SUPPORTING A MADER TEST MODIFIED ON 200m STROKE DISTANCE IN ITALIAN AGONISTIC SWIMMERS

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INTRODUCTION

Training swimmers at intensities next to the anaerobic threshold requires a previous assessment of their corresponding swimming speed. That speed can be set up in the curve velocity/lactate obtained through several swims (where B[L-a] have to be accurately surveyed) or through simpler procedures (Mader test) [1]. Due to a practical issue, Italian trainers use to simplify the Mader test decreasing the speed of the first swim (performed at 2 to 3 mmol/L of B[L-a]) instead of 4 mmol/L) and reducing the test distance (200m instead of 400m) [2]. Anyway, the corresponding pace at 4 mmol/L B[L-a] calculated from these data would be quite precise to allow a training at the threshold speed.

AIMS

The aim of this study was to verify in Italian agonistic swimmers whether the modified Mader test could be an useful tool to setting the pace at the anaerobic threshold and to examine the differences between gender.

METHODS

10 male subjects (age 17.5±0.2, height 181.2±4.7 cm, weight 70.1±1.8 kg) and 10 female subjects (age 14.7±0.2, height 160.7±3.2 cm, weight 50.6±2.5 kg), national level and specialising in 200m of the four strokes, performed two 200m tests in their preferred stroke: the first at a sub-maximal speed (2 to 3 mmol/L B[L-a]), the second at the maximal speed after 20 min of active rest. An ear blood sample was taken 3 minutes after each swim. The velocity at the anaerobic threshold (set at 4 mmol/L B[L-a]) was calculated for each athlete. Subjects were then asked to perform at that speed 5 repeated 200m whose B[L-a] were collected in the same previous way.

A Two-sample t-test assuming equal variance (p=0.05) was applied to evaluate the differences between the mean B[L-a] of the 5 repeated swims and the expected value set at 4 mmol/L.

A Two-sample t-test assuming different variance (p=0.05) was applied to evaluate the differences in B[L-a] between gender.

RESULTS

No significant differences (p>0.05) were found between the mean of the B[L-a] collected in the 5 repeated swims performed at the calculated threshold speed and the expected 4 mmol/L B[L-a] both in male (3.78±0.82 mmol/L) and in female subjects (3.78±0.43 mmol/L).

No significant difference (p>0.05) was found in the B[L-a] at the velocity at the anaerobic threshold between male and female subjects.

CONCLUSIONS

The results suggest that the test of Mader modified in distance and in the speed of the first swim is a simple and suitable way to lead a training at the anaerobic threshold speed. This method can be employed both in male and in female subjects.

REFERENCES


Keywords: Anaerobic Threshold, Swimming, Training and Testing