SPECIFIC PHYSICAL TRAINING IN THE SEAMANSHIP RACE FROM THE NAVAL PENTATHLON

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Abstract

Problem statement*. The aim of this research is to present and highlight the main directions of action of the specific physical training on the performances of the athletes in the seamanship race. Objectives are to develop an optimal model of specific physical training that maximizes the performances of the athletes engaged in our research.*

Research methods *is the application of specific tests in order to develop general psychomotor capacity and sensory and intellectual skills. . Our experimental study included two groups of subjects: a group not involved in performance sports activity and a group involved in performance sports activity, respectively. The experimental group was the representative naval pentathlon team of the Naval Academy "Mircea cel Bătrân" Constanța. Thus, the performances recorded by the subjects of the control and experimental groups were processed and interpreted statistically.*

Conclusions. *The results obtained in our research, resulting from the comparative study of the performances recorded by the two groups of students, certify the effectiveness of the specific physical training model applied at the level of the experimental group.*

Key Words: physical training, seamanship, naval pentathlon.

INTRODUCTION

The Romanian naval pentathlon has become a necessity imposed by the modernization and connection of the military system to international political and social requirements. Determined by these circumstances, in the composition of a national naval pentathlon team, we are faced with a multitude of deficiencies, regarding the periodization as

structure and content of a specific training system in order to participate in the World Championships.

The training specific to the military is carried out through actions based on the results of military physical education. Studying the specialized literature, we observe that the term sports performance "can be defined as a bio-psycho-social value achieved in official competitions, as a result of a multiple capacity determined and appreciated based on rigorously established criteria or scales"[1].

In this paper, they will look at the increase in performance capacity as "the result of the complex manifestation of the individual's availability, materialized in objective values or objectivity in points, places, rankings, it having a complex structure in which biological and psychological factors are present, socially integrated" [2] of military athletes, members of the representative naval pentathlon team - Mircea cel Bătrân Naval Academy, Constanta.

RESEARCH METHODS

Research methods

The main characteristic of motor skills "is the permanent possibility of improvement through indices characterizing the movement (rhythm, direction, amplitude, force, resistance, force), which means that they have a certain mobility.

They are not born, they are acquired in the practice of life and in the specially organized training process" [3].

In the formation of motor skills, specialists distinguish several stages, considering that this process is particularly complex. Thus, Krostovnikov, A.N., describes the following stages in the formation of motor skills:

"1. The stage of initial movements and lack of coordination due to the wide irradiation of excitation at the level of the cortex.

2. The stage of tense movements, achieving a certain differentiation at the level of the central nervous system.

3. The stage of the correct execution of the movement, where the concentration of nervous processes occurs on the cortex.

4. The stage of the detailed acquisition of the movement, the formation of the dynamic stereotype based on the systematization of the excitation and inhibition processes. " [4]. In the same context, Rudik considers the psychological stages in the formation of skills as the following:

"1. the stage of preliminary acquisition in which the representation of the motor act is formed;

2. the specified appropriation stage, by linking and unifying the partial shares;

3. the stage of consolidating and perfecting the skill based on the fine and rapid differentiation of cerebral processes, specifying their relationships." [5]. From this premise we can say that the motor skills specific to naval pentathlon events will be better utilized only in the context in which the motor qualities will be developed at an optimal level. In this context, motor skills in naval pentathlon have the following particularities:

- they are part of the voluntary conduct of the student/athlete;
- they are structures of coordinated movements;
- behave as systems with corrective feed-back, whenever inaccuracies occur in their performance;
- they are based on the education of the capacity for fine and quick differentiation based on sensory-perceptive information;
- they have a relative stability which, through the process of differentiated training on samples, can determine the positive transfer;
- it is based on individual structures, it makes possible the discussion about the so-called "style" at certain higher levels of learning for the technique of each event of the pentathlon;
- their automation partially or totally frees the cerebral cortex, ensuring, in this way, its participation in carrying out other actions by saving nervous energy, in this case it ensures the psycho-motor baggage and its passage from one test to another;
- are conditioned by subjective and objective factors (aptitude, attitude, motivation, atmosphere).

RESULTS

Specific physical training testing-Testing of general psychomotor ability

The performances recorded by the subjects of the control and experimental groups were processed and interpreted statistically.

General psychomotor training - statistical indicators - initial testing Table 1

Nr. crt.	Parameters compare	$\overline{X} \pm DS$		Criteria			
				„Cv"		"t"	"p"
		Control group	Experimental group	G.C	G.E		
I	**Test for neuropsychomotor skills (spatial coordination)**						
1	A.N. Matorin test (grade)	278,4 ± 1,7	279,27 ± 1,5	0,61	0,56	1,44	> 0,05
II	**Sensory skills**						
1	Leg 1 (points)	94,37 ± 0,9	93,57 ± 1,0	1,24	1,42	1,33	> 0,05
	Qualifying (note)	9,17 ± 0,2	8,97 ± 0,2	5,09	4,73	1,66	> 0,05
2	Leg 2 (points)	87,90 ± 0,1	88,10 ± 0,2	1,07	1,63	1,38	> 0,05
	Qualifying (note)	7,50 ± 0,1	7,50 ± 0,2	6,40	6,19	0,57	> 0,05
III	**Intellectual skills – Concentrated attention Numbers**						
1	Attention (no. signs); (qualifying)	43,63 ± 0,2 w.-lim min.	44,17 ± 0,2 w.-limit min.	2,15	3,841	2,01	< 0,05

The data recorded in the Matorin test, adapted to the specifics of the seafaring skills test, show that in the initial testing, both the control group and the experimental group recorded relatively close performance averages. Starting from these initial values, the results of the two groups improved at the final testing, the significance of the difference between the means being t =4.00□4.073 at the significance threshold of 0.0005. The data recorded during the initial testing, for the control and experimental groups, for each parameter are presented in the following tables.

Matorin Test - statistical indicators - initial testing *Table 2*

Nr.crt	Exp.	Ctr.	Matorin test -grade			
1	281	280	Nr of sub. - N1 - Exp.	15		
2	279	277	Nr of sub. N2. - Ctrl.	15		
3	280	278	Median - M0 - Exp.	279		
4	280	278	Median - M0 - Ctrl.	278		
5	277	277	Asymmetry - β1 - Exp.	0.169	N. asymmetry	
6	278	277	Asymmetry- β2 - Ctrl.	0.232	N.asymmetry	
7	281	281	M1 ± DS1 - Exp.	279.267 ±	1.58	
8	282	280	M2 ± DS2 - Ctrl.	278.4 ±	1.724	
9	280	279	Dis of values - M1 ± DS1 - Exp.	M1 ± 2DS1	N.Distrib. of values	
10	281	280	Dis of values - M2 ± DS2 - Ctrl.	M2 ± 2DS2	N.Distrib. of values	
11	277	277	The coeffi. of var.- CV1 - Exp.	0.566	%	Population homogeneity
12	278	276	The coeffi. of var. - CV2 - Ctrl.	0.619	%	Population homogeneity
13	279	279	df	28		
14	278	281	Independent "t" test	1.436		
15	278	276	Threshold of significance	p>0.05		

As can be seen the asymmetry coefficient - β1 and β2 show values that specify a normal asymmetry. The distribution of the values - M1 ± DS1 – for the experimental group and – M2 ± DS2 – for the control group shows us a normal distribution of the values.

The values of the coefficient of variability CV1 - for the experimental group and CV2 - for the control group, demonstrate that there is a homogeneous population.

Sensory skills - round 1 - statistical indicators - initial testing *Table 3*

Nr.crt	Exp.	Ctr.	Sensory skills-Round 1-points				
1	94	92	Nr of sub. - N1 - Exp.	15			
2	92	93	Nr of sub. N2. - Ctrl.	15			
3	93	91	Median - M0 - Exp.	93			
4	94	90	Median - M0 - Ctrl.	92			
5	94	92	Asymmetry - β1 - Exp.	-0.152		Normal asymmetry	
6	93	92	Asymmetry- β2 - Ctrl.	0.175		Normal asymmetry	
7	91	93	M1 ± DS1 - Exp.	92.8	±	1.32	
8	94	94	M2 ± DS2 - Ctrl.	92.2	±	1.146	
9	94	91	Dis of values - M1 ± DS1 - Exp.	M1 ± 3DS1		Large spread of values	
10	93	92	Dis of values - M2 ± DS2 - Ctrl.	M2 ± 2DS2		Normal spread of values	
11	92	93	The coeffi. of var.- CV1 - Exp.	1.422		%	Population homogeneity
12	90	92	The coeffi. of var. - CV2 - Ctrl.	1.243		%	Population homogeneity
13	91	91	df	28			
14	93	93	Independent "t" test	1.329			
15	94	94	Threshold of significance	p>0.05			

As can be seen, for both the control group and the experimental group, the asymmetry coefficient - β1 and β2 show values that highlight a normal asymmetry.
The spread of values - M1 ± DS1 – for the experimental group shows a large spread of values and – M2 ± DS2 – for the control group shows a normal spread of values.
The values of the coefficient of variability CV1 (1.422%) - for the experimental group and CV2 (1.243%) - for the control group prove to us that there is a homogeneous population.

Sensory skills - round 1 - statistical indicators - final testing *Table 4*

Nr. crt	Exp.	Ctr.	Sensory skills-Round 1-qualifying				
1	9	9	Nr of sub. - N1 - Exp.	15			
2	9.5	9.5	Nr of sub. N2. - Ctrl.	15			
3	9	8.5	Median - M0 - Exp.	9			
4	9	9	Median - M0 - Ctrl.	9			
5	8.5	8.5	Asymmetry - β1 - Exp.	0.232		Normal asymmetry	
6	8.5	9	Asymmetry- β2 - Ctrl.	-0.371		Notable asymmetry	
7	9.5	9	M1 ± DS1 - Exp.	9.1	±	0.431	
8	9.5	9.5	M2 ± DS2 - Ctrl.	8.833	±	0.45	
9	9.5	8.5	Dis of values - M1 ± DS1 - Exp.	M1 ± 2DS1		Normal spread of values	
10	9.5	8.5	Dis of values - M2 ± DS2 - Ctrl.	M2 ± 2DS2		Normal spread of values	
11	9	8.5	The coeffi. of var.- CV1 - Exp.	4.736		%	Population homogeneity
12	8.5	9	The coeffi. of var. - CV2 - Ctrl.	5.095		%	Population homogeneity
13	8.5	9.5	df	28			
14	9.5	8.5	Independent "t" test	1.66			
15	9.5	8	Threshold of significance	p>0.05			

As can be seen, the asymmetry coefficient - β1 for the experimental group has values that specify a normal asymmetry, and for the control group, the asymmetry coefficient - β2 has values that highlight a notable asymmetry. The spread of values - M1 ± DS1 – for the experimental group and – M2 ± DS2 – for the control group reveals a normal spread of values.

The values of 4.736% and 5.095% of the coefficient of variability CV1 - for the experimental group and CV2 - for the control group prove that there is a homogeneous population.

Sensory skills-round 2-points - statistical indicators - initial testing *Table 5*

Nr.crt	Exp.	Ctr.	Sensory skills-Round 2-qualifying				
1	85	84	Nr of sub. - N1 - Exp.	15			
2	86	86	Nr of sub. N2. - Ctrl.	15			
3	89	87	Median - M0 - Exp.	86			
4	88	86	Median - M0 - Ctrl.	86			
5	85	85	Asymmetry - β1 - Exp.	0.095		Normal asymmetry	
6	85	85	Asymmetry- β2 - Ctrl.	-0.51		Pronounced asymmetry	
7	86	86	M1 ± DS1 - Exp.	86.133	±	1.407	
8	87	85	M2 ± DS2 - Ctrl.	85.533	±	0.915	
9	84	84	Dis of values - M1 ± DS1 - Exp.	M1 ± 3DS1		Large spread of values	
10	88	87	Dis of values - M2 ± DS2 - Ctrl.	M2 ± 2DS2		Normal spread of values	
11	86	86	The coeffi. of var.- CV1 - Exp.	1.634		%	Population homogeneity
12	85	85	The coeffi. of var. - CV2 - Ctrl.	1.07		%	Population homogeneity
13	85	85	df	28			
14	86	86	Independent "t" test	1.385			
15	87	86	Threshold of significance	p>0.05			

The asymmetry coefficient - β1, for the experimental group, has values that specify a normal asymmetry, and for the control group, the asymmetry coefficient - β2 has values that specify a pronounced a large spread of values and – M2 ± DS2 – for the control group, shows a normal spread of values. The values of 1.634% and 1.07% of the coefficient of variability, CV1 - for the experimental group and CV2 asymmetry. The spread of values - M1 ± DS1 – for the experimental group shows - for the control group, demonstrate that there is a homogeneous population.

Sensory skills-round 2-points - statistical indicators - final testing *Table 6*

Nr.crt	Exp.	Ctr.	Sensory skills-Round 2-qualifying				
1	7	7	Nr of sub. - N1 - Exp.	15			
2	7.5	7.5	Nr of sub. N2. - Ctrl.	15			
3	7	7.5	Median - M0 - Exp.	7.5			
4	7	8	Median - M0 - Ctrl.	7.5			
5	7.5	7.5	Asymmetry - β1 - Exp.	0.212		Normal asymmetry	
6	7.5	8	Asymmetry- β2 - Ctrl.	0.406		Notable asymmetry	
7	7.5	8	M1 ± DS1 - Exp.	7.6	±	0.471	
8	7.5	8.5	M2 ± DS2 - Ctrl.	7.7	±	0.493	
9	7.5	7.5	Dis of values - M1 ± DS1 - Exp.	M1 ± 2DS1		Normal spread of values	
10	7.5	7.5	Dis of values - M2 ± DS2 - Ctrl.	M2 ± 2DS2		Normal spread of values	
11	8	7	The coeffi. of var.- CV1 - Exp.	6.197		%	Population homogeneity
12	7.5	8	The coeffi. of var. - CV2 - Ctrl.	6.403		%	Population homogeneity
13	8	8.5	df	28			
14	8.5	8	Independent "t" test	0.568			
15	8.5	7	Threshold of significance	p>0.05			

The asymmetry coefficient - β1, for the experimental group, specifies a normal asymmetry, and for the control group, the asymmetry coefficient - β2 has values that highlight a notable asymmetry.
The spread of values - M1 ± DS1 – for the experimental group and – M2 ± DS2 – for the control group, shows a normal spread of values.
The values of the coefficient of variability CV1 - for the experimental group and CV2 - for the control group, demonstrate that there is a homogeneous population.

CONCLUSIONS

The results obtained in our research, resulting from the comparative study of the performances recorded by the two groups of students, certify the effectiveness of the specific physical training model applied at the level of the experimental group.

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