

## **Effects of a Self-Selected Pace on $\text{VO}_{2\text{max}}$ during a Running Test to Volitional Exhaustion**

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**PURPOSE:** The purpose of this study was to evaluate the effects of a self-selected pace during an incremental running test to volitional exhaustion on the attainment of  $\text{VO}_{2\text{max}}$  values. **METHODS:** Thirteen aerobically-trained females ( $22.4 \pm 1.66$  years,  $1.63 \pm .05$  m,  $57.3 \pm 10.2$  kg) with prior experience in  $\text{VO}_{2\text{max}}$  testing and RPE volunteered to participate in the current study. Each subject completed a ramp protocol ( $\text{TVO}_2$ ) whereby the speed of the treadmill was increased by 1 km/hr every minute until volitional fatigue and a self-paced protocol ( $\text{EVO}_2$ ) whereby each subject was able to self-select the treadmill speed to correspond to predetermined RPE values that were increased during 5 x 2-min stages. The treadmill gradient was set at 1% for each protocol and the subjects completed each protocol in a randomized order. The variables of  $\text{VO}_{2\text{max}}$ , running velocity at fatigue, time to exhaustion, and thermal sensation during each protocol were compared using paired t-tests with  $\alpha \leq 0.05$ . **RESULTS:** There was no significant difference in  $\text{VO}_{2\text{max}}$  ( $43.18$  vs  $43.33$  ml/kg/min,  $p=.790$ ) and running velocity at fatigue ( $14.9$  vs  $14.7$  km/hr,  $p=.530$ ) between the two protocols, while time to exhaustion was significantly longer during  $\text{TVO}_2$  ( $671.5$  vs  $592.7$  s,  $p=.003$ ). Additionally, there was no significant difference in perceived heat between the protocols ( $3.9$  vs  $3.8$ ,  $p=.387$ ). Based on the  $\text{VO}_{2\text{max}}$  criteria selected, 7 of the 13 subjects achieved  $\text{VO}_{2\text{max}}$  in each protocol. **CONCLUSION:** Although  $\text{VO}_{2\text{max}}$  values were not significantly different between the protocols, subjects predominately exercised at a lower intensity and for a shorter (finite) duration of time during  $\text{EVO}_2$ . These findings may be accredited to the closed-loop design that enabled subjects to develop a pacing strategy for optimal performance. This has implications for future studies whereby similar  $\text{VO}_{2\text{max}}$  values can be found using an experimental design that better resembles conditions encountered outside the laboratory.