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Should Young Athletes Be Screened for Heart Risk?

By *ANAHAD O'CONNOR*

Should high school athletes be screened for heart trouble before taking to the practice field?

Once thought to be exceedingly rare, sudden cardiac death is far more prevalent among young athletes than previously believed, recent research has shown. In a policy statement published in the journal *Pediatrics* last month, the American Academy of Pediatrics estimated that 2,000 people under the age of 25 die from sudden cardiac arrest in the United States every year.

While it can strike those who are sedentary, the risk is up to three times greater in competitive athletes. According to some experts, a high school student dies of cardiac arrest as often as every three days. Only the most sensational cases make headlines, said Darla Varrenti, executive director of the Nick of Time Foundation, which promotes awareness of sudden cardiac arrest in young people and provides free screenings. The condition received worldwide attention in March when Fabrice Muamba, a star soccer player in England, nearly died after suddenly collapsing in cardiac arrest during a televised game.

Ms. Varrenti started her foundation six years ago after her son, Nick, 16, a varsity athlete, died in his sleep after playing in a game. In January and February of this year alone, 29 young athletes went into cardiac arrest at schools across the country, Ms. Varrenti said. Only four survived.

“There’s a lot of press when the cases are spectacular,” she said. “But this happens all the time.”

Sudden cardiac arrest in a young person usually stems from a structural defect in the heart or a problem with its electrical circuitry. The most frequent cause, accounting for about 40 percent of all cases, is hypertrophic cardiomyopathy, or HCM, a thickening of the heart muscle.

The problem is that those who are at risk are hard to spot. Warning signs, like dizziness and shortness of breath, can be rare or dismissed by young athletes used to overworking themselves. But an electrocardiogram, or EKG, can detect HCM and other potential causes of heart trouble by looking for abnormal electrical signaling in the heart. Though EKGs are not as thorough as imaging tests like an echocardiogram, which shows a 3-D view of the heart, they are cheaper and easier to conduct on a wider basis.

Still, the American Heart Association does not support wide screening. Under its guidelines, high school athletes get a physical exam, which includes listening to the heart and a blood pressure check, and fill out a questionnaire about personal and family medical history. More extensive testing takes place only if the student’s physical or history raises red flags.

For years, the argument against EKGs was that for something as rare as sudden cardiac death, there is no sense in mandating costly tests. EKGs can be unreliable, too, producing false-positive results 20 percent of the time, critics say.

But that argument pivots on old data, including outdated numbers on the prevalence of sudden cardiac death, and fails to take into account improvements in the standards for interpreting EKG results, said Dr. Jonathan Drezner, an associate professor of family medicine at the University of Washington and vice president of the American Medical Society for Sports Medicine.

Even physical exams that include extensive medical histories typically fail to identify 60 percent to 80 percent of student athletes at risk, Dr. Drezner said. Adding an EKG to the sports physical would flag many young athletes whose heart defects would otherwise go unnoticed.

“No one is recommending you only do an EKG,” he said. “It really is the combined protocol of history and EKG that provides the more advanced heart screening that we should aim for.”

In a study published in 2010 in *Annals of Internal Medicine*, Dr. Matthew T. Wheeler and colleagues at Stanford University found that adding EKGs to sports physicals for young athletes would create “a large benefit in a small number of individuals.” But they would save enough lives to be considered cost effective, with a net cost of roughly \$89 per person screened.

Based on their analysis, however, Dr. Wheeler said that EKGs make sense only for high school and college athletes — in children and adolescents, the risk of sudden cardiac death is lower — who compete in high-intensity sports like basketball, football and soccer. (Low-intensity sports, he said, include golf and bowling.)

“We are not advocating this as a mandatory test for all students or all athletes,” said Dr. Wheeler, a fellow in cardiology at Stanford Medical School.

Some experts think the time has come for thorough heart screenings for all young athletes. Researchers at the Texas Heart Institute are even looking at the prevalence of heart abnormalities in middle-school students and the feasibility of complete screenings, combining EKGs and imaging tests.

The goal of the project, which is financed through a \$5 million private grant, is to screen 10,000 students in Houston middle schools, said Dr. Jim Willerson, the lead investigator and president and medical director of the Texas Heart Institute. “If we save even one life, it will be worth it,” he said.

In the meantime, hundreds of groups like Ms. Varrenti’s have made it their mission to provide free EKGs and heart examinations to young people at community screenings around the country. Parents who are interested in a heart screening can reach out to their family doctors, or find out about free screenings in their area at Web sites like parentheartwatch.org.

“You can either open the dialogue with your pediatrician or look into free screenings,” Ms. Varrenti said. “No one should go through what our family went through.”