Active recovery (AR) is used in an attempt to improve subsequent performance in high-intensity intermittent exercise. The time between efforts seems to be an important factor to determine the success of this approach. However, we found only one study (Dorado et al, 2004) which considered the aerobic-anaerobic contribution as a result of AR or passive recovery (PR). Thus, the aim of this study was to determine the influence of time and activity performed during the recovery period on the aerobic and anaerobic energy yield, as well as on performance, during high-intensity intermittent exercise (HIT). Seven male physical education students participated in this study. Each subject was submitted to the following sessions: (a) an incremental exercise test to assess their anaerobic threshold (AT; 3.5 mmol·l⁻¹), maximal power output (Wmax) and VO2max; (b) VO2 measurement at rest and during five (40, 50, 60, 70 and 80%Wmax) submaximal exercises in order to establish the individual VO2-power relationship; (c) two blocks of two Wingate tests (2WT) separated by 5min of AR (AR5); (d) two blocks of 2WT separated by 5min of PR (PR5); (e) two blocks of 2WT separated by 15min of AR (AR15); (f) two blocks of 2WT separated by 15min of PR (PR15). Sessions (c) to (f) were conducted at random. During those sessions VO2 was measured continuously and blood lactate (LA) was measured at rest and 1, 3, 4.5 (for the 5min recovery), 6, 12, 14.5 min (for the 15min recovery) after the first 2WT and 1, 3, 4.5, 6 and 10 min after the last 2WT. Peak (PP) and mean power (MP) were measured on each WT. AR was conducted at 70%AT. Aerobic contribution was estimated from mean VO2 during each WT. Anaerobic contribution was calculated from accumulated oxygen deficit. The main results were: The first 2WT variables did not differ among procedures. In contrast, at the second 2WT, both PP (in W/kg: AR15 – 11.29±1.22; PR15 – 10.44±1.57) and MP (in W/kg: AR15 – 7.30±0.49; PR15 6.77±0.49) of the 15 recovery sessions were higher than the PP (in W/kg: AR5 – 9.90±1.28; PR5 – 9.17±1.07) and MP (in W/kg: AR5 – 6.20±0.67; PR5 5.88±0.31) of the 5min recovery sessions, respectively. There was no effect of recovery procedure on PP. MP was higher after AR than after PR in the 5min recovery sessions. During the 5min recovery LA was lower in the AR (5.4±1.37mmol/l) than in the PR (9.21±2.61mmol/l). When the intervals were 5min, there was no difference between AR (10.46±4.1mmol/l) and PR (10.8±3.46mmol/l) procedures on LA. After AR aerobic contribution was higher than after PR in the third WT. (WT1 – PR 19.24±3.99%, AR 17.86±3.92%); (WT2 – PR 26.95±6.68%, AR 25.63±6.37%); (WT3 – PR 26.57±7.65%, AR 33.55±7.8%); (WT4 – PR 32.60±8.60%, AR 32.01±7.21%). The principal finding of this study was that the AR performed in long periods enhanced the performance by increasing aerobic contribution accompanied by lowering LA concentration.

Keywords: Anaerobic Power, Recovery


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