

# Leisure-time physical activity increases the risk of atrial fibrillation in men

August 29 2011

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A Norwegian survey carried out between 1974 and 2003 showed that there was a graded independent increase in the risk of AF with increasing levels of physical activity in a population-based study among men with ostensibly no other heart disease. In women the data were inconclusive.

Speaking at a press conference at the ESC Congress in Paris today, Prof Knut Gjesdal from Oslo University Hospital, said that competing athletes seem to be at higher risk of developing [atrial fibrillation](#) (AF) than their sedentary mates. Less is known, however, about the training threshold above which the risk for AF increases.

Diseases or life-style factors that influence the development of AF are often present for years before AF appears. Hence the exposition for a risk factor must be recorded at baseline, and the individuals must be followed for several years. Regional large epidemiological studies on individual subjects' cardiovascular risk factors contain such information, including the subjects' self-reported leisure-time [physical activity](#).

"Heavy exercise in leisure-time increases the risk of atrial fibrillation 2 to 3-fold in men. However, the [general health](#) benefits from [physical exercise](#) certainly outweigh the increased risk of this [heart rhythm disorder](#)," explained Prof Gjesdal.

"We had the opportunity to merge data from three population-based Norwegian surveys that used standardized methods and were undertaken

during 1974 - 2003. The present analysis comprises 428 519 participants, alive and aged 30-81 years by the end of 2003. The classification of physical activity was:

1. Sedentary: Reading, watching TV, or other [sedentary activity](#).
2. Moderate: Walking, cycling, or other forms of exercise at least 4 hours per week (including walking or cycling to the workplace, Sunday-walking, etc.)
3. Intermediate: Participation in recreational sports or heavy gardening for at least 4 hours per week.
4. Intensive: Participation in hard training or sports competitions, regularly or several times per week. »

The two major challenges were 1) to identify the subjects who later on developed AF, and 2) to exclude from the study all those who had a concomitant cardiovascular disease that could predispose to AF. Such diseases include hypertension, coronary heart disease and heart failure. The ideal group to study would be subjects with "lone AF", that is, subjects whose hearts are normal except for their AF.

Flecainide tablets are mainly used to prevent recurrences of AF. The drug is fairly efficient and well-tolerated in patients with otherwise normal hearts, but in patients with heart disease beyond AF, serious and even lethal complications occur. Hence flecainide is prescribed only to patients with normal or near-normal hearts, and thus, flecainide users represent lone AF patients. A Norwegian Prescription Database was established in 2004. Without revealing patient identity, flecainide users and control subjects could be linked to information obtained in the health surveys, allowing researchers to compare baseline [risk factors](#) to AF.

During the follow-up period from 2004 through 2009, 1183 men and 609 women had a first-time flecainide prescription. They constitute the AF cases. The risk of AF increased with increasing levels of physical activity in men, whereas no such association was observed among women. The majority of the AF cases was 50-69 years old, non-smokers and had higher education. Resting heart rate was inversely related to the risk of having AF. The male cases had also lower levels of the major [cardiovascular risk factors](#).

"We found a strong, statistically highly significant relationship between the level of self-reported leisure-time physical activity and AF, defined as new-onset prescription of flecainide in men. The relationship between physical activity and AF may be clearer than in previous reports since many Norwegian males are physically very active. In women, the number participating in heavy exercise was small, and the study lacks statistical power to answer whether women are running the same exercise-related risk for AF as men.

Since AF is associated with premature death, stroke and heart failure, should we conclude that strenuous leisure-time physical activity is bad for you? "This is definitely not the case. The majority of heavily exercising men have a normal heart rhythm. Our men were more fit, had slower heart rate, lower diastolic blood pressure, lower total cholesterol, they smoked less cigarettes and had more education, all factors that reduce the overall cardiovascular risk," said Prof Gjesdal.

Flecainide is a drug that does not affect physical performance. For this reason it is popular among competitive athletes, and it may be that physically active persons are overrepresented among flecainide users. Due to this concern researchers also analyzed data on sotalol users. Sotalol is an unselective beta-blocker with additional anti-arrhythmic effects. This drug is also used in non-permanent AF, even in patients with coronary heart disease. Reduced endurance capacity is a well-

known side effect of sotalol, and athletes tend to avoid this drug. However, in sotalol users, a similar effect of exercise was seen: the more leisure-time physical activity at baseline, the higher was future sotalol use.

"Our selection of cases comprises only a minority of all lone AF patients. Some subjects with infrequent or mild episodes of AF are not included because they do not want long-term drug treatment. In others the AF may have progressed to a permanent, accepted state, and then there is no longer indication for flecainide," explained Prof Gjesdal.

"In conclusion, there was a graded independent increase in the risk of AF with increasing levels of physical activity in this population-based study among men with ostensibly no other [heart disease](#). For women the data are inconclusive."

Provided by European Society of Cardiology

Citation: Leisure-time physical activity increases the risk of atrial fibrillation in men (2011, August 29) retrieved 2 May 2024 from <https://medicalxpress.com/news/2011-08-leisure-time-physical-atrial-fibrillation-men.html>

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