# RISK IN FOCUS

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# EDUCATION

Protecting Student-Athletes from Heat-Related Illnesses

1082

#### Introduction

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.

#### **Understanding the Risks**

Most heat-related incidents occur in August, during pre-season practice sessions before athletes have acclimated to the heat.<sup>1</sup> While football accounts for most heat-related emergencies,<sup>2</sup> athletes in all sports and regions are vulnerable to heat illnesses. 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, confusion, and headaches, can quickly escalate if not recognized and addressed promptly.

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#### **Treating Symptoms**

All athletes are susceptible to heat illness, especially when exercising in a hot environment. Exercise-related heat illness has three conditions: heat cramps, heat exhaustion, and heat stroke. Coaches and onsite medical staff should recognize symptoms and provide immediate treatment for conditions including:<sup>3</sup>

### Instructing athletes experiencing exercise-associated muscle cramps to:

- + Rest to cool down
- + Consume salty food or a concentrated, salty liquid
- + Gently stretching or massage affects muscle groups
- + Avoid strenuous activity for at least several hours after symptoms subside
- + Get medical treatment if cramping continues

### Provide care for athletes experiencing heat exhaustion by:

- + Moving the athlete to a cool space
- Providing ice towels to cool the athletes quickly
- + Resting the athlete on their back with legs elevated
- + Loosening and removing unnecessary clothing and equipment
- + Instructing the athlete to drink cool liquids

## Treat athletes who experience heat stroke by:

- + Cooling first, transporting second
- + Immersing their entire body in ice and water
- + Stirring ice water around the athlete's body
- + Soaking extremities not immersed in water
- + Monitoring temperature every five minutes



### **Risk Prevention Strategies**

Early symptoms of heat-related illness can escalate quickly. Awareness of the onset of symptoms can prevent an athlete's condition from deteriorating. Training for staff, athletes, and parents is key to this prevention.

Effective prevention programs include pre-participation screening, training for staff, athletes, and parents, and rest and recovery protocols. The American Academy of Pediatrics and the NCAA Sports Medicine Handbook provide valuable guidance.<sup>4</sup>

Key strategies include:

- Heat acclimatization protocols to gradually increase the duration and intensity of physical activity, heat exposure, and equipment use over 7-14 days.
- Hydration management includes structured water breaks every 15-20 minutes, educating athletes on proper hydration, and monitoring hydration status through pre-practice weigh-ins.
- + **Environmental controls** include scheduling practices during cooler hours, providing shaded rest areas, and modifying practice intensity based on heat index readings.



#### **Create an Action Plan**

When an athlete experiences heat-related illness, all staff should work together to provide complete care, from treatment to recovery. Begin each season with training for coaches, staff, athletes, and parents on heat illness awareness, including symptoms, reporting, and treatment. Encourage athletes to undergo yearly pre-participation, especially for Sickle Cell trait screening. Creating an emergency action plan can help with this coordination. Preventing heatillness plans should include establishing protocols to follow when a heat illness event occurs, allowing a return to participation, and reviewing the incident to determine causes and prevent further incidents. Have medical staff help develop this plan and review it annually for updates. Ensure that onsite staff has the proper tools available and easily accessible and that they are trained to use the equipment.



#### Conclusion

Prevention is the cornerstone of managing heat illnesses in youth sports. Implementing proven prevention strategies can significantly reduce the incidence of heat-related emergencies. By understanding the risks and maintaining appropriate prevention measures, coaches, parents, and administrators can help youth and high school athletes safely participate in sports.



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#### SOURCES

<sup>1</sup>Kerr, Z., Casa, D. PhD., Marshall, S. PhD., and Comstock, D. PhD. (2013, January 14). *Epidemiology of Exertional Heat Illness Among U.S. High School Athletes*. American Journal of Preventive Medicine. https://www.ajpmonline.org/article/S0749-3797(12)00742-8/fulltext#:~:text=Exertional%20 heat%20illnesses%20were%20widely%20distributed%20geographically%2C%20and%20most%20occurred%20in%20August%20(60.3%). &text=It%20is%20estimated%20that%20more%20than%209000,acclimated%20to%20physical%20exertion%20in%20the%20heat.

<sup>2</sup>Johns Hopkins Medicine. (2025). *Heat-Related Illness and Young Athletes: 3 Important Things Parents and Coaches Need to Know*. Johns Hopkins Medicine. https://www.hopkinsmedicine.org/health/wellness-and-prevention/heat-related-illness-and-young-athletes-3-important-things-parents-and-coaches-need-to-know

<sup>3</sup>Bennett, Melanie. (2025, February). *Reduce Heat Illness in Athletes. United Educators*. https://www.ue.org/risk-management/athletics/reduce-heatillness-in-athletes/

<sup>4</sup>NCAA Publications. (n.d.). *Sports Medicine Handbook*. NCAA Publication. https://www.ncaapublications.com/p-4141-sportsmedicine-handbook. aspx

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