ABSTRACT

THESIS: Hemostatic Adaptations Following a High-Intensity Interval Training Intervention in Healthy Men

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High intensity interval training (HIIT) is a novel mode of exercise training that has been shown to improve several components of health in various healthy and diseased populations. **Purpose:** The purpose of the present study was to examine hemostatic adaptations in healthy adult men following four and eight weeks of a HIIT intervention. **Methods:** Twenty-one healthy but sedentary men (age: 25 ± 5 yrs; BMI: 26.7 ± 6.2 kg/m2) volunteered to participate in the present study. Subjects completed eight weeks of HIIT that included three to six ‘all out’ Wingate tests three days/week. Overall blood coagulation was assessed at baseline, following four weeks, and following eight weeks by clotting times of activated partial thromboplastin time (APPT) and prothrombin time (PT), and plasma concentration of fibrinogen. Plasma was obtained from whole blood samples taken at rest. A repeated measures ANOVA was used to compare the overall coagulation
potential. Significance was set to p < 0.05. **Results:** There were no significant differences between resting heart rate, resting blood pressure, APTT (baseline: 43.0 ± 5.4; 4w: 42.7 ± 5.1; 8w: 44.2 ± 6.2), and PT (baseline: 13.0 ± 0.9; 4w: 12.9 ± 0.6; 8w: 13.1 ± 0.8), after 4w or 8w of HIIT. Fibrinogen concentrations significantly decreased from baseline to 4w (p < 0.05) and significantly increased from 4w to 8w (p < 0.05). **Conclusion:** Although beneficial fibrinogen changes were seen following four weeks of training, these findings were reversed after eight weeks. These observations suggest that HIIT may elicit improvements in coagulation potential after four weeks, but continued training may lead to elevated coagulation and/or inflammation via fibrinogen, which is recognized as a key regulator of inflammation and disease.