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**ASTHMA-RELATED MORTALITY IN SPORT - STILL RELEVANT? AN ANALYSIS OF UNITED STATES
COMPETITIVE ATHLETES**

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Background: Asthma is prevalent in athletes and when left untreated is recognised to impact health and performance. Prior research highlights the presence of asthma-related mortality associated with sport, however, this data is now almost twenty years old (1) and both treatment and mortality patterns have evolved over this time. Indeed the Royal College of Physicians National Review of Asthma Deaths, revealed no sport-related mortality. Thus the aim of this work was to provide an up-to-date perspective regarding asthma-related sudden death from a large athletic database.

Method: Retrospective analysis of the United States National Center for Catastrophic Sports Injury Research (NCCSIR) database. Information concerning sudden death was obtained via autopsy and/or news or media reports between 2012-19. Athlete age, sex, sporting discipline/event, standard, date of death and cause of death were examined. Data are presented as absolute and percentage of total deaths.

Results: Two-hundred and ninety-five cases of sudden death were identified over the study period. Of these, two-hundred and two (68.5%) were attributed to a cardiac aetiology; forty-four (15%) to traumatic injury; twenty-four (8%) to heat/environmental exposure; fifteen (5%) other/unknown, and ten (3.5%) to asthma or exercise-induced bronchoconstriction (EIB) (Figure 1). Asthma-related deaths occurred most frequently in elite young athletes (i.e. sponsored or scholarship recipients aged: 13-21 years) regularly participating in high-intensity intermittent-based sports: American football (60%); soccer (10%); wrestling (10%); volleyball (10%) and running (10%). The majority of asthma deaths (70%) occurred during training or competition (i.e. severe exercise-induced exacerbation) - with the remaining cases (30%) occurring at rest (i.e. several hours post-exercise or recovery rest day).

Conclusion: Our findings indicate that asthma is the fourth leading identified cause of sudden death in young athletes (approximately one in thirty cases). Although the relative risk of mortality is low, the importance of securing an early diagnosis and initiating appropriate therapy in athletes reporting exertional breathing

difficulty should not be overlooked. Further longitudinal population-based research in this setting remains a priority.

References:

(1) Becker JM, Rogers J, Rossini G, Mirchandani H, D'Alonzo GE Jr. Asthma deaths during sports: report of a 7-year experience. *Journal of Allergy and Clinical Immunology*. 2014; 113(2):264-7.

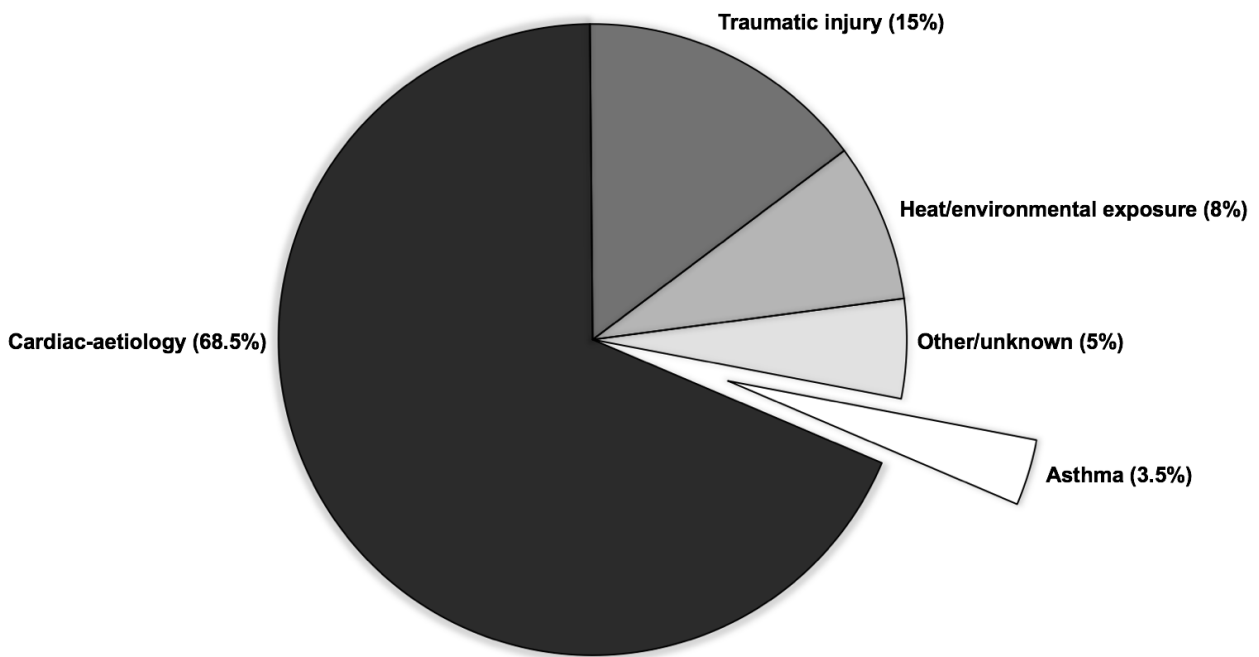


Figure 1. United States NCCSIR cause of sudden death in athletes.