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Communication

Creatine supplementation during a training camp in young professional cyclists: a randomized controlled trial

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Abstract: Background: Growing evidence suggests that creatine supplementation can provide beneficial effects on exercise performance and recovery, particularly in strength/power sports. However, its effects on endurance athletes remain unclear. We aimed to assess the effects of short term creatine supplementation in professional cyclists during a training camp.

Methods: Twenty-three professional U23 cyclist (19±1 years, peak oxygen uptake: 73.0 ± 4.6 ml/kg/min) participated in a six-day training camp. Participants were randomized to consume after each training session either a recovery drink along with a creatine supplement (20 g) (n = 11) or just the recovery drink (n = 12). Indicators of fatigue/recovery (Hooper index, Recovery-Stress Questionnaire for Athletes (RESTQ), countermovement jump), body composition, and performance (1-, 6-, and 12-minute time trials, as well as the estimated critical power) were assessed as study outcomes.

Results: The training camp resulted in a significant ($p<0.001$) increase of training loads (e.g., +50% increase in training time and +61% Increase In training stress score compared with the preceding month), which induced an increase in fatigue indicators (e.g., time effect for delayed-onset muscle soreness, fatigue, and total Hooper index, $p<0.001$) and a decrease in performance (e.g., time effect for critical power, $p=0.020$). A significant group by time effect ($p<0.05$) was observed for different recovery items (i.e., success, social recovery, and physical recovery) of the RESTQ, but no additional between-group differences were found for any of the analyzed outcomes.

Conclusion: Short-term creatine supplementation seems to exert no consistent beneficial effects strenuous training period in professional cyclists.