

# Screening for Heart Abnormalities in Student Athletes

Sudden deaths of student athletes are tragic events that have considerable impact on a community. These deaths are often caused by unsuspected heart abnormalities. The North Andover School medical staff is dedicated to the cardiovascular health of our children. We hope that you will find the following information helpful.

**How often does sudden death occur during athletic competition?** The exact incidence of athletic deaths is not known, but it is considered to be a rare occurrence. The American Heart Association (AHA) estimates that sudden deaths occur in the range of 1:200,000 young people of high school age per year.

**What are the causes of sudden death in athletes?** There are several heart conditions that can lead to sudden death. The most common causes are from hypertrophic cardiomyopathy and coronary artery abnormalities. For a complete list, refer to the website at the end of this sheet.

**What are the symptoms of a possible heart abnormality?** Although many athletes have no symptoms, there are some at risk for sudden death who may exhibit symptoms. They may experience exertional chest pain or discomfort, unexplained fainting, or near-fainting, and excessive exertional and unexplained shortness of breath/fatigue associated with exercise. These symptoms should be reported immediately to your primary care physician.

**What is an electrocardiogram (EKG)?** An EKG is a noninvasive procedure that evaluates the electrical activity of the heart. When conducted by a pediatric trained technician and read by a board certified pediatric cardiologist, this can provide early diagnosis of rare, potential fatal arrhythmias and hypertrophic cardiomyopathy. Subsequent treatment would prevent sudden cardiac arrest.

**Are there any drawbacks to obtaining an EKG to mass screen athletes for a heart condition?** While an EKG has the potential to help diagnose some cardiovascular disease there are drawbacks when mass screening all athletes.

- *False negative results.* An EKG does not detect all heart abnormalities (ex. coronary artery abnormalities). A normal EKG result can lead to a false sense of security to an athlete and his/her family. In those cases the athlete would still be at risk for sudden death.
- *False positive results.* Screening EKGs are oftentimes positive, yet in most cases the athletes do not suffer from a heart condition. The chances of a false positive result range from 1 in 10 to 1 in 4. These can lead to added stress and anxiety to an athlete and his/her family, unnecessary referral to a heart specialist, and unnecessary exclusion from athletic competition.

**Should I request an EKG from my doctor? What about companies that offer EKG screening for a fee?** The American Heart Association has published guidelines to help physicians screen for underlying heart disease. A work-up can be considered if there are hints from personal history, family history, and physical exam. That work-up would include an EKG. It is recommended that you speak with your physician to assess for risk of sudden death.

Several questions should be asked of companies that charge for cardiovascular screening. (1) What is the training background of the EKG technician? (2) Who is reading the EKG? For school aged students, a *board certified pediatric cardiologist* should interpret EKGs. (3) What are the outcomes? In other words, what percent of children screened have a positive result? How many of those positive results are true positive or false positive? It is recommended that you speak with your physician in advance before enlisting these services.

Adapted from the AHA statement regarding preparticipation screening for cardiovascular abnormalities in competitive athletes. For a full statement, go online to

<http://www.americanheart.org/presenter.jhtml?identifier=1478>