Sample Abstract – *Physiology*

Abstract Title: Effect of Dietary Nitrate Supplementation on Conduit Artery Blood Flow, Muscle Oxygenation, and Metabolic Rate During Handgrip Exercise

Dietary nitrate supplementation has positive effects on mitochondrial and muscle contractile efficiency during large muscle mass exercise in humans and on skeletal muscle blood flow (Q̇) in rats. However, concurrent measurement of these effects has not been performed in humans. Therefore, we assessed the influence of nitrate supplementation on Q̇ and muscle oxygenation characteristics during moderate- (40 %peak) and severe-intensity(85% peak) handgrip exercise in a randomized, double-blind, crossover design. Nine healthy men (age: 25 ± 2 yr) completed four constant-power exercise tests (2/intensity) randomly assigned to condition [nitrate-rich (nitrate) or nitrate-poor (placebo) beetroot supplementation] and intensity (40 or 85% peak). Resting mean arterial pressure was lower after nitrate compared with placebo (84 ± 4 vs. 89 ± 4 mmHg, P < 0.01). All subjects were able to sustain 10 min of exercise at 40% peak in both conditions. Nitrate had no effect on exercise tolerance during 85% peak (nitrate: 358 ± 29; placebo: 341 ± 34 s; P = 0.3). Brachial artery Q̇ was not different after nitrate at rest or any time during exercise. Deoxygenated [hemoglobin + myoglobin] was not different for 40% peak (P > 0.05) but was elevated throughout 85% peak (P < 0.05) after nitrate. The metabolic cost (V̇o2) was not different at the end of exercise; however, the V̇o2 primary amplitude at the onset of exercise was elevated after nitrate for the 85% peak work rate (96 ± 20 vs. 72 ± 12 ml/min, P < 0.05) and had a faster response. These findings suggest that an acute dose of nitrate reduces resting blood pressure and speeds V̇o2 kinetics in young adults but does not augment Q̇ or reduce steady-state V̇o2 during small muscle mass handgrip exercise.

KEY

Abstract contains sufficient background to understand the problem under investigation

Abstract must contain a hypothesis, objective or statement about the problem under investigation

Abstract must contain a brief statement of the experimental methods/methodology used

Essential results must be present in summary form (even if preliminary)

Abstract must contain a conclusion that explains how the work contributes to the hypothesis, objective or statement of problem

Abstract Source: Craig J. C. et. al. (2018). *J. Appl. Physio.* 125(2):254-262.; DOI: https://doi.org/10.1152/japplphysiol.00772.2017.