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The effect of exercise training on exercise oscillatory ventilation in heart failure.

Justien Cornelis^a, Christiaan Vrints^{b,c}, Dirk Vissers^a, Paul Beckers^{a,b,c}

- a. University of Antwerp (Faculty of Medicine and Health), Department of Rehabilitation Sciences and Physiotherapy, Universiteitsplein 1, 2610 Wilrijk, Belgium.
- b. Antwerp University Hospital (Department of Cardiology), Wilrijkstraat 10, 2650 Edegem, Belgium.
- c. University of Antwerp (Faculty of Medicine and Health), Department of Medicine, Universiteitsplein 1, 2610 Wilrijk, Belgium.

Corresponding author: Justien Cornelis, University of Antwerp, Department of Rehabilitation Sciences and Physiotherapy, CDE S0.22, Universiteitsplein 1, 2610 Wilrijk, Belgium. Email: Justien.Cornelis@uantwerpen.be;
Phone: +32475834741; Fax: +3232652501

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To the editor:

We have read with great interest the article by Panagopoulou et al.¹ published as an essential contribution on the value of exercise training in patients with heart failure (HF) presenting exercise oscillatory ventilation (EOV). The principal finding of this study is that high intensity aerobic interval training (HIAIT) with or without strength training (S) diminishes EOV in patients with HF.

The authors refer to randomization of patients into HIAIT or HIAIT+S but describe instead a (retrospective) cohort study of afore acquired data by the same research group. It is unclear how the total study population (n=38) was selected out of a bigger dataset. The EOV+ patients conducted two different training modalities (n=12 HIAIT, n=8 HIAIT+S) but it is unsure which training the EOV- group completed. The results stated no differences between both training groups neither in EOV characteristics nor in cardiopulmonary exercise test derived parameters. Notwithstanding this, the authors provided a pathophysiologic explanation for EOV based on the effect of HIAIT(+S). In our opinion, it is not possible to make such statements solely based on these results since no significant differences were found between EOV+ or EOV-. In fact, the only significant difference was the decline of EOV duration. On top of that, two other EOV characteristics i.e. amplitude and average length, were not different. The authors concluded that the percentage of EOV presence was decreased after exercise. However, it was not evaluated in how many patients EOV remained present after training. This depends largely and on a great part of the applied definition of EOV. The authors adopted the definition by Corrà et al. A feasible choice but only evaluating total duration and size of amplitude during exercise in comparison to rest. Since no gold standard is available, it was shown that also other definitions i.e. Leite et al. in which amplitude (≥ 5 l/min, 3 consecutive cycles) is an important characteristic, could be relevant. When using this definition it would be doubtful that the same amount of patients would present EOV. Certainly, since the average amplitude reported was only 5.2 ± 2.0 and the total cycles observed in each patient is uncertain. The strongest statement that could be made based on this study, is that EOV duration was significantly decreased, but it is questionable what the clinical importance of this finding might be. We strongly support the authors suggestion to computerize the assessment of EOV so that defining and assessing EOV can be more standardized. In fact, this was already stated, investigated and developed by our research group².

Over the last year, it was illustrated in a large cohort and meta-analysis that HIIT doesn't have the superior effect to which the authors refer to^{3, 4}. It is questionable whether training at 50% peak WR, as applied in this study, could be considered as high intensity.

Meanwhile, the authors should be congratulated for their interesting and extensive work.

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