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### **The Effects of Ketone Supplementation on Recovery in Collegiate Male Soccer Players: Pilot Trial**

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The ability to recover appropriately following exhaustive physical activity is paramount to the success of athletes at all levels of competition. Currently, numerous strategies exist to aid in recovery following exercise including the use of nutritional supplements. Ketone esters are a novel supplement that may help to mitigate acute effects of exhaustive exercise however this has yet to be elucidated. **PURPOSE:** To investigate the effects of ketone ester supplementation on acute recovery in male NCAA DIII collegiate soccer players. **METHODS:** A double-blind randomized crossover design was employed for this study. Four male collegiate soccer players (age  $19.0 \pm 0.0$ , height  $172.8 \pm 12.5$  cm, weight  $71.9 \pm 5.8$  kg,  $VO_2\text{max}$   $56.2 \pm 2.4$  mL $\cdot$ kg $^{-1}\cdot$ min $^{-1}$ ) completed a countermovement jump (CMJ) and the running-based anaerobic sprint test (RAST) following assessment of blood biomarkers (blood lactate, blood ketones and blood glucose). Immediately after baseline measures, subjects completed part A of the Loughborough Intermittent Shuttle Test (LIST) to mimic the physical demands of a 90 min soccer match. Subjects consumed either the ketone ester (KE) or placebo (PLA) drink. Blood biomarkers were assessed immediately after LIST, 30 minutes post-drink and 5 hours post LIST. Additionally, CMJ and RAST were repeated 5 hours post LIST. Soreness and fatigue were measured using Visual Analog Scale before, immediately post and 5 hours post LIST. Lastly, GI distress was measured 30 minutes post drink. **RESULTS:** There were no significant differences for the CMJ, RAST, VAS and GI distress ( $p$ 's  $> 0.05$ ). A significant difference in blood ketone values was observed between conditions ( $p = 0.004$ ), with the KE drink producing significantly higher values 30 min post LIST ( $3.6 \pm 0.8$  mmol/L) than the PLA ( $0.2 \pm 0.1$  mmol/L). **CONCLUSION:** Although, ketone ester supplement promotes rapid and elevated ketosis the findings of this pilot study indicate that there were no differences in acute recovery measures following ingestion of a KE or PLA beverage.

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