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Responses to Caffeine Supplementation in Trained and Untrained Individuals During the Wingate Protocol

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Caffeine is an ergogenic aid that can enhance performance in both aerobic and anaerobic exercise. **PURPOSE:** The purpose of this study was to determine if trained individuals elicit a greater response to caffeine consumption in the Wingate Anaerobic Power Test (WAPT) when compared to untrained individuals. **METHODS:** Ten participants (5 trained, 5 untrained) completed a WAPT on 3 separate testing days, each day under a different condition (baseline, caffeine, or placebo). The first day was a baseline test. On day two the participants ingested a caffeine or placebo supplement, and the opposite was ingested on the third day. The caffeine and placebo, ingested 30 min prior to lab arrival, were equivalent to 5 mg/kg of participant body mass. Peak and mean power outputs, heart rate (HR), blood pressure (BP), and blood lactate (BL) were measured before and after the Wingate protocol. **RESULTS:** No significant differences were found between baseline (861 ± 213 W), caffeine (898 ± 172 W), or placebo (892 ± 223 W) conditions in peak power outputs ($p < 0.05$). Mean power output values were not significantly different between the baseline (541 ± 94 W), caffeine (545 ± 83 W), or placebo (547 ± 92 W) conditions ($p < 0.05$). Mean power output was larger in trained individuals than untrained individuals in all conditions (baseline, caffeine, and placebo). Peak power output was similar between trained and untrained participants in the baseline and placebo conditions, but in the caffeine condition trained subjects had a significantly greater mean power output. **CONCLUSION:** The WAPT is a short test, and caffeine supplementation might be more suited for repeat Wingate trials or endurance-based testing as caffeine is commonly associated with fatigue blunting properties. Further, due to the often reported glycogen-sparing effect and enhanced FFA mobilization, the drug may be better suited for aerobic work tests in which carbohydrate availability may limit performance.