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

Delaney Frazer  
*The University Of Montana, delaney.frazer@umontana.edu*

Jonathon Chapman  
*The University Of Montana, jonathon.chapman@umontana.edu*

Follow this and additional works at: https://scholarworks.umt.edu/umcur

Let us know how access to this document benefits you.
Influence of Fluid Ingestion on Sweat Rate Status While Exercising in the Heat

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

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

Sweat Rate Differences Between Slurry and Water Treatments

Treadmill Types Used During Exercise

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
• Restered 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 = 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

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

Literature Cited

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

Acknowledgments

Michelle Johannsen

Developed with funding from the Howard Hughes Medical Institute