

The South Carolina
Independent School Association

*Heat Related Illness
and Athletic Participation*

Prevention, Recognition and Treatment



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Each school shall have a written plan. The plan shall cover the following areas.

1. **Education** of Coaches, players, and parents about heat related illnesses and the warning signs.
 - A. Heat related conditions: Heat cramps; Heat Exhaustion; Heat Stroke; and Hyponatremia
 - B. Proper Rest and hydration.
 - C. A darker urine color is a quick indicator of dehydration. Your urine should look more like lemonade than apple juice.
2. A **Completed Physical** and **Agreement for Participation** Form required prior to athletic participation.
3. **Instrument / means** to monitor weather conditions in regards to heat, humidity and heat index. The current conditions can direct the coaching/training staff **increase** to the number and duration of rest periods and to **decrease** the duration of practice time, the protective equipment that may be worn by a player and the type of activity that a player may be performing (such as a skill/drill activity vs. conditioning).
 - 3A. The school shall have a **WBGT index** or **Heat-Humidity Index Chart** to determine what, if any, weather/heat dictated adjustments need to be made to the practice session.
4. **Summer conditioning programs** are designed to assist with the **acclimatization** of student-athletes for the upcoming fall sports season. Football Coaches shall follow the SCISA Football Practice Schedule. **The first week will be a five (5) day acclimatization period.**
 - First two days - helmets only. - 3rd & 4th days - helmet & shoulder pads only.
 - 5th Day: Full Pads/Full contact. 3 days of full pads/full contact required before conducting a scrimmage.

SCISA 2-1-2 Practice Plan

- * A school may not conduct multiple on-field practice sessions on consecutive days.
 - * A coach/team cannot have more than five (5) hours of total contact time on multi-practice days. This includes: on-field practice & weight room/conditioning.
 - * A coach/team cannot have more than three (3) hours of total contact time on single-practice days. This includes: on-field practice & weight room/conditioning.
 - * During the school year, a coach is limited to three (3) hours of total contact time which includes: film sessions, weight training, and on-field practice.
5. Practice/game policies, procedures and accessories:
 1. Unlimited hydration during rest time. *Some programs allow players to carry water bottles during station/skill drills for additional hydration between rest periods.*
 2. Helmets removed during rest periods. Jersey/shoulder pads should be removed.
 3. Rest area / cooling zone not in direct sunlight. Shaded area or utilize tents.
 4. **Mandatory:** schools shall have a **cold immersion tub**.
 5. Players shall be **weighed** each day **before and after practice** and weight charts maintained. (*Less than 2% body weight change*).
 6. Practice during cooler portions of the day (early morning or late evening), if possible.
 7. If possible, have appropriate medical care available. AED on site and/or CPR certified coaching staff.
 8. EAP to include emergency medical response to an athletic venue.

6. Return to practice/play protocol.

Heat Stroke - The athlete should not be allowed to return until his doctor approves and provides specific return to play instructions. The athlete should return to physical activity slowly and under the watchful eye of a trainer or other health care professional.

Heat Exhaustion: if emergency medical treatment was received, the athlete should not be allowed to return without specific return to play instructions from the doctor.

Stages Of Heat Illness, Warning Signs Treatment, And Return To Activity

Heat stroke is an extremely serious illness that can result in death unless quickly recognized and properly treated. Signs and symptoms include an increase in core body temperature (usually above 104°F/40°C); central nervous system dysfunction, such as altered consciousness, seizures, confusion, emotional instability, irrational behavior or decreased mental acuity; nausea, vomiting, or diarrhea; headache, dizziness, or weakness; increased heart rate; decreased blood pressure or fast breathing; dehydration; and combativeness.

What to do: It's very important that treatment for heat stroke be both aggressive and immediate, provided adequate medical personnel are on site. Key steps to take when heat stroke is identified include immediate whole-body cooling, preferably through cold-water immersion, followed immediately by medical treatment in an emergency room or trauma center.

The athlete should not be allowed to return until his doctor approves and provides specific return to play instructions. The athlete should return to physical activity slowly and under the watchful eye of a trainer or other health care professional.

Heat exhaustion is a moderately serious illness resulting from fluid loss or sodium loss in the heat. Signs and symptoms include loss of coordination; dizziness or fainting; profuse sweating or pale skin; headache, nausea, vomiting or diarrhea; stomach/intestinal cramps or persistent muscle cramps.

What to do: Heat exhaustion patients should immediately be transported to a cool, shaded environment with feet elevated, and fluids should be replaced. If their condition worsens or does not improve within minutes, they should be transported to the emergency room for evaluation and treatment. Those suffering from heat exhaustion should avoid intense activity in the heat until at least the next day. NATA also recommends a trip to the doctor to rule out any underlying conditions that predispose them to heat exhaustion.

The athlete should not be allowed to play again until all symptoms of heat exhaustion and dehydration are no longer present. Play or practice in the heat should be postponed until at least the next day and possibly longer depending in the severity of the heat exhaustion. If emergency medical treatment was received, the athlete should not be allowed to return without specific return to play instructions from the doctor.

Heat cramps are often present in those who perform strenuous exercise in the heat. Conversely, cramps also occur in the absence of warm or hot conditions. Signs and symptoms include intense pain (*not associated with pulling or straining a muscle*) and persistent muscle contractions that continue during and after exercise.

What to do: People suffering from heat cramps should cease activity, consume high sodium food and stretch the affected muscle. They should also be assessed by an athletic trainer to determine if they can return to activity. If cramping progresses in severity or number of muscle groups, patients should be transported to the emergency room for more advanced treatment.

The athlete can return to play when the cramp has gone away when he/she feels and acts like playing again.

Hyponatremia is a potentially fatal illness that occurs when a person's blood sodium levels decrease, either due to over-hydration or inadequate sodium intake, or both. Medical complications can result in cerebral and/or pulmonary edema. Signs and symptoms of this illness include excessive fluid consumption before, during and after exercising (weight gain during activity); increasing headache; nausea and vomiting (often repetitive); and swelling of extremities (hands and feet).

What to do: Hyponatremia cases that involve mental confusion and intense headache should be seen by a physician so proper treatment can be administered. A physician should also be consulted prior to resuming outdoor activity in the heat. Always listen to your body. If you are participating in any activity in the heat, and you start to feel ill or strange, you should stop immediately and seek medical attention, as needed.

The athlete should not be allowed to return until his doctor approves and provides specific return to play instructions. The athlete should return to physical activity slowly and under the watchful eye of a trainer or other health care professional.

Heat Index under 95°	<p>All Sports:</p> <ul style="list-style-type: none"> ◇ Provide ample amounts of water. This means water should always be available and athletes should take in as much water as they desire. ◇ Optional water breaks every 30 minutes for 10 minutes duration. ◇ Ice/Cool-down towels for cooling ◇ Watch/monitor athletes carefully for necessary action
Heat Index 95° to 99°	<p>All sports:</p> <ul style="list-style-type: none"> ◇ Provide ample amounts of water. This means water should always be available and athletes should take in as much water as they desire. ◇ Mandatory water breaks every 30 minutes for 10 minutes duration (helmets/shoulder pads removed). ◇ Ice/Cool-down towels for cooling ◇ Watch/monitor athletes carefully for necessary action <p>Football:</p> <ul style="list-style-type: none"> ◇ Helmets and other possible equipment removed if not involved in contact ◇ Reduce time of outside activity. Consider postponing practice to later in the day ◇ Re-check temperature and humidity every 30 minutes to monitor for increased Heat Index
Heat index 100° to 104°	<p>All sports:</p> <ul style="list-style-type: none"> ◇ Provide ample amounts of water. This means water should always be available and athletes should take in as much water as they desire. ◇ Mandatory water breaks every 20 minutes for 10 minutes duration (helmets/shoulder pads removed). ◇ Ice/Cool-down towels for cooling ◇ Watch/monitor athletes carefully for necessary action ◇ Alter uniform by removing items if possible ◇ Reduce time of outside activity as well as indoor activity if air conditioning unavailable ◇ Postpone practice to later in day if possible <p>Football:</p> <ul style="list-style-type: none"> ◇ Helmets and other possible equipment removed if not involved in contact or necessary for safety. If necessary for safety, reduce time outside and/or suspend activity/practice. ◇ Re-check temperature and humidity every 30 minutes to monitor for increased Heat Index
Heat index above 104°	<p>All sports:</p> <ul style="list-style-type: none"> ◇ Stop all outside activity in practice and/or play, and stop all inside activity if air conditioning is unavailable.

Relative Humidity (%)

°F	40	45	50	55	60	65	70	75	80	85	90	95	100
110	136												
108	130	137											
106	124	130	137										
104	119	124	131	137									
102	114	119	124	130	137								
100	109	114	118	124	129	136							
98	105	109	113	117	123	128	134						
96	101	104	108	112	116	121	126	132					
94	97	100	103	106	110	114	119	124	129	135			
92	94	96	99	101	105	108	112	116	121	126	131		
90	91	93	95	97	100	103	106	109	113	117	122	127	132
88	88	89	91	93	95	98	100	103	106	110	113	117	121
86	85	87	88	89	91	93	95	97	100	102	105	108	112
84	83	84	85	86	88	89	90	92	94	96	98	100	103
82	81	82	83	84	84	85	86	88	89	90	91	93	95
80	80	80	81	81	82	82	83	84	84	85	86	86	87

Heat Index (Apparent Temperature)

With Prolonged Exposure and/or Physical Activity

Extreme Danger
Heat stroke or sunstroke highly likely
Danger
Sunstroke, muscle cramps, and/or heat exhaustion likely
Extreme Caution
Sunstroke, muscle cramps, and/or heat exhaustion possible
Caution
Fatigue possible

Recommendations for Hydration

What Not To Drink

- ◇ Drinks with Carbohydrate (CHO) concentrations of greater than eight percent should be avoided.
- ◇ Fruit juices, CHO gels, sodas, and sports drinks that have a CHO greater than six to eight percent are not recommended during exercise as sole beverages.
- ◇ Beverages containing caffeine, alcohol, and carbonation are not to be used because of the high risk of dehydration associated with excess urine production, or decreased voluntary fluid intake.

Hydration Tips and Fluid Guidelines

- Drink according to a schedule based on individual fluid needs.
- Drink before, during and after practices and games.
- Drink 17-20 ounces of water or sports drinks with six to eight percent CHO, two to three hours before exercise.
- Drink another 7-10 ounces of water or sport drink 10 to 20 minutes before exercise.
- Drink early - By the time you're thirsty, you're already dehydrated.
- In general, every 10-20 minutes drink at least 7-10 ounces of water or sports drink to maintain hydration, and remember to drink beyond your thirst.
- Drink fluids based on the amount of sweat and urine loss.
- Within two hours, drink enough to replace any weight loss from exercise.
- Drink approximately 20-24 ounces of sports drink per pound of weight loss.

Dehydration usually occurs with a weight loss of two percent of body weight or more.

What to Drink During Exercise

- If exercise lasts more than 45-50 minutes or is intense, a sports drink should be provided during the session.
- The carbohydrate concentration in the ideal fluid replacement solution should be in the range of six to eight percent CHO.
- During events when a high rate of fluid intake is necessary to sustain hydration, sports drinks with less than seven percent CHO should be used to optimize fluid delivery. These sports drinks have a faster gastric emptying rate and thus aid in hydration.
- Sports drinks with a CHO content of 10 percent have a slow gastric emptying rate and contribute to dehydration and should be avoided during exercise.
- Fluids with salt (sodium chloride) are beneficial to increasing thirst and voluntary fluid intake as well as offsetting the amount of fluid lost with sweat.
- Salt should never be added to drinks, and salt tablets should be avoided.
- Cool beverages at temperatures between 50 to 59 degrees Fahrenheit are recommended for best results with fluid replacement.