



SPEED-DEVELOPING STRATEGIES IN JUNIOR SWIMMERS

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Abstract: *The experiment was conducted in the pre-competitive period, when the preparation is focused on the solicitation of the anaerobic glycolysis, as well as on the system of „explosive” energy provision, the alactacid one.*

From this perspective, the present paper attempts to bring about a number of improvements in the preparation of sprint swimmers in our country, while taking into account the latest novelties that have emerged in international swimming.

Key word: *exercise, experiment, swimmers, speed, training, optimization, method*

THEORETICAL AND METHODOLOGICAL BASES OF RESEARCH

Obtaining highly valuable results in sports can no longer be conceived without a rationalization of the entire process of preparation, according to well-established requirements for each level preparation.

From this perspective, the present paper attempts to bring about a number of improvements in the preparation of sprint swimmers in our country, while taking into account the latest novelties that have emerged in international swimming.

These novelties are mostly related to the introduction of the other strokes, apart from the “classic” one of 50-meter freestyle - the 50-meter butterfly, backstroke and breaststroke into the program of the Olympic Games.

Therefore, the choice of the subject „Optimization of speed-developing strategies in junior swimmers” is as topical as possible in the context of the new FINA regulations, especially considering the fact that only a general approach of the matter has been made in the national literature of expertise.

AIM OF THE WORK

The aim of the work consists of re-thinking and re-structuring traditional strategies by introducing supporting materials and devices, with a view to developing speed on short distances.

OBJECTIVES OF THE WORK

- The study of specialized materials in national and foreign literature regarding the topic in question;
- The elaboration, commonly agreed upon by the author and the scientific advisor, as well as other swimming experts, of preparation programs based on specific and unspecific technical and physical preparation;
- The realization of a study regarding the objectification of the application of these programs to a sample group of junior swimmers;
- The introduction of special technical and physical preparation programs into the swimmers’ training.

DESCRIPTION OF THE TESTS AND MEASUREMENTS CARRIED OUT

On conducting this experiment, I used a device conceived by myself, endowed with a cord. The cord is attached, by means of a belt, to the swimmer’s waist, and the other end to the start block; a transducer of force is interlaid between these two fastening. Thus, the aim of the application is to acquire the forwarding force in an electronic format, manifested by a swimmer in real conditions, in the pool.

The main objectives consist of:

- increasing the level of force;
 - optimizing the arms’ length of traction;
 - rendering the arms’ parameters of action symmetric;
 - correcting the parameters intervening in the specific motion (force of traction, time of action, time of return).
- I applied the cord exercise on Tuesdays and on Fridays, according to the following exercise: 2 series with 3 repetitions in a lapse of time of 30 sec, using a break of 1min after each repetition and 3 min after each series. The solution comprises two components, a hardware one and a software one. The experiment was conducted in the pre-competitive period, when

the preparation is focused on the solicitation of the anaerobic glycolysis, as well as on the system of „explosive” energy provision, the alactacid one.

At the same time, I conceived, for speed development, a factorial experiment in which the independent variable is represented by the exercise 2 x (3 x 12, 5 m-crawl), whereas the dependent variable - the alteration of the speed of swimming the contest distance of 50 m and 100 m crawl respectively. The exercise I administered, in the form of the independent variable, to the experiment group, consisted of traversing the distance of 12,5 m in 2 series of 3 repetitions, departing at 45sec, with 3 minutes of active break between the series - swimming 150-200 m crawl.

The exercise was applied twice a week (on Mondays and on Thursdays), as it is not recommendable at this age, to make an abuse of speed-developing exercises.

HYPOTHESES

- We believe that speed in short swimming events will consistently improve if we identify, within traditional methods and means, the underlying principles of the speed-developing mechanism, and apply them to new working conditions;
- If, in instructing juniors, we prevalently employ explosive sprints, swimming with a launched start of 12.5 m crawl and using the cord, the speed indicators will substantially increase.

THE STATISTICAL-MATHEMATICAL METHOD

I made use of the following statistical-mathematical procedures, according to the formulas presented by Tudós S., Thomas J.R., Nelson J.K. (1997), also employing the program Microsoft Office Excel 2000 and 2003 and the statistical analysis program S.P.S.S. 10.0 for Windows.

The statistical indicators employed were the following:

- arithmetic mean;
- absolute mean deviation;
- variability quotient;
- dispersion.

PERSONAL CONTRIBUTIONS TO THE OPTIMIZATION OF THE SPEED EDUCATION METHODOLOGY

1. emphasizes the average force in the initial testing of the group. We can observe that the average force oscillates between 6 kg force of traction and 10 kg force of traction, the difference between the minimum value and the maximum one being relatively small. We can say that, in terms of average force, as well as of force of traction, the swimmers are relatively equal, the differences being rather technical (method-related) and approach-related;

2. shows that, in terms of mean deviation, the differences are more significant per group, suggestion out the fact that the proper method is individualized and strictly oriented by each swimmer;

3. Implicitly, the variability coefficient is relatively higher, since this group is not a homogenous one;

4. By means of this graphic we try to show the dispersion of the values calculated per group and we observe that the variability coefficient is much different from one swimmer to another;

5. In comparison with the initial testing, following the work program proposed, the average force has increased and is



6. relatively equal among swimmers. The swimmers manage to control the force of traction much better and to adapt to a much faster task;

7. Even though, in terms of average force, there is an increased homogeneity among the swimmers, the mean deviation is almost as high as in the initial testing. Once again, the fact that the swimmers adapt differently according to the task is emphasized;

8. In comparison with the initial testing, the variability coefficient is lower, pointing out the swimmers' adaptation to the given task.

CONCLUSIONS

1. This method offers the possibility of diagnosing the specific capacities of each swimmer in a relatively short period of time, considering the fact that it leads to a quick stratification of the collectivity to which it is applied, which facilitates the adaptation of individual training.

2. The present work wishes to an exposition of the role of information in alternative and complementary training methods, in generally, and with a specific application to swimming.

3. Information lies at the basis of all knowledge processes, regardless of the field of work. In sports performance, information is becoming increasingly important, starting from the genetic, biochemical, physiological information and continuing with the information given and supported by elements of technology, structure and methodology, which tend to gain more and more ground in sports training.

4. The reconstruction of this trajectory has allowed, in a subsequent step, the plotting of the graphics of displacement, velocity and acceleration with respect to time.

5. On the basis of the gathered information, a correlation was achieved between the position of the swimmer's arm and the velocities and accelerations developed in each moment of a complete cycle.

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