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10 or 30-s sprint interval training bouts enhance both aerobic and anaerobic performance.

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Abstract

We assessed whether 10-s sprint interval training (SIT) bouts with 2 or 4 min recovery periods can improve aerobic and anaerobic performance. Subjects (n = 48) were assigned to one of four groups [exercise time (s):recovery time (min)]: (1) 30:4, (2) 10:4, (3) 10:2 or (4) control (no training). Training was cycling 3 week(-1) for 2 weeks (starting with 4 bouts session(-1), increasing 1 bout every 2 sessions, 6 total). Pre- and post-training measures included: VO(2max), 5-km time trial (TT), and a 30-s Wingate test. All groups were similar pre-training and the control group did not change over time. The 10-s groups trained at a higher intensity demonstrated by greater (P < 0.05) reproducibility of peak (10:4 = 96%; 10:2 = 95% vs. 30:4 = 89%), average (10:4 = 84%; 10:2 = 82% vs. 30:4 = 58%), and minimum power (10:4 = 73%; 10:2 = 69%; vs. 30:4 = 40%) within each session while the 30:4 group performed ~2X (P < 0.05) the total work session(-1) (83-124 kJ, 4-6 bouts) versus 10:4 (38-58 kJ); 10:2 (39-59 kJ). Training increased TT performance (P < 0.05) in the 30:4 (5.2%), 10:4 (3.5%), and 10:2 (3.0%) groups. VO(2max) increased in the 30:4 (9.3%) and 10:4 (9.2%), but not the 10:2 group. Wingate peak power kg(-1) increased (P < 0.05) in the 30:4 (9.5%), 10:4 (8.5%), and 10:2 (4.2%). Average Wingate power kg(-1) increased (P < 0.05) in the 30:4 (12.1%) and 10:4 (6.5%) groups. These data indicate that 10-s (with either 2 or 4 min recovery) and 30-s SIT bouts are effective for increasing anaerobic and aerobic performance.

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