

INTERVAL TRAINING FOR SPRINT RUNNING: EFFECTS OF THE DURATION OF THE PAUSE ON RUNNING KINEMATICS AND BLOOD LACTATE

**Monica M. V. Brochado, Eduardo Kokubun,
Universidade Estadual Paulista, Rio Claro, Brazil**

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INTRODUCTION: The use of interval training for improving exercise performance reduces fatigue and enhances the muscular work done. That is why it has been recommended for sprint training. When studying high intensity, short term exercises of about 10 s, there were found to be decreases in performance and increases in lactate concentrations, specially when the recovery time was short (30 to 60s). Biomechanical changes due to fatigue have been studied mostly in long-distance running. The present work was designed to verify the possibility of identifying changes in running kinematics and blood lactate during sprint running with different recovery times during interval type training.

METHODS AND PROCEDURES: Six individuals executed 3 series of 5 x 50m sprints at maximum velocity, with pauses of 30, 60 and 120 s respectively. For each individual there were collected: a) video images of the first, third and fifth sprint, using the panning technic through the complete course, with reference targets each 5 m. Velocity, stride length and rate were calculated for each 5 m section; b) blood samples for lactate analysis after the first, third, fifth sprint and at 1, 3, 5, 7 and 10 minutes of recovery.

RESULTS AND DISCUSSION: With 30s pauses, there were decreases in velocity and stride rate and increases in stride length through the 5 repetitions, while during the 120 s pauses these differences were attenuated. There were no significant differences between the lactate concentrations at the different pause systems. The stride rate was found to be the most sensible variable for experimental conditions among those studied. The increases observed in stride length were sufficient to compensate the decreases in stride rate, thus maintaining the velocity, only when fatigue was not severe. At the 5th sprint, with 30s pause, stride length returned to values observed at the 1st sprint, thus reducing velocity to a greater extent.

CONCLUSIONS: The fact that we could not identify significant changes in blood lactate concentrations between the different series of sprints may suggest that lactate concentration measurements are not efficient indicators of fatigue in this kind of exercise, as they are for others. Therefore, stride rate could be usefull for identifying fatigue when there are no significant decreases in velocity or changes in blood lactate concentrations.