TACSM Abstract

Cardiorespiratory Responses During Body Weight Supported Treadmill Exercise

SHANA JOHN, CALLIE SUN, and KYLE D. BIGGERSTAFF

Exercise Physiology Laboratory; School of Health Promotion and Kinesiology; Texas Woman's University; Denton, TX

Category: Undergraduate

Advisor / Mentor: Biggerstaff, Kyle (kbiggerstaff@twu.edu)

ABSTRACT

Treadmills which partially support body weight (BWST) are increasingly used to allow weight bearing treadmill exercise to be performed during rehabilitation. **PURPOSE**: This investigation determined cardiorespiratory responses during BWST exercise. **METHODS**: Participants (n=15; age=22.1±2.1yrs; BMI=27.4±5.9kg/m^2) volunteered to perform two bouts of treadmill walking on a standard treadmill (ST) and a BWST with 25% of body weight supported by the BWST. Each trial consisted of three 6 minute stages at 2.8mph and 2%, 5%, and 8% grade with a two minute warm-up and cool-down at 2.0 mph and 0% grade. Oxygen consumption (VO_2), carbon dioxide production (VCO_2), and respiratory exchange ratio (RER) were averaged across the last three minutes of each stage. Systolic (SBP), diastolic blood pressure (DBP), and rating of perceived exertion (RPE) were measured during the final minute of each stage. A 2x3 (treadmill x intensity) repeated measures analysis of variance was performed with the criterion level of significance set at $p \leq 0.05$. **RESULTS**: At the highest intensity VO_2 (0.99 ± 0.27 vs 1.40 ± 0.35 L/min) and VCO_2 (0.96 ± 0.27 vs 1.36 ± 0.36 L/min) were significantly lower ($p \leq 0.05$) on the BWST compared to the ST. Heart rate on the ST was (113 ± 14, 128 ± 18, 142 ± 22 bpm) not different than on the BWST (112 ± 18, 118 ± 20, 123 ± 20 bpm). There were no significant differences in RER, SBP, DBP, or RPE between the two trials at any intensity. **CONCLUSION**: These data suggest that cardiorespiratory responses are similar at light to moderate intensities on ST and BWST treadmills, but VO_2 and VCO_2 may vary between these treadmills at higher intensities.