

## Exercise Heart Rate Acceleration Patterns during Atrial Fibrillation and after Cardioversion

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**Objectives-** The present study was designed to evaluate the heart rate elevation pattern during exercise tests for patients with atrial fibrillation and its possible effects on the overall exercise tolerance.

**Background:** Patients with atrial fibrillation sustain a significant lower exercise tolerance compared to those in sinus rhythm, even while seemingly in adequate rate-control.

**Methods:** Exercise testing was performed during atrial fibrillation and after electric cardioversion for 21 patients who were initially treated with AV modifying agents and were considered in adequate rate control. Heart rate parameters were obtained during all exercise stages, and a graphic display of heart rate acceleration was obtained. For those patients who remained in sinus rhythm, an additional exercise test was performed after 1 month.

**Results:** During atrial fibrillation, heart rate prior to exercise, at the completion of Bruce stage 1, and the peak exercise heart rate were all significantly higher compared to sinus rhythm ( $p < 0.001$  for all). The time to peak exercise heart rate was significantly shorter during atrial fibrillation ( $p < 0.001$ ), and the total exercise duration was subsequently significantly shorter ( $p < 0.001$ ). After 1 month, no significant differences existed for the time to peak heart rate or for exercise durability for those who remained in sinus rhythm.

**Conclusions:** Exercise heart rate acceleration during exercise displays a unique pattern of earlier peaking, thus contributing for lower exercise durability. This occurs regardless of rate control status while at rest or mild physical activity.

