



SUDDEN CARDIAC ARREST

While other injuries receive more attention, sudden cardiac arrest (SCA) is the No. 1 cause of death¹ for youth and teen athletes during sports. With proper preparation and training, school and league administrators can greatly reduce tragic outcomes when an incident occurs.

Sudden cardiac arrest is not the same as a heart attack. It is the result of structural or electrical disorders in the heart that lead to a lethal arrhythmia. Structural disorders can be heart muscle diseases such as hypertrophic cardiomyopathy, where the heart muscle becomes unnaturally thick, making it more prone to arrhythmias and harder to pump blood. Sometimes the heart is structurally normal, but electrical impulses in the heart become abnormal, leading to SCA.

Through preseason medical checks and regular doctor's visits, parents and coaches sometimes have advanced knowledge of an athlete's heart disorder. However, one of the main challenges for parents and the medical community is that the majority of young athletes who suffer sudden cardiac arrest on the playing field have no warning symptoms. The first sign of their heart condition could be collapse during exercise and the cardiac arrest itself.

What can parents and leagues do to help prevent sudden cardiac arrest?

It is important to recognize that no screening program is perfect. Screening certainly can identify some individuals at risk, and because of that it is recommended that young athletes be examined by a doctor before participating in sports. At the high school and college levels, athletes are required to have a pre-participating sports physical. Ideally, a comprehensive cardiac screen aimed at detecting heart disorders at risk of SCA should contain:

- Comprehensive physical evaluation
- Comprehensive symptom and family heart health history such as:
 - Passing out with exercise
 - Heart related death(s) in a relative before the age 40
- Electrocardiogram (EKG) screening
 - Performed by qualified medical professionals knowledgeable in modern standards for EKG interpretation in athletes

It also is of paramount importance that adults supervising youth athletes during sports be prepared to respond to someone who collapses in sudden cardiac arrest.

Why is it important to have a defibrillator available at all athletic events?

Putting an automated external defibrillator (AED) in schools and youth sports settings is a public safety measure. You may use it to save a child's life, but these devices also can be used to save the life of an adult - a coach, teacher or spectator. USA Football recommends that all high school and youth practice and game fields have an AED available nearby and accessible to team personnel. Members of your team or league staff should receive formal training on how to operate the device.

When AEDs become more accessible, it becomes safer for everyone. While formal training is recommended, just having access to an AED increases the likelihood of bystander CPR and response. Eventually, defibrillators should be like fire extinguishers. We only use them in emergencies, but we know there is one close by if we need it.



How can coaches and parents tell the difference between sudden cardiac arrest and a player collapsing because of exhaustion or other causes?

Any child who collapses and is unresponsive on the playing field should be assumed to be in cardiac arrest until proven otherwise. About 50 percent² of young athletes with sudden cardiac arrest will have brief seizure-like activity with arm or leg jerking movements. People think it's just a seizure, but it's really SCA.

An athlete passing out during exercise is not normal. If an athlete collapses while running and is unconscious without any recent trauma, you have to assume cardiac arrest. Some athletes may have warning symptoms of a heart condition, such as:

- Chest pain
- A racing heart when it shouldn't
- Prior episodes of passing out
- Shortness of breath that is disproportionate to the level of exertion

A child who normally has no problem keeping up with his or her peers but is suddenly struggling could be showing warning signs.

REMEMBER: The majority of SCA cases occur with no warning signs. That is why assuming SCA first in a downed athlete is of vital importance.

PLAN AHEAD

Every high school and youth football organization should develop an emergency action plan, including these steps to address sudden cardiac arrest:

- The location of AEDs at your practice and game fields
- A mechanism to call 9-1-1 in case of an emergency during football activities
- Training in CPR and AED use for designated coaches
- Defining emergency routes to practice and game facilities and designating personnel to meet and direct emergency responders from the entrance to the individual
- Designate personnel to stay with the child to the hospital if a parent or guardian is not present
- Player/parent phone numbers should be available and personnel designated to contact the parents if one is not present

It is critical to practice and review your emergency response during the preseason with all personnel who may be involved in the emergency action plan.

TREATMENT

What should coaches and parents should do if they suspect sudden cardiac arrest?

Call 9-1-1.

Then as soon as possible, begin hands only CPR with chest compressions and have someone close by get the AED if there is one available. Apply the AED as soon as possible and follow the voice prompts and instructions.

Treatment of SCA begins with early recognition. The American Heart Association outlines four steps in a "Chain of Survival" for SCA emergencies:

- Early recognition of the emergency and calling 9-1-1
- Early CPR
- Early defibrillation with an AED
- Early life support and cardiovascular care at a hospital

AEDs are safe, easy to use and provide voice and visual instructions so anyone can use them effectively if needed.

If you do these things, you have drastically improved your chance of saving someone who is in a life-threatening situation.

NOTE: If football shoulder pads are present, they can be cut and opened or removed to expose the chest.

It is also important to minimize interruptions in chest compressions both before and after defibrillation. This is why one adult is assigned to start CPR while a second person retrieves the AED.

Planning ahead can be the difference between life and death, so please train and practice the steps in your plan and ensure access to a defibrillator.

¹ Harmon KG, Asif IM, Klossner D, Drezner JA. Incidence of sudden cardiac death in national collegiate athletic association athletes. *Circulation*. 2011;123:1594-1600

²Drezner JA, Rao AL, Heistand J, Bloomingdale MK, Harmon KG. Effectiveness of Emergency Response Planning for Sudden Cardiac Arrest in United States High Schools With Automated External Defibrillators. *Circulation* 2009; 120: 518-525.

WHAT YOUR COACHES, PLAYERS, AND PARENTS
NEED TO KNOW ABOUT:

SUDDEN CARDIAC ARREST

- ✓ The importance of cardiac screening in a preseason physical
- ✓ Describe and point out the location and access to AEDs on each of the practice fields
- ✓ Explain in detail and walk through the organization's Emergency Action Plan
- ✓ The "Chain of Survival"
 - Early recognition and calling 911
 - Early CPR
 - Early defilation with an AED
 - Early care at the hospital

NOTES
