

~ Sudden Cardiac Death ~

Is my child at risk of dying while playing sports? By Arnold L. Fenrich, M.D.

1. What is Sudden Cardiac Death?

- a) Sudden cardiac death is an abrupt occurrence where the heart ceases to function and results in death within minutes.
- b) It is not a heart attack.
- c) It is usually due to a malfunction of the heart's electrical system that coordinates the heart muscle contraction to pump blood through the body. The lower chambers (ventricles) of the heart go into fibrillation (ventricular fibrillation) – a fast and disorganized contraction. The ventricles spasm or quiver and can no longer pump blood to the body. The heart cannot recover from ventricular fibrillation on its own.
- d) Sudden cardiac death in athletes is usually caused by a previously unsuspected heart disease or disorder.
- e) The occurrence of sudden cardiac death is thought to be in the range of 1 out of 100,000 to 1 out of 300,000 high school age athletes. So it is very rare.

2. What are the possible causes of Sudden Cardiac Death?

- a) Hypertrophic Cardiomyopathy – a condition where the muscle mass in the left ventricle “hypertrophies”. The thickened heart muscle can block blood flow out of the heart and can increase the risk of ventricular fibrillation. In over half of the cases, this heart disorder is hereditary and is most common in young adults. This is the most common cause for sudden cardiac death in athletes in the United States.
- b) Coronary Artery Abnormalities – an abnormality of the blood vessels that supply blood into the heart muscle. This is present from birth, but can be silent for years until very vigorous exercise is performed. During exercise, blood flow to the heart muscle can be impaired and result in ventricular fibrillation.
- c) Commotio Cordis – a concussion of the heart that can occur when someone is hit in the chest in the area of the heart. Objects such as a baseball, softball, hockey puck, lacrosse ball, or even a fist can cause ventricular fibrillation upon striking the chest. These injuries are rare. 34 University Interscholastic League
- d) Marfan Syndrome – an inherited abnormality of the connective tissue (ligaments and tendons) in the body. Often these people are tall and thin with long arms, legs, fingers and toes. The wall of the aorta, the main artery from the heart, can become weak and rupture, especially during exercise.
- e) Wolff-Parkinson-White Syndrome – an extra conduction fiber in the heart that can allow for rapid heart beat episodes and in some cases ventricular fibrillation can occur.
- f) Long QT Syndrome – an inherited abnormality of the heart's electrical system. Episodes of rapid heartbeat can occur in the bottom chambers of the heart (ventricles) and ventricular fibrillation can result. g) Recreational Drug Use – even someone with a completely normal heart can develop ventricular fibrillation and die suddenly due to drug use.

3. What are the Warning Signs to be aware of?

- a) Palpitations – feeling fast or skipped heart beats.
- b) Dizziness – feeling lightheaded.
- c) Chest pain or chest tightness with exercise.
- d) Shortness of breath.
- e) Syncope – fainting or passing out.

ANY of the above symptoms that occur while exercising is a warning sign for sudden cardiac death and warrants further evaluation before participating in any more exercise or sports.