

Abstract title: Sex differences in cardiorespiratory fitness changes after exercise training in adults with atrial fibrillation: a systematic review protocol.

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Background: Patients with atrial fibrillation (AF), a sustained heart arrhythmia, often have low cardiorespiratory fitness (CRF). Improving CRF through exercise training is an important AF management target associated with lower hospitalization and mortality rates. Emerging research suggests smaller CRF improvements in females than males with AF following the same exercise program. Sex differences in the response to exercise training in this population remain understudied.

Objectives: To systematically review the effect of sex on CRF changes ($\dot{V}O_2\text{peak}$) after exercise training in adults with AF.

Methods: Five bibliographic databases will be searched. Eligible studies will include: adults (≥ 18 years) with an AF diagnosis; prospective cohort and experimental designs implementing exercise training of any form (e.g. aerobic) for ≥ 4 weeks; and, a baseline and follow-up measure of CRF as estimated or directly measured $\dot{V}O_2\text{peak}$. Permission will be sought from authors to obtain sex-specific data, if not reported. Study quality, risk of bias and the quality of the evidence will be assessed using the Tool for the assessment of Study quality and reporting in EXercise (TESTEX) scale and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. Meta-analyses will be conducted to synthesize the measures of effect in studies with sufficient homogeneity.

Discussion: We will address the lack of sex-based analyses in previous studies and provide evidence applicable to both sexes of the effects of exercise training on CRF in patients with AF.

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*This protocol is under review by the International Prospective Register of Systematic Reviews (PROSPERO). The registration number is expected for the next week. Please do not hesitate to contact us for any further information.