



Play it Safe in the Heat

Tips for Coaches and Parents

Heat is the number one weather-related killer in the United States. Heat illness is the leading cause of preventable death in high school athletics¹. Heat stroke deaths mainly occur in the summer months during conditioning for fall sports. Body heat production is 15 to 20 times greater during vigorous exercise than when at rest and can raise the body core temperature 1 to 2 degrees Fahrenheit every 5 minutes unless the heat is properly dissipated. Preventing heat-related injuries is increasingly important as the rate of these types of injuries is on the rise. Learn to recognize the symptoms of heat related stress and play it safe in the heat.

How to prevent heat-related illness:

Before participating in any activity:

Physicians with the American College of Sports Medicine agree that the best way to control heat related illness is through prevention. Every child should receive a pre-participation physical evaluation (PPE) every year. These exams can detect any underlying conditions the young athlete may have and therefore prevent a potential medical emergency.

Schools and organizations should have an environmental action plan that is designed to limit intensity of activities and exposure time to excessive heat, lengthen rest and recovery time, ensure adequate hydration and ensure constant monitoring of heat-related illnesses.

Practice and other outdoor activities should be scheduled during cooler times of the day (early morning, or evening). Athletes, coaches and trainers must know the warning signs of heat stroke and monitor the weather conditions closely. Be aware that it may take several weeks for athletes to become acclimated to the heat if they are not accustomed to being outdoors.

Warming up and stretching before play is recommended. This can help prevent sports-related injuries (such as muscle tears or sprains) by stretching and releasing any muscle tension.

Hydration is key:

¹ Keller, C. A. MD. 2011 *NHSF Sports Medicine Handbook*

Hydrating well before, during and after practices and games is a must. Make sure the child drinks fluids (water or sports drink) at least 30 minutes before the activity begins and every 15-20 minutes during activity. Establish mandatory fluid breaks during practice and games—don't wait for the child to tell you he/she is thirsty. Make sure fluid is easily accessible in ample quantities during rest breaks and during exercise when possible.

Appropriate gear:

Have your child wear light-colored, breathable clothing. Wearing the appropriate and properly fitted sports gear during practice and games can help avoid minor and serious injuries. Make sure athletes have the right equipment—this may include helmets, shin guards, mouth guards, ankle braces, shoes with rubber cleats, and sunscreen. In excessive heat conditions, practice time in uniforms and use of gear that trap heat and limit evaporative cooling should be limited.

Environment:

The body needs to sweat in order to properly cool down. When the relative humidity increases perspiration evaporates less readily, robbing the body's ability to cool itself. The heat index is a measure of the temperature the body feels that combines air temperature and humidity levels. It is a better indicator of risk of heat-related illness and injury than air temperature alone. Parents and coaches must be responsible for limiting practices or competitions during periods of excessive heat and humidity. Moving practices indoors or to a shady area can help reduce the risk of heat injury to an athlete. A matrix is provided below to help estimate the likelihood of heat disorders based on the heat index.

NOAA's National Weather Service

Heat Index
Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	126	130					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger

Children with Medical Conditions:

Anyone with acute illness (especially fever, vomiting, or diarrhea that can lead to dehydration) should avoid exercising in hot, humid conditions until the illness is completely gone. Children with chronic medical conditions (such as diabetes, cystic fibrosis, kidney disease) should talk to their pediatrician about how to maintain normal hydration. Certain medications (such as cold medicines) can make it harder for the body to get rid of heat and should be used as little as possible. Obesity (being overweight) can greatly increase the risk of heat injury. This is why preseason practice in late summer for larger athletes (such as football players) is especially risky. These athletes should start mild exercise early in the summer and slowly work up to full workouts. Last, anyone with a history of heat injury may be at increased risk for repeated injury and should pay extra attention to proper hydration and rest.

How to recognize heat-related illnesses:

- **Heat Rash**

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children.

- **Sunburn**

Sunburn is an inflammation of the skin due to overexposure to ultraviolet (UV) radiations from the sun or tanning beds. Sunburn should be avoided because it is a known risk factor for skin cancer; especially melanoma of the skin, a dangerous form of cancer. Although the discomfort is usually minor and healing often occurs in about a week, more severe sunburn may require medical attention. Proper sun protection practices such as using sunscreen and wearing appropriate clothing can reduce a person's risk for developing sunburn and skin cancer.

- **Heat Cramps**

Heat cramps usually affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles may be the cause of heat cramps. Heat cramps may also be a symptom of heat exhaustion.

- **Heat Exhaustion**

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. It is the body's response to an excessive loss of the water and salt contained in sweat. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

Recognizing Heat Exhaustion

Warning signs of heat exhaustion include the following:

- Heavy sweating
 - Paleness
 - Muscle cramps
 - Tiredness
 - Weakness
 - Dizziness
 - Headache
 - Nausea or vomiting
 - Fainting
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- **Heatstroke**

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Recognizing Heatstroke

Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F, orally)
- Red, hot, and dry skin (no sweating);
- Rapid, strong pulse;
- Throbbing headache;
- Dizziness;
- Nausea;
- Confusion;
- Loss of Consciousness

ACT QUICKLY!

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.
- Cool the victim rapidly, using whatever methods you can. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature, and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do **NOT** give the victim anything to drink.
- Get medical assistance as soon as possible.
- Sometimes a victim's muscles will begin to twitch uncontrollably as a result of heatstroke. If this happens, keep the victim from injuring himself by moving objects around the victim.

Additional Information

- The Kansas Department of Health and Environment
http://www.kdheks.gov/beh/extreme_heat.htm
- Safe Kids USA
<http://www.safekids.org/safety-basics/safety-guide/sports-safety-guide/for-coaches/>
- National Athletic Trainer's Association
<http://www.nata.org/NR070810>
- National Federation of State High School Associations