# SUDDEN CARDIAC ARREST AWARENESS

## What is Sudden Cardiac Arrest?

- The heart suddenly and unexpectedly stops beating due to an irregular heart rhythm
- Occurs suddenly and without warning
- An electrical malfunction (short-circuit) causes the bottom chambers of the heart (ventricles) to beat dangerously fast (ventricular tachycardia or fibrillation) and disrupts the pumping ability of the heart
- The heart cannot pump blood to the brain, lungs and other organs of the body
- The person loses consciousness (passes out) and has no pulse
- Death occurs within minutes if not treated immediately

## 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 run in families
  - ***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 Sudden Cardiac Arrest 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 less than 50 years of age

**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?

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

## 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
    - 12-Step Screening for Sudden Cardiac Arrest in athletes: http://newsroom.heart.org/news/12-step-screening-may-help-reduce-217875
- Additional screening using an electrocardiogram and/or an echocardiogram may be necessary if there are any warning signs of Sudden Cardiac Arrest

## Where can one find information on additional screening?

- American Heart Association (www.heart.org)
- August Heart (www.augustheart.org)
- Championship Hearts Foundation (www.championshipheartsfoundation.org)
- Cypress ECG Project (www.cypressecgproject.org)
- Parent Heart Watch (www.parentheartwatch.com)