



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1st – 2nd, 2019
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



Hydration Status Effect on Anaerobic Power and Fatigue in Collegiate Female Soccer Players

Jacklyn S. Alencewicz, Bridgette R. Buckalew, Angelica R. Del Vecchio, Evan L. Matthews, David Phillips, Peter A. Hosick. Montclair State University, Montclair, NJ.

The impact of hypohydration on anaerobic performance has yet to be fully elucidated. Furthermore, the available literature typically uses heat and/or exercise-induced hypohydration protocols which may exacerbate the impact that hypohydration has on anaerobic performance. Conversely, without controlling for menstrual cycle phase, fluid retention during the luteal phase could mask hypohydration's impact. **PURPOSE:** To determine the effect of a non-fatiguing thermoneutral (NFT) fluid restriction on repeated 30-s Wingate efforts and fatigue in active women during the early follicular menstrual phase. **METHODS:** Subjects ($n=3$) completed a euhydrated (EUH) and hypohydrated (HYP) trial in random order. Hypohydration was achieved via a 48-hr passive, thermoneutral fluid restriction. Upon reporting to the lab, subjects provided a urine sample to confirm euhydration or hypohydration via urine specific gravity (USG), urine color, and pre-fatigue perceived thirst scores. Subjects cycled at 6.5% of their peak power output (PPO) prior to and immediately following the completion of three 30-s Wingate trials with a four-minute passive rest between each Wingate. Paired t-tests were used to compare USG, urine color, pre-fatigue thirst score between trials. A 2x3 ANOVA assessed differences in peak power, anaerobic capacity (AC), anaerobic power (AP), and fatigue index (FI) between the trials and with respect to time. **RESULTS:** USG ($1.004 \pm 0.002 \text{ g}\cdot\text{cm}^3$ vs. $1.027 \pm 0.007 \text{ g}\cdot\text{cm}^3$, $p < 0.05$), urine color (1 ± 0 vs. 6 ± 1 , $p < 0.05$), and pre-fatigue perceived thirst scores (3 ± 0.577 vs. 7 ± 1.528 , $p < 0.05$) were significantly increased in the HYP trial. AC decreased in each subsequent trial during the HYP condition (W1: $7.68 \pm 0.4 \text{ W/kg}$; W2: $6.96 \pm 0.44 \text{ W/kg}$; W3: $6.22 \pm 0.59 \text{ W/kg}$, $p < 0.05$); however, in the EUH condition, AC decreased during the second Wingate trial, but rebounded during the third trial (W1: $9.35 \pm 4.02 \text{ W/kg}$; W2: $8.81 \pm 3.99 \text{ W/kg}$; W3: $9.12 \pm 4.61 \text{ W/kg}$, $p > 0.05$). **CONCLUSIONS:** This preliminary analysis suggests that hypohydration induced via a NFT fluid restriction may adversely impact average anaerobic power during repeated anaerobic performance.