

Exercising recommendations for paroxysmal AF in young and middle-aged athletes (PAFIYAMA) syndrome

Carme Perez-Quilis¹, Giuseppe Lippi², Gianfranco Cervellin³, Herbert Löllgen⁴, Fabian Sanchis-Gomar^{1,5}

¹Department of Physiology, Faculty of Medicine, University of Valencia and Fundación Investigación Hospital Clínico Universitario de Valencia, Instituto de Investigación INCLIVA, Valencia, Spain; ²Section of Clinical Biochemistry, University of Verona, Verona, Italy; ³Emergency Department, Academic Hospital of Parma, Parma, Italy; ⁴EFSMA and German Fed. Sports Medicine, Remscheid, Germany; ⁵Leon H. Charney Division of Cardiology, New York University School of Medicine, New York, NY, USA

Correspondence to: Fabian Sanchis-Gomar, MD, PhD. Leon H. Charney Division of Cardiology, New York University School of Medicine, 522 First Avenue, Smilow 805, New York, NY 10016, USA. Email: fabian.sanchis@uv.es.

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We have recently described a new syndrome: strenuous endurance exercise-related atrial fibrillation (AF) under the acronym of ‘paroxysmal AF in young and middle-aged athletes’ (‘PAFIYAMA’). Provided that other risk factors for AF and underlying conditions have been excluded (1), the diagnostic criteria for this syndrome entail a number of conditions, classified as major and minor. An enhanced risk of AF has been clearly documented in endurance athletes (top-class, elite and recreational) (2-5), and such risk typically ranges between 1.2- to 15-fold compared to the general, sedentary population (the better cardiovascular fitness, the higher incidence of AF) (6-11). Anecdotally, the last author of this manuscript (F Sanchis-Gomar), a physician himself, was a competitive endurance cyclist for 10 years and a paradigm of PAFIYAMA syndrome. Briefly, he has suffered from left atrial enlargement and a first episode of paroxysmal AF early in life, at the age of 26 years. After 5 years of recurrent episodes, pulmonary vein isolation by trans-venous cryoablation seemed to be the only successful treatment. Although he has suffered no more AF episodes since then, high-intensity exercise would be no longer advisable.

The real incidence of PAFIYAMA syndrome may be much higher than expected, and the cases that have been diagnosed so far may only represent the “tip of the iceberg”. Nevertheless, the potential clinical implications and the impact on patients’ lifestyle at diagnosis are both meaningful, so that PAFIYAMA syndrome may soon

become a public healthcare issue if one considers the large number of subjects regularly performing endurance exercise (i.e., medium-distance running, cycling, mountain walking, etc.). In general, these patients have no information about the best management of their condition, and several doubts immediately emerge at diagnosis: Will I be able to continue training or practicing physical exercise? If yes, How? How much? What type, frequency and intensity? To date, exercising recommendations for these patients are totally lacking, so putting these subjects at large risk of developing cardiac rhythm disturbances needing to be managed by invasive therapies, i.e., oral anticoagulation, antiarrhythmic drug therapy (flecainide, propafenone, amiodarone or sotalol, among others) or ablation. Taking together the aforementioned considerations, and based on our previous experience, we purpose the following preliminary recommendations:

- ❖ The first and obvious recommendation is increasing public awareness of this syndrome;
- ❖ Do not allow that PAFIYAMA syndrome impedes you from exercising and living a fulfilling and active life;
- ❖ Modulation of physical exercise seems the best approach for significantly limiting the number and the intensity of the crises, particularly in those subjects with recent diagnosis of PAFIYAMA syndrome with atrial dilation;
- ❖ Regular exercise may be safe in patients with PAFIYAMA syndrome, although it depends of

individual circumstances, i.e., frequency, duration, precipitating factors, symptoms associated, modes of termination of AF, among others (cardiologist with sports medicine expertise should be consulted);

- ❖ Discussion with a cardiologist may be advisable about the “pill-in-the-pocket” strategy while exercising. Importantly, following the ESC Guidelines on AF (12), it should be kept in mind that patients should refrain from exercise while AF episode persist and/or resting for at least 6–8 hours after having taken the drug (i.e., two half-lives of the antiarrhythmic drug), either flecainide or propafenone;
- ❖ Light to moderate intensity endurance exercise has been shown to be even protective for chronic AF (13). Accordingly, a minimum of 150 min/wk of light to moderate-intensity aerobic exercise is beneficial, and hence, recommended;
- ❖ Aerobic exercise training program should be tailored regarding intensity, time (duration) and frequency. The intensity and the duration of exercise seems to be critical in exercise-induced atrial remodeling (14), i.e., more training, more atrial remodeling. Accordingly, we recommend adapting/reducing intensity, duration and frequency of aerobic training in those patients recently diagnosed. One option to easily calculate the optimal intensity is decreasing a step of those stages described below: light [<3 metabolic equivalents (METs)], moderate (3–6 METs), and vigorous (>6 METs). In any event, the training intensity should not exceed 85% of the peak heart rate (HR). As for duration (time) and frequency, 200 min/wk and 3–5 days/wk are the maximum recommended because its demonstrated benefits (15);
- ❖ Aerobic exercise should be performed in sessions of no less than 10 minutes of duration;
- ❖ A HR monitor should always be employed: if the pulse is too high, symptoms are more likely. A reliable approach to bring back the pulse rate should be identified;
- ❖ When exercise causes palpitations, chest pain, severe breathlessness or exhaustion, it may be better to cease physical activity and refer to a cardiologist;
- ❖ Muscle-strengthening activities involving the bulk of the muscles (legs, arms, back, chest, abdomen, and shoulders) are highly recommended (typically, 2 days/wk);
- ❖ Alcoholic and/or energy drinks consumption should be always avoided, especially during exercise. Both are

risk factors, alone or in combination;

- ❖ These recommendations may be obviously challenging and improbably (if not impossible) to be followed by professional athletes. In such cases, antiarrhythmic drug and/or ablation may be the first line therapy counseled.

Supranational collaborative studies should also be urgently planned to accurately defining the real incidence of PAFIYAMA syndrome in exercising subjects, meant to identifying reliable predictive factors and diagnostic biomarkers (16), which may help to timely identifying a subset of subjects at increased risk for this condition. This would ultimately allow to safeguard athletes' health and prevent unnecessary healthcare expenditures in a world with increasingly limited resources.

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Footnote

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