ACC: ECG Reveals Cardiac Problems in A Third of College Athletes

By Crystal Phend, Staff Writer, MedPage Today
Published: April 01, 2009
Reviewed by Robert Jasmer, MD; Associate Clinical Professor of Medicine, University of California, San Francisco

ORLANDO, April 1 -- Cardiac screening for college-level athletes that included an electrocardiogram discovered abnormalities in 21% to 37% of students, according to two studies at major U.S. universities.

Action Points

- Note that these studies were published as abstracts and presented as posters at a conference. These data and conclusions should be considered to be preliminary until published in a peer-reviewed journal.
- Note that neither study included a control group for comparison of standard history- and physical exam-based preparticipation screening with and without electrocardiograms.

But researchers from the two groups reached opposite conclusions about routine EKGs for athletes at the American College of Cardiology (ACC) meeting here this week.

Professional athletes in the U.S. commonly get intensive cardiac screening, but its use at lower levels of competition has been debated.

The European Cardiology Society supports routine electrocardiograms to reduce risk of sudden cardiac death in competitive collegiate sports. The ACC recommends only a simpler, history- and physical exam-based screening.

The leader of one research group, Anthony Magalski, M.D., of St. Luke's Mid America Heart Institute in Kansas City, Mo., spoke to the value of added testing.

In his group's prospective study of 781 athletes, ages 18 to 21, spread across 14 different sporting events at one university, approximately 1% had significant electrical problems in the heart that would have been missed without electrocardiography.

"We think it's worthwhile," he said. "Team doctors and trainers know who to keep their eye on."

Parents and students find it reassuring as well, said Dr. Magalski, who also consults for the Kansas City Chiefs.

Overall, 31.1% of electrocardiograms were classified as abnormal, of which 9.5% were more than mild abnormalities. Distinct abnormalities were more common in men than women (14.7% versus 4.7%, *P*<0.001) and more common in black athletes than whites (17.9% versus 7.8%, *P*<0.001).

The findings suggestive of cardiac disease included increased R or S wave voltage, repolarization patterns, and Wolff-Parkinson-White pattern.

Brief two-dimensional echocardiography performed at the same preparticipation screening visit revealed cardiac structural problems including:

- An abnormal right ventricle in one male (0.3%)
- An abnormal mitral valve in 0.5% of both men and women
- An abnormal aortic valve in two males (0.5%)
- An abnormal aortic sinus in one male (0.3%)

Although experience with mandatory screening in Italy suggested that at least 2% of athletes would be disqualified from sports participation, Dr. Magalski said only 0.25% of those in his study were disqualified on the basis of screening.

"It was reassuring that screening, properly done, isn't going to disqualify too many people."

However, J. Jason West, M.D., of the University of Texas in Houston, and colleagues expressed concern that these findings might not be reliable.

Their study included 925 competitive athletes at one Division I university and 384 at another Division I school over a two-year period. Respectively, 21.2% and 37.1% of athletes tested positive for electrocardiography abnormalities (*P*<0.05 between schools).

Left ventricular hypertrophy was the most common abnormality in both cohorts. Again, race and gender predicted electrical conduction, rhythm, and structural problems.

No students were permanently banned from competitive sports based on these abnormalities.

"The differing results between these two cohorts calls into question the applicability of the European Society of Cardiology guidelines to U.S. collegiate athletes," Dr. West's group said.

But much of the outcome depends on how the electrocardiogram is interpreted, Dr. Magalski noted.

Both sides agreed that further study is needed to define the best electrocardiogram criteria to identify latent cardiac problems in U.S. college athletes.

Neither research group reported any conflicts of interest.

Primary source: American College of Cardiology meeting
Source reference:
Magalski A, et al "Electrocardiographic screening in competitive collegiate athletes" *ACC* 2009; Abstract 1047-58.

Additional source: American College of Cardiology meeting
Source reference:
West JJ, et al "Rates of abnormal screening electrocardiograms differ greatly between US collegiate cohorts" *ACC* 2009; Abstract 1047-43.

Complete ACC Coverage »

Add Your Knowledge™

Contribute your own thoughts, experience, questions, and knowledge to this story for the benefit of all MedPage Today readers.

jon baker, md - Apr 02, 2009
Bad title. 1/3 of athletes ECG abnormal, but most was LVH which you will find in 100% of professional cyclist. This is not abnormal this is a sign of training. Title should say 0.25% disqualified from sport based on screening, not 31% abnormal.

Find this article at:
http://www.medpagetoday.com/MeetingCoverage/ACC/13564?utm_source=WC&utm_medium=email&utm_campaign=Meeting_Roundup_ACC

Click to Print

SAVE THIS | EMAIL THIS | Close

Check the box to include the list of links referenced in the article.

ACC: ECG Reveals Cardiac Problems in A Third of College Athletes - Apr 02,2009
Bad title. 1/3 of athletes ECG abnormal, but most was LVH which you will find in 100% of professional cyclist. This is not abnormal this is a sign of training. Title should say 0.25% disqualified from sport based on screening, not 31% abnormal.