TACSM Abstract

The Effect of Varying High-Intensity Interval Training Style Warm-Ups on Hemodynamic, Power, and Flexibility Responses

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ABSTRACT

PURPOSE: The purpose of this study was to examine the effectiveness of high-intensity interval training (HIIT) style warm-up on hemodynamic, power, and flexibility responses. **METHODS**: Twelve male subjects (age: 24.15 ± 3.1 yr. & weight: 78.78 ± 16.83 kg) completed the study. On the first day, initial screening, anthropometric measures, and familiarization with testing procedures were completed. There were a total of 6 randomized testing sessions (separated by at least 48 hours.). The testing sessions were as follows: 3-min warm-up session with 20 sec work followed by 10 sec (C1), 3-min warm-up session with 30 sec work followed by 10 sec (C2), 5-min warm-up session with 20 sec work followed by 10 sec (C3), 5-min warm-up session with 30 sec work followed by 10 sec (C4), 8-min warm-up session with 20 sec work followed by 10 sec (C5), and 8-min warm-up session with 30 sec work followed by 10 sec (C6). The warm-up sessions included timed interval body weight squats. Hemodynamics (heart rate (HR) and systolic (SBP) and diastolic (DBP) blood pressure), a countermovement jump, and flexibility values were recorded before and after warm-up protocols. **RESULTS**: There was a significant duration*time interaction for flexibility ($p<0.01$) and vertical jump ($p=0.02$). Flexibility increased from pre to post for 3-min and 5-min warm-up conditions, however, decreased for 8-min warm-up conditions. Vertical jump increased for 3-min conditions and decreased for 5-min and 8-min conditions. There were significant duration main effects for HR ($p<0.03$); time main effects for HR ($p<0.01$), SBP ($p<0.01$), and DBP ($p<0.01$); duration*time interaction for HR ($p<0.01$) and intensity*time interaction for SBP ($p<0.04$). **CONCLUSION**: The findings of the study indicate that a 3-min duration of HIIT style warm-up may be enough to physically prepare individuals to improve flexibility and vertical jump. In addition, the data also suggests that the required/recommended duration for the warm-up to prepare body may be shortened with HIIT style warm-up. Future studies should compare and contrast the efficacy of varying work to rest ratio of HIIT style warm-up with other warm-up protocols to determine the most effective warm-up protocol.