

Non-traumatic Football Fatalities: Over-conditioning Kills

Barry P. Boden, Kenneth M. Fine, Scott A. Anderson

Each year there are approximately 10 fatalities that occur in high school (HS) and college football due to medical or systemic condition such as sudden cardiac arrest, heat illness, sickle cell trait, asthma, and low levels of sodium in the blood. This equates to almost 1 fatality for every 100,000 players.

There has been a dramatic reduction in the incidence of traumatic (cervical spine, brain injury) football fatality at the HS (5-fold) and college (4-fold) level from the 1960s to the 2010s. One example is brain fatalities, which declined from an average annual number of 10 (1945 to 1975) to 5 (1980s), despite an increase in the number of football players. This decline is likely due to the improved football helmets in the 1970s which significantly reduced the number of skull fractures, the ban on spear tackling, and improved medical care. In contrast the incidence of non-traumatic football fatalities has remained constant since the 1960's. There has been less focus on non-traumatic football fatality with the misinterpretation that traumatic fatalities are a direct result of the sport and non-traumatic fatalities are not.

Non-traumatic football fatalities are characterized by several common factors. The majority of fatalities occur during conditioning sessions, supervised by coaches or strength and conditioning coaches, outside of the regular season months of September, October, and November. In fact all NCAA fatalities (100%) over the last 20 years occurred during a practice or conditioning session. During the conditioning sessions there is frequently a culture of toughness. This culture often employs punishment drills and irrationally intense conditioning sessions. A common scenario is a coach, angry at perceived lack of effort, subjecting players to excessive sprints and other conditioning drills. The focus is more on creating toughness and discipline than developing football fitness and skill.

The majority of non-traumatic fatalities occurred in obese lineman who were expected to complete intense conditioning drills with the rest of the team. The conditioning sessions often involved serial sprinting with high work to rest ratios. This contrasts with a football game, where plays last on average 4 to 8 seconds with approximately 35 to 55 seconds of rest between standard plays and 15 to 20 seconds during hurry-up, no-huddle offense.

Most non-traumatic football fatalities are potentially preventable by applying exercise science in workout design. Football drills should mimic game situations with applicable work to rest ratios. Conditioning programs should have a lower work to rest ratio early in the season with gradual progression over time. Conditioning drills should never be employed as retribution. Conditioning sessions should be based on position played, body habitus, and baseline fitness level. Coaches should be held accountable for the exercise regimen and should be compliant with current athlete health and welfare policies.

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