

ABSTRACT

Silent myocardial ischemia is a common phenomenon in patients with coronary heart disease (CHD). This may be related to findings that high BP is associated with suppression of chest pain during episodes of myocardial ischemia. Examination of the relationship between pain and cardiovascular responses during and following resistance exercise may provide insight in the phenomenon of silent ischemia. **Purpose:** The primary objective of this study was to examine the relationship between isometric exercise-induced muscle pain and resting blood pressure (BP) and heart rate (HR). Five exploratory objectives related to the effects of eccentric exercise pre- and two days post-exercise were also examined: 1. To examine differences in the strength of the relationship between isometric exercise-induced muscle pain ratings and resting BP and HR. 2. To examine the change in salivary cortisol. 3. To examine the differences in the strength of the relationship between non-exercising extension pain and resting BP and HR. 4. To examine the differences in the strength of the relationship between resting salivary cortisol and resting BP and HR. 5. To examine if the change in resting salivary cortisol was significantly correlated to the change in non-exercising extension pain. **Methods:** Thirty-two participated this randomized controlled trial, which included two exercise sessions. In the first session baseline measurements of blood pressure, HR, cortisol and pain ratings were taken. Tonic and phasic isometric muscle contraction tests were performed following all of the baseline measurements. After the isometric muscle contraction tests, participants (n=16) performed three sets of 12 eccentric muscle contractions. All of the measurements and isometric muscle contraction tests were completed again, two days post-eccentric exercise. **Results:** Isometric exercise-induced pain and resting BP and HR was not found to be significantly or negatively correlated. None of the

relationships examined in the exploratory objectives were significant from pre- to post-eccentric exercise. Salivary cortisol concentration did not significantly change pre- to post-eccentric exercise. **Conclusion:** A negative relationship between exercise-induced pain and resting BP and HR was not detected, which may be due to several factors, such as the type of pain induced during exercise or the timing of the BP and HR measurement.