Heat-Related Deaths in American Football: An Interdisciplinary Approach

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As observers of American football turn their attention to the crises of concussions, subconcussive hits, chronic traumatic encephalopathy, and attendant issues related to direct contact and collision, it may be easy to lose track of the too frequent occurrence of what experts refer to as a type of “indirect” fatality caused by “systemic failure as a result of exertion”; those associated with heat. Typically brought about by engaging in intense physical effort in hot and humid conditions, the vast majority of these deaths need not occur. Despite the growing scientific understanding of the problem, however, heat-related deaths persist, often surging at different points in history. It is not just an issue of science, then, but also an issue of culture and one that necessitates an interdisciplinary approach.

Physicians have documented heat-related deaths in football since the early twentieth century, but it was the 2001 death of the Minnesota Vikings’ All Pro tackle, Korey Stringer, that put the public on notice. On July 30, the 37-year-old National Football League (NFL) veteran reported to training camp weighing 336 pounds and reportedly “in the best shape of his career.” But that summer’s brutal combination of heat and humidity in the upper Midwest pummeled the athletes without relent, with heat indices peaking at 110 degrees Fahrenheit (43 degrees Celsius). Stringer struggled with workouts and vomited several times during the first two practices of the season. During second-day drills, he experienced difficulty breathing, momentarily collapsed, and intimated weakness and dizziness to teammates. He tried to recuperate in an air-conditioned trailer and emergency services arrived fifty minutes later. By the time Stringer reached the hospital, his core temperature registered 108.8 degrees Fahrenheit. Fifteen hours later he died from multiple organ failure brought about by heatstroke.

As the American public struggled to make sense of a death that was, according to sports injury epidemiologist Dr. Steve Marshall, “completely preventable,” at least two theories bubbled to the surface. First, league officials blamed Stringer. Said NFL Players Association Executive Director Gene Upshaw, “I think the players are educated enough to really understand what their body can take.” Second, critics, including Stringer’s widow, blamed the NFL. She eventually filed a wrongful
death lawsuit against the organization, alleging, “training camps are modern-day sweat shops” that constitute “a perverse and deadly culture that the League tolerates, fosters, and even markets.”

If Stringer’s was the only heat-related death within the context of American football, one might be tempted to align with the NFL. Yet, statistics show that these types of fatalities occur throughout the history of the game and with relative frequency. Since 1931, various agencies have tracked the number of injuries and deaths in football. Statistics currently compiled by the National Center for Catastrophic Sports Injury Research at the University of North Carolina show that between 1931 and 2012 there have been at least 138 deaths of youth, high school, college, and professional players attributable to the heat (Figure 1). Increased awareness of the problem and advanced knowledge about prevention, detection, and treatment have done little to abate the number of casualties over the years. Between 1990 and 2010, thirty high school and eight college players died, with those numbers spiking at various historical moments: in both the 1995-1996 and the 2008-2009 football seasons, for instance, there were five such deaths. In the larger landscape of U.S. sport, these figures may seem relatively small. Current statistics show an annual average of 12.2 football-related fatalities, with 8.2 attributed to indirect causes, including cardiac issues (5) and those associated with the heat (1.9). Yet, considering that heat-related deaths are largely avertible, a single death is one death too many.

Football is not the only activity or institution forced to confront the issue of deaths due to excessive heat accumulation. The problem occurs in other sports, in the military, among fire fighters, factory workers, marching band musicians, recreational athletes, and others who engage in prolonged physical activity that takes place in hot conditions, especially when combined with the presence of high humidity. Each year Americans of all ages and walks of life die due to complications brought about by the heat. Yet, because of the cultural value and prominence of football in the United States, the sport offers an important site for analysis.