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EARLY REPOLARIZATION IS ATTENUATED DURING EXERCISE AND RECOVERY IN HEALTHY VOLUNTEERS

ACC Poster Contributions
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Background: Early repolarization (ER), characterized by notching or slurring of the J-point on the ECG, recently has been associated with sudden cardiac death (SCD). The aim of this study was to examine the effect of exercise (EX) and recovery (REC) on ER.

Methods: 574 healthy subjects (296M, ages 32 ±10 yrs) underwent fatigue-limited bicycle stress testing. 12-lead ECG was continuously recorded. Signal-averaged ECGs were assessed at rest, 1 minute into REC from EX, and during a heart rate matched EX segment. Significant ER was defined as notching of the J-point or slurring of the terminal portion of the QRS >1 mm above or below baseline in at least 2 contiguous lateral or inferior leads. Chi-squared tests compared the prevalence of ER between stages stratified by sex.

Results: At rest, a greater proportion of men as compared to women exhibited ER in at least two leads (37 vs. 20%, p<0.0001). For men, the proportion of subjects with ER decreased from rest during both EX (from 37% to 10%, p<0.0001) and REC (from 37 to 7%, p<0.0001). For women, the proportion of subjects with ER decreased from rest during both EX (from 20 to 5%, p<0.0001) and REC (from 20 to 2%, p<0.0001). No significant difference in ER between EX and REC for both men and women was noted. A greater proportion of men as compared to women exhibited ER in both EX (10 vs. 5%, p<0.02) and in REC (7 vs. 2%, p<0.003).

Conclusions: Heart rate and autonomic factors likely influence ER independent of sex. These factors should be considered when using ER in the ECG to assess risk for SCD.