

Sex Difference in Cardiorespiratory Stress from High-Intensity Interval Exercise

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ABSTRACT

High-intensity interval exercise is time efficient and has similar cardiorespiratory health benefits as moderate-intensity continuous exercise. However, the prescription of high-intensity exercise may differ between men and women due to sex differences in cardiovascular function. **PURPOSE:** Therefore, the objective of this study was to examine whether sex differences exist for absolute and relative oxygen uptake (VO_2) and heart rate (HR) when exercise was performed at a percentage of maximal cycling work rate measured in watts (W_{max}). **METHODS:** We recruited 8 active college-aged participants (5 men, 3 women). Participants completed an incremental maximal exercise test on a cycle ergometer while VO_2 , HR, and W_{max} were recorded. On a separate day, participants completed a high intensity interval session (4 min bouts with 3 min active recovery) prescribed at 65% W_{max} for each bout and at 15% W_{max} for the recovery. VO_2 , HR, and W were averaged from the last minute of each exercise bout for analysis using an independent t-test for sex comparisons. Data are reported in means \pm standard deviations and significance was set at $P < 0.05$. **RESULTS:** Men exercised at a greater absolute workload than women during interval exercise (191 ± 14 vs. 95 ± 15 W; $P < 0.0001$). Absolute VO_2 was higher in men than women during exercise (2.7 ± 0.4 vs. 1.5 ± 0.3 L/min; $P < .001$), but heart rate was similar between sexes (172 ± 7 vs. 176 ± 4 bpm, $P = 0.23$). Relative VO_2 (67 ± 11 vs. 74 ± 6 % $\text{VO}_{2\text{max}}$; $P = 0.15$) and HR (95 ± 3 vs. 93 ± 3 % HR_{max} ; $P = 0.30$) were also similar during exercise between sexes. **CONCLUSION:** In summary, these preliminary data suggest prescribing high-intensity interval exercise at a percentage of maximal work rate results in similar relative cardiorespiratory stress between men and women.