

HEAT ILLNESS



■ ■ ■ Description

Heat illness results from the body's inability to rid itself of excessive heat that develops during athletic competition in a hot environment. The body normally loses heat by radiation of heat to the environment. However, in very hot temperatures, the environment may be warmer than the athlete, and this method is ineffective. An alternative to this is the evaporation of sweat. In athletes who are acclimated to the heat, sweating begins earlier and there is an increased rate of sweating. If athletes become dehydrated in the heat, they are unable to sweat, and this method of heat loss becomes ineffective. The temperature in the body rises, and the athlete's judgment and performance suffer.

■ ■ ■ Common Signs and Symptoms

- ?? Dizziness
- ?? Fatigue
- ?? Changes in judgment
- ?? Muscle cramps
- ?? Weakness
- ?? Nausea and vomiting
- ?? Rapid heart rate
- ?? Fainting
- ?? Elevated body temperature
- ?? Diarrhea
- ?? Seizures
- ?? Low blood pressure
- ?? Kidney Failure
- ?? Liver Failure
- ?? Coma (loss of consciousness)
- ?? Death

■ ■ ■ Causes

- ?? Poor conditioning
- ?? Not being acclimated to the heat
- ?? Dehydration
- ?? Inappropriate clothing (does not allow water to evaporate)
- ?? Obesity
- ?? Very old and very young people
- ?? Medications: diuretics, caffeine, decongestants, stimulants, some blood pressure medications

■ ■ ■ Risk Increases With

- ?? Older people (decreased body water; decreased blood supply to skin, resulting in decreased sweating; decreased sweat rate)
- ?? Young boys (decreased sweat rate compared with men)
- ?? Insufficient intake of fluids during activity
- ?? Not being acclimated to the heat (this takes 1 to 2 hours per day for a minimum of 6 days)
- ?? Waiting until thirsty to drink
- ?? Use of stimulants; amphetamines, cocaine, or decongestants increase risk for heat illness
- ?? Use of diuretics
- ?? Use of medications that have anticholinergic properties
- ?? Use of medications that slow the heart rate

■ ■ ■ Preventive Measures

- ?? Maintain adequate hydration before, during, and after exercise.
- ?? Wear appropriate clothing (light colored, lightweight, vapor permeable).
- ?? Become acclimated to the heat.
- ?? Avoid salt tablets (they irritate the stomach).
- ?? Monitor weight after practices.
- ?? Alter practice schedules to avoid hottest time of day.

■ ■ ■ Expected Outcome

The majority of athletes with heat illness recover completely. However, severe heat injury can require hospitalization for complications and can predispose to recurrences. Judgment is often affected, along with physical performance.

■ ■ ■ Possible Complications

- ?? Rhabdomyolysis (death of muscle, resulting in weakness and pain)
- ?? Acute respiratory distress syndrome (the lining of lung is altered to prevent oxygen from getting into bloodstream; can result in death)
- ?? Disseminated intravascular coagulation (spontaneous clotting of blood, resulting in an inability to make enough clotting factors)
- ?? Kidney failure
- ?? Liver failure
- ?? Seizures (abnormal discharges of electrical activity in brain)
- ?? Death

■ ■ ■ General Treatment Considerations

Removing an athlete from the heat and giving cool liquids to drink can treat mild heat illness. However, as athletes become more dehydrated and less capable of cooling themselves, more aggressive measures become necessary. Use of ice baths to reduce body temperature is often

advocated; alcohol baths are not effective and not recommended. Severe heat illness often requires hospitalization, with careful monitoring of the heart, lungs, kidneys, liver, and brain. Injuries to these organs are not uncommon, and death after heat illness has occurred.

■ ■ ■ Medication

- ?? Oxygen is used in severe cases if there is lung damage.
- ?? Intravenous fluids are often used in severe cases to reverse dehydration.

■ ■ ■ Activity

- ?? Athletes can resume normal activities as soon as they are able in most cases.
- ?? Athletes who have had heat illness are at increased risk for future episodes of heat illness.
- ?? Athletes who have had heat illness should take time to acclimate to the heat before returning to competition, especially if they have had complications.

■ ■ ■ Diet

- ?? Drink 8 oz. of fluid before exercise and 4 oz. of fluid every 15 to 20 minutes during exercise.
- ?? As an alternative, try to drink about 1 quart of fluid for every hour of exertion.