

## Cardiovascular News

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### **ECG abnormalities in athletes may indicate underlying cardiomyopathy**

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*MedWire News:* Young, healthy athletes with repolarization abnormalities in their electrocardiograms (ECGs) are at increased risk for developing cardiomyopathy years later, say researchers, who recommend clinical surveillance for athletes with these ECG patterns.

Young, trained athletes may have abnormal ECGs without evidence of structural cardiac disease, but it is unclear whether ECG abnormalities represent the initial expression of underlying cardiac disease, the authors explain.

Antonio Pelliccia (Institute of Sports Medicine and Science, Rome, Italy) conducted a prospective study to assess long-term clinical outcomes in 81 athletes with repolarization abnormalities in their ECGs - diffusely distributed and deeply inverted T waves - and 229 matched control athletes with normal ECGs.

Among the athletes with ECG abnormalities, five (6%) developed cardiomyopathy, including one who died suddenly at the age of 24 years from clinically undetected arrhythmogenic right ventricular cardiomyopathy, and six (7%) developed other cardiac disorders during a mean follow-up period of 9 years.

In contrast, none of the 229 athletes with normal ECGs had a cardiac event or received a diagnosis of cardiomyopathy during follow-up, and only four (2%) developed other cardiac disorders.

The overall incidence of cardiovascular abnormalities was therefore 14% in the study group compared with 2% in the control group ( $P = 0.001$ ).

A normal ECG was 100% accurate for ruling out the risk for cardiomyopathy and 98% accurate for ruling out any cardiac abnormality. An abnormal ECG was 6% accurate for predicting the development of cardiomyopathy and 14% accurate for predicting any cardiac condition.

Pelliccia and co-workers conclude in the *New England Journal of Medicine*: "Contrary to previous reports describing such ECG patterns as innocent manifestations of 'athlete's heart' without adverse clinical consequences, the present study shows that these abnormal ECGs may represent the initial expression of genetic cardiac disease, preceding by many years phenotypic expression and adverse clinical outcomes.

"These observations underscore the importance of greater diagnostic scrutiny and continued clinical surveillance of trained athletes who present with such distinctly abnormal ECGs."

[\*N Engl J Med\* 2008; \*\*358\*\*: 152-161](#)