

# Over-conditioning kills: Non-traumatic fatalities in football is preventable

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Most non-traumatic fatalities among high school and college football athletes do not occur while playing the game of football, but rather during conditioning sessions which are often associated with overexertion or punishment drills required by coaches and team staff, according to research presented today at the American Orthopedic Society for Sports Medicine Annual Meeting. The research was presented by Dr. Barry P. Boden of The Orthopaedic Center, Rockville, Md.

Football is associated with the highest number of fatalities of any high school or college sport, but the number of traumatic injuries incurred while playing [football](#) have declined significantly since the 1960s.

However, the annual number of non-traumatic fatalities has stayed constant with current rates that are two to three times higher than traumatic fatalities.

Heat and sickle cell trait [fatality](#) rates were compared pre- and post-implementation of the NCAA football acclimatization model in 2003 and sickle cell screening policies implemented in 2010, respectively.

Boden and his team reviewed 187 non-traumatic football fatalities that occurred between 1998 and 2018. The researchers obtained information from extensive internet searches, as well as depositions, investigations, autopsies, media and freedom of information reports.

Of the 187 fatalities, more than half (52 percent) were due to cardiac issues; 24 percent were caused by heat; and five percent from asthma.

"The majority of deaths occurred outside of the regular season months of September through December, with the most common month for fatalities being August," Boden reported.

Boden said many of the fatalities had three issues in common: the conditioning sessions were supervised by the [football coach](#) or strength and conditioning coach; irrationally intense workouts and/or punishment drills were scheduled; and an inadequate medical response was implemented.

The average annual rate of heat-related fatalities remained unchanged at the collegiate level pre- and post-implementation of the NCAA football acclimatization model in 2003. The average annual number of sickle cell trait deaths in collegiate football declined 58 percent after the 2010 NCAA sickle cell screening policies were implemented. At the high school level, where there are no sickle cell guidelines, the number of sickle cell fatalities increased 400 percent since 2010.

The football acclimatization model implemented by the NCAA in 2003 has failed at reducing exertional heat-related fatalities at the collegiate level. Sickle cell trait screening policies adopted by the NCAA in 2010 have been effective at reducing fatalities in college athletes and similar guidelines should be mandated at the [high school](#) level.

"Conditioning-related fatalities are preventable by establishing standards in workout design, holding coaches and strength and conditioning coaches accountable, ensuring compliance with current policies, and allowing athletic health care providers complete authority over medical decisions," Boden reported.

**More information:** [www.sportsmed.org/aossmimis/me...AM2019-Abstracts.pdf](http://www.sportsmed.org/aossmimis/me...AM2019-Abstracts.pdf)

Provided by American Orthopaedic Society for Sports Medicine

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