2C01 Metabolic profile of high intensity intermittent exercises

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Purpose: We studied metabolic profile of high intensity intermittent exercises that consisted of various combinations of the duration of a bout, duration of a recovery period, and number of repetitions.

Methods: Seven healthy adult male (23 ± 1 yrs) performed 6 different intermittent exercises. The protocols were as follows; bouts of 5s or 10 s carried out at the intensity of 151(± 14)%$\dot{V}$O2max, which would produce exhaustion in 1 min, were respectively repeated 12 or 5 times separated by 3s, 5s or 10s recovery. Accumulated oxygen uptake (AOU), accumulated oxygen deficit (AOD) during the exercise bouts and excess post-exercise oxygen consumption (EPOC) in the recovery periods were determined.

Results: When the AOU and AOD of the only exercise bouts were compared, no significant differences were observed among the protocols. EPOC increased depending on the total recovery duration, and almost 70% of AOD was recovered by EPOC in the protocol with the longest recovery duration (5s bout separated by 10s recovery).

Discussion: These results suggest that metabolic response during intermittent exercise would not be altered by the protocols that a short bout with a short recovery period (<10s) are repeated and that EPOC and thus the recovery of the AOD during the intermittent exercise would increase dependent on the total recovery duration.

Keywords; intermittent exercise, oxygen deficit, EPOC, metabolic profile

2C02 Relationships between blood lactate response to incremental step test and World Junior Rowing Championships results.

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The purpose of this study was to examine relationships between blood lactate response to incremental step test and World Junior Rowing Championships results.

Japanese male representatives of World Junior Rowing Championships for the past ten years (1992-2001) performed incremental step test (IST) using rowing ergometer 1-2 month(s) before the regatta. Intensity corresponding to IST-end (ISTend-W) and 4mM of blood lactate (La4mM-W) were calculated using lactate performance curve. Rowers were divided in two groups that ranked better than 12th place (Group A) and lower than 13th place (Group B). Height, body weight, La4mM-W and ISTend-W were compared between these groups.

La4mM-W and ISTend-W were significantly higher in Group A than in Group B. Height and body weight showed no differences between these groups.

It was concluded that rowers who perform better at incremental step test using rowing ergometer (higher La4mM-W and ISTend-W) are likely to get better results at World Junior Rowing Championships.

<Keywords>
rowing, lactate, step test, junior