

THESIS: Chronic Effects of Dietary Nitrate from Beetroot Juice Supplementation on Sprint Performance in Army ROTC Cadets in a Midsize, Midwestern University: A Pilot Study.

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Athletes and warfighters are continually looking for ergogenic aids that are safe and legal. Beetroot juice (BR), a rich, safe source of dietary nitrates, has been shown to be effective for improving performance and increasing time to exhaustion in events that require endurance or require repeated interval sprints. The demands of combat are most like repeated sprints, and it is important to identify if BR would aid this population and what would the recommended dose and duration of supplementation be. Twenty-five ROTC Cadets from a midsize, midwestern university were randomized into 3 groups that did not differ between age, gender, body composition, or aerobic fitness; the groups were only different in the beverage they were given and the corresponding amount of dietary nitrates, either 16.9 oz. apple juice (CON, 0 mg NO₃⁻), roughly 8 oz. apple juice + 8.4 oz. beetroot juice (BR1, 300 mg NO₃⁻), or 16.8 oz. beetroot juice (BR2, 600 mg NO₃⁻). The major outcome measure is performance on the Yo-Yo Intermittent Recovery Test 1 (Yo-Yo IR1), which measures distance covered in progressively faster interval sprints until exhaustion. Each group increased over the 3 sprints, and a dose-related effect was observed, even though the increase was insignificant ($p > 0.05$). Overall, BR2 improved by 35 % and BR1 by 25 % compared to CON with no significant difference in GI symptoms.