

Sickle cell trait can cause sudden cardiac death in black athletes: Why is this controversial?

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While some published research has hinted at the connection between the sickle cell trait and sudden cardiac death among young, athletic African-American males, which was initially observed in black military recruits 25 years ago, a new study with the first sizeable patient series definitively confirms this risk for these individuals during competitive sports.

The sickle cell trait, for which all U.S. African Americans are tested at birth, affects approximately 8 percent of the population. The Minneapolis Heart Institute Foundation maintains a 32-year-old forensic database, the U.S. [Sudden Death](#) in [Athletes](#) Registry, which researchers interrogated to determine the frequency, epidemiology and clinical profile of sickle cell trait-related deaths in a large population of competitive athletes for the purposes of this study.

The findings from this registry show there is "convincing evidence of a [causal relationship](#) between the sickle cell trait and the deaths of young, black competitive athletes, especially football players," says the study's senior author Barry J. Maron, MD, director of the Hypertrophic Cardiomyopathy Center at the Minneapolis Heart Institute Foundation. The study will be published in the October edition of the [American Journal of Cardiology](#), but currently is available online.

Prior to this registry study, a lawsuit and previous research prompted the

National Collegiate Athletic Association (NCAA) to conduct mandatory screening for the sickle cell trait in all division I athletes prior to their participation in college athletics. As of yet, the NCAA has not expanded to the screening program to division II or III athletes, nor has the association shared its data with the medical community.

Of the 2,462 athlete deaths in the U.S. Sudden Death in Athletes Registry, which provides the first and largest published record of athletes who died of [sudden cardiac death](#) on an athletic field, 23 occurred in association with the sickle cell trait (ages 12 to 22 years): 21 were male and all were African Americans. The deaths most often occurred in college-aged athletes (19-23 years) during football conditioning drills early in the season, and with those exposed to high environmental temperatures.

"The registry was initially started by Dr. Maron to help the medical community understand why any athlete would collapse on a field," explains the study's lead author Kevin M. Harris, MD, co-director of the Acute Aortic Dissection Program and director of the echocardiography laboratory at the Minneapolis Heart Institute® at Abbott Northwestern Hospital in Minneapolis.

"We decided to assess the connection between the sickle cell trait and sudden death within our large registry," Harris continues. "As a result, we have developed the first sizable series of competitive athletes in whom sickle cell trait was associated with otherwise unexplained sudden, unexpected collapse and death."

Maron, who has been assessing cardiovascular-related deaths of young athletes for approximately 35 years, is surprised at the level of skepticism he's witnessed regarding the sickle cell trait as a cause of sudden in young, black athletes, even in the scientific medical community.

In the study, the researchers concluded that the sickle cell trait "can be associated with largely unpredictable sudden collapse and death and apparent predilection for African American college football players during conditioning. Understanding the risks, mechanisms, and event triggers of the sickle cell trait may allow lifesaving alterations in training methods to be implemented."

In order to implement such lifesaving alterations in training methods, particularly due to the unpredictable nature of sickle cell trait events, there needs to be a greater understanding and acceptance of this lethal connection. "To not acknowledge this link between sickle cell trait and sudden death creates the possibility of a failure to fully protect the athlete community," Maron said.

Provided by Minneapolis Heart Institute Foundation

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