

MIGHT COMMERCIAL OFF-THE-SHELF SPORTS DRINKS AID ATHLETES COMPETING IN THE FOOTBALL WORLD CUP IN 2010?

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With the 2010 Soccer World cup venue having games played at various altitudes, this study investigated the optimal sports drink for a simulated football protocol in normobaric hypoxic ($F_{I}O_2=0.15$, ~2500m) and normoxic ($F_{I}O_2=0.21\%$) laboratory conditions.

Nine male subjects completed eight experimental conditions with two environments (hypoxic and normoxic), and 4 types of drink (CHO; Placebo; RedBull; CHO+RedBull), administered in a counterbalanced manner. Each session consisted of: drink, 45-min seated, drink, 5-min warm-up ($10\text{km}\cdot\text{h}^{-1}$), 45-min simulated football protocol, 15-min half-time with drink, 45-min second half, then a 1km time-trial. Heart rate (HR), rating of perceived exertion (RPE) and thermal comfort (TC) were measured every 5-min throughout the football simulation and every 250m in the time-trial. Oxygen saturation (SaO_2) was indirectly measured every 5-min during the resting period. Fingertip blood samples for a variety of variables were taken at rest, after 45-min and immediately after the time-trial. Body mass and urine osmolality were measured at rest and the end of the time-trial.

SaO_2 decreased in hypoxia during the 45-min rest. HR, RPE and TC were higher in hypoxia than normoxia and increased during the soccer-specific protocol, irrespective of environment or drink. Split times were slower and blood lactate levels lower in hypoxia, with higher levels at the end reflecting the faster time-trial. NEFA was higher in the Placebo vs CHO condition. Glucose levels decreased after the first 45 min of football. Body mass loss did not depend upon the type of drink in either environment. Urine osmolality was lower in the CHO vs CHO+RedBull drink. Mild acute hypoxia (exposure 0-170 min, ~2500m) generally had a negative effect on performance.

When hydration needs were met, the off-the-counter drinks did not benefit performance or responses to a soccer-specific protocol, however the RedBull drink alone had beneficial effect to maintain performance in the time-trial.