

Shorter versus longer durations of rowing-based interval exercise attenuate the physiological and perceptual response

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ABSTRACT

High intensity interval exercise (HIIE) requires repeated bouts of near-maximal to maximal efforts (intensities > 85 %HRmax) interspersed with a brief recovery. Data show superior increases in maximal oxygen uptake (VO₂max) in response to chronic HIIE compared to moderate intensity continuous exercise (MICE) in healthy adults as well as clinical populations (Milanovic et al. 2015; Weston et al., 2014). **PURPOSE:** This study compared physiological and perceptual variables between short and long durations of rowing-based high intensity interval exercise (HIIE). **METHODS:** Fourteen active adults (age = 26.4 ± 7.2 yr) performed incremental rowing exercise to fatigue to measure maximal oxygen uptake (VO₂max) and peak power output (PPO). The subsequent 20 min sessions required HIIE (eight 60 s efforts at 85 %PPO with 90 s of active recovery at 20 %PPO or 24 20 s efforts at 85 %PPO with 30 s of active recovery at 20 %PPO) or moderate intensity continuous exercise (MICE) at 40 %PPO. During exercise, VO₂, heart rate (HR), blood lactate concentration (BLa), rating of perceived exertion (RPE), and affective valence were measured. **RESULTS:** Data show significantly (p < 0.001) higher peak VO₂ (84 ± 7 vs. 76 ± 5 %VO₂peak, d = 0.99), peak HR (94 ± 4 %HRpeak vs. 90 ± 4 %HRpeak, d = 1.12), BLa (7.0 ± 2.5 mM vs. 4.1 ± 1.0 mM, d = 1.22), end-exercise RPE (12.8 ± 2.0 vs. 11.0 ± 1.7, d = 1.29), and lower affective valence (2.1 ± 1.6 vs. 2.9 ± 1.2, d = 0.61) with long versus short HIIE. Time spent above 85 %HRpeak was significantly higher (p < 0.001) in short versus long HIIE (606 ± 259 vs. 448 ± 26 s, d = 0.91). **CONCLUSION:** Longer rowing-based intervals elicit greater cardiometabolic and perceptual strain versus shorter efforts, making the latter preferable to optimize perceptual responses to HIIE.