 4.60±0.37 cm; p=0.55). When indexed to body surface area, LVM was significantly greater in +FHH subjects (-FHH 76.11±19.42; +FHH 90.70±17.63 g/m²; p=0.02). **CONCLUSION:** This preliminary analysis suggests that, despite similar resting blood pressure, physically active young adults with a family history of hypertension have elevated LV mass compared to their counterparts without a family history of hypertension.