

Deaths triple among football players, morning temperatures thought to play a role

February 27 2012

Heat-related deaths among football players across the country tripled to nearly three per year between 1994 and 2009 after averaging about one per year the previous 15 years, according to an analysis of weather conditions and high school and college sports data conducted by University of Georgia researchers.

The scientists built a detailed database that included the temperature, humidity and time of day, as well as the height, weight and position for 58 [football players](#) who died during practice sessions from overheating, or hyperthermia. The study, published recently in the *International Journal of Biometeorology*, found that for the eastern U.S., where most deaths occurred, morning heat index values were consistently higher in the latter half of the 30-year study period. Overall, Georgia led the nation in deaths with six fatalities.

"In general, on days the deaths occurred, the temperature was hotter and the air more humid than normal local conditions," said [climatologist](#) Andrew Grundstein, senior author of the study and associate professor of geography in the UGA Franklin College of Arts and Sciences.

More than half of the players fell ill on days when practice ended before noon. The majority of the deaths occurred in August, when most high school and college football coaches ramp up preseason training. The American College of [Sports Medicine](#) provides guidelines for the intensity of all sports practices based on a measurement called the wet bulb globe temperature, or WBGT.

The WBGT reading is calculated using the familiar dry bulb thermometer usually found in homes, a wet bulb thermometer wrapped in damp cotton and, finally, a dry bulb thermometer encased in a black globe or globe thermometer. Each instrument provides, respectively, a measure of the air temperature, the ability of evaporation to cool the player, and the amount of [solar radiation](#) absorbed by a surface or, in this case, the player's exposed skin.

The [National Weather Service](#) provides a measurement called the heat index that attempts to convey true ambient temperature. The weakness of that measurement, Grundstein explained, is that it does not account for sun exposure or a person's involvement in athletic activity.

Neither method of measuring temperature accounts for the protective pads and helmets football players wear during practice.

"We all want a single magic number to indicate the heat threshold," Grundstein said. "But so many factors contribute to heat stress that it's impossible to draw the line at a single temperature."

Grundstein cautioned against assigning complete blame for the deaths on warmer temperatures and increasing humidity. He found that football players have also grown larger since 1980. Linemen, who tend to have a higher body mass index than other players, seem especially susceptible to hyperthermia. In Grundstein's sample, 86 percent of those who died were linemen. The increase in deaths also could be explained by an overall increase in weight and BMI in the past 15 years.

Even though specialized tools such as the wet bulb global thermometer are available, not all football coaches decide to use them. In addition to knowing the true temperature outdoors, another approach to avoiding heat illnesses is to make sure players are slowly introduced to an intense workout regime after a summer probably spent inside air-conditioned

environments. It is also important to have trained staff watching for signs of heat illness and to have an emergency management plan in place, he said.

Grundstein is currently working with Mike Ferrara, professor of kinesiology in the UGA College of Education, to study heat-related injuries in Georgia high school football players. Deaths from hyperthermia, Grundstein said, are highly avoidable.

Provided by University of Georgia

Citation: Deaths triple among football players, morning temperatures thought to play a role (2012, February 27) retrieved 29 December 2022 from <https://medicalxpress.com/news/2012-02-deaths-triple-football-players-morning.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.