

Exercise-Related Heat Illness

Exercise-related heat illness (ERHI) or “heat injury” can occur when exercise is done in high temperature and high humidity. It’s one type of injury, unlike sports injuries caused by contact, that can almost always be prevented with proper attention to safety and common sense.

About body temperature

- Human bodies try to keep a constant body temperature of around 98.6°F by balancing heat gain with heat loss.
- Exercising muscles create 10 to 20 times more heat than resting muscles.
- Sweating is the main way the body gets rid of excess heat.
- As humidity rises, sweating becomes less effective at cooling the body.
- Body temperature will rise if the body is unable to get rid of excessive heat, resulting in heat illness.

Signs of ERHI

- **Heat (fatigue) cramps**—normal body temperature; painful muscle contractions (most often in leg muscles)
- **Heat exhaustion**—body temperature up to 104°F; fatigue; nausea; vomiting; dizziness; fainting; flushed, moist skin
- **Heat stroke (life-threatening)**—body temperature greater than 104°F, confusion, combativeness, seizures and/or stroke, shock, coma (unresponsive), and/or heart failure/cardiac arrest

Emergency on-site treatment

Immediate treatment should include cooling the body and replacing fluids (cool water or an appropriate sports drink).

Type of illness	Treatment
Heat (fatigue) cramps	Stop exercising. Massage or stretch... massage or stretch involved muscle. Replace salt and water loss by drinking a lot of cool, salt-containing fluids. Future cramping may be reduced by improved conditioning, getting more used to exercising in hot temperatures, and drinking more salt-containing fluids.
Heat exhaustion	Stop exercising. Move to shaded or air-conditioned area. Replace water loss by drinking a lot of cool fluids. Cool with ice packs or cold water immersion. If the athlete does not quickly improve or is unable to drink fluids, then the athlete should be immediately taken to the nearest emergency facility.
Heat stroke	Call 911 or your local emergency number. Begin cooling immediately with cold water immersion; don’t wait for help to arrive. The athlete needs immediate medical attention.

Facts about heat illness

- Even the best-trained athlete can develop a heat illness when it is hot and humid.
- Early recognition is the key to successful treatment of heat illness.
- For most athletes, drinking cold water is as good as sports drinks in preventing heat illness and maintaining performance.
- Dripping sweat does not cool the body and prevent heat illness; sweat that evaporates does.
- Heat stroke is a serious medical emergency.
- Plans should be in place to cancel, postpone, or change events if it’s too hot and humid.
- Both temperature and humidity (heat index) must be measured to accurately assess environmental heat stress.
- Athletes who have had heat illness before are at higher risk for another episode.

Tips to help prevent heat illness

- Schedule activities during the coolest parts of the day (early morning or late afternoon/evening); consider cancelling or delaying an activity under extreme conditions.
- Allow athletes to gradually adjust to exercising in hot, humid weather by increasing activities slowly over the first 2 weeks of practice.
- Avoid the use of excessive clothing and equipment.
- Schedule breaks every 10 to 15 minutes during any activity that lasts longer than 1 hour.
- Weigh athletes before and after each activity. Athletes should replace all of their weight lost during any exercise period prior to the next exercise period.
- Know the signs and symptoms of ERHI.
- Make sure plenty of cold water and sports drinks are available before, during, and after each activity.
- Encourage athletes to drink 4 to 8 ounces every 15 to 20 minutes during any activity period.
- Encourage athletes to eat a balanced diet that provides the necessary vitamins and minerals.
- Identify athletes at high risk, such as athletes who are obese, are poorly conditioned, are not acclimated, have a current illness, are taking certain medicines, or have a history of previous heat-related problems.
- Plan for emergencies—measure body temperature, call 911, cool immediately.

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