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Comparison of Three Tests for Assesing the Aerobic Aptitude to the Elite Swimmers

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Abstract

We have made a study on a sample of 15 swimmers, from the national team of Tunisia, of different age groups, 9 boys and 6 girls, in order to compare three tests of aerobic skills assessment. We chose VAMEVAL test, then we compared with the 2000m and 400m tests, two tests used internationally for estimating VAM. We have noticed that the speed of the 2000m test is not significant compared to VAMEVAL test, while for the 400m test it is significantly correlated with VAM for girls but not for boys. We have also noticed that there are significant differences between girls and boys when speaking of biomechanical parameters that are necessary to assess technical efficiency swimmers during the three tests.

Keywords: aerobic aptitude, VAMEVAL, 400m test , 2000m test;

1. Introduction

In order to reach performance in sport, planning and programming will give an overview on implementation, will optimize results (intermediate and final) taking into account the effects of training cycles, progress over time depending on the age and level of the athlete, and alternating periods of work and regeneration (overcompensation) to avoid the risk of under and over training.

The relationship between the amount of training and performance is often determined empirically from simplified criteria such as the number of training hours, the number of kilometers traveled in sessions or by the

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relative intensity of the sessions or performed exercises, which is directly related to the maximum oxygen consumption, but is not enough to obtain high level performance.

The quantification of the training load has long been made empirically by referring to the competition performance. In recent years, tests to assess maximal aerobic speed have been established. These tests have been validated but often require technical expertise and assessment tools that coaches do not have at their disposal. It is for all these reasons we conducted a comparison test reference for the evaluation of the maximum aerobic speed (VAM) the VAMEVAL**,** a rectangular 2000m test used by the Tunisian national team and 400m test used by our national team.

We will compare the maximum or average speeds reached, distance per cycle and the index of households observed at each test.

2. Goal

Our goal is to look for a validated test available for the coach that would indicate the different parameters in order to monitor training costs, and facilitate the task of the trainer and deduct the training areas.

2.1. Hypothesis

We assume that one of two tests can give very similar results to the VAMEVAL values. The aim is to offer the coach an alternative to VAMEVAL test under scientific conditions that is to say, with differences both in terms of the speed and of technical efficiency below 5%.

In this context, we try at first to define the concept VAMEVAL, then we will take a second time on the tests used in swimming, we will see which test is more reliable in predicting a speed close to the VAMEVAL in training by comparing speeds with the various tests and the test we considered the benchmark VAMEVAL.

3. Materials and methods

3.1. *Subjects*

Our subjects group consists of seventeen swimmers belonging to the Tunisian National Team swimming, 9 males and 6 females (Table 1). The protocol was submitted to the medical commission of the Tunisian Swimming Federation and after written and informed consent of all subjects, the Committee has agreed to the implementation of our protocol.

All subjects performed all selected tests in the training of the national swimming team at the Rades Olympic Basin (50 meters) swimming sessions. Our testing began February 6, 2009 and ended on 20 March 2009. All sessions took place in the afternoon.

Table 1 : Characteristics of the study subjects.

	Girls	Boys
Number	6	9
Age	15±3	16±3
Weight	62,3±6,4	73,5±5,5
Height	166,7±7,2	179,6±5,8