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Comparison of two different ways of active recovery after a maximal 500m in Hungarian young kayakers.

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INTRODUCTION:
Efficient lactate clearance after maximal exercise is a key in competition. Athletes in canoe sprint reach high lactate values, therefore, an effective lactate clearance method is fundamental to restore homeostasis. Active recovery has been indicated more effective in blood lactate clearance than passive recovery (1,2). However, there are differences in the efficiency of the active recovery whether using the same or different muscles from those which are mainly used during the specific sport activity (3). The aim of this study was to compare the effectiveness of active recovery on water and on cycle ergometer.
METHODS:
Fourty-one (21 boys; 17 girls; 16±1 ys) well-trained kayakers (part of the national team of the Olympic Hopes 2022) performed a maximal 500meter on flat water. Participants were randomly divided into 3 groups (A,B,C). A: active recovery by kayaking on water. B: active recovery on cycle ergometer (Precor Spinner Ride, Spinning Hungary). C: control group, passive recovery. Athletes in A and B group had previously performed a step test to determine their individual maximal lactate clearance heart rate zone. The recovery phase lasted 20 minutes and athletes of A and B group had to remain in their individually determined heart rate zone. Heart rate was continuously monitored during and after the race (HRmax, HR5', HR10', HR15', HR20') (Garmin HRM-Dual). Blood lactate was measured after the race (Lamax) (Lactate Scout, EKF Diagnostics, Germany) and during the recovery in every 5 minutes (La5', La10', La15', La20'). After a normality test, one-way ANOVA or Friedman test were used to detect changes between the different recovery methods. Significancy was set at $p<0.05$.
RESULTS:
There were no significant differences between the maximal lactate and maximal heart rate values in the three groups (A:11.93±1.86, B:11.95±1.76, C:11.52±2.21 mmol/L and A: 189±6, B:183±24, C:190±5 bpm/min, $p>0.05$). There were significant differences during the recovery in the lactate values between the kayak and passive groups (A vs C: La5': 7.85 vs 10.21, La10': 5.52 vs 8.99, La15': 4.01 vs 7.40, La20: 3.40 vs 6.31 mmol/L) ($p<0.05$). At the end of the recovery, we also found significant differences between the cycling and the passive group (La20': 4.27 vs 6.31 mmo/L). The average heart rate during the recovery was the highest on water, the lowest in the passive group and in between on the cycle ergometer.
CONCLUSION:
According to the results of the study, the on-water kayaking is more effective to eliminate the blood lactate than the use of cycle ergometer. However, individual differences in the efficiency of lactate elimination were observed in each group.
1.Greenwood (2008), 2. Menzies (2010) 3. Mika (2016)

Topic: Training and Testing

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