Exercise Duration and Intensity for the Associated Risk of Atrial Fibrillation

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Background: Atrial fibrillation is the most common cardiac arrhythmia. Exercise is usually viewed as a protective factor against heart disease, including dysrhythmias. However, it is unclear what duration and intensity of exercise is protective against atrial fibrillation and at what level it becomes a risk factor for its development.

Purpose: This research was conducted to understand at what intensity and/or duration of exercise an increased risk of developing atrial fibrillation occurs. Intense exercise is defined as greater than or equal to 4 hours of exercise per week, heavy physical workload, endurance exercise 3 times per week for less than 20 years or 20-39 years, and activities requiring greater than or equal to 6 METs-hours per week (jogging, running, aerobic exercise or dance, racquet sports, lap swimming). This information was investigated to educate healthcare providers on recommendations regarding what volume and intensity of exercise can be advised for their patients.

Methods: PubMed, Medline Complete, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the South College Library database were searched from December 2022 - January 2023 utilizing an evidence-based clinical review study design. Titles, abstracts and full-text studies were reviewed to ensure they met all inclusion and exclusion criteria. They were assessed for quality and a data extraction tool was utilized for the qualitative analysis.

Results: Three studies were selected which collectively included 2,937,888 participants. Prolonged high-intensity exercise confers a greater risk of developing atrial fibrillation than moderate amounts of exercise. Sedentary individuals have a 2.47 times higher risk of incident

atrial fibrillation than men and women who participate in moderate and intense forms of physical activity. When looking at fitness levels obtained over prolonged periods of exercise, results showed that moderate and high levels of cardiorespiratory fitness decreased the risk of developing atrial fibrillation. When results were analyzed based on gender, it was found that high levels of physical activity decreased the risk of atrial fibrillation in women while high levels of physical activity increased the risk of atrial fibrillation in men. Results showed that the risk of atrial fibrillation is significantly higher in young male athletes who are less than 60 years old than in the general population.

Conclusion: Performing exercise at high intensities for prolonged periods of time increases the risk of atrial fibrillation in male athletes, especially those who are less than 60. Women do not follow this trend and have a decreased risk of atrial fibrillation as exercise intensity increases. While risk increases for men as intensity and duration increase, an increase in overall cardiorespiratory fitness leads to a decreased level of atrial fibrillation. Additionally, the risk of atrial fibrillation is higher in those who are sedentary than in those who practice moderate to high intensity exercise. When treating patients with multiple risk factors for developing atrial fibrillation, providers should recommend athletes make exercise not intense according to the criteria as stated above.