

Spring High School Sports Medicine

LEVEL ONE

HEAT ILLNESS

What Is Heat Illness?

Heat Illness occurs when the body's natural thermostat cannot control the body temperature.

As the nerves in the skin send signals to the brain signaling an increase in temperature, the brain signals the three systems to begin cooling the body. The body has three different systems that are involved in releasing heat from the body.

Without releasing the build up of heat in the body, the organs would shut down within 10 minutes of reaching critical temperature.

Body Part	Reaction to Increase in Body Tissue's Temperature	What Leads to this System Shutting Down
Skin/sweat glands	skin radiates heat; eventually, sweat glands release water and oil to cause cooling of evaporation	a lot of sweating can cause excessive loss of body water; this leads to dehydration and stress on the heart
Respiratory system	the air entering the lungs is warmer; the water in the lungs warms up; breathing becomes faster so that warm, moist air can be released through breathing; blood flows through the lungs and warms up	blood is re-routed to other organs; CO ₂ is released at a slower rate and the build up causes heat to be retained in the lungs
Circulatory system	the arteries and veins open up (dilate) so that the blood can carry more blood to the skin surface for cooling; heart rate increases to maintain the right blood flow	as other systems (sweat glands/lungs) shut down, the heart has to work harder to circulate the blood

Four Levels of Heat Illness

1. **Heat Syncope** (feelings of weakness and being tired; usually improve with rest and changes in diet)
2. **Heat Cramps** (muscle pain and spasm due to dehydration and loss of body salts through sweating)

Signs and Symptoms:

(syncope) weakness, fatigue, headache, possible increase in body temp.

(cramps) severe pain and muscle spasms; pale, moist skin; feels dizzy or faint; rapid pulse

Treatment:

(syncope) get out of the heat

get rest

drink plenty of water

eat good, nutritious meals

(cramps) get out of the heat, if possible

replace lost water and salts by mouth

stretch and/or massage cramping muscle

athlete can return to play if cramp does not return

treat with ice and stretch during any break in activity

3. Heat Exhaustion (serious disturbance of blood flow; loss of large quantities of water and salts)

Heat exhaustion develops when water intake, diet and scheduling of exercise in hot environments are not taken into account. When preliminary symptoms are not treated, heat exhaustion can develop rapidly.

Signs and Symptoms:

profuse sweating	dizziness, faint or weak feeling
headache	pale, cool, sweaty skin
possible heat cramps	dry mouth
elevated body temp.	pupils dilated

Treatment:

- Move the athlete to a cool place.
- Sponge the athlete with water but don't over chill the skin.
- Give the athlete as much water as he/she will drink.
- Remove as much clothing as possible.
- If the athlete is feeling faint, have him/her lie down with the feet slightly elevated.
- Watch for signs of shock and/or heat stroke.
- If you immerse the athlete in a tub of water, begin with lukewarm water and then add ice. Slowly, slowly cool off the water. *Do not immerse the athlete in a tub full of freezing cold water!* This might put the body into shock.

4. Heat Stroke (THIS IS A MEDICAL EMERGENCY! CALL 911!)

BODY SYSTEM FAILURE! Results from temperature regulation failure.

Signs and Symptoms:

dry, red skin	<u>no sweating!</u>
rapid pulse	rapid breathing
dizziness or fainting	body temperature of 106° or higher
collapse and unconsciousness are possible	

Treatment:

- Have someone go get the trainer or coach immediately.
- Check the athlete for breathing and circulation.
- Cool the athlete immediately. Use cold towels, fans, ice packs on the pulse points to reduce the body temperature.
If you immerse the athlete in a tub of water, begin with lukewarm water and then add ice. Slowly, slowly cool off the water. *Do not immerse the athlete in a tub full of freezing cold water!* This might put the body into shock.
Allow the athlete to drink water if he/she is conscious and can swallow.