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Caffeine Withdrawal and High Intensity Endurance Cycling Performance.: 924: June 4 1:15 PM - 1:30 PM

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PURPOSE: This study investigated the impact of a controlled four-day caffeine withdrawal period on the effect of an acute caffeine dose on endurance exercise performance. **METHOD:** 12 trained and familiarised male cyclists [28.3 ± 5.8 y, 80.2 ± 6.6 kg BW, 182.5 ± 4.2 cm, $VO_{2\text{ peak}} 63.7 \pm 7.4$ mL $[\text{kg}^{-1}\text{min}^{-1}]$; values are mean \pm SD] who were regular caffeine consumers, were recruited for the study. A double-blind placebo-controlled cross-over design was employed in which all subjects participated in four experimental trials. For 4 days prior to each trial subjects abstained from dietary caffeine sources and ingested capsules containing either placebo (P) or caffeine (C) [1.5 mg $[\text{kg}^{-1}\text{day}^{-1}]$]. Following this subjects then ingested capsules containing placebo (P) or caffeine (C) [3 mg $[\text{kg}^{-1}\text{BW}]$ 90 minutes prior to completing a time trial (TT), equivalent to 1 hour cycling at 75% peak sustainable power output (PPO). Hence the study was designed to incorporate conditions PP, PC, CP and CC.

RESULTS: Performance time was significantly improved after acute caffeine ingestion by $1:49 \pm 1:41$ min (3.0%) following a withdrawal period (PP vs. PC), and $2:07 \pm 1:28$ min (3.6%) following the non-withdrawal period (CP vs. CC). No significant difference was detected between the two acute caffeine trials (PC vs. CC). Average HR throughout exercise was significantly higher following acute caffeine administration compared to placebo. No differences were observed in RPE between trials.

CONCLUSION: 3 mg $[\text{kg}^{-1}\text{BW}]$ of caffeine significantly improves exercise performance irrespective of whether a four-day withdrawal period is imposed on habitual caffeine users.

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