

The Effects of Caffeine on Maximal Anaerobic Exercise

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PURPOSE: The purpose of this study was to evaluate the effects of caffeine on a maximal anaerobic capacity exercise protocol using the 90-second Wingate Test (WAnT90). **METHODS:** Ten anaerobically conditioned caffeine-naïve males (age = 20.3 ± 0.9 yr) participated in a randomized counterbalanced double blind study. Subjects performed a 2-min warm up on a Monarch bicycle ergometer one hour after ingesting caffeine (5mg/kg body mass) or placebo. Following a warm-up participants completed a WAnT90 protocol using a constant resistance throughout the test (0.05g/kg body mass). Pedal revolutions were counted and recorded every 5 s throughout the 90 s test. Power (W) was calculated based on load and pedal revolutions, and fatigue was calculated based on decline in power. Statistical analysis was completed using paired t-tests comparing peak power (PP), total power (TP), total power during first 30-s (TP30) total power during second thirty seconds (TP60), total power during third thirty seconds (TP90) and power decline for total work, 30-s, 60-s, and 90-s (PDT, PD30, -60, -90, respectively). **RESULTS:** There were no significant ($p \leq 0.05$) differences in any variables tested including TP (7424.78 ± 903.05 ; 7254.37 ± 766.16), PP (756.15 ± 138.56 ; 754.68 ± 124.65) PDT% (68.27 ± 7.71 ; 66.21 ± 7.14) between the placebo and caffeine group respectively. **CONCLUSION:** We have previously shown beneficial effects of caffeine for total power and power decline when habitual caffeine-users were tested (Hendricks, 2012). Comparison of the two studies suggests there may be a learning effect of caffeine and is an area of interest for further research.