

SWACSM Abstract

Effects of Co-ingesting Dietary Nitrate and Vitamin C on Nitric Oxide Bioavailability, Blood Pressure, and Cardiovascular Reactivity in Hispanic Females

JOANNA POWELL, KATHERINE M. PRICE, ISABELLA G. LINCOLN, KEONABELLE P. PANIAGUA, SEAN T. KARL, JULIE AHN, NOELLE G. SEEKAMP-HICKS, LAUREN WIDEEN, JOSHUA PARK, & RACHEL TAN.

Applied Physiology Nutrition and Metabolism Lab; Natural Science Division; Pepperdine University; Malibu, CA

Category: Undergraduate

Advisor / Mentor: Tan, Rachel (rachel.tan@pepperdine.edu)

ABSTRACT

High blood pressure is a hallmark of chronic disease and is disproportionately prevalent in ethnic minorities. Dietary nitrate has been shown to lower blood pressure via increased nitric oxide (NO), but few studies have examined if combining nitrate with vitamin C (VITC) could have beneficial synergistic effects on blood pressure by augmenting NO, and limited data exist in females. **PURPOSE:** To investigate if combining nitrate-rich beetroot juice (BR) with VITC could further augment NO bioavailability and improve blood pressure in Hispanic females compared to BR and VITC ingested alone. **METHODS:** Eight sedentary Hispanic females participated in four conditions to ingest: 1) BR and VITC (BR+VITC), 2) BR and crystal light (BR+CRY), 3) nitrate-depleted BR and VITC (PL+VITC), and 4) PL and CRY (PL+CRY). A blood draw and blood pressure were obtained at rest, followed by a cardiovascular reactivity test. **RESULTS:** Plasma nitrate was increased in BR+VITC and BR+CRY compared to PL+VITC and PL+CRY ($P < 0.001$), with no difference between BR+VITC and BR+CRY ($P > 0.05$). Plasma nitrite was increased in BR+VITC and BR+CRY compared to PL+VITC and PL+CRY ($P < 0.01$) and was greater in BR+VITC compared to BR+CRY ($P < 0.05$). There were no differences in systolic, diastolic, or mean arterial pressure at rest or during the cardiovascular reactivity test ($P > 0.05$). **CONCLUSION:** Co-ingestion of dietary nitrate and VITC increased plasma nitrite compared to BR alone, which could indicate augmented NO bioavailability following BR+VITC; however, there was no impact of nitrate supplementation on markers of cardiovascular health.