

## **Blood Pressure Responses to Metaboreflex Activation During Acute and Chronic Volume Loading**

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The metaboreflex is a powerful blood pressure (BP) raising reflex that is activated during acute exercise and limb ischemia; byproducts of metabolism activate the metaboreceptors (group IV sensory fibers) located within the skeletal muscle. However, it is not known if acute or chronic volume loading alters the BP response during metaboreflex activation. **PURPOSE:** To test the hypothesis that acute and chronic volume expansion would exaggerate BP responses during metaboreflex activation. **METHODS:** Metaboreflex function was isolated using post exercise ischemia (PEI). Acute volume expansion was achieved with a 23-minute infusion of lactated Ringers (0.15 mL/kg/min; 239±9 mL) in 17 subjects (age: 23±1 yrs, BMI: 24.0±0.9 kg/m<sup>2</sup>, 9 men). Chronic volume expansion was achieved with 7 days of a high sodium diet (compared to low sodium diet, order randomized) in 16 subjects (age: 39±4 yrs, BMI: 23.2±0.5 kg/m<sup>2</sup>, 7 men). The BP response to PEI was assessed before and after the acute and chronic volume expansion. **RESULTS:** Estimated plasma volume was expanded similarly in response to both the acute (6.4±2.7%) and chronic (3.2±2.2%) volume expansion (p = 0.39). During the acute trial, the systolic BP response to PEI was greater following the infusion ( $\Delta$  22±4 vs. 16±2 mmHg; p = 0.01). Likewise, during the chronic trial, the systolic BP response to PEI was greater after the high sodium diet ( $\Delta$  28±2 vs. 24±3 mmHg; p = 0.02). **CONCLUSION:** BP is raised to a greater extent during metaboreflex activation when plasma volume is expanded acutely and chronically.

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