

Atrial fibrillation in endurance athletes still poses problems for sports cardiologists

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Competitive sports and endurance training comes with a real -- even if rare -- twist. While most people will enjoy the benefits and pleasures of exercise, there are a few for whom regular athletic training will increase the risk of cardiac arrhythmias and even sudden death.

The fulfilment which so many people increasingly derive from competitive sports and endurance training comes with a real - even if rare - twist. Because, while most people will enjoy the benefits and pleasures of exercise, there are a few for whom regular athletic training will increase the risk of cardiac arrhythmias and even [sudden death](#), especially among those in middle-age or with pre-existing cardiac diseases.

"It's for this reason that [sports medicine](#) has focused on pre-participation screening," says Dr Luis Mont from the Hospital Clínic de Barcelona, Spain, "in an attempt to detect any hidden heart disease." On the other hand, disturbances in heart rhythm, particularly atrial fibrillation, which represent one of the major cardiovascular reasons for hospital admission, is more common among cyclists, marathon runners and other athletes with a long history of endurance training.

Dr Mont reports that atrial fibrillation is more frequent in middle-aged individuals who formerly took part in competitive sports and continue to be active, or simply in those involved in regular endurance training without having actually participated in competitive sports. "So we have to look at the effects of endurance or athletic training with a more open

view," says Dr Mont.

However, he adds that the cost-effectiveness of routine pre-participation screening in a broad population of athletes and endurance sports participants has not yet been clarified. A debate on the subject takes place at this Congress on Sunday 21st June at 16.00.

What does seem clearer, however, is that long-term endurance sport participation may well increase the incidence of cardiac arrhythmias, particularly atrial fibrillation, atrial flutter, sinus node dysfunction, and right ventricular premature beats. "Given the fact that an increasing number of individuals engage in regular endurance sports," says Dr Mont, "it is certainly of great interest to define which recommendations for sport should be implemented in an individual patient, and how best to manage arrhythmias in participants." Atrial fibrillation is the most common arrhythmic condition, and sudden cardiac death remains a risk.

Three papers presented at this congress by Dr Mont's group reflect the research effort now being directed towards sports cardiology and the prevention and treatment of rhythm disorders.

1. Efficacy of the circumferential pulmonary vein ablation of atrial fibrillation in endurance athletes. CPVA is a recently introduced technique which identifies the signals causing the atrial fibrillation and isolates their source in the pulmonary veins from the left ventricle of the heart. The technique has been successfully used in routine patients with atrial fibrillation and, according to new data presented here in Berlin, is now as effective in AF secondary to endurance sports as in other causes. A series of 182 patients in Dr Mont's Barcelona clinic found that freedom of arrhythmias following CPVA was similar in the sports participants as in the regular patients. Left atrial size and long-standing [atrial fibrillation](#) were the only independent predictors for arrhythmia recurrence after the treatment, not [sports](#) participation.

2. Deconditioning reverses expression of cardiac fibrosis markers in an animal model of endurance training. A more basic science study from Dr Mont's group in Barcelona also suggests that those with a history of arrhythmias following endurance training may benefit from a period of "deconditioning" following their efforts. The suggestion follows a study in animal models which found that markers of cardiac fibrosis in rats whose treadmill exercise was followed by a period of inactivity returned to control levels. Endurance exercise causes cardiac structural changes, including atrial and right ventricular fibrosis - and this fibrosis may play a role in the development of arrhythmias. Although it has been noted that the athlete's heart regresses after inactivity it is not known if the sport-induced atrial and right ventricular fibrosis also reverses after deconditioning. This study suggests that it does and that a period of inactivity might be of benefit in those with a history of fibrillation.

3. Losartan attenuates heart fibrosis induced by chronic endurance training in an animal model. Just as inactivity after training may inhibit cardiac fibrosis in animal models, a similar study suggests that the anti-hypertensive drug losartan prevents the heart fibrosis induced by endurance exercise. The anti-fibrotic effect of losartan, an angiotensin type-II receptor antagonist, appears to be mediated suppression of angiotensin II-induced proliferation of fibroblasts. Again, markers of fibrosis were reduced by administration of losartan.

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