



Sudden cardiac death in sport

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The sudden death of two seemingly healthy competitors in this year's Ironman 70.3 in East London has sparked the debate on this topic again.

The true incidence of sudden cardiac death (SCD) in sports people is widely debated. The reported incidence of SCD varies and it is challenging to compare different studies reporting on this topic. The incidence differ from 1 in 9 000 to 1 in 300 000 athletes found in populations like high school-, college- and young adult athletes. For this reason we will focus more on the causes of SCD in sports people in this article and give some practical guidelines to sports people to identify risk factors on when it is dangerous to train or compete in sport.

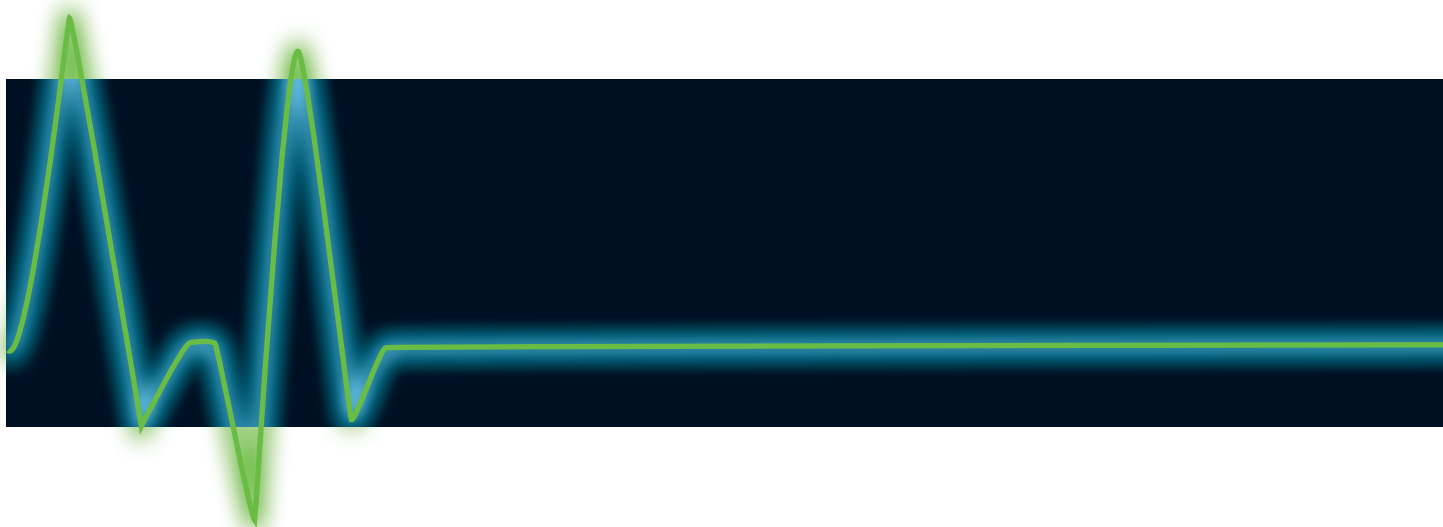
The causes of SCD in the United States are congenital and anatomical anomalies (37%), cardiomyopathies (36%), arrhythmias (14%), infectious cardiovascular disease (9%), degenerative cardiovascular disorder (4%), undetermined causes (1%), acquired cardiovascular disease (<1%), normal heart (<1%).

Athletes with a family history of SCD should seek medical advice and go for a medical screening before they do vigorous exercise. A thorough clinical examination and special investigations like a heart sonar and electrocardiogram should identify any underlying congenital or structural cardiac problems.

The most important conditions that will be identified by a thorough medical are hypertrophic

cardiomyopathy, arrhythmogenic ventricular cardiomyopathy, dilated cardiomyopathy, congenital coronary artery anomalies, premature atheromatous coronary artery disease, Wolf-Parkinson-White syndrome, right ventricular outflow tachycardia, mitral valve prolapse, congenital aortic stenosis, Marfan syndrome, congenital long QT syndrome, catecholaminergic polymorphic ventricular tachycardia.

The most common acquired cardiac abnormalities are myocarditis and commotio cordis. Myocarditis refers to inflammation of the cardiac muscle usually due to a viral illness. It accounts for 7% of SCD in sportspeople. The inflammation and subsequent necrosis of the myocardium is thought to be the substrate for malignant ventricular



tachyarrhythmias causing sudden death. Most affected individuals experience coryzal symptoms and a mild febrile illness, however sudden death in a relatively asymptomatic athlete is the most common presentation. Overt cardiac symptoms are rare and include chest pain, dyspnea and palpitations.

Athletes with proven myocarditis should abstain from strenuous exertion and competitive sport for six months. The practical implication for athletes to prevent myocarditis or SCD because of this condition, are that they should never do exercise or compete in sport when they have flu or any other illness that cause fever. It is also not advisable to exercise or train when you are on flu medication or strong antibiotics. The best way to determine whether

you are fit to compete is called the “Head check”. If you have symptoms that are only localised to your head like rhinitis or sinusitis with no fever and a normal resting pulse rate, you should be fit to train or compete without complications. If, however, you have body aches, joint pain, fever and a resting pulse rate raised by more than ten beats per minute, you should not train or compete. In cases like this or when you are not sure you should always seek medical advice.

Comotio cordis refers to SCD from ventricular fibrillation resulting from blunt trauma to the chest wall. Sports associated with this condition are baseball, field hockey, lacrosse, ice hockey, karate and judo. The victim is usually struck by an innocent appearing blow to the

chest, which is part of the normal conduct of the sport. This condition is difficult to prevent and impossible to detect with medical screenings. The use of certain chronic medication and recreational drugs can also cause SCD and should be done with caution and not without medical advice.

The take home message is that it is dangerous to train or compete when you don't feel well, or if you are using medication for acute or chronic illness which has not been subscribed by a doctor, or if you have a family history of SCD and you haven't been screened by a doctor. The best thing to do is seek medical advice when you are not sure whether you can train or compete or not.

