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Young Baltimore Athletes to be Screened for Risk for Sudden Heart Death

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Volunteer heart experts at **Johns Hopkins** have embarked on what is believed to be the largest single-day event to date to screen young athletes in the United States for early signs of life-threatening defects in the body's blood-pumping organ.

The medics are scheduled to test the hearts of more than 1,000 athletes, males and females age 16 to 18, attending the 2008 track and field championship games of the Maryland Public Secondary Schools Athletic Association. The event is taking place in Baltimore at Morgan State University, at what the Johns Hopkins team has dubbed the first-ever Heart Hype program.

According to Johns Hopkins cardiologist Theodore Abraham, the stress of athletic competition poses ultra-dangerous risks to those who have inherited tendencies to develop overly enlarged and thickened hearts, hypertrophic cardiomyopathies, or similar abnormalities. These players have a higher than normal risk of sudden, potentially fatal heart rhythm disturbances or cardiac arrest.

"Too many young athletes are dying unnecessarily," Abraham said, referring to the several thousand such sudden deaths per year, by some estimates, in younger adults in the United States. "The most frustrating thing is that so many athletes are seemingly unaware about the consequences of putting too much strain on their abnormal cardiac muscle during vigorous exercise."

Many cases go undiagnosed, he says, because the athletes' healthy appearance and peak physical condition may mask their underlying sickness. Experts estimate that one in 500 Americans has undiagnosed hypertrophic cardiomyopathy; African-Americans are most vulnerable, with two to three times the rate of sudden cardiac death than in whites.

The Johns Hopkins team of more than 70 includes cardiologists, medical residents, nurses, ultrasound technicians, administrative assistants and community volunteers. They will run a series of heart tests from 10 a.m. to 4 p.m. on Saturday, May 24, on athletes who volunteer to be checked in Morgan State's Hurt Gymnasium.

The checkup will include a questionnaire to review any past history of chest pain, shortness of breath, fainting spells, instances of sudden cardiac death in relatives, weight and blood pressure measurements and tests for unusual heartbeats or murmurs. Each athlete will receive a cardiac

ultrasound, or echocardiogram, to measure heart size and its pumping function, including blood volume, and to check for faulty valves. An electrocardiogram, or EKG, to assess the heart's electrical rhythms will also be given.

Test results will be reported to each athlete on site, along with recommended follow-ups if problems are detected.

"Young athletes and their parents should feel secure in pursuing physical fitness to the best of their children's abilities and without the unknown risk from sudden cardiac death," said Abraham, an associate professor at the School of Medicine and its Heart Institute.

"Our goal is to make this not only an annual program in Maryland but to serve as a model for other programs to start across the country, state by state, city by city, if necessary," he said, noting that other countries, such as Italy and Japan, have since the early 1980s run regular school programs to screen teenage athletes and non-athletes for possible heart problems. Health officials in one region of Italy reported that screening had saved at least 22 lives.

The first documented case of sudden death dates back to 490 B.C., to the Greek origins of what is now the Olympic marathon, when Pheidippides collapsed and died after announcing military victory over the Persians.

In 2004, the International Olympic Committee recommended that all athletes be EKG-tested every two years for potential heart abnormalities. However, the U.S. Olympic team does not require physical exams for its competing athletes but instead offers voluntary cardiac screening.

Risk reduction strategies to prevent cardiac arrest include avoiding rigorous sports; taking beta-blockers that temper the heartbeat, preventing it from beating too fast; or implanting defibrillators that can shock the heart back into normal electrical rhythm.

Abraham says that in the last decade he has treated dozens of athletes with overly enlarged hearts whose vulnerable condition precluded any highly strenuous activity. He cites the rising numbers as what compelled him to organize the screening.

Among the most notable fatalities to date, he says, was Baltimore native Reggie Lewis, 27, a basketball player for the Boston Celtics, who in the summer of 1993 dropped dead on the court from cardiac arrest, likely triggered by an overly enlarged and thickened heart. Lewis, a graduate of Dunbar High School, was African-American. He had collapsed earlier in the year and continued to play, not fully aware that such an event weakens, inflames and enlarges the heart muscle. In Lewis' honor, his mother, Peggy Rich, has endorsed the Heart Hype event and plans to speak at a reception being held the night before.

Testing supplies for the event were donated by The Johns Hopkins Hospital. Ultrasound and EKG equipment was provided by General Electric Healthcare. The use of GE equipment for this event does not constitute or imply endorsement by Johns Hopkins of GE products or services.

Other young athletes whose deaths were suspected or reported to have been caused by sudden cardiac arrest are Ryan Shay, 28, a top-ranked U.S. marathon runner training for the Olympics, who suffered from cardiac arrest partway through the 2007 New York marathon; Damien Nash, 24, a football player with the Denver Broncos, who died in 2007 of an undiagnosed heart problem after playing in a charity game; Jason Collier, 28, an Atlanta Hawks football player who

died suddenly in 2005 during the off-season and while on route to hospital; Thomas Herrion, 23, a San Francisco 49ers football player who in 2005 collapsed in the locker room after suffering what appeared to be a heart stoppage; Ken Derminer, 17, who died suddenly in 2000 during college football practice; Chad Butrum, 26, a football player from Southern California who in 1994 died during a game; and Hank Gathers, 23, a basketball player at Loyola Marymount University in Los Angeles, who collapsed on the court from cardiac arrest in 1990, dying in hospital shortly thereafter.