HEAT AND HYDRATION

Across the country, football season opens with hot August practices and demanding work in equipment. Weather, protective gear, and exercise intensity can put athletes at risk for heat illness. These conditions arise from heat stress caused by several factors, usually heat from the environment or heat produced by the body itself. Heat illnesses range from mild to severe. Most critically, ***exertional heat stroke is a life-threatening emergency.*** Athletes may not notice when they are nearing their limits and may keep pushing hard in practice. As a coach, you need to adjust practices to lower the risk and learn how to identify and manage heat illnesses.

As you step onto the field, be sure you have taken every possible step to keep your athletes safe from heat illnesses.



1

How does the body manage heat?

A high body temperature limits exercise performance and greatly raises the risk of heat illness. During exercise, active muscles generate heat that stays in the body until it can escape to the surroundings. Hot air and radiant heat from sunlight add to this load. The body must therefore limit heat buildup while exercise continues. Evaporating sweat is its most effective cooling method: as sweat leaves the skin, heat moves from the body into the environment. As relative humidity rises, however, sweat evaporates less easily. More heat is retained, increasing the body's heat load and the likelihood of exertional heat illnesses.

2

How can I keep my athletes safe?

Protect athletes by changing the factors that contribute to heat illness. These risks fall into two groups: extrinsic risks, which are outside the athlete's control, and intrinsic risks, which are specific to the individual. Adjust extrinsic risks by rescheduling practices, removing equipment, or adding breaks. Athletes can reduce intrinsic risks by sitting out when ill, staying properly hydrated, and becoming acclimatized to the heat.

3

How can my team become acclimatized to heat?

Heat illness occurs most often in the first 5 days of practice. Heat acclimatization is a simple way to protect athletes during this period. Full benefits usually develop over 10-14 days, with meaningful protection building throughout the process. This series of adaptations prepares the body to exercise in hot conditions by lowering body temperature and heart rate, improving sweating, and retaining more water. With a lower heart rate and body temperature, athletes can exercise longer and at greater intensity while reducing their risk of heat illness.



Building heat acclimatization.

Use the plan below to help athletes adapt to the heat.

Keep these points in mind when using the table:

- Practice covers all time on the football field, including warm-up, stretching, breaks, cool-down, and conditioning. It must never last more than 3 hours.
- For the first 5 days, limit each practice to 2 hours.
- A walkthrough reviews plays and field positions and must last no longer than 1 hour.
- Whenever possible, schedule heat acclimatization on consecutive days with few days off. If your team practices only a few days each week, the days between sessions do not count toward acclimatization. The process will take longer with this type of schedule.

PRACTICE ADJUSTMENT AREA	PRACTICES 1-5		PRACTICES 6-14
	Days 1-2	Days 3-5	
Daily Practice Limit	1		2, on alternate days only
Required Gear	Helmet only	Helmet and Shoulder Pads	Complete Gear
Longest Permitted Single Practice	2 hours	3 hours	3 hours (no more than 5 total hours on days with two practices)
Walkthrough Time Allowed (separate from practice time)	1 hour, with a continuous 3-hour break between the walkthrough and practice		
Contact Level	No contact	Contact limited to blocking sleds/dummies	Full-contact live drills at 100% intensity

4

How can I adapt practice to environmental conditions?

Environmental conditions indicate how much strain practice may place on the body. In stressful conditions, protect athletes by adjusting practice duration and intensity, along with how often and how long they rest. Wet bulb globe temperature (WBGT) is the best measure of environmental stress. It accounts for air temperature, humidity, and radiant energy from the sun. When WBGT is unavailable, the next-best measure is the heat index, which combines air temperature and humidity. The guidelines below illustrate ways to adapt practice to environmental conditions.

WBGT	ACTIVITY GUIDANCE	REST BREAK GUIDANCE
Below 82.0°F	Usual Activities	Schedule at least three separate rest breaks per hour, each lasting at least 3 minutes during the workout.
82.0-86.9°F	Use caution with strenuous or extended exercise; closely monitor at-risk players.	Schedule at least three separate rest breaks per hour, with each break lasting at least 4 minutes.
87.0-89.9°F	Limit practice to 2 hours. During practice, players may wear only a helmet, shoulder pads, and shorts. Remove all protective gear for conditioning activities. If the WBGT reaches this range after practice has begun, players may keep exercising in football pants without switching to shorts.	Schedule at least four separate rest breaks per hour, with each break lasting at least 4 minutes.
90.0-92.0°F	Limit practice to 1 hour. Players must not wear protective gear, and conditioning activities are not permitted.	Spread a total of 20 minutes of rest breaks throughout the hour-long practice.
Above 92.1°F	Cancel outdoor workouts. Postpone practice until WBGT drops to a cooler level.	

ABOUT THESE GUIDELINES
Developed in Georgia, these guidelines assume that athletes are following or have completed a heat acclimatization program, that they have adequate access to fluids and rest breaks during exercise, and that Georgia athletes are accustomed to higher temperatures. Adjust the activity guidance to suit the region of the country where your team plays.

5 Which fluids should athletes drink to stay hydrated?

Water is the most affordable and readily available drink during exercise. Sports drinks supply water, electrolytes, and sugar, providing useful nutrients while athletes are active. Water suits every type of exercise, but sports drinks are recommended for intense activity lasting more than 60 minutes or intense exercise in hot conditions. Children also tend to enjoy their flavor and may drink more than they would if only water were offered.



6 When do athletes need fluids?

Before Activity

- Drink 16-24 oz. of water or a sports drink.

During Activity

- Keep water freely available throughout exercise/activity.
- Let athletes drink as much as they wish.
- Allow drinking for the full break period if desired.
- Provide sports drinks for exercise lasting over 60 minutes or for intense exercise in the heat.

Plan breaks roughly every 15 minutes in all exercise sessions to support these goals. Adjust the timing and length of breaks to the environmental conditions. You may encourage or require athletes to bring their own drinks, but as the coach, always keep extra fluids available for anyone who forgets a drink or needs to refill a water bottle.

7 How can I identify exertional heat illnesses and care for affected athletes as their coach?

	HEAT SYNCOPE	HEAT CRAMPS	HEAT EXHAUSTION
IDENTIFICATION	An episode of fainting or lightheadedness	Painful cramps in a specific muscle that may seem to move through the affected area The cramp is often visible, and the muscle feels firm	Weakness or exhaustion makes further exercise in the heat impossible The athlete may feel hot, tired, weak, dizzy, sweat heavily, and be unable to continue
CAUSES	Poor fitness and insufficient heat acclimatization Blood collects in the lower limbs, limiting the heart's ability to maintain adequate circulation	Fatigue combined with dehydration and electrolyte loss through sweating Poor fitness and insufficient heat acclimatization	Excessive loss of fluid or electrolytes Dehydration leaves less blood available to supply active muscles and the skin for heat release
CARE	Have the athlete lie on the ground with the legs raised about 12 inches This helps blood return to the heart and restores normal blood pressure	Restore fluids with water and sports drinks Gently stretch the cramped muscle or massage it with ice	Stop activity and move the athlete to a cool or shaded location Have the athlete lie on the ground with the legs raised about 12 inches Replace the fluids lost Use moderate cooling, such as iced towels, misting fans, or immersion in cold water
PREVENTION	Become acclimatized to heat	Begin practice well hydrated and include some salt in the preceding meal Limit fluid losses during activity and replace lost fluids afterward Become acclimatized to heat	Become acclimatized to heat Start practice or competition well hydrated Limit fluid losses while active and replace lost fluids after exercise
RESUMING PLAY	Improvement should begin within minutes; full recovery is generally rapid, usually within hours Resume activity when the athlete feels better and is sufficiently hydrated	After the cramps subside Cramps are likely to recur if lost fluids are not replaced	Do not resume activity that same day Full recovery usually requires 24-48 hours, with emphasis on rehydration and rest

Important: If an athlete requires hospital care, cool first and transport second. Without medical staff, rapid on-site cooling while awaiting transport is essential to survival from exertional heat stroke.

EXERTIONAL HEAT STROKE (EHS)

1

What defines exertional heat stroke?

Exertional heat stroke involves a body temperature above 104°F together with clear central nervous system (CNS) dysfunction. Signs can include dizziness, collapse, confusion, irrational behavior, hysteria, aggression, combativeness, disorientation, seizures, and coma.
This is a medical emergency.

2

What leads to EHS?

If the body cannot release heat quickly enough, heat accumulates and the core body temperature keeps rising.

3

How should I respond to suspected EHS?

When an athlete may have EHS, act immediately to give them the best chance of survival.

Call EMS (9-1-1) at once. Cool the whole body aggressively to lower the athlete's core temperature as rapidly as possible. Whole-body immersion in cold water is the best EHS treatment because it cools fastest. If immersion is not possible, continuously douse the body with water, using a shower or running a hose over the entire body while covering it with iced towels. Begin this cooling before EMS arrives to transport the athlete to the hospital.

4

4. How can I help prevent EHS?

Use the following measures to help prevent EHS:

- Give athletes time to become acclimatized to heat.
- Encourage athletes to arrive at practice hydrated.
- Allow unlimited access to fluids during activity.
- Adapt practice when environmental conditions are extreme: add rest and hydration breaks, lower the intensity, shorten the session, and reduce the amount of equipment athletes wear.
- Match exercise intensity to the athletes' fitness levels.
- Ask athletes to speak up when they feel unwell, and build a team culture that treats this as a wise decision.

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