



## Study: screening programmes unlikely to prevent sudden cardiac arrest in competitive sport



New research suggests that screening programmes for cardiac conditions are not effective in preventing sudden cardiac arrest in competitive sport, and may prevent healthy athletes from participating. The findings, published in the *New England Journal of Medicine*, show that more than 80 percent sudden cardiac arrests in competitive sports could not have been predicted by screening programmes.

“In Europe and in the United States, screening programmes have been implemented on the assumption that most cases of sudden cardiac arrest during sport can be predicted and prevented by identifying people who are at risk because of a pre-existing condition, and withdrawing them from competitive sports,” said Dr. Paul Dorian, a cardiologist at St. Michael’s Hospital and lead author of the study. “Our study shows these events are too rare, and the causes are not likely enough to be identified, to warrant screening every athlete who wants to play competitive sports.”

Dr. Dorian and colleagues reviewed data of 3,825 out-of-hospital cardiac arrests amongst persons aged 12-45 during the six-year study period. They identified 58 and 16 cases of sudden cardiac arrest in non-competitive sport and competitive sport, respectively. The researchers examined sudden cardiac arrest in a variety of sports including amateur and college or university level hockey, track and field, soccer, baseball, basketball and marathons.

Of the 16 cases of sudden cardiac arrest during competitive sport, only three were caused by conditions that could have been identified through a pre-participation screening programme, the research team said.

Previous research suggested hypertrophic cardiomyopathy, a hereditary condition in which the heart muscle is abnormally thick, is the leading cause of sudden cardiac arrest among competitive athletes. However, only two of 16 cases of sudden cardiac arrest in competitive sport were caused by hypertrophic cardiomyopathy, Dr. Dorian’s team said.

Previous research has also identified arrhythmogenic right ventricular cardiomyopathy, a hereditary condition in which parts of heart muscle turns to fat, as a potential cause of sudden cardiac arrest in competitive sports. The current study, however, found no cases of sudden cardiac arrest in competitive sport caused by this condition.

Although there are a small number of cases in which these underlying conditions may be the cause of sudden

cardiac arrest among competitive athletes, the findings demonstrate that more often than not, screening programmes are likely to be ineffective, according to Dr. Dorian.

Among the athletes who experienced sudden cardiac arrest during competitive sport, 44 percent were resuscitated and survived, the study found.

The findings indicate a need for defibrillators in every arena or field where competitive sports are played, rather than screening for pre-existing cardiac conditions, Dr. Dorian pointed out.

“Sudden cardiac arrest in young athletes is a rare but tragic event,” he said. “We need to find a way to prevent these events while keeping as many kids as we can in the game. The evidence suggests one of the best ways to do that is by installing defibrillators at every sporting arena and field at which competitive sports are played, and training bystanders to respond effectively.”

Source: [St. Michael's Hospital](#)

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