The Athlete’s Heart

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La Porte High School
New Prairie High School
Starke High School

IU Northwest
Purdue North Central
This is a difficult time for everyone...

And we want this to be informative, not overwhelming, and hopefully help you as parents and athletes have less fear about your heart and participating in sports.
Purpose of this Lecture

- Give basic information about Sudden Cardiac Death in Athletes
- Talk about symptoms, causes, and prevention
- What are we doing at IU Health La Porte Hospital as Sports Medicine and Cardiology Programs
- Questions?
Sudden Cardiac Death

- Definition
- Incidence
  - 1 in 200,000 high school athletes per year
  - About 200-400 athletes per year in United States
  - 1 in 44,000 collegiate athletes per year
- Risk Factors
  - High Intensity Sports
    - Bursts of Exertion, Dehydration
  - Positive Family History
  - African Americans
  - Male gender
Symptoms of Heart Abnormalities

1. Chest pain/discomfort upon exertion
2. Unexplained fainting or near-fainting
3. Excessive and unexplained fatigue associated with exercise
4. Unexplained shortness of breath

Difficulty is that only between 25-50% of athletes that have sudden cardiac death ever report having a symptom before an event occurs.

Only 3% in one study were identified during pre-participation physical screenings.

But these studies were both prior to updated physical forms.
Physiology of SCD

- Abnormal Heart Tissue
  - Thickened
  - Disorganized
  - Scar Tissue
- Abnormal Conduction
  - Conduction Block
  - Irregular Conduction
- Vessel Problems
  - Blockage
  - Coming out of wrong location
Causes of SCD

- Hypertrophic cardiomyopathy (HCM) – 36 percent, possible HCM in another 8 percent
- Anomalous origin of a coronary artery – 17 percent
- Myocarditis – 6 percent
- Arrhythmogenic right ventricular cardiomyopathy – 4 percent
- Mitral valve prolapse – 4 percent
- Aortic stenosis – 3 percent
- Tunneled coronary artery – 3 percent
- Coronary atherosclerosis – 3 percent
- Ion channelopathies – 3 percent
- Idiopathic dilated cardiomyopathy – 2 percent
- Ruptured aortic aneurysm – 2 percent
- Other congenital heart disease – 2 percent
Prevention: Why we do pre-participation screenings?

American Heart Association released 12 step screening process in 2007

- **Personal history**
  - 1. Chest pain/discomfort upon exertion
  - 2. Unexplained fainting or near-fainting
  - 3. Excessive and unexplained fatigue associated with exercise
  - 4. Heart murmur
  - 5. High blood pressure

- **Family history**
  - 6. One or more relatives who died of heart disease (sudden/unexpected or otherwise) before age 50
  - 7. Close relative under age 50 with disability from heart disease
  - 8. Specific knowledge of certain cardiac conditions in family members: hypertrophic or dilated cardiomyopathy in which the heart cavity or wall becomes enlarged, long QT syndrome which affects the heart's electrical rhythm, Marfan syndrome in which the walls of the heart's major arteries are weakened, or clinically important arrhythmias or heart rhythms.

- **Physical examination**
  - 9. Heart murmur
  - 10. Femoral pulses to exclude narrowing of the aorta
  - 11. Physical appearance of Marfan syndrome
  - 12. Brachial artery blood pressure (taken in a sitting position)
Current Recommendations on Screening EKGs or Echos

- American Heart Association
- American Academy of Pediatrics
- American College of Cardiology

- Do recommend History and Physical Exam screening
- Do not recommend EKG or Echos
  - Risk of false positive
  - Risk of false negative
  - Not feasible with millions of athletes
- Do recommend AEDs and CPR training for anyone and everyone
Despite the Recommendations…

 IU Health-La Porte Hospital Cardiovascular Department
 - Offering Free LIMITED EKG and Echo screenings during the next 2 weeks
 - Later we will have periodic “Heart Cart” screenings for $50

 IU Health-La Porte Hospital Sports Medicine
 - Continue Sideline coverage and Education through our Athletic Trainers
 - Manage any positive findings on EKG/Echo screens and refer athletes to appropriate health care providers
 - Continue to evaluate all of the current literature and keep up with recommendations on cardiac screenings
 - Continue to educate all providers participating in our Pre-participation examination in regards to cardiac screenings
References

- American Academy of Pediatrics
- American Heart Association
- UpToDate
Thank you for your time
Please contact us in the future as well
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