



Protecting Student-Athletes from **Heat-Related Illnesses**

Heat-related illnesses are a significant concern for student-athletes, even in low-contact sports. These illnesses occur when the body's natural cooling system struggles to keep up with physical exertion in hot and humid environments, leading to a rapid rise in body temperature. Though preventable, heat-related illnesses remain a leading cause of death and disability among U.S. student-athletes.

Heat risk is influenced not only by temperature, but by a combination of environmental and personal factors, including humidity, radiant heat from the sun, air movement, workload intensity, hydration levels, and an individual's acclimatization to heat. Understanding these factors can help schools and athletic programs create a comprehensive, preventative approach when planning summer activities.

Understanding the Risks

Most heat-related incidents occur in August, during pre-season practice sessions before athletes have acclimated to the heat.¹ Football accounts for many reported cases; however, athletes across all sports and geographic regions remain vulnerable.²

The spectrum of heat-related illnesses ranges from mild ailments such as muscle cramps and heat rash to more severe issues like heat exhaustion and heat stroke. Early symptoms - such as thirst, fatigue, dizziness, confusion, and headaches - can escalate quickly if not recognized and addressed promptly.

Humidity plays a critical role as well. When humidity is high, sweat evaporates more slowly, reducing the body's ability to cool itself. This contributes to a **higher heat index**, which reflects how hot it actually feels when temperature and humidity are combined. Elevated heat index conditions can significantly increase the likelihood of heat-related illness during outdoor activities.



Treating Symptoms

All athletes are susceptible to heat illness, particularly during physical exertion in warm environments. Heat-related conditions generally fall into three categories: heat cramps, heat exhaustion, and heat stroke.

Coaches, staff, and trained personnel should be prepared to recognize symptoms and respond appropriately:³

EXERCISE-ASSOCIATED MUSCLE CRAMPS

- + Have the student rest in a cool area
- + Encourage hydration with water or electrolyte-containing fluids
- + Gently stretch or massage affected muscles
- + Avoid returning to strenuous activity until symptoms resolve

HEAT EXHAUSTION

- + Move the student to a shaded or cool environment
- + Apply cooling methods such as ice towels or cool cloths
- + Loosen or remove excess clothing or equipment
- + Encourage fluid intake if the student is alert

HEAT STROKE (MEDICAL EMERGENCY)

- + Activate emergency response procedures immediately
- + Rapidly cool the student (cooling should begin before transport when possible)
- + Use cold water immersion or aggressive external cooling methods
- + Continue monitoring until emergency responders arrive

Heat stroke is a life-threatening condition that occurs when the body's cooling system fails and core temperatures rise rapidly. Prompt recognition and immediate response are critical to reducing the risk of severe outcomes.



Risk Prevention Strategies

Because heat-related illness can progress quickly, proactive prevention is essential. Awareness, preparation, and consistent practices across staff, students, and families can significantly reduce risk. The American Academy of Pediatrics and the NCAA Sports Medicine Handbook provide valuable guidance,⁴ recommending key strategies for programs that include:

HYDRATION MANAGEMENT

Encouraging frequent fluid intake before, during, and after activity helps maintain hydration. Structured water breaks (for example, every 15–20 minutes) and education on hydration habits can reinforce consistent behaviors. General guidance emphasizes drinking fluids regularly and not waiting until thirst occurs, as thirst may indicate early dehydration.

ENVIRONMENTAL CONTROLS

Adjusting practice schedules to cooler times of day, monitoring heat index conditions, and modifying activity intensity as conditions change are widely recognized risk-reduction strategies. Providing access to shaded or cooled areas supports recovery during breaks.

HEAT ACCLIMATIZATION PROTOCOLS

Gradually increasing exposure to heat, physical activity, and equipment over a 7–14 day period allows the body to adapt more safely to environmental stress.

ACCESS TO WATER AND SHADE

Ensuring that water is readily available and that shaded areas are accessible throughout activities supports cooling and recovery. Shade should be sufficient to allow students to cool down effectively and comfortably.

MONITORING AND SUPERVISION

Observing students for early signs of heat stress and encouraging peer awareness (e.g., buddy systems) can help identify symptoms before they worsen.



Create an Action Plan

When a heat-related illness occurs, coordinated action is critical. Schools and athletic programs can benefit from establishing clear procedures before the season begins.

Key elements of a heat illness response plan may include:

- + Pre-season education and training for coaches, staff, students, and parents on recognizing symptoms and responding appropriately
- + Clear communication protocols for contacting emergency services
- + Designation of trained personnel responsible for emergency response
- + Readily accessible equipment and supplies for cooling and first response
- + Procedures for monitoring students exhibiting symptoms and ensuring they are not left unattended
- + Guidelines for recovery, return to participation, and review of the incident



Structured “high-heat” procedures – such as increased supervision, frequent hydration reminders, and pre-activity safety briefings – may be considered when temperatures or heat index levels rise significantly.



Regular review and updating of emergency action plans can help ensure preparedness and continuous improvement.

Final Thoughts

Heat-related illness remains a serious but largely preventable risk in K–12 athletics and outdoor activities. By recognizing how environmental conditions, physical exertion, and individual factors interact, school leaders can take meaningful steps to reduce exposure and improve response readiness.

Prevention programs that emphasize gradual acclimatization, hydration, environmental awareness, training, and coordinated response can help create safer conditions for students. Through informed planning and consistent implementation of best practices, administrators, coaches, educators, and families can support safer participation and help protect student well-being during periods of elevated heat.



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SOURCES

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