HEART RATE AND OXYGEN UPTAKE RECOVERY AND THE LEVEL OF AEROBIC CAPACITY IN MOUNTAIN BIKERS

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Abstract

Introduction. Since mountain biking involves exercise of varying intensity, competitive performance may be affected by the rate of recovery. The aim of the current study was to determine whether maximal oxygen uptake is associated with the rate of heart rate and oxygen uptake recovery in mountain bike athletes. ***Material and methods.*** The study examined 29 mountain bikers, including members of the Polish National Team. These athletes specialised in cross-country Olympic (XCO) racing. After undergoing a graded stress test on a cycle ergometer, the subjects were divided into two groups: G1, consisting of athletes with higher aerobic capacity (n = 12; VO_{2max} > 60 ml·kg^{-1}·min^{-1}), and G2, comprising athletes with lower aerobic capacity (n = 17; VO_{2max} < 55 mL·kg^{-1}·min^{-1}). Heart rate and oxygen uptake recovery was measured after the graded stress test in a sitting position. ***Results.*** HR_{max} values did not differ significantly between the two groups. $HR_{1'}$, $HR_{2'}$, and $HR_{4'}$ values recorded for G1 were statistically significantly lower compared to those achieved by G2. $\%HR_{1'}$, $\%HR_{2'}$, $\%HR_{4'}$, and $\%HR_{5'}$ values were also significantly lower in G1 than in G2. No significant differences were found in oxygen uptake during recovery ($VO_{2\text{-}1', 2', 3', 4', 5'}$) between the two groups. Significantly lower $\%VO_{2max\text{-}1'}$, $\%VO_{2max\text{-}2'}$, and $\%VO_{2max\text{-}5'}$ values were observed in G1 compared to those in G2. No significant correlations were found between VO_{2max} per kilogram of body mass and the recovery efficiency index in either group. There was, however, a statistically significant correlation between VO_{2max} and the recovery efficiency index (R = 0.52) in the entire group of athletes (n = 29). ***Conclusion.*** The study showed that the work capacity of mountain bike athletes was associated with the rate of heart rate and oxygen uptake recovery.

Key words: maximal oxygen uptake, recovery, heart rate recovery, mountain biking