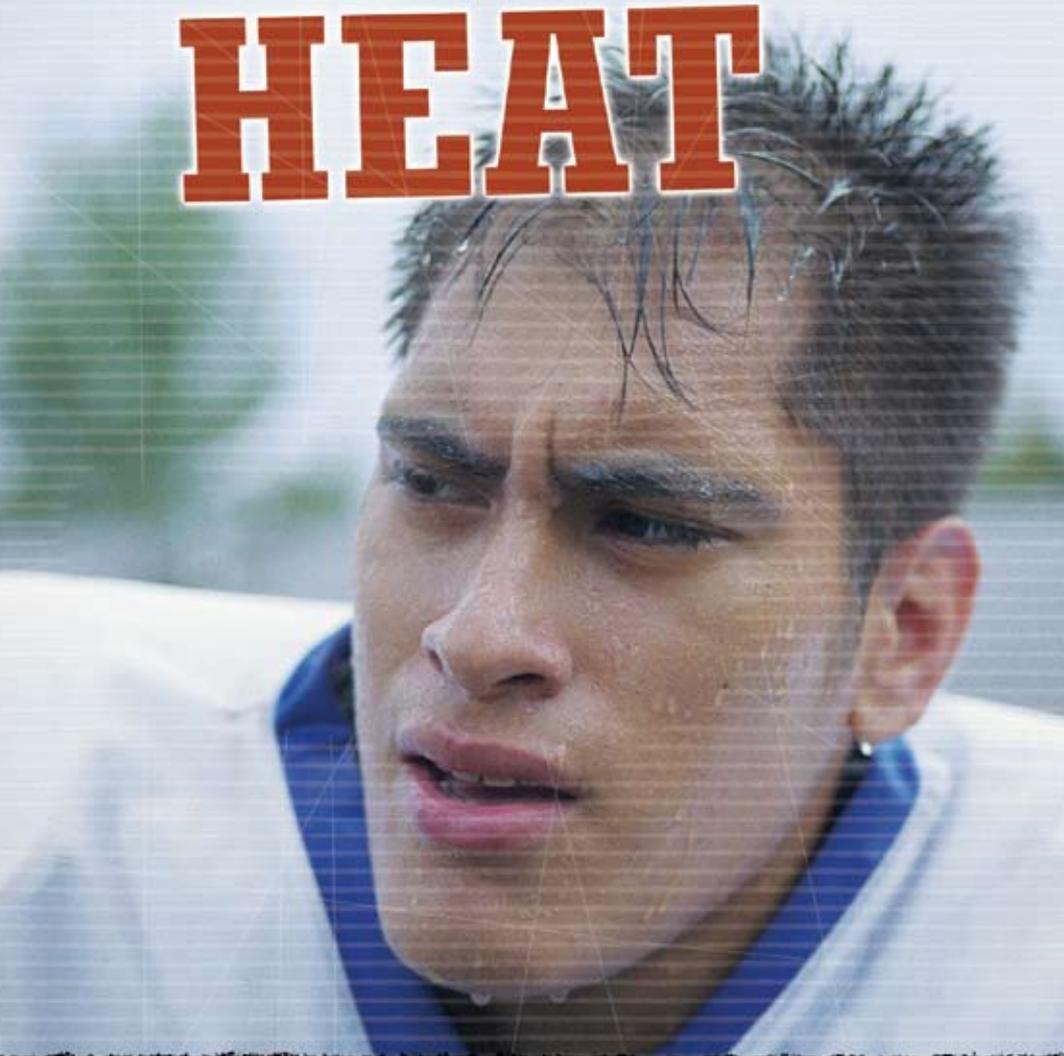


BEAT THE HEAT



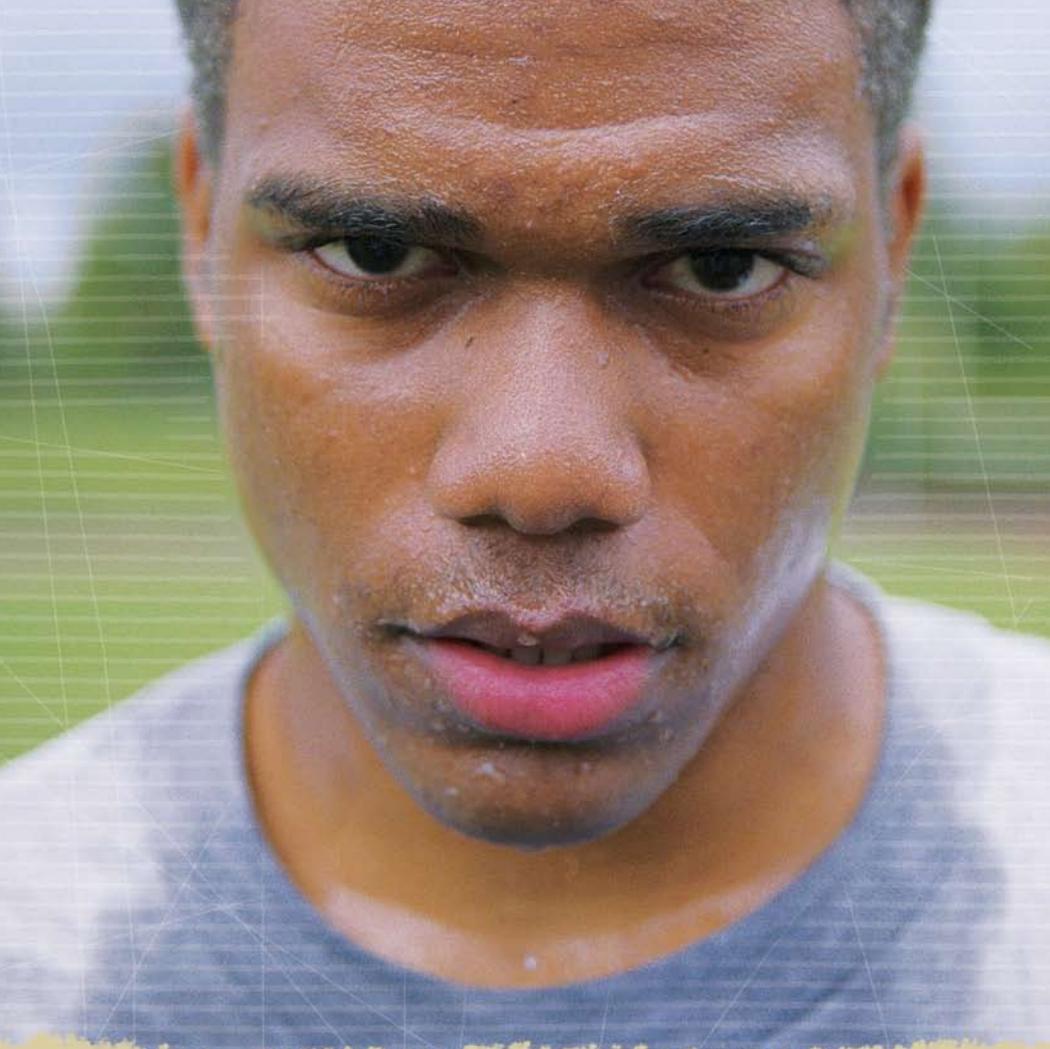
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Heat Illness

PREVENTION AND TREATMENT



What Puts Youth Athletes at Risk?

Heat-related illnesses are some of the most common problems for young athletes playing in the heat. These conditions can be dangerous or even fatal in some cases. Heat-induced illness is one of the most preventable sports injuries. Parents, young athletes and coaches need to understand the factors that increase the risk for heat-related illness and take steps to prevent it.

Why Kids Are at Risk:

- 1) Children absorb more heat from a hot environment than adults. The smaller the child the faster they heat up.
- 2) Children release less heat through sweating¹.
- 3) Children usually don't drink enough fluids to replenish sweat losses during prolonged exercise^{2,3}.
- 4) Young athletes may be more easily distracted when occasions allow for them to rest and rehydrate.

Signs of Dehydration and Heat Illness^{4,5}

If dehydration progresses unchecked, the risk of heat illness increases. Heat illness is best understood in three separate degrees: **HEAT CRAMPS**, **HEAT EXHAUSTION** and, the most serious and deadly form, **HEAT STROKE**.

DEHYDRATION Dehydration during exercise is a common problem. Some young athletes can begin to suffer the consequences of dehydration if they become dehydrated by just 2 percent of their body weight. That's why it's important to recognize the warning signs:

- Noticeable Thirst
- Muscle Cramps
- Weakness
- Decreased Performance
- Nausea
- Headache
- Fatigue
- Lightheaded feeling or dizziness
- Difficulty paying attention

Treating the symptoms of dehydration is crucial in preventing more serious conditions such as heat exhaustion.

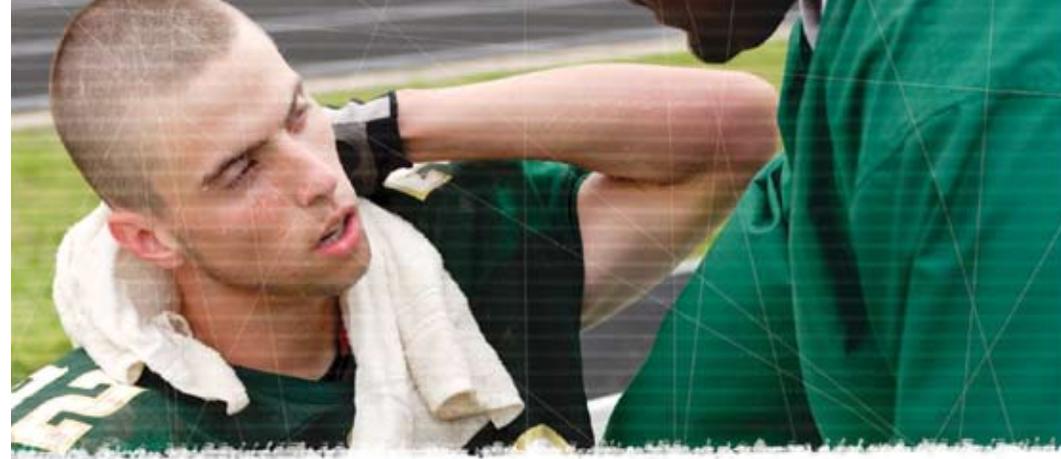
- 1) Rest in a cool place.
- 2) Consume a sports drink that contains the adequate amount of electrolytes.
- 3) Prevent dehydration in the future by consuming fluids before, during and after exercise.
- 4) Allow for ample time to rehydrate.

HEAT EXHAUSTION If dehydration goes untreated, the likelihood of heat exhaustion may increase. Common symptoms of heat exhaustion are:

- Dizziness and fatigue
- Chills
- Rapid pulse

Treatment of heat exhaustion is similar to that of dehydration and should take place immediately. This treatment includes:

- 1) Rest in a cool, shaded area and place ice cold towels on the body.
- 2) Drink a sports drink that contains the adequate amount of electrolytes.
- 3) Lie down with legs elevated to promote circulation.
- 4) Athlete should begin to feel better relatively soon; if not, assume heat stroke.



HEAT STROKE Heat stroke is a medical emergency! When it is not recognized promptly and treated properly, it can result in death. If rapid cooling does not occur, damage could be extreme, resulting in fatal consequences. Symptoms and results of heat stroke include:

- Very high core body temperature
- Altered central nervous system function (i.e., confusion or unconsciousness)
- Otherwise healthy athlete collapses during intense exercise in the heat

Remember that athletes get better relatively quickly with heat exhaustion, and they get worse with heat stroke. The important thing to remember is that heat stroke must be treated immediately by doing the following:

- Immediate cool-down by whatever means possible
 - > An ice bath in a “cool pool” is preferable because of the superior cooling rates (holding head out of bath)
 - > Ice packs over as much of the body as possible
 - > A cool shower
 - > Cool, wet towels
 - > Water spray
- **SEEK MEDICAL ATTENTION IMMEDIATELY** (always transport a suspected heat stroke victim to the hospital).
- Do not drink fluids since nausea and vomiting are extremely common.



Hydration Game Plan

Young athletes may not think dehydration will ever happen to them, but it can – and if it does, parents, coaches and athletes had better know what to do about it.

Here are the key steps:

1. Know Your Sweat Rate

Staying properly hydrated is all about maintaining the body's fluid balance so there's never too much or too little. Athletes need to know how much they sweat and how much they need to drink to replace it:

- Weigh in before and after competition.
- Keep track of how much fluid is consumed during a workout.
- Combine the amount of weight lost after exercise with the amount of fluid consumed in order to formulate how much the athlete should drink to stay hydrated.



DEHYDRATED

HYDRATED

Also, check urine color. If it looks like lemonade, then they are likely pretty well hydrated. If urine is dark yellow like apple juice, then they are likely dehydrated. This is an easy and accurate way to assess hydration status.

2. Hydrate Before, During and After Workouts

Proper hydration will help you perform at your best and protect you from feeling dehydration's serious side effects.

- **Before** gives you a head start to help you compete at your best
- **During** gives you the energy to keep going
- **After** helps you replace the fluids and electrolytes

3. Choose the Right Beverage

While water may be good when there's nothing else available, research shows that a properly formulated sports drink, like Gatorade, is best when you're working out. That's because it has:

- Electrolytes to replace what you lose in sweat
- Flavor to encourage you to drink
- Carbohydrates to give energy to your working muscles

Avoid fruit juices, carbonated beverages, caffeinated beverages and energy drinks immediately before and during activity.

- Fruit juices cause upset stomach and they may also lack sodium.
- Carbonated beverages, such as soft drinks, can reduce drinking because of stomach fullness and throat burn.
- Energy drinks should be avoided, because many contain caffeine and have high carbohydrate concentrations.



4. Speak Up if You Feel Ill

Suffering in silence when feeling the early signs of dehydration can be dangerous. Instead, athletes should be encouraged to tell coaches or teammates how they're feeling so they can get the rest, fluid and medical attention they might need.

Finally, talk to a doctor if you have additional questions about proper hydration. The health and success of your kids may depend on it.



Heat Illness Prevention Techniques

|ACCLIMATION|

- Acclimation to the heat is an important factor in preventing heat illness. The rate of acclimation for children is slower than that of adults .
- A child needs as many as 8 to 10 days (45 – 60 minutes/day) in a new climate to acclimate sufficiently.
- During the acclimation process, it's important to drink adequate amounts of fluid.
- When a child becomes acclimated and his or her sweat rate increases, it's important to drink sufficient fluids to replace the increased sweat losses and stay hydrated.
- Medical staff, parents, players and coaches must understand that thirst is not a good indicator of a child's fluid needs.

|PROPER REST|

- Parents and coaches should encourage breaks in a shaded area whenever possible, especially during tournaments, multigame and multipractice days.
- It's important to be aware of high temperatures and humidity and change practice and game times to cooler portions in the day, such as morning and dusk.
- Practices must be modified based on conditions.

|DRESS CODE|

- Children should wear clothing that is light-colored, which will absorb less heat from the sun.
- It's best to wear lightweight, loose-fitting materials.

Environmental Conditions

- Modify workouts and competition in response to the environmental conditions.

Heat Index	Heat disorders possible with prolonged exposure and/or physical activity
80 to 89	Fatigue
90 to 104	Sunstroke, heat cramps and heat exhaustion
105 to 129	Sunstroke, heat cramps or heat exhaustion likely
130 or higher	Heatstroke/sunstroke highly likely

% Humidity									
100	72	80	91	108					
90	71	79	88	102	122				
80	71	78	86	97	113	136			
70	70	77	85	93	106	124	144		
60	70	76	82	90	100	114	132	149	
50	69	75	81	88	96	107	120	135	150
40	68	74	79	86	93	101	110	123	137
30	67	73	78	84	90	96	104	113	123
20	66	72	77	82	87	93	99	105	112
10	65	70	75	80	85	90	95	100	105
0	64	69	73	78	83	87	91	95	99
Air Temp	70	75	80	85	90	95	100	105	110

Chart adapted from: Inter-Association task force on exertional heat illnesses consensus statement. June 2003, National Athletic Trainers' Association.



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