

## Abstract

Stress is defined as a disruption in homeostasis and all attempts by the body to regain homeostasis. At the onset of stressful events the autonomic nervous system (ANS) and the hypothalamic-pituitary axis (HPA) are activated. However, chronic activations of these systems have been demonstrated to predispose individuals to hypertension, abdominal obesity, myocardial infarctions, sudden cardiac death, and have been associated with a negative mood state. High intensity training has been reported to induce physiological adaptations, normally associated with endurance training, and reduce stress. **Purpose:** To investigate the effect of high intensity interval training (HIT) on the physiological stress response, body composition, and mood state in healthy college-aged students. **Methods:** Twenty two participants (age,  $19.4 \pm 1.3$  years; height,  $167.2 \pm 7.7$  cm; weight,  $65.3 \pm 18.0$  kg) were randomized to a high intensity training group (HIT; n=12) or a no exercise control group (C; n=10). For the 10 day intervention period, the HIT group reported to the human performance lab to participate in training sessions on a cycle ergometer while the C group reported to the psychology lab to complete passive benign filler tasks that required the same amount of time invested as the HIT sessions. Before and after the 10-day intervention period, a Trier social stress test (TSST) was used to induce stress, a Positive and Negative Affect Scale (PANAS) was used to determine mood state, and body composition, heart rate variability (HRV), and salivary cortisol (before TSST, immediately after, 10 and 20 minutes after) were measured. **Results:** Salivary cortisol, HRV, body composition, mood state did not change as a result of HIT training ( $p > 0.05$ ). **Conclusion:** The primary finding of this study was that 10 days of HIT was not sufficient in eliciting physiological changes in autonomic function, HPA axis reactivity, body composition, or improving mood state.