Caffeine improves anaerobic performance in a 90-s Wingate test in habitual caffeine users

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The purpose of this study was to evaluate the effects of caffeine on a maximal anaerobic exercise protocol using the 90–s Wingate Test (WAnT90). 29 (11 females, 17 males) anaerobically-conditioned athletes volunteered for a randomized counterbalanced double-blind study. Subjects were classified as either habitual consumers (n=15) or caffeine naïve (n=13) based on daily caffeine consumption habits. One h after ingesting caffeine (5mg/kg) or placebo participants completed a WAnT90 using a resistance of 0.05g/kg. In addition to peak power (PP), total power (TP), and total power decline (PDT), power and power decline were calculated for each 30-s interval of the test (TP30, TP60, TP90, PD30, PD60, PD90). Paired t-tests compared caffeine vs placebo in each group, and significance was set at p<0.05. In the habitual caffeine consumption group TP, TP30, and TP60 were significantly greater in the caffeine trial. In the caffeine naïve group PD30 was greater in the caffeine trial; there were no other significant effects of caffeine on this group. This study suggests an ergogenic effect of caffeine for those who regularly consume caffeine but not for those who do not. These results imply a possible learning effect for caffeine; further research should focus on a mechanism.