

Sports medicine physical of the future could help athletes 'ESCAPE' sudden cardiac death

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A young athlete in seemingly excellent health dies suddenly from a previously undetected cardiovascular condition such as hypertrophic cardiomyopathy in nearly every U.S. state annually. Although these conditions can be detected using electrocardiography (ECG) during a screening exam, the American Heart Association recommends against routine use of ECG, because it has a high false-positive rate. Limiting screening to a history and physical, however, usually fails to identify at-risk athletes. "The sports medicine physical lacks an effective way of ferretting out these heart problems," says Gianmichel Corrado, MD, from Boston Children's Hospital Division of Sports Medicine. Until now.

Adding a simple, inexpensive ultrasound exam to the sports medicine physical could help identify athletes with these conditions.

Corrado and colleagues devised the Early Screening for Cardiovascular Abnormalities With Preparticipation Echocardiography (ESCAPE) protocol, which adds a two-minute focused ultrasound exam to the sports medicine physical. They designed a study which showed the protocol reduces the false-positive rate and demonstrated that the exam may detect cardiovascular conditions responsible for sudden cardiac death in this population. The original research was published January 22 in the *Journal of Ultrasound in Medicine*.

The researchers enrolled 65 male collegiate athletes, aged 18-25 years, in their study. Sports medicine physicians screened participants with a

history and physical exam, ECG and focused echocardiography. ECGs were positive in three athletes, but the focused ultrasound exams were normal. Another three athletes screened positive during the history and physical but were cleared both by ECG and focused ultrasound.

The findings indicate that [focused ultrasound](#) could address the false-positive issue without adding significant time or cost to the sports medicine physical.

ECG false-positives are problematic from multiple perspectives. Athletes who screen positive, approximately 10 percent of the population, must be held out of sports and referred to a cardiologist for additional tests to assess any possible underlying condition. Yet sudden [cardiac death](#) among athletes is miniscule among [athletes](#), with estimates of incidence ranging from 1 per 23,000 to 1 per 300,000 worldwide.

"The ESCAPE protocol provides peace of mind. We've shown it can easily be part of the preparticipation physical. It could be the [sports medicine](#) physical of the future," says Corrado.

The next step is to launch a multi-center study with the goal of actually finding the needle in the haystack—the athlete with an undetected cardiovascular condition.

Provided by Children's Hospital Boston

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