

## **Obese patients decrease work rate in order to keep a constant target heart rate.**

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Purpose: “slow components” of heart rate (HR) kinetics, occurring also during moderate-intensity constant work rate exercise, represent a problem for exercise prescription at fixed HR values. This problem, described in young healthy subjects, could be more pronounced in obese patients.

Methods: sixteen male obese patients (age,  $22 \pm 7$  yr; body mass,  $127 \pm 19$  kg; body mass index,  $41.6 \pm 3.9$  kg·m<sup>-2</sup>) were tested before (PRE) and after (POST) a 3-wk multidisciplinary body mass reduction program, entailing moderate-intensity exercise. They performed on a cycle ergometer an incremental exercise to voluntary exhaustion (to determine peak pulmonary oxygen uptake (VO<sub>2peak</sub>) and gas exchange threshold (GET)) and constant work rate exercises: moderate-intensity (MODERATE; 80% of GET determined in PRE), heavy-intensity (HEAVY; 120% of GET determined in PRE), and “HR<sub>CLAMPED</sub>” exercise, in which work rate was continuously adjusted to maintain a constant HR corresponding to that at 120% of GET. Breath-by-breath VO<sub>2</sub> and HR were determined.

Results: VO<sub>2peak</sub> and GET (expressed as a percent of VO<sub>2peak</sub>) were not significantly different in PRE versus POST. In POST versus PRE, the HR slow component disappeared (MODERATE) or was reduced (HEAVY). In PRE, work rate had to decrease by ~20% over a 15-min task in order to keep HR constant; this decrease was significantly smaller (~5%) in POST.

Conclusions: in obese patients, a 3-wk multidisciplinary body mass reduction intervention i) increased exercise tolerance by eliminating (during MODERATE) or by reducing (during HEAVY) the slow component of HR kinetics, and ii) facilitated exercise prescription by allowing to translate a fixed submaximal HR value into a work rate slightly above GET.

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