



Sports & Orthopaedic Specialists

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Heat Illness

Heat illness is a potentially dangerous condition brought about by environmental conditions, exertion, and other compounding factors.

Athletes who are at higher risk for heat illness include those with a previous history of the condition, older athletes, those using supplements designed to boost metabolic rate, and athletes with an elevated BMI.

Symptoms are triggered by fluid loss or sodium imbalance due to heat. Signs and symptoms can include:

- Elevated core temperature (104° F/ 40° C)
- Altered consciousness
 - Seizures
 - Confusion
 - Irrational behavior
 - Emotional instability
 - Decreased mental alertness
- Nausea
- Vomiting
- Diarrhea
- Headaches
- Dizziness
- Weakness
- Elevated heart rate
- Decreased blood pressure
- Fast breathing
- Combative responses
- Profuse sweating or pale skin
- Stomach/intestinal cramps
- Persistent muscle cramping

Heat stroke is a progression of heat illness with symptoms of altered consciousness.

Individuals with these responses need to be treated promptly and aggressively to insure recovery and minimize risk for body-system damage. Athletes should be immediately transported to a cool, shaded area and, if available, whole-body cooling utilizing cold water immersion should be administered. After the core temperature has been moderated, the athlete should be transported to an emergency room or trauma center for further follow-up to rule out any underlying conditions. Athletes who suffer heat illness should be cautious with return to activity and avoid any intense activity in heat to minimize risk of reoccurrence.

Prevention of heat illness is most accurately implemented using a multi-factorial approach. Proper hydration, acclimatization, cooling during activity, and apparel choices all play important roles in preventing heat illness.

Adapted from position statements from American College of Sports Medicine and National Athletic Trainers' Association



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Exercise Associated Hyponatremia

Exercise associated hyponatremia is a potentially fatal issue that occurs when sodium levels in the body become diluted due to an overindulgence of fluids or inadequate sodium intake during activity. This phenomenon is more common in long endurance events such as running events beyond 4 hours or triathlons in the 9-13 hour range.

Major medical concerns that can result from hyponatremia include cerebral edema, pulmonary edema, or kidney failure.

Signs and symptoms of this condition can mimic other heat illnesses and include:

- Nausea and vomiting
- Restlessness and irritability
- Increasing headache
- Decreasing consciousness, or coma
- Confusion
- Lethargy
- Fatigue
- Appetite loss
- Muscle weakness, spasms or cramps
- Seizures
- Swelling of extremities
- Weight gain during activity

Athletes with these conditions should be promptly treated by medical professionals to minimize the risk of further systemic damage.

Prevention of exercise associated hyponatremia can be achieved by creating a schedule for fluid intake prior to, during, and following the race. This schedule may be variable based on environmental conditions and bodily sweat rate. The American College of Sports Medicine recommends replenishing fluid at a rate similar to the rate of perspiration. The most accurate way to do this is by weighing before and after activities in a hot environment. Additionally, ingesting snacks or fluids containing sodium can help to offset the loss of salts due to sweating.

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