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Cardiac rehabilitation in chronic heart failure: effect of a 8-week high-intensity interval training vs continuous training with regard to variables commonly used in clinical practice

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Purpose: It has been demonstrated that aerobic interval training is feasible for the treatment of heart failure. It can be superior to continuous training for patients with post infarction heart failure.

The objective of this study was to compare the effects of a short innovative high-intensity interval training protocol versus continuous retraining on aer-obic capacity and functional capacity in patients with chronic heart failure (CHF).

Methods: 26 patients with CHF were enrolled in a 8-week cardiac rehabil-itation program. Patients were divided into two groups: one group performed rehabilitation with interval training exercises (IT) and the other group per-formed rehabilitation with continuous training exercises (CT). IT consisted in 3 series of 12 repetitions of 30 sec of exercise, followed by 60 sec of rest. The exercise intensity was 50 and 80% of the maximal power reached during a steep ramp test during the first 4 weeks and the last 4 weeks, respectively. CT consisted in 45 minutes of aerobic exercise corresponding to the heart rate at the first ventilatory threshold. Parameters of the physical capacity were assessed using a treadmill ramp test with gas exchange measurements and using a 6 minute walk test (6MWT).

Results: The IT group increased their peak VO_2 ($p<0.001$), the duration of the exercise test ($p<0.001$), the oxygen pulse ($p=0.029$) VO_2 and the time at the second ventilatory threshold ($p=0.006$ and $p<0.001$), and the distance performed at the 6MWT ($p<0.001$). The CT group increased only the time at the second ventilatory threshold ($p=0.004$) and the distance performed at the 6MWT ($p=0.050$) and these improvements were significantly higher for the IT group than for the CT group ($p=0.047$).

Conclusion: This study shows that, in patients with CHF, 8 weeks of high intensity interval training included in a rehabilitation program appears to be more effective than continuous training to improve some parameters of phys-ical capacity.