2903 Board #1 June 2 1:00 PM - 3:00 PM

Voluntary Drinking Cessation Is Associated With Recovery Of Plasma Osmolality But Not Of Thirst Perception, Usg, Or Body Mass

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Post-exercise rehydration has been widely studied, with special emphasis on retention of ingested fluid; little research has been done on why we drink more or less. **Purpose**: To identify if voluntary drinking cessation coincides with a return to pre-exercise physiological values. **Methods**:9 males consented to participate. They exercised intermittently (30 min bicycle-30 min treadmill , at 70-80% HRmax) in the heat (WBGT= 28.1±0.7°C), to a dehydration of 3.6±0.3% body mass (BM). Upon exercise termination, participants were instructed to drink as long and as much as they needed while monitoring water intake. When intake was less than 100mL in 15 min, that was considered the point of voluntary drinking cessation. Urine color (U_{color}), specific gravity (USG), and osmolality (U_{osm}), plasma osmolality (P_{osm}), fullness, and thirst perception (TP) were measured pre- and post-exercise, and post-rehydration. Matched pairs analyses were performed to compare pre-exercise and post-rehydration. **Results**: At the point of drinking cessation, participants had recovered 58.7±12% (1445-2427mL, min-max) of body mass loss.

Variable	Pre-exer (mean±SD)	Post- rehy (mean±SD)	*t*	p
P_{osm}	289.5±2.3	287.3±5.4	-1.11	0.300
U_{osm}	870.7±2.3	763.7±193.9	-1.49	0.175
Thirst	36.2±19.1	25.0±18.2	-2.32	0.049
BM	83.0±12.6	81.8±12.0	-3.99	0.004
USG	1.022±0.004	1.029±0.004	5.82	0.0004
U_{color}	3.4±0.7	6.3±1.1	6.83	0.0001
Fullness	3.1±0.9	2.1±1.1	-1.80	0.1080

Conclusion: the results suggest that voluntary drinking cessation coincided with a return to pre-exercise values of P_{osm}, U_{osm}, and fullness, even though rehydration was under 60%. Nevertheless, body weight, thirst perception, urine color and USG had not returned to pre-exercise values at the same point