Sudden Cardiac Arrest Information Sheet

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.

What causes Sudden Cardiac Arrest?

Conditions present at birth:

Inherited *(passed on from parents/relatives)* ***conditions of the heart muscle:***

- **Hypertrophic Cardiomyopathy** – hypertrophy (thickening) of the left ventricle; the most common cause of sudden cardiac arrest in athletes in the U.S.
- **Arrhythmogenic Right Ventricular Cardiomyopathy** – replacement of part of the right ventricle by fat and scar; the most common cause of sudden cardiac arrest in Italy.
- **Marfan Syndrome** – a disorder of the structure of blood vessels that makes them prone to rupture; often associated with very long arms and unusually flexible joints.

Inherited conditions of the electrical system:

- **Long QT Syndrome** – abnormality in the ion channels (electrical system) of the heart.
- **Catecholaminergic Polymorphic Ventricular Tachycardia and Brugada Syndrome**
    - Other types of electrical abnormalities that are rare but are inherited.

Non-Inherited *(not passed on from the family, but still present at birth)* ***conditions:***

- **Coronary Artery Abnormalities** – abnormality of the blood vessels that supply blood to the heart muscle. The second most common cause of sudden cardiac arrest in athletes in the U.S.
- **Aortic valve abnormalities** – failure of the aortic valve (the valve between the heart and the aorta) to develop properly; usually causes a loud heart murmur.
- **Non---compaction Cardiomyopathy** – a condition where the heart muscle does not develop normally.
- **Wolff---Parkinson---White Syndrome** –an extra conducting fiber is present in the heart's electrical system and can increase the risk of arrhythmias.

Conditions not present at birth but acquired later in life:

- **Commotio Cordis** – concussion of the heart that can occur from being hit in the chest by a ball, puck, or fist.
- **Myocarditis** – infection/inflammation of the heart, usually caused by a virus.

- **Recreational/Performance---Enhancing drug use**.
- **Idiopathic**: Sometimes the underlying cause of the SCA is unknown, even after autopsy.

What are the symptoms/warning signs of Sudden Cardiac Arrest?

- Fainting/blackouts (especially during exercise)
- Dizziness
- Unusual fatigue/weakness
- Chest pain
- Shortness of breath
- Nausea/vomiting
- Palpitations (heart is beating unusually fast or skipping beats)
- Family history of sudden cardiac arrest at age < 50
- **ANY of these symptoms/warning signs that occur while exercising may necessitate further evaluation from your physician before returning to practice or a game.**

What is the treatment for Sudden Cardiac Arrest?

- **Time is critical and an immediate response is vital**.
- **CALL 911**
- **Begin CPR**
- **Use an Automated External Defibrillator (AED)**

What are ways to screen for Sudden Cardiac Arrest?

- The American Heart Association recommends a pre---participation history and physical including 12 important cardiac elements.
- **The Union Athletics Pre*---Participation Physical Evaluation – Medical History* form includes ALL 12 of these important cardiac elements and is mandatory annually**.
- Additional screening using an electrocardiogram and/or an echocardiogram can be scheduled through your family physician.