

SUDDEN CARDIAC DEATH IN YOUNG COMPETITIVE ATHLETES

Regular exercise is typically associated with good cardiovascular health. However, it is well documented that there is an increased risk of Sudden Cardiac Death (SCD) in young athletes. Although the condition is rare and only affects 1 in 15,000 to 1 in 50,000 athletes, it is three times more likely to affect athletes than the normal population. SCD has no symptoms, it just happens. The most common causes of SCD are:

- Hypertrophic cardiomyopathy
Thick heart muscles usually on the left side of the heart which obstructs the flow of blood out of the heart at the peak of activity. This condition is also associated lethal heart rhythms. Other family members must have cardiac investigations including an echodoppler (an ultrasound examination of the heart) as this condition is hereditary
- Abnormal origins of the coronary arteries (small blood vessels that take nutrients and oxygen to the heart).
Whilst traversing an abnormal pathway coronary arteries are more likely to be squeezed by the great arteries as they are full of blood at the height of activity thus compromising blood flow to the heart muscle
- Rhythm Abnormalities- often hereditary and associated with structural or functional issues in the conducting pathways which are responsible for initiating heart beats

Some indicators that an athlete may have underline cardiac disease includes chest pain or discomfort on exertion, unexplained fainting or near fainting and excessive and unexplained fatigue or difficulty breathing associated with exercise. A pre-participation examination by a doctor should be mandatory for all competitive athletes and if there is evidence of a heart murmur, high blood pressure or abnormal pulses such an athlete should be referred for cardiac screening. Other indications for cardiac screening include unexplained sudden death in a relative under the age of 50 years and very tall athletes with features of Marfan's Syndrome. A positive family history of certain specific cardiac conditions such as Long QT syndrome which affects heart rhythm and of course hypertrophic or dilated cardiomyopathy would also mandate cardiac screening.

When a promising athlete at the height of their career dies suddenly it poignantly reopens the longstanding debate on cardiac screening for athletes. The consensus of the American National Collegiate Athletic Association is that mass cardiac screenings for entire teams pose a logistical and financial challenge. Further, electrocardiograms (the method of cardiac careening most debated as its less expensive and more readily available) may be normal when there is a problem and abnormal when the heart is normal. It is therefore recommended that cardiac testing should be reserved for athletes whose history and physical examination raise the

suspicion of cardiac disease. However, lawmakers and some states are pushing for mandatory heart screening for high school athletes.

An Italian study in 2006 has reported an 89 % drop in sudden cardiac deaths among athletes in one region of Italy after initiating a nationwide cardiac screening programme for athletes 12 to 35 year old in 1982.

Whereas we do have a large number of athletes and limited manpower and resources, we need to explore quality controlled school based initiatives that include comprehensive cardiac screening (electrocardiograms and echocardiograms) for our athletes. These screening tests are about prevention so that other families will not have to endure the heartbreak of losing a child. Examining our champions' hearts optimally will help parents; teachers and coaches make informed decisions about a child's safety, as it relates to training routines and competitions.

With regards to responding after a sudden cardiac arrest, it is crucial to have a plan in place to stabilize the patient, pending timely transportation to the nearest hospital. Initial responders must have cardiopulmonary resuscitation training and access to an automated external defibrillator - a portable device that detects abnormal heart rhythms and shock the heart back to normal rhythm.

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