EXERTIONAL HEAT ILLNESS PREVENTION
GUIDANCE FOR ATHLETIC STAFF

The OSSAA recognizes that heat related illness is the leading cause of preventable death in high school students participating in activities. The OSSAA Board adopted the following policies:

Acclimatization Period: Whenever students are participating in an environment in which the temperature cannot be controlled there should be an acclimatization period. The acclimatization period is defined as the first 14 days of participation beginning with the first date of practice in that sport or activity, or the first date a participant begins practice, whichever is later. Any speed, strength, or conditioning programs shall not be considered a part of the acclimatization period. All students participating in athletics or activities, including those who arrive to preseason practice after the first day of practice, are required to follow the guidelines of the first days of the acclimatization period.

All athletic coaches and marching band directors are required to view A Guide to Heat Acclimatization and Heat Illness Prevention at www.nfhslearn.com, annually. A certificate of completion shall be kept on file for each coach or marching band director at the member school.

FOOTBALL (Mandates)

a. Preseason practice shall be limited to 2 ½ hours per session with a minimum of one hour between practice sessions. No more than 5 hours of practice per 24-hour period will be allowed. There will be no physical activity during the one-hour rest period. Any time a coach is present during football practice, the time will count toward the maximum 5 hours, with the exception of strength training.
b. If a practice session is interrupted by inclement weather or heat restrictions, and it is required the session be divided for the good of the student-athlete's welfare as long as the total practice time does not exceed 2 ½ hours.
c. When multiple practices are conducted in the same day, it is required that either practice not exceed 2½ hours in length and students not participate in more than five total hours of practice activities, including walk-through sessions. Warm-up, stretching, cool down and conditioning activities are included as part of the practice time. Practices should be separated by at least one hour, where there is no physical activity between the end of the first practice and the beginning of the second practice.
d. Immediately prior to any practice, coaches (Bixby will use our Certified Athletic Trainers) are required to use a smart-phone APP, or other mechanism or program to get heat index, such as CoachSmart or the OSHA APP. Schools must develop their own form to record the heat index each practice session.
e. All practices must be held under the supervision of a coach employed by the school.
f. Practices must always be conducted with an open water policy.
g. Cooling stations shall be made available for the athletes (buckets of cool water, wet towels, sponges, etc.)
h. Each program shall have a heat related emergency plan on hand at all times.

Guidelines for outdoor activities other than football:

a. Athletic Coaches (Bixby will use our Certified Athletic Trainers) or marching band directors should use a smart-phone APP, or other mechanism or program to get heat index, such as CoachSmart or the OSHA APP. Schools must develop their own form to record the heat index each practice session.
b. All practices should be held under the supervision of a coach, director, or sponsor employed by the school.
c. Practices should always be conducted with an open water policy.
d. Each program should have a heat related emergency plan on hand at all times.
e. Preseason practice should be avoided if possible, between the hours of 12 p.m. and 6 p.m.
f. Parents and students should be educated on the importance of hydration during extreme heat conditions.
g. Cooling stations should be made available when possible (buckets of cool water, wet towels, sponges, etc.)
h. Equipment should be removed for conditioning.

EXERTIONAL HEAT ILLNESS PREVENTION
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CONTINUED

Activity in hot or humid environments can easily cause a number of heat related illnesses. Heat illness can occur in anyone at any time. The signs and symptoms listed below usually do not occur in a stepwise manner and can change rapidly dependent on the person, situation, and activity. All signs and symptoms should be treated as serious and help sought in a timely manner.

The following signs and symptoms are serious, and should be treated as such, in a timely manner:

Heat Cramps – Painful muscle cramping; student-athlete will be sweating and thirsty.

Heat Syncope – Fainting due to heat exposure; student-athlete will usually be dizzy, pale, and have cool damp skin.

Heat Exhaustion – Elevated body temperature with cool/damp skin, will continue to sweat. They will be weak, dizzy, and may feel faint. Other symptoms include nausea, headache, chills, hyperventilation, and thirst.

Heat Stroke – **Emergency help is needed immediately!** Student-athlete will be hot to the touch and no longer sweating. They may be disoriented, hysterical, delirious, or unconscious. They may have rapid heart rate and breathing, low blood pressure.

Hyponatremia – Nausea and vomiting, swelling of hands and feet, headache, confusion, apathy and lethargy, as well as altered consciousness, in severe cases seizures, pulmonary edema and coma can occur.

Preventing heat illness is a team responsibility.

Student-Athletes – current physical on file, proper nutrition/hydration, adequate rest, adequate acclimatization, be aware of how they are feeling while participating in hot environments and communicate.

Coaches – design workouts to acclimatize student-athletes properly so that their bodies can handle the demands of performing in hot environments; are encouraged to constantly monitor student-athletes during all practice, games, conditioning sessions, and weightlifting sessions throughout seasons of participation. Coaches will also provide open and adequate water breaks, along with practice environments that do not put student-athletes at greater risk for experiencing heat-related illness. Refer to the Athletic Training staff for practice/game time adjustments. Remember heat illness is the only 100% preventable injury in sports.

Certified Athletic Trainer – will monitor the environmental conditions at specific venues prior to the start of practice; refer to chart below for WBGT readings, and practice guidelines/restrictions. AT will conference with sport specific coach to develop a hydration plan.

What to do:

Heat Cramps – move to a cool location, drink water/sports drink, gently massage spasming muscle.

Heat Exhaustion – stop all activity, move to a cool location, elevate legs above the level of the head. Monitor vital signs, activate EMS if deemed necessary.

Heat Stroke –Monitor cognitive function and vital signs. Remove excess clothing/uniforms. Move to the athletic training room (or other designated location) where cold whirlpool/tub immersion will begin. Begin fluid replacement. Contact parents and activate EMS if recovery is not rapid and uneventful. Measure core temp rectally using a DataTherm II (if necessary and AT is present).

Hyponatremia – Assess/differentiate between hyponatremia and heat stroke. Activate EMS immediately if hyponatremia is suspected; do not administer fluids until a physician is consulted.

Daily monitoring of environmental conditions:

The protocol calls for the determination of environmental conditions at the supervising Certified Athletic Trainer's practice/game site, using the Kestrel 5400 Wet Bulb Globe Thermometer (WBGT); and media-related temperature readings (such as local news, the Weather Channel, WeatherBug, etc.), or even other readings in the general proximity (National Weather Service, OK Mesonet, etc.). However, these may not yield adequate results. Reading will be made at the supervising **Certified Athletic Trainer's site on designated playing surface and will be applied to the activity(ies).**

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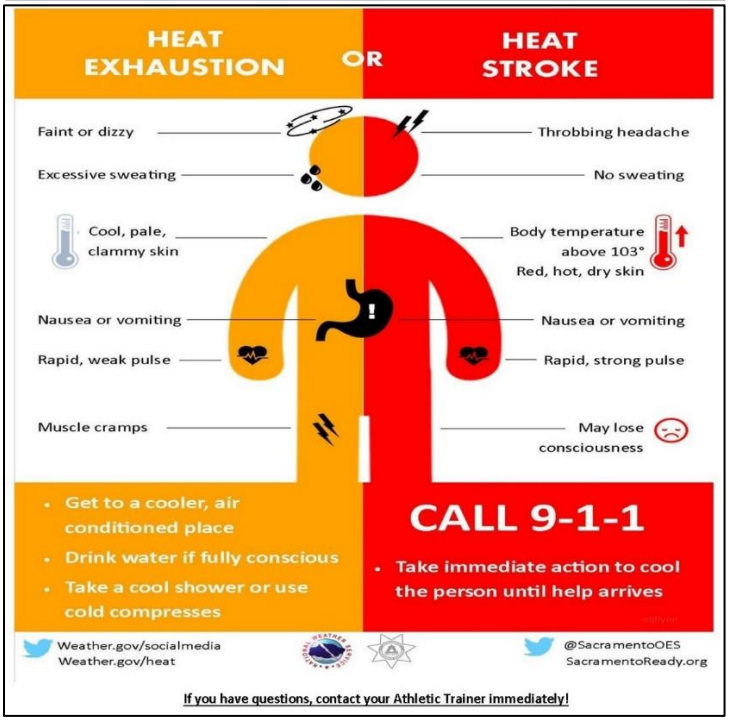
Thirty (30) minutes prior to the start of activity, environmental readings (air temp, humidity, heat index and WBGT) will be taken at the supervising Certified Athletic Trainer's practice/competition site; measurements will be taken on designated playing surface. The WBGT will indicate the level of risk for that specific site. See chart "Guidance for Athletic Staff" (attached below). Surface temp should also be measured with a surface temp gauge whenever activities are on concrete or artificial turf. If surface temps are about 125 degrees Fahrenheit, activities are recommended to be moved to natural grass surfaces or indoors. Athletic department personnel should follow the "Guidance for Athletic Staff" chart (attached below). This is assuming practice length is a maximum of two (2) hours.

EXERTIONAL HEAT ILLNESS PREVENTION POLICY continued
GUIDANCE FOR ATHLETIC STAFF

Cat 3	Cat 2	Cat 1	Activity Guidelines
< 82.0°F <27.8°C	< 79.7°F <26.5°C	< 76.1°F <24.5°C	Normal Activities – Provide at least three separate rest breaks each hour with a minimum duration of 3 min each during the workout.
82.2 - 86.9°F 27.9-30.5°C	79.9 - 84.6°F 26.6-29.2°C	76.3 - 81.0°F 24.6-27.2°C	Use discretion for intense or prolonged exercise; Provide at least three separate rest breaks each hour with a minimum duration of 4 min each.
87.1 - 90.0°F 30.6-32.2°C	84.7 - 87.6°F 29.3-30.9°C	81.1 - 84.0°F 27.3-28.9°C	Maximum practice time is 2 h. For Football: players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts. For All Sports: Provide at least four separate rest breaks each hour with a minimum duration of 4 min each.
90.1 - 91.9°F 32.2-33.3°C	87.8 - 89.6°F 31.0-32.0°C	84.2 - 86.0°F 29.0-30.0°C	Maximum practice time is 1 h. For Football: No protective equipment may be worn during practice, and there may be no conditioning activities. For All Sports: There must be 20 min of rest breaks distributed throughout the hour of practice.
≥ 92.1°F ≥ 33.4°C	≥ 89.8°F ≥32.1°C	≥ 86.2°F ≥30.1°C	No outdoor workouts. Delay practice until a cooler WBGT is reached.

Fig. 2. Heat safety regions.



Practical Guidelines for Implementing Cold Water Immersion for an Exertional Heat Stroke Patient

1. Initial response.
   Once exertional heat stroke is suspected, prepare to cool the patient, and contact emergency medical services (EMS).
2. Prepare for ice water immersion.
   On the field or in a temporary medical tent, half-fill the tub or wading pool with water and ice (before an emergency, check with water source to see how quickly it fills the immersion tub.)
   a. The stock tank can be filled with ice and cold water before an event (or have tub half-filled with water and three to four coolers of ice next to tub; this prevents having to keep tub cold throughout the day.
   b. Ice should cover the surface of the water at all times.
   c. If the student-athlete collapses near an athletic training room, a whirlpool tub or cold shower may be used.
3. Determine vital signs.
   Just before immersing the heat-stroke patient, take vital signs.
   a. Assess core body temperature. Continue monitoring. Do not remove until safe core temp is reached.
   b. Check airway, breathing, pulse, and blood pressure.
   c. Assess the level of central nervous system dysfunction.
4. Begin ice water immersion.
   Place the student-athlete in the ice water immersions tub. Medical staff, volunteers, and teammates may be needed to assist with a smooth and safe entry and exit.
5. Total body coverage.
   Cover as much of the body as possible with ice water while cooling.
   a. If full body cove rage is not possible due to the container's size, cover the torso as much as possible.
   b. To keep the student-athlete's head and neck above water, an assistant may hold the victim under the axillae-armpits-with a towel or sheet wrapped across the chest and under the arms.
   c. Place an ice/wet towel over head and neck wile body is being cooled in tub.
   d. Use a water temperature under 15°C (under 60°F).
6. Vigorously circulate water.
   During cooling, water should be continuously circulated or stiffed to enhance the water-to-skin temperature gradient, which optimizes cooling. Have an assistant stir the water during cooling.
7. Continue medical assessment.
   Vital signs should be monitored at regular intervals.
   a. It may be helpful for an assistant to stand nearby in case the student-athlete becomes combative.
   b. Other assistants may need to lift or roll the student-athlete if vomiting occurs.
8. Fluid administration.
   If a qualified medical professional is available, an intravenous fluid line can be placed for hydration and support of cardiovascular function.
   a. Rest the arm to be used on the side of the water immersion tub.
9. Cooling duration.
   Continue cooling until the patient's core temperature lowers to 39°C (102°F).
   a. If core temperature cannot be accurately measured and cold-water immersions is indicated, cool for (approximately) 10-15 minutes and then transport to a medical facility.
   b. An approximate estimate of cooling via cold water immersion is 1°C for every five minutes and 1°F for every 3 minutes (if the water is aggressively stirred). This means, the cooling rate will be slower initially, and increase the longer the person is in the tub. For example, if someone is in the tube for 15 minutes, they would cool approximately 3°C or 5°F during that time.
10. Patient transfer.
    Remove the patient from the immersion tub only after core temperature reaches 29°C (102°F) and then transfer to the nearest medical facility via EMS as quickly as possible.
11. Cooling is the primary goal before transport.
    If appropriate medical staff available on-site (team physician or certified athletic trainer), an aggressive cooling modality is readily available (i.e., cold water immersion, ice/wet towel rotation, high flow cold water dousing); and no other emergency medical services are needed besides the rapid lowering of temperature, then always follow the "cool-first, transport second" doctrine.
12. Advanced medical support.
    During transportation, maintain the core temperature reading as core temperatures can fluctuate based on environmental conditions.
    a. Once the student-athlete has arrived at the hospital, tests and other treatments will address issues resulting from the hyperthermia.

<u>COOL FIRST, THEN TRANSPORT</u>

If cold water immersion is not available or feasible given the constraints of the athletic/military/labor task being performed, then cool via the best available means. A good (although not optimal) highly portable alternative is a cooler filled with ice, water, and 12 towels. Place six ice/wet towels all over body and leave on for 2-3 minutes, then place those back in the cooler and put the six others on the patient. Continue this rotation every 2-3 minutes. Another alternative when a tub is not available is cold water dousing from al locker room shower or from a hose.

These recommendations are adapted from:
Casa D. J., B. M. McDermott, E. C. Lee, S. W. Yeargin, L. E. Armstrong, C. M. Marest. "Cold-water immersion: The gold standard for exertional heat stroke treatment," Exercise and Sports Science Reviews. 35(3): 141-149, 2007.
Korey Stringer Institute – Heat Illness Guidelines
National Athletic Trainers Association – Heat Illness Guidelines