method is sensitive enough to track acute changes in hydration, but the model used to calculate TBW needs to be investigated. Therefore, urinary methods to track changes in hydration may be used along with or in place of BM, but further research is needed before BIS or MFBIA can be used to detect acute changes in TBW after physical dehydration in an athletic population.

1808 Board #94 May 29, 3:30 PM - 5:00 PM

24-hr Void Number As A Marker Of Hydration Status

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(No relationships reported)

Despite the necessity of euhydration, an optimal, user-friendly, accurate hydration assessment technique for the general population does not exist.
PURPOSE: The purpose of this study was to investigate a new hydration assessment technique, which utilizes no equipment or technical expertise to administer. We hypothesized that the number of urine voids over a 24-hr time period correlates to hydration status.
METHODS: Eighty-seven healthy individuals (n = 42 females) participated (age 23±4 years, body mass 79.6±21.2 kg, height 1.72±0.16 m). All participants abstained from caffeine and alcohol during the experiment, and 43 participants were restricted to 500 ml of water intake during testing. For 24-hrs participants voided at a “first urge to void” urge (Athwal 2001) into a standard medical-grade container. Participants indicated volume, time, and urge rating of each void. Fluid and food intake also were recorded over the 24-hrs. Total 24-hr urine volume, osmolality, specific gravity (USG), and color were measured. According to standard criteria, subjects were classified as euhydrated (USG<1.020) or hypohydrated (USG≥1.020).
RESULTS: Euhydrated (n=44) versus dehydrated (n=43) individuals had more voids (5±2 versus 3±1, respectively, P=0.001), greater 24-hr urine volume (1933±864 versus 967±306 ml, P<0.001), lower urine color (2±1 versus 5±1, P<0.001), lower USG (1.012±0.004 versus 1.025±0.004, P<0.001), and lower osmolality (457±180 versus 874±175 mOsm/kg H_2O, P<0.001). As hypothesized, void number moderately correlated to hydration status as identified by USG (r=-0.50, P<0.001), and osmolality (r=-0.56, P<0.001).
CONCLUSION: Void number correlated with USG and urine osmolality. This suggests that over a 24-hr time period individuals with a higher void number are more hydrated than those with a lower void number. Using void number as a hydration assessment technique could be a technique for the general public to self-assess hydration, considering it is as simple as counting void numbers over a 24-hour period.
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1809 Board #95 May 29, 3:30 PM - 5:00 PM

Thirst Perception Tracks Progressive Dehydration During Exercise In The Heat

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(No relationships reported)

Thirst is claimed to be a perfect measure of fluid needs, but insufficient information is available on the association between thirst perception and actual dehydration.
PURPOSE: to assess the strength of the actual association between net fluid balance (NFB) and thirst during exercise in the heat.
METHODS: Fourteen healthy participants (27.3 ± 2.3 years old, 72.55 ± 18.52 kg; mean ± standard deviation) reported to the laboratory after an overnight fast and completed two different sessions (dry heat and humid heat), equivalent in WBGT (27.7°C), one week apart. Participants exercised for 2 hours on a stationary bicycle in a climate-controlled chamber without any fluid intake. Nude and dry BM was measured every 30 minutes; dehydration was calculated from weight loss as %BM. At the same time points, thirst perception (TP) was evaluated with Engell’s 9-point scale. Means were compared via one- or two-way ANOVAs as pertinent. A multiple regression analysis was used to test the association between NFB and TP, with individuals included in the model.
RESULTS: initial values were consistent between sessions (BM: 72.5 ± 18.52 vs 72.26 ± 18.32 p = 0.185; USG: 1.017 ± 0.005 vs 1.017 ± 0.005, p = 0.77, and thirst: 2.6 ± 1.9 vs 2.4 ± 1.33, p = 0.39). Neither TP (p = 0.916) nor NFB (p = 0.140) were different between sessions, but both changed significantly over time (p < 0.001), see table. There was a clear association between thirst and net fluid balance during dehydration: R^2= 0.74, R^2_a= 0.70; p < 0.001.

Variable	Dry Heat (33.8±0.32°C/ 53.1± 3.64% r.h)					Humid Heat (32.07± 0.9°C/ 67± 1.38% r.h)				
Time	Pre Exer	30 min	60 min	90 min	120 min	Pre Exer	30 min	60 min	90 min	120 min
NFB (kg)	0.00 (0)	-0.42 (0.22)	-1.07 (0.43)	-1.68 (0.61)	-2.23 (0.78)	0.00 (0)	-0.37 (0.18)	-0.99 (0.39)	-1.57 (0.54)	-2.19 (0.85)
TP (a.u)	2.6 (1.9)	3.6 (2.1)	4.6 (2.1)	5.9 (1.7)	7.4 (1.4)	2.4 (1.3)	3.6 (1.9)	5.1 (1.6)	5.7 (2.1)	7.0 (1.6)
Dehydration (%)	0.00 (0)	-0.55 (0.20)	-1.44 (0.31)	-2.28 (0.36)	-3.03 (0.46)	0.00 (0)	-0.52 (0.22)	-1.36 (0.36)	-2.16 (0.42)	-2.99 (0.63)

Mean (SD)
CONCLUSION: When our subjects were not allowed to drink, progressive dehydration had a strong association with thirst perception.
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D-29 Free Communication/Poster - **Intervention Strategies in Adults**

Thursday, May 29, 2014, 1:00 PM - 6:00 PM
Room: WB1