

**Comparison between critical speed and maximal lactate steady state
in amateur distance runners #37**

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The purpose of this study was to compare maximal lactate steady state (MLSS) and the critical speed (CS) in distance runners. Six male athletes were submitted to the CS test, to linear regression of the distances (800, 1.500, 3.000 and 5.000m). The CS was determined by the angular coefficient of the linear regression (Distance x Time). The predicted workloads for the MLSS determination were: 103; 100 and 98% of the CS, randomized and in a continuous way in subsequent days. In MLSS test, the athletes run for 30 min, and it was collected blood samples (25 μ L) at 10th and 30th min, to determine the lactate concentration (YSI 1500 sport). It was determined MLSS the non lactate variation higher than 1.0 mmol/L between the 10th and 30th minute. The MLSS occurred for 5 athletes on the 100% intensity of CS (15.1 \pm 1.5 Km/h) and for 1 athlete on the 95% (14.3 Km/h). At 100% of CS, the MLSS concentration was: rest lactate (RL)= 1.0 \pm 0.3 mmol/L; 10thmin= 3.28 \pm 0.64; 30th 3.92 \pm 1.14. At 103% of CS, the MLSS concentration was: RL= 1.10 \pm 0.41 mmol/L; 10thmin= 3.06 \pm 1.44; 30th 4.12 \pm 1.59. The MLSS occurred at 100% of MLSS. These results showed that the CS is a trustful test to predict the MLSS in distance runners with MLSS velocity at 15Km/h.

Key words: maximal steady state lactate, critical speed, distance runners.