

# Holly Springs High School Information for Parents and Student Athletes

## Sudden Cardiac Arrest (SCA)

**Definition:** Sudden Cardiac Arrest (SCA) is a potentially fatal condition in which the heart suddenly and unexpectedly stops beating. When this happens, blood stops flowing to the brain and other vital organs. SCA in student athletes is rare; the chance of SCA occurring to any individual student athlete is about one in 100,000. However, student athletes' risk of SCA is nearly four times that of non-athletes due to the increased demands on the heart during exercise.

**Causes:** SCA is caused by several structural and electrical diseases of the heart. These conditions predispose an individual to have an abnormal rhythm that can be fatal if not treated within a few minutes. Most conditions responsible for SCA in children are inherited, which means the tendency to have these conditions is passed from parents to children through the genes. Other possible causes of SCA are a sudden blunt non-penetrating blow to the chest and the use of recreational or performance-enhancing drugs and/or energy drinks.

<b>Warning Signs of SCA</b>	<b>Emergency Response to SCA</b>
<ul style="list-style-type: none"><li>• SCA strikes immediately.</li><li>• SCA should be suspected in any athlete who has collapsed and is unresponsive.<ul style="list-style-type: none"><li>○ No response to tapping on shoulders</li><li>○ Does nothing when asked if he/she is OK</li></ul></li><li>• No pulse</li></ul>	<ul style="list-style-type: none"><li>• Act immediately; time is most critical to increase survival rates.</li><li>• Recognize SCA.</li><li>• Call 911 immediately and activate EMS.</li><li>• Administer CPR.</li><li>• Use Automatic External Defibrillator (AED).</li></ul>

**Warning signs of potential heart issues:** The following need to be further evaluated by your primary care provider.

- Family history of heart disease/cardiac arrest
- Fainting, a seizure, or convulsions during physical activity
- Fainting or a seizure from emotional excitement, emotional distress, or being startled
- Dizziness or lightheadedness, especially during exertion
- Exercise-induced chest pain
- Palpitations: awareness of the heart beating, especially if associated with other symptoms such as dizziness
- Extreme tiredness or shortness of breath associated with exercise
- History of high blood pressure

**Risk of Inaction:** Ignoring such symptoms 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.

Information used in this document was obtained from the American Heart Association ([www.heart.org](http://www.heart.org)), Parent Heart Watch ([www.parentheartwatch.org](http://www.parentheartwatch.org)), and the Sudden Cardiac Arrest Foundation ([www.sca-aware.org](http://www.sca-aware.org)). Visit these sites for more information.

## Frequently Asked Questions about Sudden Cardiac Arrest (SCA)

### What are the most common causes of Sudden Cardiac Arrest (SCA) in a student athlete?

SCA is caused by several **structural** and **electrical** diseases of the heart. These conditions predispose an individual to have an abnormal rhythm that can be fatal if not treated within a few minutes. Most conditions responsible for SCA in children are **inherited**, which means the tendency to have these conditions is passed from parents to children through the genes. Some of these conditions are listed below.

1. *Hypertrophic cardiomyopathy (HCM)*: HCM involves an abnormal thickening of the heart muscle and it is the most common cause of SCA in an athlete.
2. Coronary artery anomalies: The second most common cause is congenital (present at birth) abnormalities of coronary arteries, the blood vessels that supply blood to the heart.
3. Other possible causes of SCA are:
  - a. *Myocarditis*: an acute inflammation of the heart muscle (usually due to a virus).
  - b. Disorders of heart electrical activity such as:
    - i. *Long QT syndrome*.
    - ii. *Wolff-Parkinson-White (WPW) syndrome*.
    - iii. *Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)*.
  - c. *Marfan syndrome*: a condition that affects heart valves, walls of major arteries, eyes, and the skeleton.
  - d. Congenital aortic valve abnormalities.
4. *Comotio Cordis*: concussion of the heart from **sudden blunt non-penetrating blow** to the chest
5. Use of recreational, **performance-enhancing** drugs, and **energy drinks** can also bring on SCA.

### How can we minimize the risk of SCA and improve outcomes?

The risk of SCA in student athletes can be minimized by providing appropriate prevention, recognition, and treatment strategies. One important strategy is the requirement for a yearly pre-participation screening evaluation, often called a sports physical, performed by the athlete's medical provider.

1. It is very important that you **carefully and accurately complete the personal history and family history section** of the "Pre-Participation Physical Evaluation Form".
2. Since the majority of these conditions are inherited, **be aware of your family history**, especially if any close family member:
  - a. Had sudden unexplained and unexpected death before the age of 50.
  - b. Was diagnosed with any of the heart conditions listed above.
  - c. Died suddenly /unexpectedly during physical activity, during a seizure, from Sudden Infant Death Syndrome (SIDS) or from drowning.
3. **Take seriously the warning signs and symptoms of SCA**. Athletes should notify their parents, athletic trainer or coaches if they experience any of these warning signs or symptoms.
4. Schools in Wake County have AED policies and emergency action plans to address SCA and other emergencies in schools. Be aware of your school's various preventive measures.
5. If a cardiovascular disorder is suspected or diagnosed based on the comprehensive pre-participation screening evaluation, a referral to a child heart specialist or pediatric cardiologist is crucial. Such athletes will be excluded from sports pending further evaluation and clearance by their medical providers.

## Environmental Risk Factors

**Exertional Heat Stroke** is among the top three causes of death in athletes. It is defined as having a core temperature of greater than 104° to 105°F (40° to 40.5°C) occurs with associated central nervous system dysfunction.

*Signs and symptoms* may include disorientation, confusion, dizziness, vomiting, diarrhea, loss of balance, staggering, irritability, irrational or unusual behavior, apathy, aggressiveness, hysteria, delirium, collapse, loss of consciousness, coma and dehydration.

### *Prevention:*

- Giving a good history during physical exam
- Listing all medications
- Keeping a well-balanced diet to assure replenishment of electrolytes
- Proper hydration prior to, during and after activity (Dehydration of as little as 2% of body weight has a negative effect on performance and thermoregulation.)
- Acclimatization
- Following guidelines for activity in hot weather. Athletes always have free access to water.

**Exertional Hyponatremia** although rare is a potentially fatal condition. It is defined as a serum sodium concentration less than 130mEq/L. To put this simply, the body no longer has enough electrolytes and any fluid at this point can no longer be absorbed or released by the cells.

*Signs and symptoms* may include over drinking, nausea, vomiting, dizziness, muscle twitching, peripheral tingling or swelling, headache, disorientation, altered mental status, physical exhaustion, pulmonary edema, cerebral edema and seizures.

### *Prevention:*

- Hydration before, during and after exercise. (Hydration includes balancing electrolytes lost as well as fluids.)
- Good nutrition to maintain normal body fluid balance,
- During hot environment exercise sodium may need to be increased in the diet.
- Post exercise hydration should contain water, carbohydrates and electrolytes to speed hydration. (Ideally within 2 hours.)

**Exertional Sickling** is a medical emergency occurring in athletes carrying the sickle cell trait. When red blood cells change shape (sickle) this causes a buildup of red blood cells in the small vessels, leading to decreased blood flow. The drop in flow leads to a breakdown of muscle tissue and cell death, known as fulminant rhabdomyolysis.

*Signs and symptoms* may include leg or low back cramping, muscles look and feel normal (rules out heat cramps), muscle weakness, slumping to the ground rather than sudden collapse, difficulty breathing (rapid but normal air movement/rules out asthma), rectal temp less than 103°F (rules out heat stroke) or fatigue.

### *Prevention:*

- Good health history during exam including predisposing factors
- Acclimatization

- Controlled asthma
- Modified drills avoiding timed runs
- Longer periods of rest between repetitions
- Exclusion from performance tests
- Limit activity with any type of illness
- Hydration with readily available water access
- Watch closely when working out in new high altitude environment. Supplemental oxygen should be available.
- Stop activity with any onset of symptoms.

**Lightning** is one of the most dangerous natural phenomena encountered. It causes more than 60 fatalities and hundreds of injuries annually in the United States.

*Prevention of Lightning Injury:*

- Be aware of the forecast.
- Go indoors in a substantial building when storms are approaching.
- Follow the directions given to clear areas by school officials.
- The school has county protocols for watching for storms and clearing outdoor events. Be aware of plans ahead of time.
- Stay indoors for at least 30 minute past last lightning strike.

### **Weight, Nutrition and Hydration**

Unsafe weight management practices can compromise athletic performance and negatively affect overall health. Athletes often attempt to lose weight by not eating, limiting caloric or specific nutrients from their diet engaging in pathogenic weight control behaviors and restriction of fluids. These are all unhealthy practices and in the extreme can be fatal. These athletes often respond to pressures of the sport or activity, coaches, peers or parents by adopting negative body images and unsafe practices to maintain an ideal body composition for the activity.

We recommend the following for athletes with regards to weight control.

- Preseason physical is required by all athletes.
- Good balance nutrition and hydration should be maintained by all athletes.
- Reasonable and individualized weight and body composition goals should be identified by appropriately trained health care personnel (e.g., athletic trainer, registered dietitian/nutritionist or physician).
- All weight management and exercise protocols used should be safe and based on the most current evidence.

When required by the sport or deemed necessary, Holly Springs HS uses a hygrometer measurement and skin fold index to determine minimum weights allowed and helps guide athletes through weight management issues.

Information used in this document was obtained from NATA position statements and the Korey Stringer Institute.

## *Physician Referral Process*

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1. The student-athlete's safety and well-being come first in all injury and return to play decisions. The Certified Athletic Trainer (AT), licensed physician, parent / custodian, coach, and student-athlete should all be in agreement with the course of action for injury treatment and returning a student-athlete into practice or competition.
2. The student-athlete may use their family's primary doctor or be referred to one of Holly Springs High School's team physicians (if their family's insurance allows for this). The student-athlete's parents / custodians are free to decide on any medical referral or their preference. The AT may encourage medical referrals for the student-athlete before they return to play.
3. In the event of an emergency, the AT, Athletic Director, or coach may send for immediate medical referral to the EMS. Always inform the proper staff if this situation occurs.
4. The athlete's parent/custodian **WILL ALWAYS** be contacted and informed of the nature of injury when a medical referral is recommended.
5. The parents/custodians have the final word in referring the athlete to a physician. If the parents/custodians decline a medical referral then they **MUST** inform the AT about their decision. If this happens, the student-athlete **CANNOT** resume participation until the parents/custodians meet with the AT & Athletic Director to discuss the risks. A parent/custodian may have to sign a form denying medical referral for their child. After the meeting the coach will be informed of the parents/custodians decision. When/if the AT believes that participation in the sport is safe and will not further harm the student-athlete; they may resume participation to their tolerance.
6. Anytime a student-athlete is seen by any healthcare provider, written documentation about the visit, diagnosis of the condition, recommendations for care, return to play, and healthcare provider's signature should be given to the AT ASAP.

## *Return to Play Criteria*

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1. Return to Play Criteria is a joint decision made by numerous individuals. If any of the following individuals determines that the injured student-athlete is not fit to return to play or that the student-athlete's activity level needs to be modified, their decision must be adhered to.
  - Licensed Physician, Physician Assistant, Nurse Practitioner, Certified Athletic Trainer, Physical Therapist, Athletic Director, Head Coach, Parent/Custodian, or the injured student-athlete
2. Any student-athlete that has sustained any injury is solely at the decision of the Team Physician (if present) and/or AT when returning to play during practice or competition. No exceptions will be made!
3. Any student-athlete who is suspected of or has had a concussion **MUST** see a licensed physician. The student-athlete **MUST** bring the AT and coach written documentation regarding physical status and athletic clearance **BEFORE** the student-athlete resumes participation.
4. In the event that a licensed medical physician, physician's assistant, nurse practitioner, or physical therapist, states that the student-athlete **CANNOT** return to activity for a certain amount of time or prior to specific criteria met, then the recommendation **MUST** be followed.
5. If the student-athlete has not been seen by a medical professional or has no direct recommendations from a healthcare professional, the AT will make the decision as to when the athlete can return to play. This decision is **FINAL** until the student-athlete is seen by a licensed medical physician, physician's assistant, or family nurse practitioner.

### *Consequences for not following the above policy:*

1. The names of the coach(s) found allowing student-athletes who are medically or physically ineligible, not adhering to the **Return to Play Criteria**, or not adhering to a return to a modified activity level, will immediately be submitted to the Holly Springs Athletic Director, Principle, and Wake County Public Schools Athletic Director.
2. Failure to adhere to the above criteria may also result in a personal liability suit.

## Parent/Student Athlete Acknowledgement Statement

### Parent/Guardian

I acknowledge that I have read and understand the following:

- Sudden Cardiac Arrest (SCA) Information Sheet
- Environmental Risk Factors Information Sheet
- Weight and nutritional information Sheet
- Physicians Referral Process & Return to Play Criteria

\_\_\_\_\_  
PRINT NAME

\_\_\_\_\_  
PARENT/GUARDIAN SIGNATURE

\_\_\_\_\_  
Date

### Student Athlete

I acknowledge that I have read and understand the following:

- Sudden Cardiac Arrest (SCA) Information Sheet
- Environmental Risk Factors Information Sheet
- Weight and nutritional information Sheet
- Physicians Referral Process & Return to Play Criteria

\_\_\_\_\_  
PRINT NAME

\_\_\_\_\_  
STUDENT ATHLETE SIGNATURE

\_\_\_\_\_  
Date