



EXERTIONAL HEAT ILLNESS

Supplemental Information

Exertional Heat Illness (EHI) is a term for different conditions that may result from participation in environments of extreme temperature and/or humidity. Heat cramps, heat syncope, heat exhaustion and exertional heat stroke (EHS) are all conditions that could result from prolonged participation in this type of environment. Exertional Heat Stroke (EHS) is a life-threatening condition and one of the leading causes of preventable death in high school activities. Students who do not properly acclimatize to the heat, do not hydrate properly, have a poor diet and/or are ill/recovering from an illness are more susceptible to all types of EHI. Exertional heat stroke can occur in the absence of less severe heat illness conditions such as heat cramps and heat exhaustion (these conditions do not necessarily run on a continuum).

Characteristics of Exertional Heat Stroke:

- Core body temperature (rectal temperature) >104° F
- Central nervous system dysfunction
 - Irrational behavior, irritability, emotional instability
 - Altered consciousness, coma
 - Dizziness or disorientation
 - Collapse, staggering or sluggish feeling
 - Confusion, looking “out of it”
 - Loss of muscle function, balance, inability to walk

Other factors to consider when considering the possibility of Exertional Heat Stroke:

- Fitness level of the student
- Temperature and humidity of the day
- Time of practice/event the symptoms were recognized (early or late in the practice)
- Time of season and equipment level (Is it the first few days of practice, or the first day in pads?)

Considerations for schools:

1. Schools should make every reasonable effort to have an athletic trainer or other healthcare professional onsite during high risk athletic activities and activities taking place in conditions of extreme temperature and or humidity.
2. Obtaining a core body temperature is currently recommended by medical experts as the most effective method to determine if the athlete is suffering from exertional heat stroke.



- Healthcare professionals at the high school and middle school levels should consult with their school districts and local EMS personnel to determine in advance if obtaining a core body temperature will be part of the emergency action plan (EAP) protocol.
 - In the absence of a core body temperature, healthcare professionals can assess other factors to determine if EHS is suspected.
3. In the absence of a healthcare professional and a core body temperature, coaches may assess the factors listed above to determine whether EHS is suspected.
 4. Immediate rapid body cooling is the most effective treatment for EHS.
 - Cold water immersion (cold tub use) is recognized as the most effective rapid body cooling method. If cold water immersion is used, the student should be immersed in a tub of water, cooled to approximately 50 degrees, up to their torso.
 - In the absence of a cold tub, other rapid body cooling methods to consider are ice towels (covering as much of the body as possible with cold, wet towels) or cold-water dousing (cold shower, garden hose, etc.)

If Exertional Heat Stroke is suspected:

1. Implement the Emergency Action Plan and call 911.
2. Assess the student's airway, breathing and circulation and begin CPR if indicated.
3. Remove all equipment and excess clothing.
4. If a medical professional is onsite, the student's core body temperature should be obtained if possible.
5. Cool the student as quickly as possible using a cold tub.
 - If a cold tub is not available, move the student to an area of shade or air-conditioning (if nearby) and implement an alternate rapid body cooling method.
6. Continue monitoring the student's airway, breathing and circulation. NEVER leave the student unattended.
7. Continue cold water immersion (or other rapid body cooling) until medical personnel arrive.

This information is intended to serve as general guidance for schools in recognizing and managing suspected exertional heat stroke. School administrators should consult with their school medical personnel and local emergency medical personnel to determine the appropriate plan for their school.



References:

“Heat Acclimatization and Heat Illness Prevention Position Statement”. *National Federation of State High School Associations*, <https://www.nfhs.org/media/1014745/nfhs-heat-acclimatization-final-april-2018.pdf>. Accessed 6/26/2020.

“How Do You Treat an Individual with Heat Stroke?” *Korey Stringer Institute*, <https://ksi.uconn.edu/emergency-conditions/heat-illnesses/exertional-heat-stroke/heat-stroke-treatment/>. Accessed 6/26/2020.

“Look for These Symptoms in Athletes When Exertional Heat Stroke (EHS) is Suspected”. *Korey Stringer Institute*, <https://ksi.uconn.edu/emergency-conditions/heat-illnesses/exertional-heat-stroke/heat-stroke-recognition/>. Accessed 6/26/20.

“The Collapsed Athlete”. *NFHS Learning Center*, <https://nfhslearn.com/>. Accessed 7/6/2020.