White House Webinar:
Building Community Preparedness to Extreme Heat

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PREPARING ATHLETES, COACHES & PARENTS FOR EXTREME HEAT

The 8 Pillars of Preventing and Treating Exertional Heat Stoke
PREVENTION
Hydration

- Maintain hydration prior to, during and post exercise
  - Will attenuate increases in body temperature during intense exercise

- For Every 1% loss in body mass, body temperature increases by 0.5°F

- To decrease risk of exertional heat stroke (EHS):
  - Minimize fluid losses during exercise
  - Fluid losses vary by individual, therefore rehydration plans should be specific for each athlete
Body Cooling

• Attenuates body temperature rise
  • May be done before, during or post-exercise

• Many options available
  • Can be applied to most sports settings (i.e. equipment laden sports)

• A plan for cooling during rest breaks is imperative for equipment-laden athletes who are at great risk of EHS when exercising in the heat

Work to Rest (W:R) Ratios

• Appropriate W:R ratios should be modified when:
  • Environmental conditions are extreme
  • Athlete gains or loses fitness

• Environmental extremes should be measured via Wet Bulb Globe Temperature (WBGT), accounts for:
  • Ambient Temperature
  • Relative Humidity
  • Radiation from the Sun
  • Wind

• Modifications for W:R ratios include increasing number of rest breaks, duration of breaks and unrestricted access to hydration

Acclimatization

• Heat Acclimatization = Series of beneficial physiological adaptations to increase heat tolerance
  • Occurs over a period of 10-14 days

• To optimize adaptations, appropriate hydration is important

• Having a heat acclimatization protocol is one of the best ways to prevent EHS

<table>
<thead>
<tr>
<th>Area of Practice Modification</th>
<th>Practices 1-5</th>
<th>Practices 6-14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Days 1-2</td>
<td>Days 3-5</td>
</tr>
<tr>
<td># of Practices Permitted Per Day</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>Helmets only</td>
<td>Helmets &amp; Shoulder Pads</td>
</tr>
<tr>
<td>Maximum Duration of Single Practice Session</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>Permitted Walk Through Time (not included as practice time)</td>
<td>1 hour (but must be separated from practice for 3 continuous hours)</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>No Contact</td>
<td>Contact only with blocking sleds/dummies</td>
</tr>
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NOTE: warm-up, stretching, cool-down, conditioning, and weight-room activities are Included as part of practice time.

EHS Deaths Since Implementation of Acclimatization

Meets minimum best practices:
Education

• Athletes, coaches, parents, athletic trainers and other medical professionals should all be educated on EHS prevention strategies

• Having knowledge of symptoms of EHS will help ensure appropriate recognition & treatment is provided

• Improves chance of survival
TREATMENT
 Recognition

- EHS = body temperature >105°F + CNS dysfunction
  - CNS dysfunction includes: dizziness, collapse, confusion, irritability, collapse etc

- EHS should be considered for any athlete with CNS dysfunction during intense exercise in the heat

- A rectal temperature is the only viable field option to assess body temperature for an exercising individual
Treatment

• Cold-water immersion is the gold standard

• To ensure survival, cooling tub should be set up prior to any exercise in the heat

• Cool aggressively and immediately
  • Cool individual until they reach 102°F
  • Complete cooling within 30 minutes to maximize survival

• Cool First, Transport Second
  • Given available on-site equipment and medical professionals are available
CWI Protocol

Field Based Treatment

Return-to-Play

- Athlete who survives EHS, should be fully evaluated by a physician before return to activity
  - Must demonstrate ability to tolerate exercise in the heat
- Athlete likely had a predisposing factor at the time of the EHS, which should be identified and remediated
- Return should be gradual and medically monitored
- When cleared, return should start at low intensity, cool environment and slowly progress to high intensity in warm environment
- Progression should be slowed, halted or re-evaluated if athlete struggles or has complications