

SCREENING YOUNG ATHLETES for COMPETITIVE SPORTS

by Robert Lavery, MD, FACC



When an adolescent son or daughter comes home and announces that they want to play competitive sports at the school or community level, the parents often have mixed feelings of pride and apprehension. “Will my child get hurt or could he or she even die from the rigors of training and competition?” often goes through the mind of at least one of the parents. Every year we are faced with news of young competitive athletes that have been victims of sudden cardiac death. This is especially shocking because we assume that these athletes are among the healthiest and best trained individuals in our society. As a cardiologist and a parent of a son who has become a highly competitive Ironman Triathlete, I share the same concerns as lay parents who watch their children train and compete.

Most of these cardiac problems are congenital (present from birth) and a small number are acquired usually as the result of viral or other inflammatory conditions that attack heart muscle. It is important to keep in mind that the congenital abnormalities we are attempting to detect occur in only about 2-3 out of every 1,000 athletes. The most common cause of sudden death is Hypertrophic Cardiomyopathy (also known as IHSS) where part of the heart muscle is abnormally thickened and can actually obstruct blood flow out of the heart during exertion, especially in the setting of dehydration. Abnormalities of the coronary artery circulation and electrical disorders of the heart make up most of the other congenital abnormalities.


While it is not possible or practical to easily screen for every cardiac abnormality in the 4 million high school and 500,000 collegiate athletes, there are some guidelines that parents, coaches and physicians should be aware of. Three areas of screening for every athlete in the USA should involve taking a thorough family history, questioning the athlete for symptoms and performing a focused physical exam. In Europe the guidelines also include performance of an electrocardiogram (EKG).

Important family history would be sudden death or cardiac disability due to heart disease in a close blood relative before age 50, or knowledge of a family history of conditions such as Hypertrophic Cardiomyopathy, Long QT Syndrome or Marfan Syndrome.

A history of a heart murmur or elevated blood pressure in a young athlete should prompt further evaluation. Symptoms of pain or discomfort in the chest or excessive shortness of breath with exercise or a history of blackout or near blackout spells especially with exercise should raise a red flag and be investigated before allowing an athlete to train or compete.

The physical examiner should be looking for features of Marfan Syndrome (tall stature, long wing span and excessive joint flexibility), should check blood pressure ideally in both arms, listen carefully for a heart murmur and check for pulses in the legs to exclude Coarctation (narrowing) of the Aorta.

When one of these screening tools detects an abnormality, the young athlete should be evaluated by a cardiologist with expertise in these areas. Most of these evaluations can be done simply and noninvasively with a thorough cardiac examination and EKG. At times a cardiac ultrasound (echocardiogram) and other rhythm monitoring tools and stress testing may be necessary. Our goal at Elliot is to evaluate quickly and thoroughly, recognizing the anxiety on the part of the parents and the eagerness of the young athlete to return to training and competition.

It is impossible to prevent all catastrophic cardiovascular events in our young athletes but a greater awareness of appropriate screening tools and attention to safe training guidelines will help make competitive sports safer for these individuals. 



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