Novel allulose amino acid-containing sugar-free beverage results in rapid ad-libitum rehydration following exercise-induced dehydration Health Solutions

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AIM

To assess the effectiveness of ad-libitum rehydration using commercially available ORS drinks sweetened with sugar or allulose.

METHODS

Arizona State University

- 20 healthy adults (9 females; 25±4 y, 172±10 cm, 71±12 kg).
- 2 h alternating cycling/walking in heat (31 °C) at 70% agepredicted max heart rate to 2% body mass loss.
- 30 min rest → 500 mL fluid bolus → 4 h ad-libitum rehydration
- Subjects consumed (randomized crossover):
 - a) plain water (W)
 - b) sugar-sweetened ORS (SS-ORS)
 - c) allulose + amino acid sugar-free ORS (SF-ORS)
- All drinks contained 10 g/L D_2O to assess plasma deuterium uptake

PROTOCOL

Plasma Volume, mL 0 0 0 0 11 12		Osmotic Clearance, mL/min 320 320 520 520 520 520 520 520 520 520 520 5	
-2 1		1	Y
²⁹⁰ T	-□-SS-ORS -O-Water	100 [±] 300 _∓	-□-SS-ORS - ▲-SF-ORS -○-Water
Plasma Osmolality, mmol/kg	0 30 60 90 120 150 180 210 240	Free Water Clearance, mL/min 100 100 100 100 100 100 100 1	60 90 120 150 180 210 240 Time, min
	Time, min		,

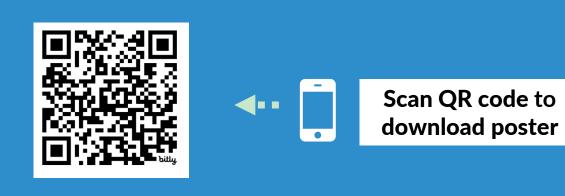
* SF-ORS vs Water

§ SS-ORS vs SF-ORS

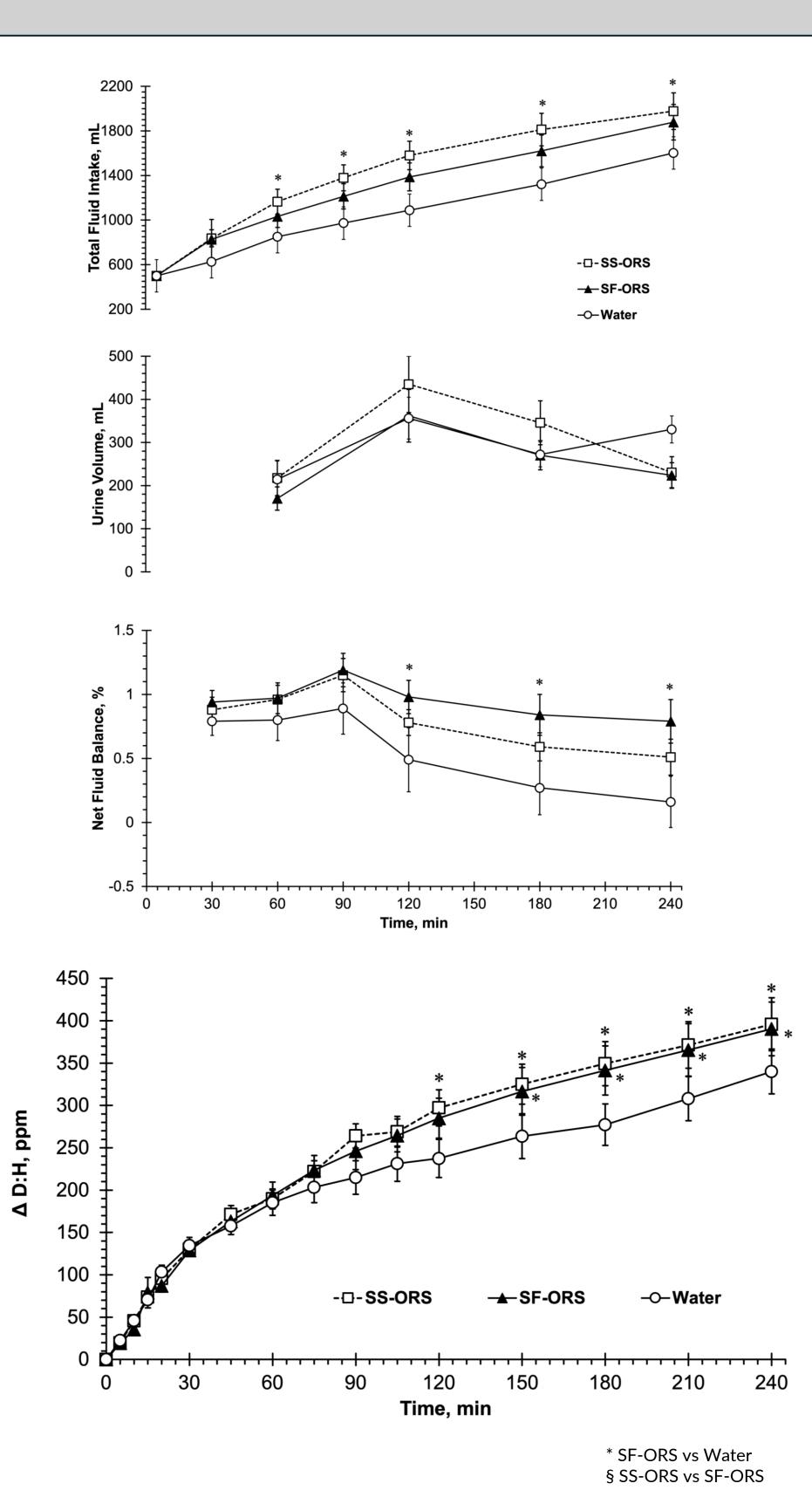
Rapid Rehydration with Allulose & Amino Acid-based

Sugar-free

Beverage



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CONCLUSION

The allulose- and amino acid-based ORS enhanced fluid absorption and net fluid balance compared to plain water during post-exercise rehydration.