

FORM C

Dear Health Practitioner;

Enclosed is the revised Nevada Interscholastic Activities Association (NIAA) packet for High School Pre-participation Physical Evaluations (PPE's). You will notice that the form we are using incorporates recommendations from the Second PPE Task Force (1997)(supported by the AAFP, AAP, AMSSM, AOSM and AOASM) and separately from the AHA. We anticipate that this form will be reviewed every few years and we will keep you apprised of any changes. Also, for young athletes with known cardiovascular abnormalities, we recommend following the guidelines of the 26th Bethesda Conference. We recommend you reference the Task Force monograph, the AHA recommendations or the 26th Bethesda Conference before performing high school athletic physicals in Nevada.

While many of you have been performing these evaluations for years, we would like to bring your attention to a few points. As discussed in the introduction to the monograph, there are multiple reasons for performing PPE's; the foremost reasons are to prevent injury and sudden cardiac death.

It is estimated that between 1 and 2 deaths (predominantly cardiovascular in etiology) per 200,000 high school athletes occur per year. The prevalence of cardiovascular disease capable of causing sudden cardiac death in these athletes is around 1/20,000. The most common cause of cardiac death in this population is hypertrophic cardiomyopathy (HCM).

Since the vast majority of PPE's will be completely normal, and, conversely, most students with abnormalities on history or physical exam do NOT have significant cardiac pathology, extreme diligence is required when performing these exams so that the few students with serious conditions are not missed.

ANSWERS ON THE HISTORY FORM THAT WOULD SUGGEST A NEED FOR A CARDIOLOGY CONSULTATION INCLUDE:

- **Excessive shortness of breath, syncope or chest pain during exercise.**
- **Family history of premature death or cardiovascular morbidity. (Before age 50)**
- **Family history of HCM, dilated cardiomyopathy, long QT syndrome, or Marfan's syndrome.**

ABNORMALITIES ON THE PHYSICAL EXAM THAT SUGGEST THE NEED FOR ECHOCARDIOGRAPHY OR CARDIAC CONSULTATION INCLUDE:

- **Any systolic murmur greater than II/VI.**
- **Any diastolic murmur.**
- **A murmur that increases in intensity from supine to standing (suggests HCM).**
- **Stigmata of Marfan's syndrome. (Attachment 7).**

A second goal of the PPE is to detect chronic illnesses or old injuries that may hamper the athlete's performance (such as Exercise Induced Asthma) or lead to injury ("the most common cause of injury is reinjury").

The final goal of the PPE is to provide our young athletes with a chance to talk to a physician about health issues. While this exam does not replace ongoing care by a personal physician, it may be the only contact these students have. Therefore, a brief discussion of health issues such as breast and testicular cancer screening, alcohol and tobacco use, automobile safety, etc., may be appropriate during the PPE.

Thank you for your willingness to help ensure a safer future for Nevada's young athletes.

Published by the NIAA Sports Medicine Advisory Committee.

Approved: February 2000; June 2012

Over >

References:

- 26th Bethesda Conference: Recommendations for Determining Eligibility for Competition in Athletes with Cardiovascular Abnormalities. JACC. 1994;24(4):845-99.
- Corrado D, Basso C, Schiavon M and Thiene G. Screening for Hypertrophic Cardiomyopathy in Young Adults. NEJM. 1998;339(6):364-9.
- Epstein SE, Maron BJ. Sudden death and the competitive athlete: Perspectives on pre-participation screening studies. J Am Coll Cardiol 7:220-230, 1986.
- Maron BJ, Thompson PD, Puffer JC, et al. Cardiovascular preparticipation screening in competitive athletes. Circ. 94:850-856, 1996.
- Glover DW, Maron BJ. Profile of preparticipation cardiovascular screening in high school athletes. JAMA. 279:1817-1819. 1998.
- Pelliccia A and Maron BJ. Preparticipation Cardiovascular Evaluation of the Competitive Athlete: Perspectives from the 30-Year Italian Experience. Am J Cardiol. 7(41)15/95:827-9.
- Preparticipation Physical Evaluation, 2nd ed. AAFP, AAP, AMSSM, AOSM, AOASM. McGraw-Hill. 1992.
- Smith J and Laskowski ER. The Preparticipation Physical Examination: Mayo Clinic Experience with 2,739 Examinations. Mayo Clin Proc. 1998;73:419-29.
- Liberthson R. Sudden Death from Cardiac Causes in Children and Young Adults. Current Concepts. 1996;334(16):1039-44.
- VanCamp SP, Bloor CM, Mueller OF, Cantu RC, Olson HG. Nontraumatic sports death in high school and college athletes. Med Sci Sports Exerc. 27:641-647, 1995.
- Fuller C.M., McNulty C.M., Spring DA., et al. Preparticipation Screening of 5,615 High School Athletes for Risk of Sudden Cardiac Death, MSSE. 29:1131-1138, 1997.

Attachment 7

Suggested Screening Format for Marfan's Syndrome

Screen all men over 6 feet and all women over 5 feet 10 inches in height with echocardiogram and slit lamp examination when any two of the following are found:

1. Family History of Marfan's syndrome*
2. Cardiac murmur or mid-systolic click
3. Kyphoscoliosis
4. Anterior thoracic deformity
7. Arm span greater than height
6. Upper to lower body ration more than one standard deviation below the mean
7. Myopia
8. Ectopic lens

*This finding alone should prompt further investigation.

From Hara JH, Puffer JC. In Mellion MD: Sports Injuries & Athletic Problems. Philadelphia. Hanley & Belfus, Inc., 1988.
