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The sports physical: One-on-one is OK; one-on-300 is not

TOO MANY of the 8 million young athletes in the United States will undergo a preparticipation physical examination that is too cursory to be of much use.

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In this issue of the *Cleveland Clinic Journal of Medicine*, Mick and Dimeff[2] have written an excellent review article on the issues related to the preparticipation physical examination, and point out the areas in which we need to do better.

PREVENTING SUDDEN DEATH

A major objective of the preparticipation physical examination is to detect cardiovascular abnormalities that could cause sudden death—in young athletes, most often hypertrophic cardiomyopathy and an anomalous coronary artery, in which the left coronary artery rises from the right coronary sinus.[1,2]

But these are difficult to detect, even in the best of circumstances. First, they are rare: the incidence of sudden death in young athletes is estimated to be only 0.5% or less.[1]

Furthermore, as Mick and Dimeff and others have pointed out,[1,2] the quality of cardiovascular screening in these examinations is extremely poor. It is estimated that the guidelines for screening high school athletes are inadequate in at least 40% of the states in which they are done, as measured against the recommendations of the American Heart Association.[2] Although colleges are somewhat better than high schools, they are not much better.

Unfortunately, the preparticipation examination is the only physical examination that many athletes ever receive. Mick and Dimeff review two studies; one from Connecticut and one from Texas, which found that the preparticipation physical examination was the only recent contact with the health system for 50% to 90% of the athletes.[2]

Of interest, the most likely reason for an athlete to be withheld from competition is not something related to the cardiovascular system, which could actually cause sudden death, but to a musculoskeletal condition. Clearly, our exams are missing cardiovascular issues in these patients.

NECESSARY KNOWLEDGE AND SKILLS

The "cattle herd in the gym" is inadequate

Many examiners are not competent to perform a focused cardiovascular examination, lacking necessary knowledge and skills such as how to:

- Accurately measure the blood pressure (and compare it with age-specific standards)
- Listen to murmurs (standing, supine, and sitting with a Valsalva maneuver)
- Assess the upper and lower extremity pulses
- Recognize the stigmata of Marfan syndrome
- Review the cardiovascular history, particularly as it relates to syncope and chest pain with exertion or a family history of heart disease, murmur, or sudden death.

OFFICE-BASED EXAMS ARE BEST

Mick and Dimeff[2] describe the three major forms of preparticipation physical examinations: the office-based exam, the assembly line approach, and the station approach.

The assembly line and station approaches are less costly and time-consuming, but they preclude doing any kind of a decent history, and problems with noise and confusion make them almost worthless. The "cattle herd in the gym," in which one doctor sees 300 to 500 patients, is inadequate. Under these conditions the physician cannot fulfill even the basic objectives of what should be done with preparticipation screening. One-on-one is OK; one-on-300 is not.

The only reasonable way for young athletes to be screened appropriately is through a designated primary care provider, such as a family practitioner, pediatrician, or internist. Only when young patients see their physicians on a regular basis can a detailed family history be reviewed in the quiet of an office setting. In a number of communities, coaches have made sure that their athletes have a primary care provider and will not accept them to the athletic team unless that primary care provider has reviewed the information.

It is critically important, however, that the primary care physician be comfortable in evaluating the cardiovascular system. If not, he or she should refer these young athletes to pediatric cardiologists or sports medicine physicians.

TO DO OUR BEST

We want every athlete to be able to do his or her best and perform at high levels safely and effectively. Athletics is a wonderful opportunity for young people, and studies have shown that the main reason why young people participate in athletics is to "have fun." It also builds a sense of respect, a focused work ethic, and the ability to work with others as a team.

Bill Bradley, in his book *Life on the Run*, said it best:

"Out of this kind of team commitment comes a deep respect. After a game, each man knows that everyone has given his all. It is an honest and open relationship; there is no suppressed anger because someone didn't set a screen or rebound or hustle on defense, but instead the insured knowledge that on that night the team went as far as its collective abilities permitted. If the outcome is a loss, the attitude is that we lost because we were beaten, not because we didn't extend ourselves fully. The conviction that each man did his best is unshaken."

We in the medical community also need to do our best. One-on-one is OK; one-on-300 is not.

REFERENCES

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2. **Mick TM, Dimeff RJ.** What kind of physical examination does a young athlete need before participating in sports? Cleve Clin J Med 2004; 71:587–597.

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