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THE PREDICTION OF COMPETITIVE RESULT FOR COMPETITIONS IN TERMS OF THE TEST PROGRAMS IN COMPETITIVE SWIMMING

This article describes the content of test programs, which is of practical importance in the training process for predicting competitive results in competitive swimming. The experiment involved 24 athletes of the III-d grade and above level II. The study was conducted in the youth athletic center № 3 in Lutsk and in the sports club of Lutsk National Technical University in the 2022–2023 academic year. Based on the analysis of practical experience, we have developed test programs for swimming in full coordination on the arms and legs for swimmers from the third to the first athletic title, freestyle and specializing in short/medium/long courses. There are sample calculations of controlled testing in full coordination for athletes specializing in 1500 meters freestyle. Testing: 15 x 100 meters freestyle and an average speed is 90–95%. The rest period between the distances is 1 min. 30 seconds. The calculations were carried out in the following way: every hundred meter race and the time was recorded in the same sequence as the athlete was swimming. The figures obtained in seconds were summed up and the total amount was initially 1135,09 seconds. 60,25 seconds were added. This is the time of correction for the result for 1500 meters freestyle. So, the total time in seconds 1195,34 was transferred into minutes and seconds and obtained 19,55,34. Thus, the time 19,55,34 corresponds to the level of physical fitness of an athlete at this distance at the time of testing. The developed test programs made it possible to determine the physical fitness of athletes, their readiness for competition. This gave us the opportunity to predict the competitive result, to alternate work and rest during the lesson, to make changes in the content of the annual training cycle or its periods.

Key words: prediction, swimmers, competitions, test programs, result.

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1. STATEMENT OF THE PROBLEM IN A GENERAL APPEARANCE AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

Forecasting today discover as a way to predict the development of sports achievement. The main task of forecasting is to identify the probabilistic development of a particular phenomenon. Sports forecasting is an important task for athletes, coaches and specialists. Competitive results are the most common indicators of fitness [2, 3, 10, 11]. Due to the preparation and participation of athletes in competitions, test programs play a special role [1, 8, 9]. In order to achieve high sports results, young swimmers must show maximum efforts for successfully solving problems in the process of sports improvement [7].

2. ANALYSIS OF LATEST RESEARCH AND PUBLICATIONS

At the present stage of the development of sports and sports science, an example of the integration of modern sciences, which underlies the similarity of the structure of the internal functioning of objects, is the general theory of training athletes [5; 7].

Today, the theory of training athletes, based on methodology of integrative approaches and possibilities of related ones disciplines, allows to provide such systematization of knowledge, characterized by functional completeness and without contradictions, allows to obtain the amount of knowledge accumulated in the theory of sports training, physiology, biochemistry, morphology, psychology etc [1; 8].

The general theory of training athletes in the Olympic sports are influenced by a number of general scientific disciplines and theories. Areas of management and control of athletes training, their selection and orientation, modeling and forecasting integrate an industry of knowledge

that has been intensively developed over the last two decades. This is due to the manifestation of the general trend and objectification of the system of training athletes, implementation the advancement of scientific and technological progress, using the opportunities of general scientific disciplines, such as cybernetics, system approach, operations research, etc., search for reserves improving the system of training athletes [15; 20].

In this regard, the formation of a coherent knowledge system requires management and control, selection and orientation, modeling and forecasting as one of the key areas in the study of athletes training theory [19].

The scientists Ceseracciu E., Sawacha Z., Fantozz, S., Cortesi M., Gatta G., Corazza S., Cobelli C. [4], Hlukhov, I.H. [6] paid much attention to test programs in the system of swimmers' long-term training.

3. SELECTION OF PREVIOUSLY UNSOLVED PARTS OF THE GENERAL PROBLEM TO WHICH THIS ARTICLE IS DEDICATED

Despite the relevance of the issue discussed in the article, there is a problem associated with the insufficient number of test programs that are of practical importance in the training process for predicting sports results in competitive swimming.

4. FORMULATION OF THE PURPOSES OF THE ARTICLE

The purpose of the study is to present the content of the test program, which has practical significance in the training process, for predicting sports results in sports swimming.

Participants: the experiment involved 24 athletes of the III-d grade and above level II .at the age of 18 - 20 years.

Procedure: the study was conducted in the youth athletic center № 3 in Lutsk and in the sports club of Lutsk National Technical University in the 2022–2023 academic year.

Instruments: informed consent was obtained from all participants to participate in this experiment. Organization of the study: swimmers swam the following distances: 25 m, 50 m, 100 m, 200 m, 400 m, 800 m, 1500 m. The above tests are really used in the study. The following methods were used in the work: the analysis of qualifying literary sources, testing, the methods of mathematical statistics.

5. OUTLINE OF THE MAIN MATERIAL OF THE RESEARCH WITH A FULL JUSTIFICATION OF THE OBTAINED SCIENTIFIC RESULTS

Based on the analysis of practical experience, we have developed test programs for arm to leg coordination swimming for swimmers from the III-rd to the I-st athletic title, freestyle and specializing in short/medium/long courses. When developing test programs, we were guided by certain general provisions: check analysis should be carried out under the same conditions; testing should be available to all swimmers, regardless of technical and physical fitness; each test should have a measurement in objective indexes (seconds, minutes, the average speed of passing the distance on a percentage base for the proposed training work, amount of repetition, rest period) [12, 13].

Test programs for swimming in full coordination

1. 60 x 25 m, the average speed 80 – 90 – 95 %, rest period 20 s., or 6 x (10 x 25 m) rest period between courses 20 s., between segments 2 min., the average speed 85 – 90 %.

2. 30 x 50 m, the average speed 80 – 90 – 95 %, rest period 45 s., or 3 x (10 x 50 m) rest period between courses 45 s., between segments 2 min. 30 s., the average speed 85 – 90 %.

3. 20 x 75 m, the average speed 80 – 90 – 95 %, rest period 60 s., или 2 x (10 x 75 m) rest period between courses 60 s., between segments 3 min., the average speed 85 – 90 %.

4. 15 x 100 m, the average speed 80 – 90 – 95 %, rest period 1.30 s., or 3 x (5 x 100 m) rest period between courses 60 s., between segments 3 min., the average speed. 85 – 90 %.

5. 10 x 150 m, the average speed 80 – 90 – 95 %, rest period 2 min.

6. 7 x 200 m, the average speed 80 – 90 – 95 %, rest period 2.30 s. – 3 min. + (100 the average speed 95 %).

7. 6 x 250 m, the average speed 80 – 90 – 95 %, rest period 3 – 3 min. 30 s.

8. 5 x 300 m, the average speed 80 – 90 – 95 %, rest period 3 – 4 min.

9. 4 x 350 m, the average speed 80 – 90 – 95 %, rest period 3.30 s. – 4 min. + (100 the average speed 95 %).

10. 3 x 400 m, the average speed 90 – 95 %, rest period 4 – 5 min. + (6 x 50 the average speed 95 %, rest period 45 s. – 2 min.).

11. 3 x 450 m, the average speed 80 – 90 – 95 %, rest period 4 – 5 min. + (6 x 25 the average speed 95 %, rest period 1 min.).

12. 3 x 500 m, the average speed 80 – 90 – 95 %, rest period 5 – 6 min.

13. 2 x 600 m, the average speed 80 – 90 – 95 %, rest period 7 min. + (150 + 100 + 50 m the average speed 95 %, rest period 1 – 2 min.).

14. 2 x 700 m, the average speed 80 – 90 – 95 %, rest period 6 – 7 min. + (2 x 50 m, the average speed 95 %, rest period 30 sec. – 1.30 sec.).

15. 800 m, the average speed 80 – 90 – 95 %, rest period 8 min. + (7 x 100 m, the average speed 95 %, rest period 30 sec. – 3 min.).

16. 1000 m, the average speed 80 – 90 – 95 %, rest period 10 min. + (10 x 50 m, the average speed 95 %, rest period 1.30 sec.), or 3 x 1000 m the average speed 80 – 90 %, rest period 10 – 15 min.

17. 1200 m, the average speed 80 – 90 – 95 %, rest period 10 min. + (12 x 25 m, the average speed 95 %, rest period 30 sec. – 1.30 sec.).

18. 1400 m, the average speed 80 – 90 – 95 %, rest period 10 min. + (2 x 50 m, the average speed 95 %, rest period 45 sec. – 2 min.).

19. 1500 m, the average speed 80 – 90 – 95 %, or scheduled time swimming.

20. 2 x 1500 m, the average speed 80 – 90 – 95 %, rest period 10 – 15 min.

21. 750 + 375 + 375 m, the average speed 80 – 85 %, rest period 1.15 sec. + 40 sec., 90 – 95 %, rest period 7 min. + 4 min.).

22. 375 + 375 + 375 + 375 m, the average speed 90 – 95 %, rest period 3 min.

23. 800 + 400 + 200 + 100 m, the average speed 80 – 85 %, rest period 5 + 3 + 2 min., 90 – 95 %, rest period 8 + 4 + 2 min.

24. 4 x 200 m, or 8 x 100 m, the average speed 80 – 85 %, rest period 30 – 45 sec., 90 – 95 %, rest period 2 – 3 min.

25. 375 + 200 + 175 m, the average speed 80 – 85 %, rest period 40 + 20 sec., 90 – 95 %, rest period 3 min. + 2 min.

26. 2 x 200 m, the average speed 80 – 90 – 95 %, rest period 3 min., or 30 – 45 sec.

27. 4 x 100 m, the average speed 80 – 90 – 95 %, rest period 3 min., or 30 – 45 sec.; 20 sec.

28. 200 + 2 x 100 m, the average speed 80 – 90 – 95 %, rest period 3 + 2 min., or 20 – 15 sec.

29. 100 + 2 x 50 + 4 x 25 m, (3 x 100 m), the average speed 80 – 90 – 95 %, rest period 3 min., or 30 sec.

30. 100 + 2 x 50 m, the average speed 80 – 90 – 95 %, rest period 3 min. + 1 min., or 30 sec.

31. 100 + 50 + 2 x 25 m, the average speed 90 – 95 %, rest period 3 min., or 25 sec.

32. 4 x 50 m, the average speed 90 – 95 %, rest period 3 min., or 30 – 45 sec., 5 + 5 + 5 sec.

33. 50 + 2 x 25 m, the average speed 90 – 95 %, rest period 3 min., or 30 – 45 sec., 5 – 10 sec.

34. 4 x 25 m, 8 x 25 m, the average speed 80 – 90 – 95 %, rest period 3 min., or 30 – 45 sec., 5 – 10 sec.

Table 1 shows test programs for swimming on the arms and legs.

Table 1

Test programs for swimming on the arms and legs

№	Number of repetitions		Rest time (m. ', s. ")	Distance (m)	Swimming intensity (% of maximum)
	on hands (m)	on foot			
1	4 x 25	4 x 25	30 – 45"	50, 100	80 – 90 – 95
2	8 x 25	8 x 25	1'	50, 100, 200	– " –
3	16 x 25	16 x 25	1'30"	400	– " –
4	32 x 25	32 x 25	1'30"	800	– " –
5	60 x 25	60 x 25	1'45"	1500	80 – 90 – 95
6	2 x 50	2 x 50	1'30"	50, 100	– " –
7	4 x 50	4 x 50	2'	50, 100, 200	– " –
8	8 x 50	8 x 50	2'30"	400	– " –
9	16 x 50	16 x 50	3'	800	80 – 90 – 95
10	30 x 50	30 x 50	3'30"	1500	– " –
11	2 x 100	2 x 100	1'30"	100, 200	– " –
12	4 x 100	4 x 100	2'	400	– " –
13	8 x 100	8 x 100	2'30"	800	80 – 90 – 95
14	15 x 100	15 x 100	2'	1500	– " –
15	2 x 200	2 x 200	3' – 4'	400	– " –
16	4 x 200	4 x 200	3' – 4'	800	– " –
17	7 x 200 + 100	7 x 200 + 100	3' – 4'	1500	80 – 90 – 95
18	2 x 400	2 x 400	5' – 6'	400, 800	– " –
19	3 x 400 + 200 + 100	3 x 400 + 200 + 100	5' + 3'	1500	– " –
20	800	800	7'	800	– " –
21	1500	1500	10' – 15'	1500	80 – 90 – 95

For test swimming programs in full coordination modifications are taken into account

about forecasted competitive result for every swimming course (Table 2).

Table 2

Indicators of taking into account the speed delay when passing a corner when cornering, technical errors

Distance, m	Result adjustment, s
25	1,75
50	2,25
100	3,25
200	6,25
400	12,25
800	24,25
1500	60,25

Table 3 reflects numerical corrections for mathematical calculations according to the level of sportsmanship (athletic title) and courses for test programs swimming on the arms and legs.

There are sample calculations of controlled testing in full coordination for athletes specializing in 1500 meters freestyle. Testing: 15 x 100 meters freestyle and an average speed is 90–95%. The rest period between the distances is 1 min. 30 seconds. The calculations were carried out in the following way: every hundred meter race and its time were recorded in the same sequence as the athlete was swimming.

The figures obtained in seconds were summed up and the total amount was initially 1135,09 seconds. Additionally 60,25 seconds were added. This is the time of correction for the result for 1500 meters freestyle (Table 2). So, the total time in seconds 1195.34 was transferred into minutes and seconds and obtained 19,55,34. Thus, the time 19,55,34 corresponds to the level of physical fitness of an athlete at this course at the time of testing. We check the time indicator 19,55,34 during the course swimming according to the study protocol.

Table 3

Indicators of numerical calculations for different levels of sportsmanship

The level of sportsmanship	For distances 25, 50, 100, 200 m	For distances 400, 800, 1500 m
I grade	2,8	2,7
above level II	2,85	2,75
II grade	2,9	2,8
above level III	2,95	2,85
III grade	3	2,9

Note: All indications of the stopwatch are taken when the athlete is pushed away from the side of the pool. Indicators of the time average speed of 90 – 95% of the maximum for testing are calculated during the filling of the study protocol. The average speed from 80 to 90% is training and preparatory to performing testing. The rest time between segments is selected by the coach himself, depending on the testing task and the preparedness of the swimmer.

Consequently, the average speed for the 50 meters segment is 39,84 and for every 100-meters race is 1,19,68. There are sample calculations of control testing for a distance of 200-meters race and a comparative assessment of the planned competitive result. An athlete swims this distance above level II and calculations are carried out according to the level of his/her sports mastery. Testing: 4 x 200 m + 4 x 200 m the average speed 90 – 95% rest period between segments 3 min. Performing calculations: (3,52,63 (232,63 s) + 3,54,64 (234,64 s) + 4,00,36 (240 – 36 s) + 4,05,73 (245,73 s)) = 953,36 s: 4 =

238,34 s (3,58,34)) (2,27,71 (147,71) + 2,30,48 (150,48) + 2,33,93 (153,93) + 2,30,88 (150,88) = 603:4 = 150,75 (2,30,75)). The amount of time indicator 238,34 + 150,75 = 389 – 09: 2,85 (Table 3) = 136,52 (2,16,52). So, the time 2,16,52 corresponds to the level of physical fitness at this course for this testing.

Testing: 4 x 200 m in full coordination 90 – 95% rest period 3 min. The calculations were as follows: (2,25,06 (145,06 s) + 2,24,39 (144,39 s) + 2,22,12 (14 – 2,12 s) + 2,22,09 (142,09 s) = 573,66 s: 4 = 143,41 s-6,25 (Table 2) = 137,16 (2,17,16)). So, the time 2,17,16 corresponds to

the level of physical fitness at this distance for this testing. The difference between the two tests is $(2,17,16 - 2,16,52) = 0,64$. For the athlete, we have planned the best result 2,16,52. During the competition the athlete swam a distance of 200 m freestyle for 2,15,95. Thus, comparing two tests, we conclude that the awareness of the athlete and coach how quickly an athlete should swim in competitions mobilizes the young swimmer to show the best result and not worse ones. According to the study protocols, it is possible to follow up the changing result during the swimming course and to make qualitative adjustments to the training process. Due to this procedure it is possible to achieve the desired result.

The analysis of the scientific and methodological literature has come to the conclusion that the prediction of sports results should be based on the study of a whole set of indicators. Among these indicators, an important role is played by the morphofunctional parameters of athletes (Berezhnaya-Pritula M. & Ivanskaya E.) [1, 14, 17]. In the works of Roj K., Planinšec J., Schmidt, M. et al. [16, 18, 21, 22], it

is noted that athletes of various swimming methods have certain features of morphofunctional development. Our research confirms the facts about the significance of predicting a competitive result to competitions in competitive swimming. The authors of the article supplemented the information about the predicting role of a competitive result, which is of great importance for the preparation of athletes for sports competitions.

6. CONCLUSIONS FROM THIS RESEARCH AND PROSPECTS FOR FURTHER EXPLORATION IN THIS DIRECTION

The developed test programs made it possible to determine the physical fitness of athletes, their readiness for competitions. This gave us the opportunity to predict the competitive result, to proportion the training load and rest period during the training, to make changes in the content of the annual training cycle or its periods.

Prospects for further investigations consist in the analysis of the performances of student swimmers in recent years at the university level.

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Abstract

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ПРОГНОЗУВАННЯ СПОРТИВНОГО РЕЗУЛЬТАТУ ДО ЗМАГАНЬ ЗА ПОКАЗНИКАМИ ТЕСТОВИХ ПРОГРАМ У СПОРТИВНОМУ ПЛАВАННІ

У даній статті описується зміст тестових програм, що має практичне значення в тренувальному процесі для прогнозування змагальних результатів у змагальному плаванні. В експерименті брали участь 24 спортсмени III розряду і вище II розряду. Дослідження проводили у ДЮСШ № 3 м. Луцька та спортивному клубі Луцького національного технічного університету у 2022–2023 навчальному році. На основі аналізу практичного досвіду ми розробили тестові програми плавання в повній координації на руках і ногах для плавців від третього до першого спортивного звання, вільного стилю та спеціалізації на короткій/середній/довгій дистанції. Наведені зразки розрахунків контрольованого тестування в повній координації для спортсменів, які спеціалізуються на дистанції 1500 метрів вільним стилем. Тестування: 15 x 100 метрів вільним стилем із середньою швидкістю 90–95%. Перерва між дистанціями 1 хв. 30 секунд. Розрахунок проводився таким чином: через кожну стометрівку і час фіксувався в тій же послідовності, в якій плив спортсмен. Отримані в секундах цифри були підсумовані і загальна сума спочатку склала 1135,09 секунд. Додано 60,25 секунди. Це час корекції результату на 1500 метрів вільним стилем. Отже, загальний час в секундах 1195,34 перевели в хвилини і секунди і отримали 19,55,34. Таким чином, час 19,55,34 відповідає рівню фізичної підготовленості спортсмена на даній дистанції на момент тестування. Розроблені тестові програми дали змогу визначити фізичну підготовленість спортсменів, їхню підготовленість до змагань. Це давало можливість прогнозувати змагальний результат, чергувати роботу та відпочинок під час тренування, вносити зміни у зміст річного циклу підготовки або його періодів.

Ключові слова: прогноз, плавці, змагання, тестові програми, результат.

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