

Letter to the editor

Endurance swimming and increased risk of atrial fibrillation

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Dear editor,

Diet and exercise have always been part of a healthy lifestyle. However, literature has identified an association between endurance exercise and atrial fibrillation with the implication that the incidence of atrial fibrillation increases in endurance athletes.^{1,2} To this point, researchers have grouped diverse activities (running, biking, *etc.*) of varying intensity in arriving at these conclusions.^{2,3} Proposed mechanisms for the association between prolonged physical activity and atrial fibrillation include left atrial remodeling, increased atrial ectopy, and increased vagal tone induced by endurance exercise.²

We recently surveyed a group of elite athletes who are members of a web-based group of competitive swimmers. The “Swim Forum” members include men and women over the age of 60 who participate in competitive swimming. These athletes undertake heavy exercise. Many are ex-Olympic swimmers and current world records holders in their age group in “Masters Swimming”, sponsored by the United States Masters Swimming organization. The survey is part of an ongoing Medical University of South Carolina Internal Review Board approved case control study that will compare the prevalence of atrial fibrillation in these endurance athletes with that of age and sex matched controls in an internal medicine clinic.

There are 96 members in the “Masters Swimming” group and 73 responded to the initial survey. The survey queried the respondents for age, gender, previous diagnosis of atrial fibrillation, and their current swimming regimen. The average age of respondent athletes with atrial fibrillation was 71. The average number of miles swam each week was 7 miles per person. The self-reported rate of documented atrial fibrillation was 26%, nearly 5 times that shown in the general population.

One may postulate that these highly trained athletes are more aware of their pulse and exercise tolerance than a person not undertaking the same caliber of exercise regimen. This awareness may lead to sooner medical evaluation. However, an atrial

fibrillation rate 5 times higher than that reported in the general population suggests an exercise induced finding. This group of swimmers offers a unique cohort of high intensity endurance athletes with a long history of exposure. Our ongoing case control study will include more in-depth survey questions to identify other risk factors for atrial fibrillation, and assess past diagnosis and risk factors of cerebrovascular disease. Future studies may also investigate other potentially contributing variables, electrocardiogram findings, and echocardiographic evaluation of the left atrium.

Our findings and those of others suggest that participation in an endurance sport increases the risk for atrial fibrillation, and the intensity of that participation is likely a contributing factor.^{4,5} With the numerous benefits of endurance exercise on cardiovascular health, is this association with atrial fibrillation enough to change our recommendations to patients regarding exercise? In this group of high endurance exercisers, is the incidence of endpoints such as stroke increased? Through investigation of targeted populations, we can make statements regarding the risk of atrial fibrillation with specific endurance exercise. Our data on swimmers clearly include swimming as a risk sport, adding it to running, biking, and orienteering which have all previously been discussed in the literature. Documentation of the amount of exercise in our study was also completed and will be important for future investigations to determine a threshold for risk, if one exists.

Authors' contributions

ADS, BAK, and WAB conceived of the study, participated in its design and coordination and helped to draft the manuscript. All authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

Competing interests

None of the authors declare competing financial interests.

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