Oklahoma State Department of Health
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OKLAHOMA STATE DEPARTMENT OF EDUCATION
CHAMPION EXCELLENCE

Sudden Cardiac Arrest Information Sheet for Student Athletes and Parents/Guardians

What is Sudden Cardiac Arrest?

Sudden Cardiac Arrest (SCA) is the sudden onset of an abnormal and lethal heart rhythm, causing the heart to stop pumping adequately. When this happens, blood stops flowing to the brain and other vital organs, and, if left untreated, can quickly result in death.

How common is Sudden Cardiac Arrest?

While SCA in student athletes is rare, it is the leading medical cause of death in young athletes. The chance of SCA occurring to any individual student athlete is estimated to be about one in 80,000 to 100,000 per year.

What causes Sudden Cardiac Arrest in student athletes?

SCA is caused by several structural and electrical conditions of the heart. These conditions predispose an individual to have an abnormal heart rhythm. SCA is more likely during exercise or physical activity, placing student athletes with undiagnosed heart conditions at greater risk. Some of these conditions are listed below.

- **Inherited conditions present at birth of the heart muscle** (passed on from family): Hypertrophic Cardiomyopathy (HCM), Arrhymogenic Right Ventricular Cardiomyopathy (ARVC), and Marfan Syndrome
- **Inherited conditions present at birth of the electrical system**: Long QT Syndrome (LQTS), Catecholaminergic Polymorphic Ventricular Tachycardia, and Brugada Syndrome (BrS)
- **NonInherited conditions** (not passed on from the family, but still present at birth): Coronary artery abnormalities, Aortic valve abnormalities , Non-compaction Cardiomyopathy, and Wolff-Parkinson-White Syndrome (occurs from an extra conducting fiber in the heart's electrical system)
- **Conditions not present at birth but acquired later in life:** Commotio Cordis (occurs from a direct blow to the chest), Myocarditis (infection or inflammation of the heart), and Recreational/Performance Drug Use
- **Idiopathic:** Sometimes the underlying cause of Sudden Cardiac Arrest is unknown, even after autopsy.

What are the warning signs that Sudden Cardiac Arrest may occur?

- **Fainting, passing out, or seizure** - especially during or right after exercise
- **Chest pain or discomfort** - especially with exercise
- **Excessive Shortness of breath** - with exercise
- **Racing heart or irregular heartbeat** - with no apparent reason
- **Dizziness or lightheadedness** - especially with exercise
- **Unusual Fatigue/Weakness** - with exercise
- **Fainting** - from emotional excitement, emotional distress, or being startled
- **Family history of sudden cardiac arrest prior to the age of 50**

While a heart condition may have no warning signs, in more than a third of sudden cardiac deaths, there were warning signs that were not reported to an adult or taken seriously. If any of the above warning signs are present, a cardiac evaluation by a qualified health care provider such as a physician, physician assistant, or advanced practice nurse is recommended. If the health care provider has concerns, a referral to a pediatric cardiologist is recommended.

What are the risks of practicing or playing after experiencing SCA warning signs?

Ignoring such signs and continuing to play could be catastrophic and result in sudden cardiac death. Taking these warning symptoms seriously and seeking timely appropriate medical care can prevent serious and possibly fatal consequences.

When is a student athlete required to be removed from play?

Any student who collapses or faints while participating in an athletic activity is required by law to be removed by the coach from participation at that time.

What is required for a student athlete to return to play?

Any student who is removed or prevented from participating in an athletic activity is not allowed to return to participation until evaluated and cleared for return to participation in writing by a qualified health care provider such as a physician, physician assistant, or advanced practice nurse is recommended. If the health care provider has concerns, a referral to a pediatric cardiologist is recommended.

What are the current recommendations for screening student athletes?

A complete annual sports preparticipation examination based on recommendations from the American Heart Association (AHA), American Academy of Pediatrics (AAP) and American College of Cardiology (ACC) is the cornerstone of screening for preventable causes of SCA. Each year student athletes in Oklahoma are required to have a Sports Preparticipation Physical Examination based on these recommendations completed by a health care provider such as a physician, physician's assistant, or advanced nurse practitioner and filed with the student athlete's school prior to beginning practice. The Sports Preparticipation Examination includes a personal and family health history to screen for risk factors or warning signs of SCA and measurement of blood pressure and a careful listening to the heart, especially for murmurs and rhythm abnormalities.

Noninvasive testing such as an electrocardiogram (ECG) or echocardiogram (ECHO) may be utilized by your health care provider if the sports preparticipation examination reveals an indication for these tests. Screening using an ECG and/or and ECHO is available to student athletes as an option from their personal health care provider, but is not mandatory, and is generally not routinely recommended by either the AHA, AAP or ACC.

What is the treatment for Sudden Cardiac Arrest?

- **RECOGNIZE Sudden Cardiac Arrest**
  - Collapsed and unresponsive
  - Abnormal breathing
  - Seizure-like activity
- **CALL 9-1-1**
  - Call for help and for an AED
- **CPR**
  - Begin chest compressions
  - Push hard/fast (100/min)
- **AED**
  - Use an AED as soon as possible
- **CONTINUE CARE**
  - Continue CPR and AED until EMS arrives

All schools and teams should be prepared to respond to a cardiac emergency. Young athletes who suffer SCA are collapsed and unresponsive and may appear to have brief seizure-like activity or abnormal breathing (gasping). Time is critical and an immediate response is vital. An AED should be placed in a location that is readily accessible. AEDs are safe, portable devices that read and analyze the heart rhythm and provide an electric shock (if necessary) to restart a normal heart rhythm.

Remember, to save a life: recognize SCA, call 9-1-1, begin CPR, and use an AED as soon as possible!