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SPRINT INTERVAL TRAINING ON STATIONARY AIR BIKE SHOWS BENEFITS TO CARDIORESPIRATORY ADAPTATIONS WHILE BEING TIME-EFFICIENT

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Sprint interval training (SIT) refers to a group of brief intermittent exercises that are performed at maximal-effort intensity. Despite less volume and duration, SIT elicits cardiorespiratory adaptations similar to moderate-intensity continuous training (MICT). **PURPOSE:** To investigate the cardiorespiratory adaptations of high-volume MICT, and low-volume SIT protocols, including ultrashort-SIT (US), and short-SIT (SS), utilizing stationary air bikes. **METHODS:** Eighteen recreationally active females were randomly assigned to the three performance groups, MICT (n=6), US (n=5), and SS (n=7) to complete the intervention 3 days a week for 4 weeks. MICT protocol included 30 minutes of cycling at 75% of maximal heart rate reserve, while the US and SS sessions consisted of 3 sets of 8 intervals at all-out intensity. SS and US protocols were performed with 20 seconds of work:10 seconds of rest and 10 seconds of work:5 seconds of rest, with 5- and 2.5-minute recovery periods between sets, respectively. A ramp protocol was used before and after the intervention via cycle ergometer to assess aerobic performance. Absolute VO₂max (A-VO₂max) and time to exhaustion (TTE) were measured and analyzed with 2-way mixed factorial ANOVAs. Additionally, total work (TW) during 12 sessions were recorded and analyzed with one-way ANOVA. **RESULTS:** There were significant ($p < 0.05$) differences in TW (MICT: 1529.3 ± 271.4 cal., US: 687.2 ± 118.9 cal., SS: 1125.9 ± 89.7 cal.) between groups. While, all groups significantly ($p < 0.05$) improved A-VO₂max (MICT: 2124.5 ± 245.7 to 2425.3 ± 443.2 ml/min, US: 2224.4 ± 321.9 to 2451.9 ± 406.4 ml/min, SS: 2155.7 ± 249.4 to 2430.2 ± 412.9 ml/min), as well as TTE (MICT: 11:30 ± 01:11 to 12:29 ± 01:00 min, US: 12:39 ± 01:34 to 13:31 ± 01:30 min, SS: 11:47 ± 00:44 to 12:47 ± 00:39 min). **CONCLUSION:** Although there were significant group differences in TW, it is evident that the aerobic performance (i.e., A-VO₂max and TTE) was similarly improved in all groups. These findings suggest that performing SIT on a stationary air bike is valuable due to time-efficiency and cardiorespiratory adaptations. Furthermore, performing US at 10s:5s work-to-rest ratio can improve aerobic performance with a shorter time commitment compared to SS and MICT groups.