

Fluid Balance and Hydration Practices of High-Performance Singaporean Youth Athletes

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Abstract

Introduction: This study provides insights on fluid balance amongst high-level Singaporean youth athletes and their fluid replenishment behaviours during training.

Methods: A total of 199 Singaporean youth athletes (M: 100, F: 99), 13–18 years old from nine different sports were recruited from a high-performance sports academy. Investigation was conducted during low (L) and high (H) intensity sessions (mean: 384.71 ±22.90UA (L), 519.19 ±23.65UA (H)), overall mean temperature and humidity of 27.1 ±3.8°C and 65 ±8% respectively. Morning and pre-training urine samples were analysed using an Urine Specific-Gravity (USG) refractometer. Pre- and post-training perceived thirst was rated against a nine-point scale. Percentage body mass (%BM) changes during training were recorded along with training load as measured by session RPE and duration.

Results: Results showed 43% and 45% youth athletes with USG ≥ 1.020 for morning (mean: 1.018 ±0.008) and pre-training USG (mean: 1.017 ±0.009), with higher morning USG (p = 0.024) observed for male athletes. Changes in %BM was higher (p = 0.002; range -2.24–1.24%) for male than female athletes across all intensities, with no significant difference between intensities. Training load was correlated with overall fluid intake (p < 0.001; r = 0.481) and sweat loss (p < 0.001; r = 0.405).

Conclusions: Hypohydration may be prevalent amongst Singaporean youth athletes if indicated by USG ≥ 1.020. Increased training load also resulted in higher fluid intake and sweat loss. Future studies to measure if this degree of hypohydration has a negative effect on their performance may be warranted.

Keywords: Hydration, Youth, Athletes, Asian