

Exertional Heat Illness

Katie Terrell, MS, LAT, ATC, EMT-B
Piedmont Athens Regional, Secondary School Outreach
GATA Secondary School Representative

Disclosure

I have no conflicts of interest in presenting today's information in the subject of Exertional Heat Illness.

Exertional Heat Illness

- Heat Syncope
- Heat Exhaustion
- Heat Cramps
- Heat Stroke

Exertional Heat Illness

Heat Syncope

Orthostatic dizziness usually during initial days of exposure before acclimitized

S/S are dizziness, loss of consciousness, pale or sweaty

Treatment is to move to cool area, sit or lie down, monitor vitals for differential diagnosis, elevate legs, rehydrate

Return to Activity when S/S resolve and no other medical condition indicated

Heat Exhaustion

Inability to continue exercise in heat due to cardiovascular inefficiency that may or may not be associated with physical collapse

S/S include fatigue, pale, heavy sweating, headache, nausea, vomiting, chills, fainting, dizziness, diarrhea, decreased BP, and Core Body Temperature 96.8-105°

Treatment is to move to cool area, elevate legs, cool with fans/ice towels/ice bags, oral rehydration

Do Not Return to Activity on the same day, gradual increase in activity, clear for other medical conditions

Heat Cramps

- Painful involuntary cramping often in the legs, arms, or abdomen related to dehydration
- Easily palpated
- Treatment??? Remove from activity, rehydrate, massage
- May return to the session if cramps are in a single muscle group. Monitor the overachievers!

Exertional Heat Illness

Heat Cramps

- More excruciating pinpoint pain
- Muscles visibly “lock up”
- Athletes may yell or writhe in pain
- Experience muscle twinges



Exertional Sickling

- Pain is strong, yet generalized
- Weak muscles; slumping posture
- Athletes lie fairly still without yelling
- Do not experience muscle twinges



Exertional Heat Stroke (EHS)

The two main criteria for diagnosing EHS are rectal temperature $>104-105^{\circ}\text{F}$ immediately post collapse and central nervous system dysfunction.

Exertional Heat Stroke (EHS)

Intrinsic Factors

- History of EHI
- Inadequate heat acclimation
- Low fitness level
- Overweight or obese
- Inadequate hydration
- Lack of sleep
- Fever
- Stomach Illness
- Highly motivated/ultra-competitiveness
- Pre-pubescent

Exertional Heat Stroke (EHS)

Extrinsic Factors

- Intense or prolonged exercise with minimal breaks
- High temperature/humidity/sun exposure as well as exposure to similar conditions the previous day
- Inappropriate work/rest ratios based on intensity
- Wet Bulb Globe Temperature
- Clothing and extra equipment
- Lack of education and awareness of heat illness among coaches, athletes, and medical staff
- Absence of an EAP or failure to execute the EAP
- No or limited access to fluids or breaks during practice
- Delay in recognition of signs and symptoms associated with EHS

Signs and Symptoms of EHS

- Rectal temperature >104-105°F
- Irrational behavior, irritability, emotional instability
- Altered consciousness, coma
- Disorientation or dizziness
- Headache
- Confusion or just look “out of it”
- Nausea, vomiting, diarrhea
- Muscle cramps, loss of muscle function/balance, inability to walk
- Collapse, staggering or sluggish feeling
- Profuse sweating
- Decreasing performance or weakness
- Dehydration, dry mouth, thirst
- Rapid pulse, low blood pressure, quick breathing

EHS Differential Diagnosis

- Heat Exhaustion
- Exertional Hyponatremia
- Concussion
- Cardiac Event

Treatment of EHS

- Initiate Emergency Response System/Activate EAP
- Remove clothing and equipment
- Move athlete to an air conditioned facility or shaded area
- Attempt privacy while assessing
- Establish core body temperature >104-105°F using a RECTAL PROBE
- Immerse in cold water ice tub
- Monitor Vitals, ABCs, core temperature alongside EMS
- Cease aggressive cooling when core temperature is <101°F to avoid Hypothermic overshoot
- Release to EMS

EHS Treatment Equipment List

- Wet Bulb Globe Temperature Device
- Rectal Thermometer
- Lubricating Gel
- Cold water tub
- 1 or more large chest cooler with ice
- Water Source
- Stirring paddle to agitate water
- 3-4 Large Towels or Sheets
- Shaded Area or Tent

Resources

- KSI.UCONN.EDU
- NATA.ORG