

## PREVENT HEAT ILLNESS THIS SEASON

(This excerpt is adapted from *Sport First Aid 4<sup>th</sup> Edition* by Melinda Flegel and reprinted from this American Sport Education Program text with permission from Human Kinetics.)

According to National Center for Catastrophic Sport Injury Research data (Mueller & Cantu, 2008), 20 deaths due to exertional heat stroke occurred during high school and collegiate football between 2000 and 2007. The threat of exertional heat-related illnesses and their often tragic consequences are not unique to football. Athletes in any sport performed in hot weather may be at risk. Fortunately, these illnesses and their debilitating effects are very preventable. Take these steps to provide the safest environment for your athletes:

- ***Monitor weather conditions and adjust practices accordingly.***

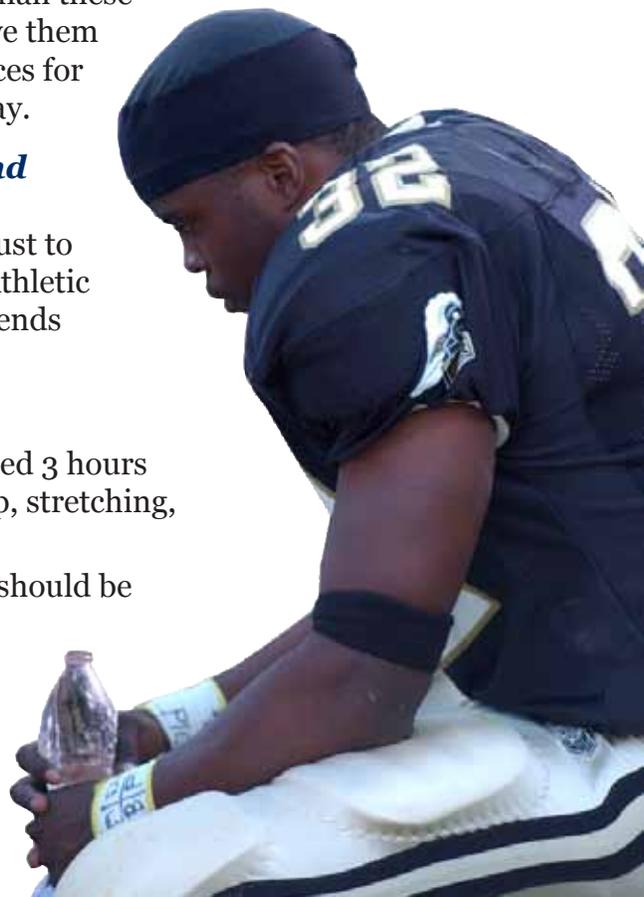
High air temperature and humidity percentages can be hazardous. Keep in mind, however, that football exertional heat-related deaths have occurred at temperatures as low as 82 degrees with a relative humidity index at only 40 percent. If heat and humidity are equal to or higher than these conditions, acclimate athletes to the weather and have them wearing light practice clothing. Also, schedule practices for early morning and evening to avoid the heat of the day.

- ***Acclimate athletes to exercise in high heat and humidity.***

In warm weather, athletes need time (14 days) to adjust to exercising in high heat and humidity. The National Athletic Trainers Association (Casa & Csillan, 2009) recommends acclimatizing athletes with these guidelines:

**Days 1-5:**

- Only one practice per day which does not exceed 3 hours (this includes conditioning exercises, warm-up, stretching, cool-down activities, and actual practice time)
- One walk through is also allowed, however, it should be separated from the practice by at least three hours during which athletes rest in a cool environment.

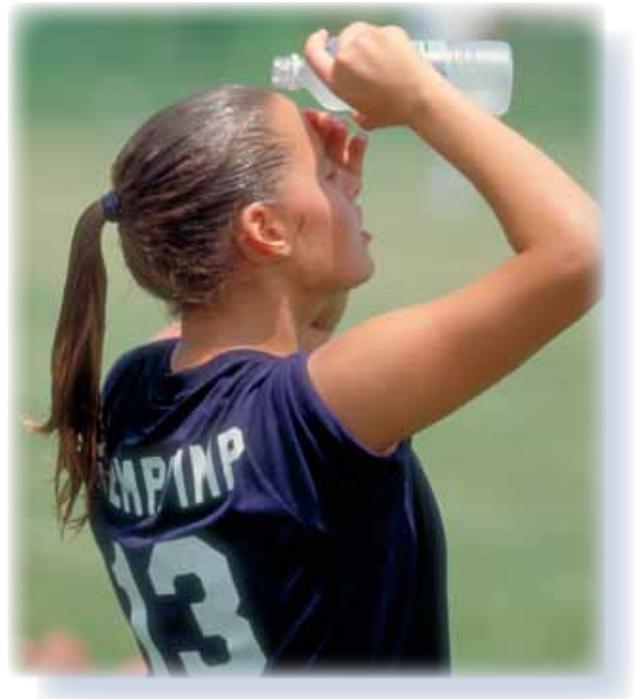


- For sports requiring additional protective equipment, athletes should only wear helmets during days 1-2. Accordingly, athletes should not do activities which require additional protective equipment.
- Only helmets and shoulder pads should be worn on days 3-5.
- Contact with blocking sleds and tackling dummies can begin on day 3.

**Days 6-14:**

- If practice is held on 6 consecutive days, athletes should have one day of complete rest before the next practice is held.
  - Days of rest or days where practice is missed do not count toward the 14 days of acclimatization.
  - Full protective equipment can be worn starting on day 6.
  - Full contact can begin on day 6.
  - Double practice days can begin but should involve no more than five hours total in a day. Neither practice should last more than three hours.
  - Double practice days should be separated by a single practice day on days 6-14.
  - Practices during double practice days should be separated by at least three hours where the athletes relax in a cool environment.
  - On single practice days, limit activity to no more than one walk through and one practice and separate the two between at least three hours of rest in a cool environment.
- ***Switch to light clothing and less equipment.***  
Athletes stay cooler if they wear shorts, white T-shirts, and less equipment (especially helmets and pads). Equipment blocks the ability of sweat to evaporate. It's especially important for athletes to wear light clothing and minimal equipment during days one through five of acclimatization.

- ***Identify and monitor athletes who are prone to heat illness.***  
Dehydrated, overweight, sunburned, heavily muscled, or deconditioned athletes are at risk, as well as athletes that previously suffered heat illnesses, and those taking certain medications (antihistamines, antidepressants, decongestants, some asthma medications, certain supplements, and attention-deficit/hyperactivity disorder medications). Closely monitor these athletes and make sure they drink plenty of fluids. Rest dehydrated athletes until they have become rehydrated.



Signs and symptoms of dehydration include

- thirst,
  - flushed skin,
  - fatigue,
  - muscle cramps,
  - apathy,
  - dry lips and mouth,
  - dark colored urine (should be clear or light yellow), and
  - feeling weak.
- ***Rest athletes who are ill.***  
Athletes should not exercise in a hot environment if they are suffering from a fever, respiratory infection, diarrhea, or vomiting. These athletes should be fully recovered and properly hydrated before resuming activity.
  - ***Strictly enforce adequate hydration.***  
Athletes can lose a great deal of water through sweat. If this fluid is not replaced, the body will have less water to cool itself and will become dehydrated. Dehydration not only increases athletes' risk for heat illness, it also decreases their performance. In fact, athletic performance may worsen after only 2 percent of the body weight is lost through sweat. Dehydrated athletes may experience
    - decreased muscle strength,
    - increased fatigue,
    - decreased mental function (e.g., concentration), and
    - decreased endurance.

Don't rely on athletes to drink enough fluids on their own. Most won't actually feel thirsty until they've lost 3 percent or more of their body weight in sweat (water). By that time their performance will decrease and their risk of exertional heat illness is increased. Also, they may not drink enough fluid to replenish the water lost through sweat.

### **For proper hydration**

(National Athletic Trainers' Association/Casa et al. 2000)

- 17 to 20 ounces of fluid at least 2 hours before workouts, practice, or competition;
- another 7 to 10 fluid ounces of water or sports drink 10 to 15 minutes before workouts, practice, or competition;
- as a general guideline, 7 to 10 fluid ounces of cool (50 to 59 degrees Fahrenheit) water or sports drink every 10 to 20 minutes during workouts, practice, or competition; and
- after workouts, practices, and competitions, 24 fluid ounces of water or sports drink for every pound of fluid lost through sweat (Manore et al. 2000).
- To determine the amount of weight lost through sweat, weigh athletes in their underwear before and after practices and competitions that take place in high heat and humidity.

- ***Replenish electrolytes lost through sweat.***

In activities lasting longer than 45 to 50 minutes, substantial amounts of electrolytes such as sodium (salt) and potassium are lost in sweat. They allow for essential body functions, and therefore must be replaced. Sodium also helps activate the body's thirst mechanism, so it can stimulate athletes to drink (keep hydrated). The best way for athletes to replace these nutrients is by drinking a sports beverage (containing sodium) and eating a normal diet. Athletes can also replace sodium by lightly salting their food, so salt tablets are not recommended. Just a small amount of potassium is lost in sweat. Oranges and bananas are good potassium sources.

- ***Prohibit the use of sweatboxes, vinyl suits, diuretics, or other artificial means of quick weight reduction.***

Such improper and harmful measures have no place in sports. Athletes' well-being must be the first consideration in any weight-loss interventions.

- ***Take an ASEP Sport First Aid Course***

Offered online, in the classroom, or in a blended format, this course offers coaches clear guidelines on what's expected of them as first responders, as well as action steps for the care and prevention of more than 110 athletic injuries and illnesses, including heat illness. Sport First Aid is recognized by state high school associations, school districts, state departments of education, and other individual sport organizations as meeting certification requirements. For information on registering for the ASEP Sport First Aid online course visit the ASEP website at [www.ASEP.com](http://www.ASEP.com) or call this toll-free number: 800-747-5698.

### Practice Plan

- ✓ **Practice objectives (5 min)**
- ✓ **Warm Up- Stretch (10 min)**  
- **Water break**
- ✓ **Games approach activities (15 min)** - **Water break**
- ✓ **More games activities (10 min)** - **Water break**
- ✓ **Scrimmage (15 min)**  
- **Water break**
- ✓ **Cool down (5 min)**  
- **Water break**

## About the Author

Light clothing  
Less equipment!

Replenish  
electrolytes.

**Melinda Flegel** has more than 20 years of experience as a certified athletic trainer. For 13 years, she was head athletic trainer at the University of Illinois SportWell Center, where she oversaw sports medicine care and injury prevention education for the university's recreational and club sport athletes. During that time, she also taught in the university's undergraduate athletic training program.

As coordinator of outreach services at the Great Plains Sports Medicine and Rehabilitation Center in Peoria, Illinois, Flegel annually provided athletic training services to athletes at more than 15 high schools as well as consulted with their coaches about sport first aid. As the center's educational program coordinator and an American Red Cross CPR instructor, Flegel gained valuable firsthand experience in helping coaches become proficient first responders.

Flegel is currently a doctoral student at the University of Illinois. She received a master's degree in physical education from the University of Illinois in 1982. She is a member of the National Athletic Trainers' Association and National Strength and Conditioning Association, and she has been a certified strength and conditioning specialist since 1987. She is currently associate director of professional education at Human Kinetics, Inc., where she oversees the development of online courses for athletic trainers and fitness professionals. In her leisure time, Flegel enjoys photography, walking, and crafts.



The American Sport Education Program (ASEP) is the leading provider of youth, high school, and elite-level sport education programs in the USA. Rooted in the philosophy of "Athletes first, winning second," ASEP has educated more than one and a half million coaches, officials, sport administrators, parents, and athletes. For more than 25 years, local, state, and national sport organizations have partnered with ASEP to lead the way in making sport a safe, successful, and enjoyable experience for all involved. For more information on ASEP sport education courses and resources, call 800-747-5698, e-mail [ASEP@hkusa.com](mailto:ASEP@hkusa.com), or visit [www.ASEP.com](http://www.ASEP.com).