THE USE OF URINALYSIS AND BODY WEIGHT CHARTS AS AN INDICATOR OF CHANGE IN HYDRATION AFTER A SOCCER PRACTICE


Context: Athletic trainers use body weight charts for weigh-ins and weigh-outs prior and post practices to evaluate athletes' dehydration status. Are these body weight charts reliable instrument for evaluation of dehydration status? Objective: Heat-related deaths occur each year in college and high school athletes during pre-season camps. Hot environmental illnesses include heat cramps, heat syncope, heat exhaustion, and heat stroke. Heat-related illnesses are preventable. Many health care professionals use weight charts as a measurement of dehydration after physical activity. The National Athletic Trainers’ Association (NATA) recommends that fluid replacement should approximate sweat and urine losses and maintain hydration at less than 2% body weight reduction. The purpose of this study was to investigate the validity of using body weight changes (weigh-ins and weigh-outs pre- and post-practice) as an indicator of change in hydration after soccer practice.

Design: This study followed experimental time series design measuring central gravity and body mass prior and post-practice. Settings: Data collection took place prior- and post- men's soccer practice during preseason camp. Patients: Twelve Division II male soccer players participated in the study (age = 20 ± 1.21 years, height = 179.49 ± 3.98 cm, weight = 77.53 ± 7.63 kg). Interventions: All participants underwent a pre-season conditioning soccer practice outside on a grass field. Main Outcome Measures: Urinalysis (specific gravity) and body mass were collected prior and after a soccer practice. Digital urine refractometer PAL10S was used to monitor dehydration by measuring specific gravity in the urine. These data were collected before and after practice for each subject. Pearson’s correlation coefficient was computed to assess the relationship between change in specific gravity and change in body mass before and after practice. Linear regression was also utilized to assess change in body mass as a predictor of change in specific gravity. Alpha level 0.05 set a priori. Shapiro-Wilk test of normality was utilized to investigate collected data. Pearson correlation coefficient was computed to assess the the relationship between changes in specific gravity and body mass before and after practice. Alpha level 0.05 set a priori. Results: Pearson correlation coefficient (-0.28, p = 0.433, N = 12) revealed that there is no correlation between changes in body mass and specific gravity sustained during practice. Conclusions: There is no significant relationship between body mass and urinalysis (specific gravity). Based on the data collected during this study body mass is not a valid indicator of dehydration. Limitations to this study include a small sample size. Further investigation is warranted to assess if changes in body mass are a valid indicator of dehydration with a larger sample size and contribution of hydration during practices.

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