The effect of co-ingesting beetroot juice and vitamin C on blood pressure in Hispanic women: a literature review and a proposal

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Dietary nitrate supplementation is known for improving blood pressure through vasodilation and may favorably alter oral microbial populations related to cardiovascular health. Co-ingestion with vitamin C (VITC) may further potentiate these benefits but this remains unexplored. Additionally, this field has yet to examine the influence of sex and ethnicity, which is important given that physiological differences exist between populations. The purpose of this study is to assess the effects of combining dietary nitrate, in the form of beetroot juice, and VITC on blood pressure and the oral microbiome in women of Hispanic, African American, and American descent across multiple institutions. In a double-blinded, randomized, crossover design, 12 Hispanic females will arrive to the laboratory at Pepperdine University, while 12 African American and 12 Caucasian women will arrive to the laboratory at Indiana University, for 4 visits over 4 months to receive nitrate-depleted beetroot juice and crystal light (PL+CL), PL and VITC (PL+VITC), nitrate-rich beetroot juice and CL (BR+CL), and BR and VITC (BR+VITC). During each experimental trial, resting blood and buccal cell samples will be obtained followed by body composition. Following this, blood pressure and heart rate will be measured at rest and during a protocol for assessing cardiovascular reactivity. Each visit will take place during the early follicular phase of the menstrual cycle. The data have important implications for increasing the application of dietary interventions for cardiovascular health to benefit a wider population.

Keywords: dietary nitrate, cardiovascular, nitric oxide, antioxidants