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### The Effects of Three Weeks of Mixed Interval Training on Fitness Markers: A Pilot Study

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**PURPOSE:** There are scientific and practical reasons for elucidating the minimal effective dose of exercise. High-intensity interval training (HIIT) has been shown to elicit significant improvements in fitness markers in as little as a few weeks. The purpose of this pilot study was to ascertain the magnitude of change in fitness markers from three weeks of six HIIT sessions. **METHODS:** Six collegiate men (3) and women (3) completed an incremental bicycle GXT before and after training. Testing consisted of three initial 5-min stages at 40, 85, and 120 W where blood lactate was measured, followed by a 10 W increase every 30-sec until volitional exhaustion. Heart rate, VO<sub>2</sub>, and RPE were measured throughout the test. Six bicycle HIIT sessions were performed over three weeks. Each 20-min HIIT session consisted of six randomly assigned sessions of 4X 30-sec, 8X 20-sec/10-sec, and 4X 2-min intervals, each completed twice. Data were analyzed for pre and post changes using a non-parametric Wilcoxon sign rank test. Data are presented as median (25%, 75% IQR). **RESULTS:** Subjects were 21 (20.0, 22.8) yo, 171.3 (161.4, 187.4) cm, and 72.6 (60.3, 97.2) kg. Pre and post training data reported include Max Power, VO<sub>2</sub> peak, 85 W – BLC, RPE, HR, respectively. Pre training showed 202.5 (168.8, 250) W, 34.0 (31.3, 41.3) ml.kg.min<sup>-1</sup>, 4.8 (3.9, 6.0) mM, 3.5 (3.0, 4.5) RPE, and 146.0 (136.0, 166.3) bpm. Post training changes were 227.0 (198.8, 283.8) W, 39.0 (32.4, 42.3) ml.kg.min<sup>-1</sup> (p= 0.5752), 4.0 (3.4, 4.5) mM (p= 0.1720), 2.5 (2.0, 3.0) RPE (p= 0.0248), 137.5 (122.5, 149.8) bpm (p= 0.2002). Five of six subjects increased their VO<sub>2</sub> peak and other markers. Relative change, pre and post, represented median improvements of 13.8% for max power and 7.6% improvement in VO<sub>2</sub> peak. **CONCLUSION:** This pilot study indicates that even just six sessions of mixed HIIT can result in modest improvements in fitness markers and a significant reduction in perceived effort at or near OLBA. **SIGNIFICANCE/NOVELTY:** This pilot work lends further support for continued research in the minimum effective dose of exercise. The model used in this research used mixed intervals of varying work and rest periods and was well tolerated among healthy adults. Further work is needed to develop minimal training regimens that show high exercise compliance.