Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XXI, ISSUE 2, 2021, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengage Learning, Cabell's Directories

Science, Movement and Health, Vol. XXI, ISSUE 2, 2021
June 2021, 21 (2): 140 - 144
Original article

STUDY REGARDING THE STRENGTH AND RESISTANCE DEVELOPMENT UNDER SPEED OF THE ATHLETES SWIMMERS, SWIMMING AGAINST THE CURRENT OF THE WATER

NEGRIU TIUCA IOANA CODRUȚA[1], SIMION GHEORGHE[1], PODAR ALIN ADRIAN[1]

Abstract

Objectives. The present study aims to verify developing strength and endurance to improve performance in swimming competitions. One of the objectives is to increase the general motor skills to the ascertaining sample taken by us in investigations. My purpose on this research, is to define how the performance will improve by this form of training. The framework objective of the research is to improve the combined motor and speed qualities by swimming against the current of the water. The development of the strength and endurance, swimming against the current, requires the swimmer's rigor and seriousness in forming their lifelong sport's activity.

Methods. In the research activity we used the following research methods: method of sources of specialized and interdisciplinary literature, method of pedagogical observation, method of tests and control tests by measurement and evaluation, mathematical-statistical methodology, comparative method, graphic and tabular method and method of analysis and interpretation of results. The duration of the research was 6 months, the control samples used are 50 m free and 200 m mixed.

Results. The results of the tests performed were recorded in tables and represented graphically. The results obtained at the first test gradually increase, thus reaching the highest values at the third test.

Conclusions. At the end of the experiment it was found that the most significant evolution was recorded in the 200 m medley race, compared to the 50 m freestyle. The competition resulting from the large number of clubs with swimming sections, as well as every swimmer's desire to get a noticeable performance, oblige the teams to a serious training, the coaches being forced to find training methods and means that would propel the athlete swimmers to first places.

Keywords: countercurrent, endurance, strength.

Introduction

Motor skills are qualities of the human body through the individual has the ability to execute driving acts, both in its daily work and in sports activity. Motor skills development is an integral part

Doctoral School in Science of Sport and Physical Education University of Pitesti, Romania
Corresponding author: negriu.codruta@uab.ro
Received 14.02.2021 / Accepted 28.05. 2021

of physical training, ensuring biological and functional substrate effort, demanded by a contest. Since the effort is not raw, is takes the form of a multitude of elements and processes, that the athlete exploit in training and competitions. The relation, at high performance, between motor skills development and skills improvement must be ever closer. The development of driving qualities involves a conscious and active participation of the athlete, that support the volume, the intensity and the duration of the efforts to realize its potential.

Training is a complex process. It requires physical, technical, tactical, psychological and theoretical training. The training of athletes must take into account the characteristics of the sport realised and also of the sport sample.

The content of the training is planned according to the objectives of the training. Training exercises are the basic forms of the preparation process for the development of sports performance capacity.

Grosser M. and Neumeier A., (1981 and then 1986, p.64) say about sports training that "it is a complex and planned process at the end of which performance objectives achievement is required". From the point of view of the theories regarding the pedagogical actions, it is arrived at the planning and orientation of a complete development of the organism towards a precise objective.

"Children's trainability represents the ability to adapt, more or less, of the body, abilities that influence basic motor qualities, the cardio-respiratory system as a whole, especially the heart muscle, muscle metabolism, as well as psycho-physiological components. The trainability of the physical capacity depends on the maturation of the corresponding biological functions ". Hahn E. (1996, p. 89)

Force in speed regime is the quality of the neuromuscular system to overcome a sufficiently high resistance through a maximum contraction speed, known as explosive force. Speed endurance is a form of endurance that is characterized by an increased ability of the body to withstand the fatigue installed after performing efforts of submaximal and maximum intensity. It reflects the body's ability to withstand stress, under conditions of rapid contraction, over a long period of time.

The difficulty of training requires the body to react optimally to the demands of the appropriate training process, by increasing its functional and morphological capacity that will result in increased sports performance.

The observation of T.O. Bompa (2003, p.23), about sports training, states that: "For me, training is the manipulation of methods to induce adaptation. When adaptation reaches high levels, so does performance. Without a continuous increase in the physical adaptation of the athletes, the improvements are impossible. "

Methods

Swimmers training is carried out mostly in water. Due to the water pressure, exerted on the body, almost all organs are affected. This increases the elasticity and strength of the lungs and of the heart, it regulates blood pressure, and therefore reduces the risk of cardiovascular diseases and improves the blood flow.

This study proposes a developing strength and resistance training under speed, swimming countercurrent, doing additional trainings with the

swimmers from the sample, 3 times a week. The workouts were done in a 10 m pool swim, with hydraulic pumps, that allowed water swimming against the current at different speeds. Water flow speed was increased every 2 months (slow, medium, high). The training remained the same but increased the speed and the pause time between rounds decreased every 2 months. I studied for 6 months, comparative the performance's evolution, in 2 samples: 50 m free style and 200 m medley, and every 3 months there was a control test for each sample, separately.

Considering that medical examination is carried on and are able to do physical effort, the risk of injury is almost nonexistent.

The sample that I made are included subjects legitimated of Alba Iulia Sports high school, who participated in national competitions during the school year 2015-2016.

The tempo of executions and the alternating of the effort with the muscle relaxation are very important.

Tabel 1. Weekly workout

Exercise	Type	Duration	Pause	Monday	Wednesday	Friday
Backstroke legs	series	10 repetitions of 1 minute	40 seconds	X		
Butterfly legs	series	10 repetitions of 1 minute	40 seconds	X		
Backstroke	series	10 repetitions of 45seconds	25 seconds	X		
Butterfly	series	10 repetitions of 45seconds	25 seconds	X		
Breaststroke legs	series	10 repetitions of 1 minute	40 seconds		X	
Free style legs	series	10 repetitions of 1 minute	40 seconds		X	
Breaststroke	series	10 repetitions of 45seconds	25 seconds		X	
Free style	series	10 repetitions of 45seconds	25 seconds		X	
Butterfly legs	series	6 repetitions of 1 minute	40 seconds			X
Backstroke legs	series	6 repetitions of 1 minute	40 seconds			X
Breaststroke legs	series	6 repetitions of 1 minute	40 seconds			X
Free style legs	series	6 repetitions of 1 minute	40 seconds			X
Butterfly	series	6 repetitions of 45seconds	25 seconds			X
Backstroke	series	6 repetitions of 45seconds	25 seconds			X
Breaststroke	series	6 repetitions of 45seconds	25 seconds			X
Free style	series	6 repetitions of 45seconds	25 seconds			X

Results

After the testing, in January 2016 the first trial, second trial in March, and in June the final typing, I recorded the following results:

Tabel 2. Test results

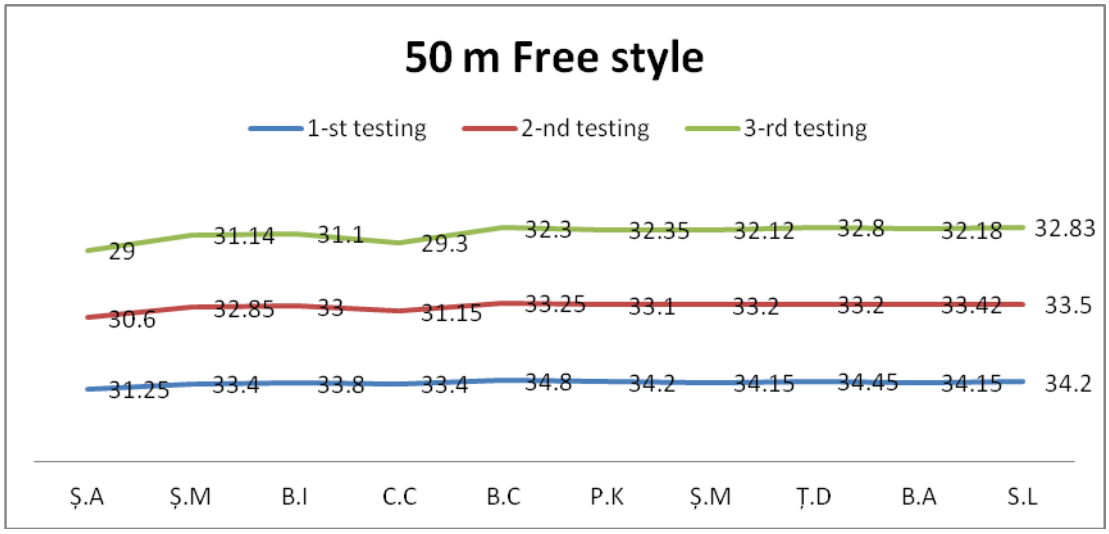
No.	Name and Surname	50 m Free style			200 m Medley		
		1-st testing	2-nd testing	3-rd testing	1-st testing	2-nd testing	3-rd testing
1	Ș. A.	31:25	30:60	29:00	3.05.68	2.49.21	2.37.69
2	Ș. M.	33:40	32:85	31:14	3.06.37	3.03.57	2.54.12
3	B. I.	33:80	33:00	31:10	3.08.24	3.00.15	2.54.14
4	C. C.	33:40	31:15	29:30	3.07.10	2.54.22	2.49.82
5	B. C.	34:80	33:25	32:30	3.20.06	3.08.95	2.48.26
6	P. K.	34:20	33:10	32:35	3.11.68	3.01.76	2.51.15
7	Ș. M.	34:15	33:20	32:12	3.11.00	3.00.12	2.52.75
8	Ț. D.	34:45	33:20	32:80	3.10.72	3.05.31	2.55.14
9	B. A.	34:15	33:42	32:18	3.14.40	2.54.48	2.40.00
10	S. L.	34:20	33:50	32:83	3.13.22	3.02.14	2.56.10

Discussion

By analyzing each separated parameter, I reached the following conclusion:

After testing the subjects at 50 m free style I had the results like per Figure 1. It can be seen that the first test results increase gradually, thereby reaching the highest values in the third test. In the third stage, through the analysis, I found an evolution of test's results from the other 2 tests. The most significant development has been registered by Ș. A.

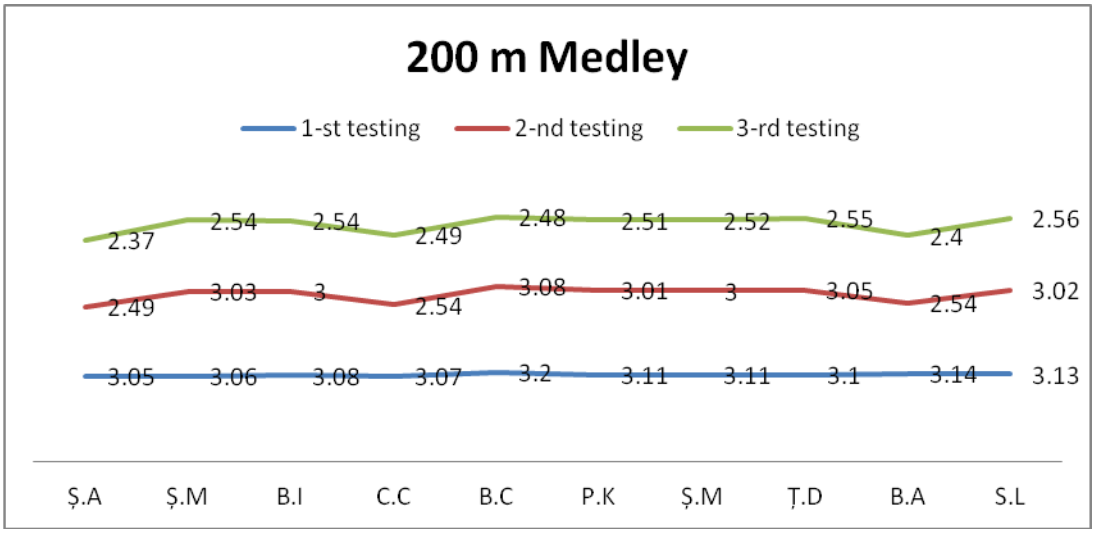
Figure 1. Testing subjects in 50 m Free style



For the test sample of subjects at 200 m medley the results are registered in Figure 2. From this graph it is clear that like at the sample 50 m free style the results obtained in the first test, gradually increase this reaching the highest values in the third test. The results obtained in the second test is the middle step and show that subjects give yield by this sample and that they have adapted to this way of

training. And in 200 m medley , Ș. A recorded the best development performance.

Figure 2. Testing subjects in 200 m Medley



Conclusions

The swimmers performance has progressed impressively in the last years, the number of the swimmers capable of outstanding performance, increased. Coaches should use the latest science data, find new methods and appropriate means in order to achieve an updated training and adapted to new trends in performance.

At the end of the test period for the 2 samples it was consisted that the most significant progress was recorded in 200 m medley, compared with 50 m free style. Using water against the current training, increased the strength and the endurance of the swimmers.

The athletes, in training, should be treated differently, depending on the particularities of the age, the coach should be familiar with every stage of growth and development of the athlete.

The evolution of the tested swimmers was also noticed in the national championships, climbing in the ranking.

"The person who doesn't know to write, neither to swim, is an uneducated man".(Diogenian)

References

Bompa TO, 2003, *Performanța în jocurile sportive, Școala Națională de Antrenori*. Ed. Ex Ponto, Constanța

Grosser, M., Neumeiera, (1986), *Tecnicas de Entrenamiento*, Barcelona, Martinez Roca

Hahn, E., (1996), *Antrenamentul sportiv la copii - capacitatea de performanță*, Ed. C.C.P.S., Bucureşti.