Influence of Fluid Ingestion on Sweat Rate Status While Exercising in the Heat

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Delaney Frazer and Jonathon Chapman

PURPOSE OF STUDY

• Studied whether there will be significant difference in sweat rates between water and slurry intervention
• Investigated effects of differing volumes and temperatures of ingested water on sweat rate while exercising in the heat
• Sweat rate is significant because it helps determine how much fluid is being utilized for thermoregulation by evaporative cooling

RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Water</th>
<th>Slurry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1.22564</td>
<td>1.19131</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.20845</td>
<td>0.21649</td>
</tr>
</tbody>
</table>

P = 0.31

CONCLUSION

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Literature Cited

Siegel et al. 2010. Journal of Medicine and Science in Sports and Exercise

IMPLICATIONS

• Previous studies had not compared differing volumes of fluid of varying temperature
• Determined how much fluid is actually utilized to aid in thermoregulation by evaporative cooling
• Results suggest that thermoregulation may be more influenced by temperature of fluid rather than volume
• Important to help determine the amount of fluid needed during extraneous exercise to maintain euhydration

MATERIALS AND METHODS

• Exercise for 3 hours in hot and humid room at WBGT 35.5°C and 50% relative humidity
• Walked on an electric treadmill at 40% VO2 max
• Rested for 5 minutes
• 1 mile time trial at peak exertion on non-motorized treadmill (Woodway Curve)
• Ingested 1 ml/kg body weight of water at ambient temperature or 0.5 ml/kg body weight ice every 10 minutes
• Pre and post body weight measure to calculate bodyweight loss and sweat rate

Sweat Rate Differences Between Slurry and Water Treatments

![Sweat Rate Graph]

Treadmill Types Used During Exercise

![Treadmill Images]

Sweat Rate = 16*(PW-AW)+F/M*60

PreW (PW) Weight in lbs
Post W (AW) Weight in lbs
F Fluids consumed during Run
M Minutes exercised

Acknowledgments

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