3) 7.5 g of salt/L + 1.4 g glycerol/kg FFM (SGIH). Changes in urine production, fluid retention, hemoglobin, hematocrit, plasma volume and abdominal discomfort were monitored throughout the trials.

RESULTS: Participants ingested 1885 ± 199 mL (24.9 ± 1.6 mL/kg bodyweight) of artificially sweetened water with either 14.0 ± 1.5 g of salt (SIH), 90.9 ± 8.5 g of glycerol (1.2 ± 0.1 g/kg bodyweight) (GIH) or both (SGIH). After 3h, there were no significant differences among treatments for hematocrit and plasma volume changes (SIH: 11.3 ± 9.5; GIH: 11.3 ± 13.7%; SGIH: 11.3 ± 10.3%). However, changes in plasma volume (SIH: 14.3 ± 1.0; GIH: 14.5 ± 1.1 mg/dL) was lower with SIH than GIH, with no difference between SGIH and GIH or SIH. Urine production (SIH: 775 ± 229; GIH: 1248 ± 270; SGIH: 551 ± 208 mL) and fluid retention (SIH: 1127 ± 212; GIH: 729 ± 115; SGIH: 1435 ± 140 mL) were significantly different among treatments. Abdominal discomfort was low and not significantly different among treatments.

CONCLUSION: Results show that SGIH reduces urine production and improves fluid retention compared with SIH or GIH. These findings may have implications for laborers, military personal and serious but non-competitive athletes since the ingestion of glycerol is prohibited by the WADA.

641 Board #4
June 1, 1:00 PM - 3:00 PM
Number Of Visits To The Bathroom As An Index Of Elevated Urine Osmolality
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Reported Relationships: S.A. Kavouras: Consulting Fee; Quest Diagnostics. Contracted Research - Including Principle Investigator; Active grant funded by Danone Research.

PURPOSE: To examine the effectiveness of number of voids in 24 hours as an index of elevated urine osmolality in healthy adults.

METHODS: One hundred and one healthy adults (females N=52; 1.64±0.06 m, 72.0±16.6 kg, 26.0±4.7 kg/m2) were included. Participants ingested 140 mL 14.0% (SGIH) or 1.4% (GIH) concentration of glycerol/kg bodyweight and were asked to record urine volume and number of voids for 24 h. Urine osmolality (Uosm) and specific gravity (USG) were measured. Osmolality was measured using freezing point depression and refractometry. Each 24 h period was subjected to a repeated measures ANOVA with Bonferroni post hoc corrections.

RESULTS: SGIH induced a higher number of voids per day (SGIH: 9.9±3.3; GIH: 7.9±2.7 times/day) (p<0.05). Males had AUC 80 & 89%, sensitivity 100 and 100%, specificity 68 and 71%, with a threshold of ≥6 & ≥6, for D1 and D2, respectively. Females had AUC 80 & 89%, sensitivity 92 & 100%, specificity 66 & 67%, with a threshold of ≥6 & ≥7, for D1 and D2, respectively.

CONCLUSIONS: In conclusion, the 24 h void number is a valid practical marker for detecting high urine concentration in healthy adults.

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642 Board #5
June 1, 1:00 PM - 3:00 PM
Thirst As A Marker Of Hydration Status During And After Exercise In The Heat

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Reported Relationships: W.M. Adams: Consulting Fee; Clif Bar & Company, Gatorade, Inc. Ownership Interest (Stocks, Bonds); Aclaris Therapeutics, Inc.

PURPOSE: The purpose of this study was two-fold: 1) examine the perception of thirst as a potential marker of hydration status during and after exercise in the heat 2) investigate changes in thirst perception following consumption of a bolus of fluid post exercise.

METHODS: Twelve men (mean ± SD; age, 23±4 y; body mass, 81.4±9.9 kg; height, 182±9 cm; body fat, 14.3±4.7%) completed two 180 minute bouts of exercise on a motorized treadmill in a warm environment (ambient temperature, 35±2°C; RH, 30±5%; WBGT, 26.8±1.1°C) followed by a 60-minute recovery period. Participants completed a euhydrated (EUH) and hypohydrated (HYPO) trial, where fluid losses were minimized or fluid consumption was restricted, respectively. During recovery, participants were randomly assigned to a fluid replacement (FL) or no fluid replacement (NFL) group where they were given 100 mL of artificially sweetened water (14.0%, SGIH) or 1.4% glycerol (GIH) at a rate of 250 mL/h for 120 minutes.

RESULTS: FL (p<0.05). Serum osmolality was lower in HYPO than EUH trials beginning at minute 90 of exercise (p<0.05). Beginning at minute 5 during the recovery period, thirst perception was significantly greater in HYPO trials than EUH trials beginning at minute 90 of exercise (p<0.05). Beginning at minute 5 during the recovery period, thirst perception was significantly greater in HYPO than EUH trials, and approaching significance in HYPO trials compared to EUH trials (p=0.05).

CONCLUSIONS: Changes in thirst perception during exercise were reflective of increased fluid losses, especially when %BML >2%. However, receiving a bolus of fluid post exercise did not influence %BML between HYPO (FL: 2.5±0.9%; HYPO-NFL: 2.6±0.6%) and EUH-FIH: 0.2±0.7%; EUH-NFL: 0.6±0.5%) trials (p=0.330). During exercise, thirst perception was significantly greater in HYPO trials than EUH trials beginning at minute 90 of exercise (p=0.05). Beginning at minute 5 during the recovery period, thirst perception was significantly greater in HYPO trials compared to EUH trials (p=0.05). During exercise, changes in perception of thirst were reflective of increased fluid losses, especially when %BML >2%. However, receiving a bolus of fluid post exercise did not influence %BML between HYPO (FL: 2.5±0.9%; HYPO-NFL: 2.6±0.6%) and EUH-FIH: 0.2±0.7%; EUH-NFL: 0.6±0.5%) trials (p=0.330). During exercise, thirst perception was significantly greater in HYPO trials than EUH trials beginning at minute 90 of exercise (p<0.05). Beginning at minute 5 during the recovery period, thirst perception was significantly greater in HYPO trials compared to EUH trials (p=0.05).

643 Board #6
June 1, 1:00 PM - 3:00 PM
Assessment of Dehydration Using Salivary Osmolality and Urine Specific Gravity
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(No relationships reported)

Dehydration is a common problem in athletic and occupational settings, yet accurate and convenient methods to assess hydration status are lacking.

PURPOSE: To determine how salivary osmolality (Sosm) and urine specific gravity (USG) change during exercise in the heat when dehydration is progressive (to 2.5%) or when dehydration is fixed at 1%

METHODS: Using a repeated measures design, 13 healthy, young men (age 22±1 yr; height 1.80±0.06 m; body mass 73.4±7.6 kg) completed three 30-min bouts (Bouts 1, 2, and 3) of cycling in a warm environment (environmental chamber; 30 °C, 50% relative humidity). Participants cycled at an intensity of 60-80% of age-predicted heart rate under 2 conditions: progressive dehydration and fixed dehydration in which fluid intake was restricted for Bout 1 only, followed by fluid intake sufficient to prevent further dehydration. Changes in hydration status were assessed using changes in body mass, USG, and Sosm before and after each exercise bout. Data were analyzed using a 2x3 repeated measures analysis (Condition x Time). When appropriate, Bonferroni-corrected alpha levels were employed.