

## Abnormal ECG predicts heart trouble in athletes

By Karla Gale Thu Jan 10, 5:43 PM ET

NEW YORK (Reuters Health) - Abnormal electrocardiogram (ECG) findings in young, seemingly healthy athletes is associated with the eventual development of cardiomyopathy, a structural disease of heart muscle that affects the organ's ability to pump blood, according to research sponsored by the Italian National Olympic Committee.

Athletes with abnormal ECG patterns should continue to be monitored, Dr. Antonio Pelliccia and colleagues write in *The New England Journal of Medicine*.

"Reading ECGs in trained athletes is not as simple as previously believed," Pelliccia added in an interview with Reuters Health.

Pelliccia's group conducted a study using the 29-year database maintained at the Institute of Sports Medicine and Science in Rome.

From a total of 12,550 athletes, 1 percent had ECGs with abnormalities. Despite these abnormalities, 81 had no initial signs of heart disease. Comparisons were made between these 81 subjects and 229 athletes matched by age, sex, and duration of follow-up.

Athletes with abnormal ECG patterns - but without any "symptoms, family history of cardiomyopathies or sudden death, or any evidence of (heart) disease on MRI or echocardiography -- were allowed to continue in their training and competitions, but with the obligation of a close follow-up re-evaluation," Pelliccia noted. "Athletes with any other clues suggesting cardiac disease or abnormality were stopped from competition."

In the athletes with ECG abnormalities: five developed cardiomyopathy, including one case that proved fatal. None of the comparison subjects with normal ECGs developed cardiomyopathy.

The investigators conclude that abnormal ECG findings in young healthy athletes may represent "the initial expression of underlying cardiomyopathies that may not be evident until many years later."

When athletes have obvious abnormalities on ECG during pre-participation screening, "we recommend imaging techniques, such as echocardiography or MRI" also be conducted, Pelliccia advised. Other testing may be needed depending on the patient and the results of these imaging tests.

"When no abnormality is found at initial cardiac evaluation, we suggest periodic re-assessment, at least annually."

SOURCE: *The New England Journal of Medicine*, January 10, 2008.