



Sports Shorts

GUIDELINES FOR PHYSICIANS

Pre-Participation Evaluation (PPE)

The sports pre-participation evaluation (PPE) has evolved over the years to promote the health and safety of athletes at multiple levels. It consists of a history and a physical exam to screen for life-threatening conditions, particularly causes of Sudden Cardiac Death (SCD), as well as injuries or illnesses that may affect an athlete's health and performance.

What are the goals of the PPE?

Primary Objectives

- Screen for conditions that may be life-threatening or disabling
- Screen for conditions that may predispose to injury or illness

Secondary Objectives

- Determine good health
- Serve as an entry point to the health-care system for adolescents
- Provide an opportunity to initiate discussion on health-related issues

When and where should the PPE be performed?

- 6 Weeks prior to season's start to allow for additional treatment/testing
- PCP or Station-Based Screening

The Ohio High School Athletic Association (OHSAA) requires a physical exam (PE) and a signed medical form within the past year, prior to the season's first practice. The PE is valid for one year.

Who can perform the PPE?

Any MD, DO, NP, or PA who is licensed to practice medicine and is comfortable performing the exam.

Sudden Cardiac Death (SCD)

- The leading cause of non-traumatic death in young athletes
- Many conditions have a strong genetic component
- In the U.S., the most common cause of SCD is Hypertrophic Cardiomyopathy
- The incidence of SCD in U.S. athletes is estimated to be 1:200,000
- The current recommendations for H and P are based on the idea that physiologic demands of competitive athletics increases the risk for SCD.

Importance of History

A large percentage of medical and musculoskeletal conditions can be identified through the medical history alone.

- Heart disease or SCD in family members
- Screen for previous concussions and head injuries.
- Screen for previous or ongoing musculoskeletal injuries

Additional Testing

- Consider testing for iron deficiency
- Universal screening with ECG or ECHO is not recommended

Clearance of the Athlete

- The goal is to safely clear athletes
- Less than 2% of athletes are excluded yearly
- 3-13% require additional evaluation

Considerations:

1. Does a problem put the athlete or others at increased risk?
2. Can the athlete participate safely without treatment?

The 12-element AHA Recommendations for Pre-Participation Cardiovascular Screening of Competitive Athletes

Past Medical History*

- Exertional chest pain/discomfort
- Unexplained syncope/near-syncope †
- Excessive exertional and unexplained dyspnea/fatigue, associated with exercise
- Prior recognition of a heart murmur
- Elevated systemic blood pressure

Family History

- Premature death before age 50 years due to heart disease, in ≥1 relative
- Disability from heart disease in a close relative <50 years of age
- Family members with: hypertrophic or dilated cardiomyopathy, long-QT syndrome or other ion channelopathies, Marfan syndrome, or clinically important arrhythmias

Physical examination

- Heart murmur ‡
- Femoral pulses to exclude aortic coarctation
- Physical stigmata of Marfan syndrome
- Brachial artery blood pressure (sitting position)§

* Parental verification is recommended for athletes

+ Judged not to be neurocardiogenic (vasovagal); of particular concern when related to exertion.

‡ Auscultation should be performed in both supine and standing positions (or with Valsalva maneuver), specifically to identify murmurs of dynamic left ventricular outflow tract obstruction

§ Preferably taken in both arms
Circulation. 2007;115:1643-1655

3. Can the athlete participate while treatment is being initiated?
4. Are there other activities that could be substituted?

Clues for further workup:

Symptoms of exertional syncope, chest pain, or palpitations, or excessive exertional dyspnea. Athletic participation should be restricted until this workup is completed.

Additional Resources:

- Medical Conditions Affecting Sports Participation: Committee on Sports Medicine and Fitness. Pediatrics 2008;121 No.4 2008: 841-848;
- 36th Bethesda Conference Eligibility Recommendations for Competitive Athletes With Cardiovascular Abnormalities; Journal of the American College of Cardiology Vol. 45, No. 8, 2005:1313-1375
- American Academy of Family Physicians, American Academy of Pediatrics, American College of Sports Medicine, et al. Preparticipation Physical Evaluation. In: Roberts W, Bernhardt D, editors. 4th edition. Elk Grove (IL): American Academy of Pediatrics; 2010.

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