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High School Football Players Most Prone to Heat Illness, CDC Says

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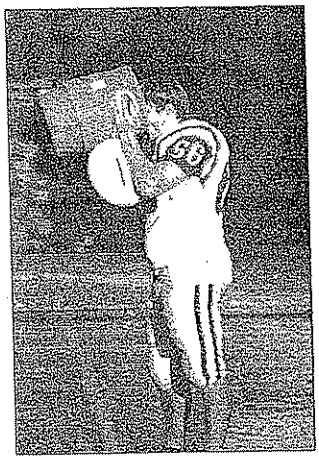
Rider:
Overweight and obese players at greatest risk



U.S. high school athletes suffer an estimated 9,237 time-loss heat illnesses every year that are serious enough to keep them out of sports for one or more days, according to a report [1] from the Centers for Disease and Control and Prevention (1).

August football

Not surprisingly, the CDC found that the highest rate of time-loss exertional heat illness* is among football players (4.5 per 100,000 athlete-exposures), who suffer such injuries at a rate *ten times higher* than the average for the eight other sports studied (0.4). Also not surprising are the report's findings that time-loss heat illnesses occur most frequently in August (66.3%) and while practicing and playing football (70.7%).

The CDC results are consistent with previous studies reporting that football players accountedfor 5.3% of all nonfatal heat-related visits to emergency departments[1] and that 88% of football heat illnesses occurred in August.[2]

Other football heat illness facts from the CDC study:

- More than eight out of ten (83.6%) of all football time-loss heat illnesses occurred during practice;
- More than eight in ten time-loss heat illnesses occurred an hour or more after the start of practice: with nearly half (46.6%) occurring 1 to 2 hours after practice began and more than a third (37.2%) more than 2 hours after the start.
- The majority of illnesses (58.2%) occurred among varsity football players and among juniors (35.6%) and seniors (28.3%).
- Nearly two-thirds (64.7%) of football players who suffered a time-loss heat illness were either overweight (37.1%) or obese (27.6%). [Note: Obesity has been shown to be a risk factor for heat illness because fat decreases heat loss. An earlier study found that 47.1% of all high school football players were overweight or obese.[3]]
- The majority of football players (63.1%) returned to play 1 to 2 days after the onset of illness.

Primary prevention methods

"All heat illnesses are preventable," says the study.

To reduce the risk for heat illness, the CDC recommends that:

- high school athletic programs follow the NATA's heat-acclimatization guidelines [2] which set limits on practice frequency, duration and intensity, as well as protective equipment usage [3] to acclimate athletes for strenuous activity in warm and/or humid summer weather [4] at a time when they are least physically fit;

- Athletes be educated about heat-related illness [5] and the importance of proper hydration before, during, and after [6] sports, and replace fluids to approximate sweat and urine losses so that athletes lose no more than 2% body weight per day; on average, this equates to consuming 200-300 mL fluid every 10-20 minutes during exercise; and
- coaches and athletic administrators monitor ambient temperature and relative humidity (e.g. the heat index [7]) and be prepared to modify practices [4] as appropriate.

Secondary prevention

If left untreated, heat illness can progress to exertional heat stroke [8], and result in permanent illness or death; thus when an athlete shows signs of heat illness [9], secondary prevention is crucial to prevent progression.

Any person exhibiting nausea, vomiting, headache, dizziness, or mental status change should be immediately evaluated for potential heat exhaustion [10] or heat stroke [8] by a health care professional. In mild cases of heat illness (e.g. dehydration [11] or heat cramps [12]), simple interventions that include removal from activity and rehydration [13] can be sufficient.

More advanced conditions, such as heat exhaustion [10] or heat stroke [8], require aggressive interventions such as cold water immersion [14] and chilled intravenous fluids to lower core body temperature as rapidly as possible.

Hydration is not only answer

Commenting on the report, MomsTeam hydration expert and Assistant Professor in the Physical Education and Athletic Training Department at the University of South Carolina, Susan Yeargin, Ph.D., ATC, stated that "while the report mentions that coaches should keep their athletes hydrated, which is terrific advice, coaches need to remember that hydration is *not* the only answer. They need to take many other measure pertaining to practice itself to keep their players safe from heat illnesses."

She advises parents "to educate themselves on the NATA guidelines and start to demand coaches follow them." She also recommends that parents voice their concerns directly to coaches in the event they see that coaches are not following sound safety measure to keep their kids safe while exercising in warm to hot weather.

"The study confirmed some very important aspects of heat illness risk. Football players and youth who are bigger in size/weight are more at risk. Also, the first 3 days of practice are when high school athletes (and college) are at the highest risk for heat illness, no matter where they live in the country. The first 2-3 weeks of practices are also high risk times for heat illness. An interesting item they found was that juniors and seniors experienced more heat illnesses and therefore might be more at risk. I believe this might a high school player's desire to make coaches happy and to compete at an "adult" level. Adults are individuals who seem to have the ability to push themselves beyond when their body is asking them to stop. This is when heat illness occur. Parents should be aware that juniors and seniors have this ability too."

* Time-loss heat illness was defined as dehydration or heat exhaustion/heat stroke that 1) resulted from participation in a school-sanctioned practice or competition, 2) was assessed by a medical professional (with or without treatment), and 3) resulted in 1 or more days of time loss from athletic activity. If an athlete sustained a heat illness and returned or was cleared to return to practice or competition the next day, the heat illness was not reportable.

Update: a 2013 study [15] of exertional heat illness in high school sports (2) essentially tracks all of the CDC's findings in terms of the rate of exertional heat illness in football, most occurring in August, and most in practice.

1.Yard EE, Gilchrist J, Haileyesus T, et al. *Heat Illness Among High School Athletes -- United States, 2005-2009* [1] *J Safety Res* 2010;41(6):471- 4.

2. Kerr ZY, Casa DJ, Marshall SW,Comstock RD. Epidemiology of Exertional Heat Illness Among U.S. High School Athletes. *Am J Prev Med* 2013;44(1):8 -14.

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