

## THE ORIENTATION OF THE NAVAL AND MARINE STUDENTS TO A SPECIFIC PSYCHO-MOTIONAL PERFORMANCE, ACCORDING TO THE REQUESTS OF THIS ACTIVITY AND TO THE GENERAL PHYSICAL TRAINING

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**Abstract.** *Everybody agrees the principle saying the Marine Education prepares men for a special economical and social activity. In the navigation, general and psycho motional physical qualities of the students and the professional navigators are far more requested, sometimes at their highest extreme level, mostly in the critical moments of a storm in the open sea, or wreckage.*

*Openly declared, our study started after noticing and concluding, there's a great difference between **the necessary needs** in physical training involved in the navigation activities, as well as the level of the physical qualities and the specific psycho motional requested from the future navigators.*

**Keywords:** *Specific psychomotional training, testing, pedagogical experiment, motional quality, structural pattern, etc.*

**I. The main purpose** of larger and longer in time researches is exposed here in short wanting just to show on the basis of a scientific study, as well as on objective data, the necessity, sometimes forgotten in the Naval Institute, concerning the importance and need for an expanded schedule for the specific physical training and the specific psycho motional training of the young naval and Marine students. All this compared to the real needs and requests of this professional activity of the navigators. Even the salvation and surviving in the open sea is many a time depending on this training.

**II. The main task** of the present research was to match the structure and the contents of the general physical training and of the specific psycho motional training of the naval and marine students (civilian and military as well) to answer the specific and complex needs of the activity aboard ships.

**III. The organizing of the research** was mainly involving our embarking aboard school ships in order to get in contact to the life and the professional activity following all the routine attempts and the novelty of a new way of a everyday life. It meant to find out precise marks to match the structure and the contents of the specific and general training of the students according to the needs imposed aboard the ship, completed by direct study and research.

**IV. The research Methods**, marked only in short in this paper, went deeply the previous studies and researches in the domain and more, they offer solutions to the problems, misfunctions and the old mistakes.

*1. The thoroughly study of the literature, of the laws and special regulations in the field;*

*2. To realize an objective critical attitude towards the Educational Plans;*

*3. The study of the opportunities to complete the quantities and the working specificities requested by the real necessity, inside the nautical practical exercises;*

*4. The pedagogical observation and the euristic dialogues;*

*5. The direct participation to the work and daily activities aboard ships;*

*6. The pedagogical experiment applied on naval and marine students involved in the practical exercises activities on Mamaia lake;*

*7. The realizing of an optimal pattern of organizing and rotating the students groups in training watches and the daily services aboard ships, in order to be able to schedule and include in the daily activities the exercises for the specific physical training and the psycho motional one.*

*8. The elaboration of a pattern( structure and contents) schedule for the specific psycho motional training to be introduced aboard ships.*

Part of the organized actions have been presented in some other informal expositions, having been well appreciated.

We just present here only the way of distribution we decided for the circadian activities aboard and the distinct place *the specific physical training and the specific psycho motional training*, have to have inside the general process of the general professional training during the embarked periods (see Table 1).

Both groups of students, the mechanic groups as well as the navigators have been organised in 5 groups.

This share was useful to notice more easily, to conduct and follow accurately the instruction activities aboard and to establish very precisely the squads aboard the rescue boats when executing exercises on roles.

As can be seen in Table no. 1, during 5 days every group is passing through the tests of the three double positions of professional training watch day and night, a kitchen service and an upper deck service.

Therefore the students are ensured along these 5 days *a specific physical and psycho motional training* aboard ship without affecting any other activity aboard.

A suggested pattern to organize the structure,  
and the time repartition in watches, services, duties, physical training and roles to play in the rescue actions for a whole  
students group in a 5 days cycle of practical activities aboard ships

Day Hour	DAY I	DAY II	DAY III	DAY IV	DAY V
0-1					Watch 2 0 - 4
1-2					
2-3		<b>Night</b>			
3-4					
4-5			Watch 3 4 -8		
5-6					
6-7					
7-8					
8-9	Watch 1 8-12				
9-10		PHYSICAL TRAINING AND „The ship's roles” (9-12)	9 – 12 Upper deck service		9 – 12 Kitchen service
10-11					
11-12					
12-13				Watch 2 12 - 16	
13-14					
14-15		<b>Day</b>			
15-16					
16-17		Watch 3 16 -20	PHYSICAL TRAINING AND „The ship's roles” (16-19)		PHYSICAL TRAINING AND „The ship's roles” (16-19)
17-18					
18-19					
19-20					
20-21	Watch 1 20 -24		Cultural activities		Cultural activities
21-22					
22-23				<b>Night</b>	
23-24					

A good general physical training and the influence of the general physical training on the lightness we came from specific physical features have already studied previously by us in some scientific papers we presented to the public.

We'll go on presenting **the opposite effect the specific physical training orientation aboard can have over the general physical training** of the naval and marine students included in the practical exercises activities this one being considered **the hypothesis** of our study.

#### V. Material, means and method

Considering the lack of the space, we'll not present here, the specific means, mostly from the applicative swimming and from the nautical sports we used for the specific training of the future navigators. Anyway we'll present the evolution of the general physical training parameters for two groups of students (a witness group and an experimental one).

We applied the special programme for the specific physical training and specific psycho motional training on the experimental group and followed ( we risk here to reiterate!) what was the opposite effect of **the specific orientation of the training on the general physical training** level.

We present here just a part of the pack of **general physical training** tests we used to evaluate the value of the level in this respect and as a continuation of the evolution along the pedagogical experiment we did.

**A. Motional quality: THE FORCE.** To investigate this motional quality we used three directions, namely:

1. The force of the flexor muscles of the arms and of the scapular belt.

The parameter was tested by the test: **Pullings in arms at a single bar (Tr. B.)** We established the following scale of evaluation and appreciation for our research:

**“Mircea cel Batran” Naval Academy Scientific Bulletin, Volume XIV – 2011 – Issue 2  
Published by “Mircea cel Batran” Naval Academy Press, Constanta, Romania**

NOTES	10	9	8	7	6	5	4	3	2	1
Number of pullings in arms	≥ 20	18-19	16-17	14-15	12-13	10-11	9	8	7	≤ 6
Level of appreciation	FB	B <sub>(15-18)</sub>			M <sub>(9-12)</sub>			S <sub>(7-8)</sub>		NS

**2. The Force (in endurance conditions) of the abdominal muscles.**

The parameter was tested by the test: **Abdominal Flexions (Abd.)**

From lying on the back position, its raising to the vertical, the legs blocked. The scale of appreciation was the following:

NOTES	10	9	8	7	6	5	4	3	2	1
Number of abdominal flexions	≥ 70	66 - 69	62 - 65	58 - 61	54 - 57	50 - 53	46 - 49	42 - 45	38 - 41	≤ 37
Level of appreciation	FB	B <sub>(58-69)</sub>			M <sub>(46-57)</sub>			S <sub>(38-45)</sub>		NS

**3. The exploding force of the legs muscles.**

This parameter was tested by the test: **Long jump from a fix position (Lg.I.)** The value followed the scale:

NOTES	10	9	8	7	6	5	4	3	2	1
Length of the jump	≥ 2,51	2,41- 2,50	2,31- 2,40	2,21- 2,30	2,11- 2,20	2,01 - 2,10	1,91 - 2,00	1,86 - 1,90	1,81 - 1,85	≤ 1,8
Level of appreciation	FB	B <sub>(2,21-2,50)</sub>			M <sub>(1,91-2,20)</sub>			S <sub>(1,81-1,90)</sub>		NS

**B. Motional quality: THE SPEED**

We used two tests to test this motional quality: **1. Sprint run on 50 m.**

The evaluation was made upon the scale:

NOTES	10	9	8	7	6	5	4	3	2	1
Time (seconds and tenths)	≤ 6,5	6,6- 6,7	6,8- 6,9	7,0- 7,1	7,2- 7,3	7,4- 7,6	7,7- 7,9	8,0- 8,2	8,3- 8,5	≥ 8,6
Level of appreciation	FB	B <sub>(6,6-7,1)</sub>			M <sub>(7,2-7,9)</sub>			S <sub>(8,0-8,5)</sub>		NS

**2. Free style swimming on 50 m.** The evaluation of the students followed the next presented scale noticing the medium level of the students promotion:

NOTES	10	9	8	7	6	5	4	3	2	1
Time (seconds)	≤ 34"	35- 36	37- 38	39- 40	41- 45	46- 49	50- 53	54- 57	58- 60	≥ 61"
Level of appreciation	FB	B <sub>(35-40)</sub>			M <sub>(41-53)</sub>			S <sub>(54-60)</sub>		NS

**C. The motional Quality: THE ENDURANCE.** The called quality was tested by two tests: **1. A cross country run of 4000 m.**

The results evaluation and the level of the tested students used the next presented scale:

NOTES	10	9	8	7	6	5	4	3	2	1
Time	≤ 17'0"	17'01" - 17'30"	17'31" - 18'00"	18'01" - 18'30"	18'31" - 19'00"	19'01" - 19'30"	19'31" - 20'14"	20'15" - 20'59"	21'00" - 21'59"	≥ 22'0"
Level of appreciation	FB	B <sub>(17'01"-18'30")</sub>			M <sub>(18'31"-20'14")</sub>			S <sub>(20'15"-21'59")</sub>		NS

**2. Free style swimming for 30 minutes.**

The evaluation was made upon the scale:

NOTES	10	9	8	7	6	5	4	3	2	1
Distance (m/30 min.)	≥ 1001 m	951 - 1000	901 - 950	801 - 900	701 - 800	551 - 700	401 - 550	251 - 400	101 - 250	≤ 100 m
Level of appreciation	FB	B <sub>(801-1000)</sub>			M <sub>(401-800)</sub>			S <sub>(100-400)</sub>		NS

**D. The motional quality: THE SKILL (THE BALANCE)**

**The specific balance (in a boat).** The parameter was tested by a *specific test*.

The subject sits on a wooden board, the legs stretched, one over the other, supported on the ground, by the heels. The board is positioned in an unstable balance on a

bottle of 1 liter lying on a plain surface. The bottle can roll to the right or the left according to the subject's balance oscillations. The time the subject can maintain his balance is measured.

The results evaluation and the level of the tested students used the next presented scale:

NOTES	10	9	8	7	6	5	4	3	2	1
Time (in seconds)	≥ 101"	91-100	81-90	71-80	61-70	51-60	41-50	31-40	21-30	≤ 20"
Level of appreciation	FB	B <sub>(71"-100")</sub>			M <sub>(41"-70")</sub>			S <sub>(21"-40")</sub>		NS

**VI. The results and the statistical processing**

The exemplificative presentation of the way the investigated data were organised, as well as the statistical processing are in the Table no.2.

The obtained the same way the results of the investigations made for all 9 parameters in the pack of tests of *general physical training* for the naval and marine students. Unfortunately we cannot present them here, cause of the lack of space, but we present the general situation

**VII.a. The conclusion was: the specific orientation of the physical training** of the students and of the professional navigators automatically leads to an increase level of the parameters of the **general physical training**. That meant a special lot for us.

The most difficult thing in developing the *general* and *specific* physical training of the students was we had not time enough to develop and realize every purpose we fixed.

**VIII.b. As a final conclusion** we have to mention clearly scientifically and experimentally reasoned that. If up to a certain age a certain level, the general physical training has to represent the basis of all other training forms, in the case of the youngmen of 20-21 years old involved in a special and specific kind of a professional activity, there is the moment to act directly towards the specific physical and psycho motional training, knowing by now this means to save a lot of time, to realise a larger area of *the specific training* process directly influencing *the general physical training*, without wasting a special time period to realise that.

**Table no. 2**

**The pattern to process the results we got from the general physical training testing, from statistical point of view A. THE FORCE 1. Pulling in arms**

Number of the subjects	INITIAL TEST (T1)		SECOND (INTERMEDIARY) TEST (T2)		FINAL TEST (Tf)	
	M	E	M	E	M	E
1	7,00	7,00	10,00	14,00	14,00	19,00
2	9,00	6,00	10,00	15,00	13,00	21,00
3	10,00	8,00	11,00	18,00	14,00	23,00
4	6,00	7,00	10,00	20,00	12,00	20,00
5	6,00	9,00	10,00	20,00	14,00	24,00
6	8,00	10,00	11,00	20,00	13,00	26,00
7	7,00	8,00	8,00	16,00	12,00	20,00
8	6,00	7,00	8,00	18,00	12,00	22,00
9	11,00	6,00	12,00	25,00	14,00	28,00
10	9,00	7,00	10,00	24,00	13,00	27,00
11	10,00	8,00	12,00	20,00	15,00	24,00
12	11,00	6,00	12,00	18,00	12,00	20,00
13	6,00	8,00	9,00	16,00	11,00	21,00
14	5,00	9,00	9,00	14,00	14,00	19,00
15	6,00	10,00	9,00	13,00	15,00	18,00
<b>STATISTICAL PROCESSING</b>						
Arithmetical media (X)	7,80	7,73	10,07	18,07	13,20	22,13
Maximal value (V <sub>max</sub> )	11,00	10,00	12,00	25,00	15,00	28,00
Minimal value (V <sub>min</sub> )	5,00	6,00	8,00	13,00	11,00	18,00
Standard deviation (σ)	2,04	1,33	1,33	3,53	1,21	3,09
Standard error (m)	0,53	0,34	0,34	0,91	0,31	0,80
Variability coefficient (C.v.)	26,18	17,26	13,26	19,57	9,14	13,96
Standard deviation of the difference between the medium results (t)	2,04	1,33	1,33	3,53	1,21	3,09
Statistical significance	3,82	5,79	7,54	5,11	10,94	7,16

THE EVOLUTION OF THE GROUP MEDIUM RESULTS						
GROUP	$\bar{X}$		$\bar{X}$		$\bar{X}$	
	T1	Level	T2	Level	Tf	Level
WITNESS	7,8	S	10,07	M	13,20	B
EXPERIMENTAL	7,73	S	18,07	B	22,13	FB

Table 3a

The media of the groups characterizing  
*GENERAL PHYSICAL TRAINING* of the students groups, tested in this pedagogical experiment, initial Testing (T<sub>1</sub>), intermediary (T<sub>2</sub>) and the final one (T<sub>f</sub>), witness group (M) and experimental (E)

No.	THE STUDIED PARAMETERS	STATISTIC INDICATORS: $\bar{X} \pm m$ ; $\sigma$ ; Cv								
		INITIAL TEST (T1)			SECOND (INTERMEDIARY) TEST (T2)			FINAL TEST (Tf)		
		$\bar{X}_1 \pm m$	$\sigma_1$	Cv <sub>1</sub>	$\bar{X}_2 \pm m$	$\sigma_2$	Cv <sub>2</sub>	$\bar{X}_f \pm m$	$\sigma_f$	Cv <sub>f</sub>
<b>I</b>	<b>THE WITNESS GROUP (M)</b>									
1	(Force) Pulling arms	7,80 ± 0,53	2,04	26,18	10,07 ± 0,34	1,33	13,26	13,20 ± 0,31	1,21	9,14
2	(Force) Abdominal flexions	40,13 ± 2,07	8,03	20,00	50,33 ± 1,67	6,47	12,85	57,13 ± 1,40	5,41	9,47
3	(Force) Jumping from a fix position	1,88 ± 0,06	0,24	12,95	1,96 ± 0,06	0,23	11,86	2,08 ± 0,05	0,21	9,95
4	(Endurance) 1000 m run	227,93 ± 3,04	11,77	5,17	225,47 ± 2,87	11,10	4,92	222,07 ± 3,13	12,10	5,45
5	(Endurance) 4000 m run	1218,6 ± 7,06	27,36	2,24	1168,80 ± 7,25	28,07	2,40	1146,40 ± 6,87	26,60	2,32
6	(Endurance) Swimming free style for 30'	456,67 ± 22,36	86,62	18,97	615,67 ± 23,58	91,32	14,83	735,33 ± 32,10	124,33	16,91
7	(Speed) 50 m Sprint run	7,83 ± 0,06	0,22	2,79	7,34 ± 0,05	0,21	2,81	7,01 ± 0,08	0,30	4,23
8	(Speed) Free style swimming for 50 m	52,28 ± 1,81	7,01	13,41	48,07 ± 1,44	5,57	11,59	44,45 ± 1,18	4,56	10,25
9	The specific balance	26,07 ± 2,59	10,04	38,51	54,73 ± 3,02	11,69	21,36	64,87 ± 2,27	8,79	13,55

**Table 3b**

No.	THE STUDIED PARAMETER S	STATISTIC INDICATORS: $\bar{X} \pm m$ ; $\sigma$ ; Cv								
		INITIAL TEST (T1)			SECOND (INTERMEDIARY) TEST (T2)			FINAL TEST (Tf)		
		$\bar{X}_1 \pm m$	$\sigma_1$	Cv <sub>1</sub>	$\bar{X}_2 \pm m$	$\sigma_2$	Cv <sub>2</sub>	$\bar{X}_f \pm m$	$\sigma_f$	Cv <sub>f</sub>
<b>II THE EXPERIMENTAL GROUP (E)</b>										
1	(Force) Pulling arms	7,73 ± 0,34	1,33	17,26	18,07 ± 0,91	3,53	19,57	22,13 ± 0,80	3,09	13,96
2	(Force) Abdominal flexions	39,47 ± 2,12	8,23	20,85	62,87 ± 1,40	5,41	8,61	69,73 ± 1,09	4,23	6,07
3	(Force) Jumping from a fix position	1,89 ± 0,05	0,21	11,22	2,14 ± 0,05	0,18	8,65	2,42 ± 0,04	0,15	6,11
4	(Endurance) 1000 m run	225,80 ± 3,06	11,86	5,25	218,73 ± 2,76	10,67	4,88	206,60 ± 3,07	11,87	5,75
5	(Endurance) 4000 m run	1223,87 ± 4,63	17,93	1,47	1114,93 ± 8,78	33,99	3,05	1017,47 ± 6,78	26,26	2,58
6	(Endurance) Swimming free style for 30'	457,33 ± 28,55	110,58	24,18	868,33 ± 41,76	161,73	18,63	1203 ± 49,59	192,05	15,96
7	(Speed) 50 m Sprint run	7,89 ± 0,06	0,23	2,89	7,15 ± 0,07	0,26	3,62	6,74 ± 0,04	0,16	2,43
8	(Speed) Free style swimming for 50 m	52,33 ± 1,41	5,45	10,41	41,24 ± 1,10	4,25	10,31	38,08 ± 1,02	3,94	10,34
9	The specific balance	26,47 ± 3,08	11,92	45,04	85,67 ± 3,24	12,56	14,66	125,53 ± 4,69	18,17	14,47

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