

## **STUDY OF PHYSICAL FITNESS AT 16–18 YEARS OLD ATHLETES IN KAYAKING**

*(Preliminary communication)*

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### **Abstract.**

*The purpose of this study was to determine the level of general and special physical training at 16-18 years old athletes in kayaking in the stage of special preparation. The object of this research is the physical capacity of athletes in kayaking. Contingents of the study were 47 juniors, students in Bulgarian sports schools with special sport kayak (33 juniors and 14 girls). In our study we used the following methods: method of information research; sports testing; method of Variation analysis for statistical processing of the results; theoretical analysis and synthesis. The results achieved in tests of general preparation in adolescents show improvement of sports performance with the transition from one age to the next. Average results in tests for general preparation of girls in the age 16-18 years are close to those of untrained individuals. The results achieved in tests of special training of juniors showed an improvement with increasing age. The results in special training of girls in the age 16-18 years are extremely weak and non-system training showed activity in this group. In the past, the direction „kayak women” has brought much success and medals for Bulgarian sport. Unfortunately, we now have a big drop in performance for girls. It is a priority development of this area, which can only be achieved through a systematic selection and quality of training process.*

*Keywords: motor abilities, sports testing, general preparation, special preparation*

### **INTRODUCTION**

Physical preparation of athletes in kayaking has a complex character. Leading it are factors related to quality and endurance. This defines the development of a single nature foundation on which to build the tops of sport skills. With increasing age and increasing sports mastery specialized physical training is emphasized. (Emchuk (Емчук), 1976; Чупрун (Чуприн), 1987; Michael, Rooney, & Smith, 2008; Szanto, & Henderson, 2004).

Each age period has its morphological and functional characteristics that significantly affect the training process. The somatometric and anthropometric indicators of the 16-18 years old boys and girls are close to those of adults. The muscle mass and muscle strength is increasing. At the age of 16 years for girls and 18-19 years juniors are close to their maximum capacity for oxygen uptake (Fezesheri (Фезешери), 1985; Tosheva (Тошева), 1981).

In this connection, regardless of big numbers of publications, there are also a number of open issues such as establishing the level of general and special training of Bulgarian juniors in kayaking, to whose research we

focused our creative pursuits.

The purpose of this study was to determine the level of general and special physical training at 16-18 years old athletes in kayaking in the stage of special preparation.

### **METHODS**

The object of this research is the physical capacity of athletes in kayaking.

Contingents of the study were 47 juniors, students in Bulgarian sports schools with special sport kayak (33 juniors and 14 girls).

In our study we used the following methods:

- Method of information research;
- Sports testing;
- Method of Variation analysis;
- Theoretical analysis and synthesis.

To determine the level of physical preparation of athletes in kayaking was applied test battery that included the following parameters (Table 1).

Tests 1 to 5 define the general physical preparation and tests 6 and 7 define the special training.

Testing was conducted at the end of preparation

Table 1. List of investigated parameters

Test	Unit	Accuracy measuring	Direction growth
60 m sprint	Sec.	0,01	-
800 m, 1500 m running	Min.; sec.	0,01	-
Pull ups	Rep.	1	+
Bench pull with 25 kg, 30 kg, 40 kg	Rep. per 90 sec.	1	+
Bench press with 25 kg, 30 kg, 40 kg	Rep. per 90 sec.	1	+
Kayaking K1-500 m, K1-1000 m	Min.; sec.	0,01	-
Kayak ergometer 500 m, 1000 m	Min.; sec.	0,01	-

period within two days in the city of Sofia, Plovdiv, Rouse and Varna from students and assistant from the National Sports Academy "Vasil Levski" Sofia.

## RESULTS

The results of the testing of the juniors and girls are shown in Tables 2 and 3.

Due to the fact that in 16 years old the test of bench press and bench pull was made with less weight – 30 kg and 25 kg comparing to with 17 and 18 year old, the results in the analysis of these two strength exercises will not be compared.

The results of the speed test in adolescents improve with increasing age, as only 18 years old have some slippage. This can be explained by the fact that some of the subjects stopped train systematically entering a

senior age. In the girls 16-18 age decline in achievement that can be attributed to the unfortunate selection and piecemeal training activity in this age.

The results achieved in tests in general preparation „pull ups” in adolescents show improvement of achievement in test switch to a higher age group. The girls from 16 to 18 years have a very low average in this test which are similar to those of untrained individuals.

The results of the race at an average running distance „800 m running” at the girls confirms the fact that 16-18 year old girls are not conducted systematic training activity. Some of their performance in this test is extremely low and close to that of untrained persons.

Average performance 1500 m running” for junior showed improvement with increasing age.

Test results in special training – running in kayak

Table 2. Variation analysis of the results of testing at juniors

Test	Junior 16 years old					Junior 17 years old					Junior 18 years old				
	N	X <sub>min</sub>	X <sub>max</sub>	X	S	N	X <sub>min</sub>	X <sub>max</sub>	X	S	N	X <sub>min</sub>	X <sub>max</sub>	X	S
60 m sprint	21	16:50	9:70	8:62	0:68	14	8:10	9:00	8:41	0:27	10	7:20	9:00	8:26	0.53
800 m running	21	5:10	8:12	6:09	0:50	14	4:46	6:51	5:51	00:34	10	5:10	6:45	5:40	00:31
Pull ups	21	11	35	21.14	5.72	14	15	48	28.14	9.56	10	15	48	30.50	9.38
Bench pull	21	46	120	74.86	16.61	14	42	110	70.29	22.19	10	50	100	72.50	17.67
Bench press	21	40	100	66.67	14.79	14	44	88	57.57	15.02	10	29	92	63.30	19.36
Kayaking 1000 m	19	4:01	5:20	4:41	00:23	9	3:57	4:55	4:21	00:18	5	4:15	4:58	4:33	0:16
Ergo 1000 m	19	4:08	5:38	4:57	00:21	9	4:13	5:05	4:37	00:16	5	4:43	5:18	4:56	0:13

Table 3. Variation analysis of the results of testing at girls

Test	Girls 16 years old					Girls 17 years old					Girls 18 years old				
	N	X <sub>min</sub>	X <sub>max</sub>	X	S	N	X <sub>min</sub>	X <sub>max</sub>	X	S	N	X <sub>min</sub>	X <sub>max</sub>	X	S
60 m sprint	6	10:40	15:10	12:28	1:90	4	8:60	11:00	9:63	1:17	5	10:20	12:20	11:34	0.80
800 m running	6	3:18	4:27	3:38	00:25	4	03:08	4:40	3:48	00:39	5	3:30	3:58	3:45	00:11
Pull ups	6	2	13	5.67	3.98	4	3	16	7.50	6.14	5	3	17	6.60	5.86
Bench pull	6	42	79	52.50	13.97	4	34	61	45.50	13.23	5	37	66	51.60	12.40
Bench press	6	25	70	37.33	17.11	4	19	40	30.75	8.69	5	20	44	33	11.62
Kayaking 500 m	6	2:14	3:00	2:37	00:16	3	2:35	3:31	3:02	00:28	5	2:24	2:45	2:35	00:08
Ergo 500 m	6	2:19	3:10	2:53	00:19	3	2:40	3:35	3:06	00:27	5	2:20	3:20	3:00	00:23

and ergometer at the distance of 500 meters at the girls 16-18 year girls are extremely low, with the exception of 16 year old K.K., which is the best athlete in the kayak junior national team.

As shown in the (Table2) to enhance sport performance achievements in kayaking and ergometer at 1000 meters distance in special training occurred with the transition to a higher age group. Negligible degradation of performance was observed in 18 year old juniors, but the tendency is persisted.

## CONCLUSION

The results achieved in tests of general preparation in adolescents show improvement of sports performance with the transition from one age to the next. Average results in tests for general preparation of girls in the age 16-18 years are close to those of untrained individuals.

The results achieved in tests of special training of juniors showed an improvement with increasing age. The results in special training of girls in the age 16-18 years are extremely weak and non-system training showed activity in this group.

In the past, the direction „kayak women” has brought much success and medals for Bulgarian sport. Unfortunately, we now have a big drop in performance for girls. It is a priority development of this area, which can only be achieved through a systematic selection and quality of training process.

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