

## MODELS OF PROFESSIONAL READINESS OF STUDENTS OF HIGHER MILITARY SCHOOLS OF THE ARMED FORCES OF UKRAINE

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**Annotation.** *Purpose:* Creating models of professional readiness, namely, physical, mental, psycho-physiological and functional training based on the integral method developed. *Material / Methods:* The study involved 60 students of the fourth graduating class of 30 people in the control and experimental groups. To confirm the effectiveness of the developed method was used testing the physical qualities, psychological questionnaires, the study of cognitive processes, as well as functional tests. *Results:* It was established that at the beginning of the experiment between the control and experimental groups was not significant differences in all indicators. After the study of the experimental group experienced an improvement of performance as compared to the control group. So on average, in terms of physical fitness, they increased by 9.34 %, mental qualities to 21.25 %, physiological capacity of 14.7 % and a functional readiness to 21.13 %. The results obtained are reliable. *Conclusions:* The developed method allowed to increase the individual results of students to build models that characterize the professional readiness of future officers, as well as increase the adaptive processes of all systems to service and combat activities.

**Keywords:** professional readiness, cadets, military activities, models.

### Introduction

Modern combat requires from military officers great tension of mental and physical strength. Progressing of new weapons, satiation of army with highly technological arms and complex computer machinery do not mean reducing of such tension but, on the contrary, results in its intensification.

In this connection requirements to physical fitness of future military officers are continuously growing and become more complex as far as they condition successfulness of officers' functioning in combat tasks.

Characteristic feature of modern combat functioning is complexity and quickness of changing of situation, in which officer shall take correct decisions and manage his sub-division expertly. This, in its turn, requires from a commander to have a complex of qualities; ability to take independent decisions, quickness and preciseness of actions, constant combination of his actions with solution of intellectual tasks against the background of physical and mental load. All these set such important requirements to physical fitness as education of future military officers' initiative and quick wit, quickness in orientation and quickness of responsiveness, ability to act accurately and promptly in conditions of physical tiredness and nervous strain, ability to switch himself from one action to other [1, 3, 6, 13, 14-17].

At present there are certain works, devoted to problems of professional-applied physical training in military system of education of Ukraine (G.I. Sukhorada 2003; O.G. Pidubniy, 2003; Yu.A. Borodin, 2004; Yu.M. Antoshkin, АНТ2006; V.M. Krasota, 2007; V.M. Romanchuk, 2007; O.A. Yareshenko, Яреш2008; K.V. Pronenko., 2009; S.I. Dyakov, 2010) [2, 4, 7, 9-12, 14-17].

But practically there are no literature and scientific works, which would deal with integral fitness of cadets, videlicet: physical, mental, psycho-physiological and functional as an integral complex.

The present scientific research has been fulfilled as per scientific topic of department of special disciplines and organization of professional training of tax police faculty of National university of state tax administration of Ukraine for 2008-2013 by subject "Problems of professional functioning and safety of officers of state tax administration of Ukraine", state registration No. 0108U004234.

### Purpose, tasks of the work, material and methods

The task is creation of models of future military officers' of Ukraine professional readiness on the base of integral methodic of cadets' physical, mental, psycho-physiological and functional fitness.

*The methods of the research.* For reaching of our purpose we applied the following methods of research: pedagogical observation, psycho-physiological testing, questioning, medical and biological methods, pedagogical experiment, methods of mathematical statistics [2, 5, 8].

Solution of our task was carried out by introducing of developed methodic in program of 4<sup>th</sup>, graduation, year of study. The research involved 60 cadet (30 persons in experimental group and 30 persons in control one). The experiment took one year.

### Results of the research

The existing system of cadets' training is characterized by relative uniformity of physical education classes. It, in its turn, results in habit to standard situation that increases lability of adaptation processes in non-standard, extreme situations of combat functioning. That is why, we, in our methodic, were guided by the following principles, videlicet: depending on scope of cadets' knowledge, their experience, level of physical, mental, psycho-physiological and functional abilities and requirements of combat functioning's tasks, we simulated training classes. We created models, which were oriented on development of physical skill, manifestation of mental abilities in different situations, as well as models of integral character of manifestation of every commander's personality.

In the course of testing of the developed experimental methodic we considered the following approaches: stimulation of manifestation of psychological, personality's qualities; development of cognitive qualities (observation, memory, thinking, attention); creation of motivation for achievement of goal; development of will and emotional stability at level of physical tiredness; formation of own significance in interests of collective interaction and consolidation of collective.

After experiment we carried out comparative characteristics of the obtained results of control and experimental groups before and after experiment. On the base of the obtained data we built models of physical, mental, functional and psycho-physiological cadets' fitness.

Comparing indicators of control and experimental groups' physical fitness at the beginning of experiment we stated absence of confident difference in tests of both groups, see table 1. As on the beginning of experiment percentage of difference between indicators was in 100metes' run -0.5%, in 3 000 meters run - 0.4%, in chin ups - 2.2%, in complex-power exercise - 0.9% and in complex test for dexterity - 1%.

As we see, as on the beginning of experiment both groups were on the same level of fitness.

Table 1

Indicators of physical fitness of control (n=30) and experimental groups' cadets (n=30) before and after experiment,

Indicators		Cadets' groups		t	p
		CG	EG		
100 m, run, (sec.)	before	13.48±0.17	13.49±0.11	-0.05	p>0.05
	after	13.47±0.12	13.14±0.09	<b>3.85</b>	p<0.001
3000 m, run, (sec.)	before	785.98±10.14	782.96±9.02	0.23	p>0.05
	after	740.10±6.77	688.33±9.42	<b>4.30</b>	p<0.001
Chin ups (times)	before	13.43±0.51	13.13±0.4	0.89	p>0.05
	after	14.53±0.54	18.13±0.44	<b>-7.08</b>	p<0.001
Complex-power exercise (sec.)	before	283.43±3.37	281.00±3.53	1.58	p>0.05
	after	280.96±3.58	270.00±3.68	<b>3.02</b>	p<0.001
Test for dexterity (sec.)	before	70.33±0.7	71.03±0.6	-1.00	p>0.05
	after	69.90±0.62	64.00±0.57	<b>11.71</b>	p<0.001

After experiment we received the following increment of experimental group's indicators. Difference in 100 meter run increased up to 2.5%, in 3000 meters run - by 7%, in chin ups - 24.8%, in complex power exercise - by 4% and in complex test for dexterity - by 8.4%, see table 1.

Thus, experiment resulted in changes if experimental group cadets' fitness, see fig. 1.

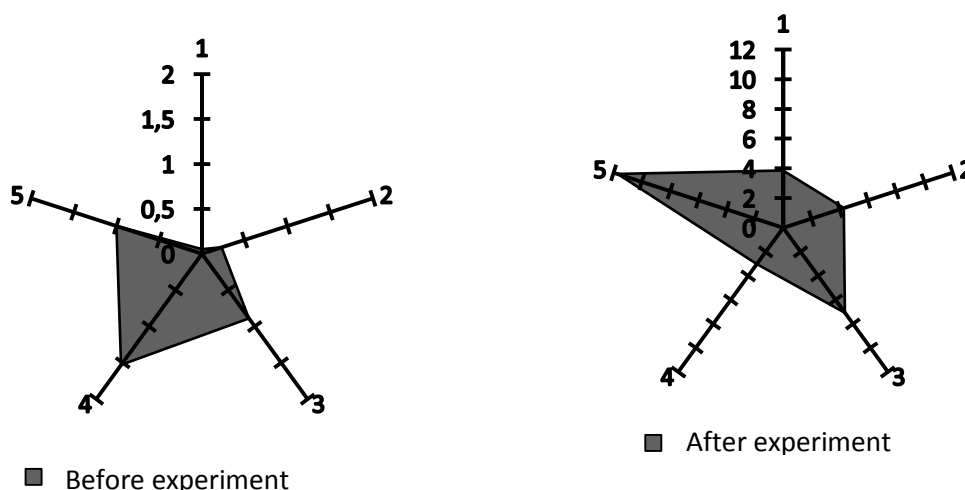


Fig.1. Model of cadets' physical fitness before and after experiment (by Student's criterion): 1- 100 meter' run; 2- 3000 meters' run; 3- chin ups; 4- complex-power exercise; 5-complex test for dexterity.

At the beginning of experiment there were also no confident differences between indicators of mental abilities, except indicator of will power (p<0.05), which was insignificantly higher in experimental group (see table 2).

Table 2

Indicators of mental abilities of control (n=30) and experimental groups' cadets (n=30) before and after experiment,  $\bar{X} \pm m$

Indicators	Cadets' groups		t	p	
	before	after			
Personality's anxiety(points)	before	3813±1.16	37.73±1.18	0.68	p>0.05
	after	37.56±1.02	36.00±0.94	<b>4.19</b>	p<0.001
Situational anxiety (points)	before	43.80±1.29	44.07±1.28	-0.41	p>0.05
	after	42.73±1.14	31.00±0.82	<b>14.50</b>	p<0.001
Will power (points)	before	21.43±0.65	22.30±0.64	<b>-2.15</b>	p<0.05
	after	20.46±0.57	26.63±0.65	<b>-8.77</b>	p<0.001
Persistence (points)	before	12.80±0.45	12.17±0.42	1.29	p>0.05
	after	13.03±0.43	16.70±0.44	<b>-8.70</b>	p<0.001
Indicators of emotional responsiveness (HBF)	before	88.80±1.37	90.57±1.32	-1.04	p>0.05
	after	87.23±1.4	72.97±0.56	<b>9.82</b>	p<0.001

Percentage of intergroup indicators at the beginning of experiment was in test for personality's anxiety 1.05 %, situational anxiety – 0.62 %, will power – 4.1 %, persistence – 4.9 % and indicator of emotional responsiveness - 2 %. After experiment percentage between groups was: in personality's anxiety 4.15 %, situational anxiety – 27.5 %, will power – 30.2 %, persistence – 28.1 % and emotional responsiveness - и 16,3 %.

Structural changes of mental qualities before and after experiment are shown in models (see fig.2).

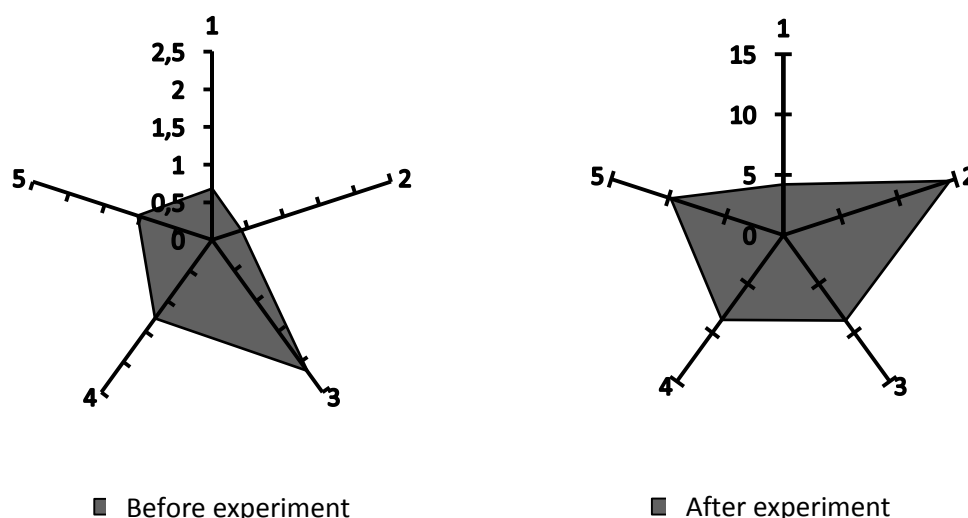


Fig.2 Models of cadets' mental fitness before and after experiment (by Student's criterion): 1- personality's anxiety; 2- situational anxiety; 3- will power; 4- persistence; 5- emotional responsiveness.

Analyzing results of cadets' functional fitness before and after experiment we registered confident difference between two indicators of control and experimental groups, videlicet: Genchy's test and functional indicators of Kverg (p<0,05), see table 3. In indicators of Shtange's test there was no confidence. Percentage of Shtange's test, before experiment, was 0.9%, Genchy's test – 2.9%, functional indicators of Kverg – 2.1%.

Table 3  
Indicators of functional fitness of control (n=30) and experimental groups' cadets (n=30) before and after experiment,  $\bar{X} \pm m$

Indicators	Cadets' groups		t	p	
	before	after			
Shtange's test (sec.)	before	67.80±1.39	68.43±1.73	-0.92	p>0.05
	after	70.96±1.34	89.00±1.23	<b>-17.92</b>	p<0.001
Genchy's test (sec.)	before	49.46±1.62	48.03±1.51	<b>2.36</b>	p<0.05
	after	50.73±1.45	58.10±1.42	<b>-10.06</b>	p<0.001
Functional indicator of Kverg (conv.un.)	before	85.63±1.49	83.83±1.57	<b>3.54</b>	p<0.01
	after	84.43±1.69	104.30±0.81	<b>-13.20</b>	p<0.001

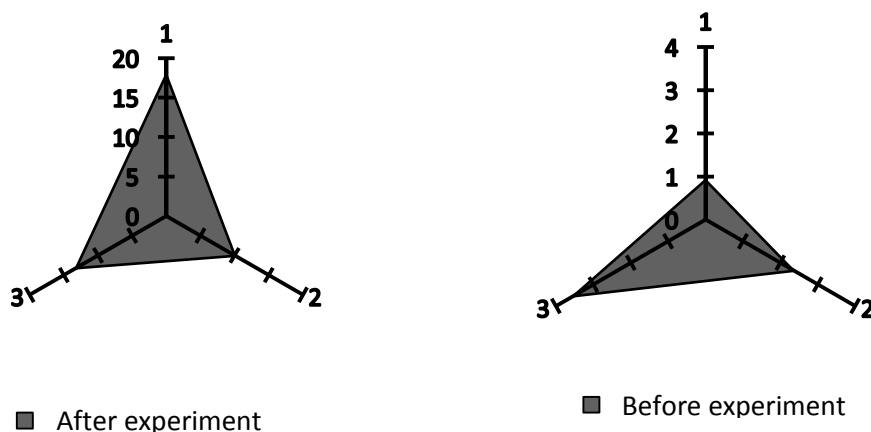


Fig.3. Models of cadets' functional fitness before and after experiment (by Student's criterion): 1- Shtage's test; 2- Genchy's test; 3- functional indicators of Kverg.

After finishing of experiment we found the following changes in percentage; in Shtange's test difference was - 25.4%, in Gency's test - 14.5% and in functional indicator of Kverg - 23.5%. The models of obtained indicators are given in fig.3.

At the beginning of experiment indicators of psycho-physiological abilities of control and experimental groups' cadets had confident difference in test for perception of space and for operative thinking (p<0,05); in other tests there were no confident differences (see table 4).

Table 4  
Indicators of psycho-physiological abilities of control (n=30) and experimental groups' cadets (n=30) before and after experiment,  $\bar{X} \pm m$

Indicators		Cadets' groups		t	p
		CG	EG		
Simple response to light (m.sec)	before	0.28±0.003	0.28±0.003	0.95	p>0.05
	after	0.26±0.005	0.24±0.004	<b>6.16</b>	p<0.001
Simple response to sound (m.sec)	before	0.29±0.005	0.29±0.006	-0.26	p>0.05
	after	0.28±0.005	0.24±0.004	<b>7.51</b>	p<0.001
Sense of time (sec)	before	54.46±1.94	54.63±2.01	-0.32	p>0.05
	after	54.94±1.72	58.13±1.82	<b>-5.12</b>	p<0.001
Sense of space (cm)	before	6.07±0.32	6.30±0.31	<b>-2.49</b>	p<0.05
	after	6.45±0.31	8.85±0.32	<b>-11.07</b>	p<0.001
Operative memory (%)	before	64.53±2.55	65.00±3.13	-0.42	p>0.05
	after	67.50±2.44	77.00±2.84	<b>-7.08</b>	p<0.001
Scope of attention (%)	before	79.69±1.6	81.00±1.93	-0.96	p>0.05
	after	81.39±1.56	90.01±1.55	<b>-6.97</b>	p<0.001
Operative thinking (%)	before	64.22±1.81	63.10±1.89	<b>2.76</b>	p<0.01
	after	65.07±1.84	73.69±1.63	<b>-10.56</b>	p<0.001

Difference in mean indicators of cadets' psycho-physiological abilities' indicators before experiment was the following in percents: in simple response to light and sound it was not registered; in sensing of time - 0.3%; in sensing of space - 3.8%; in operative memory - 0.7%; in scope of attention - 1.6% and in operative thinking - 1.7%.

After experiment difference between control and experimental groups' indicators was: in simple response to light – 7.7%; in simple response to sound – 14.3%; in sensing of time – 5.8%; in sensing of space – 37.2%; in operative memory – 14.1%; in scope of attention – 10.6%; in operative thinking -0 13.2%. As a result of experiment we built models of cadets' psycho-physiological abilities, which are presented in fig.4, in which we reflected changes that took place during experiment.

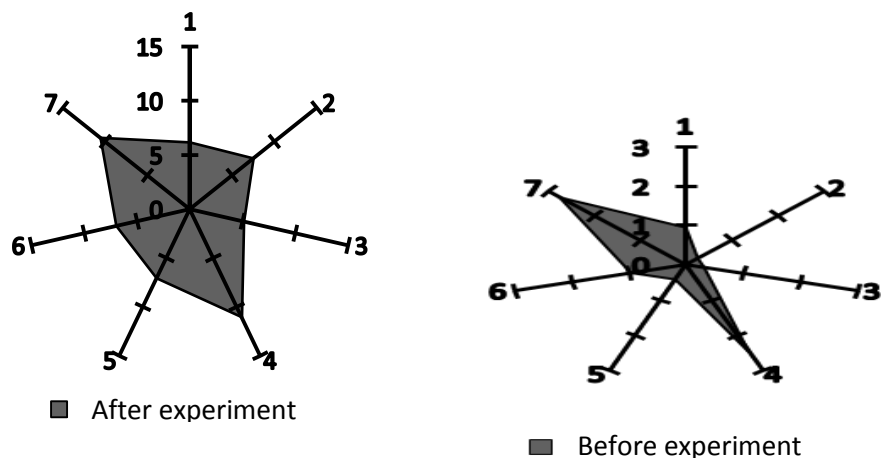


Fig.4. Models of cadets' psycho-physiological fitness before and after experiment (by Student's criterion): 1- simple response to light; 2- simple response to sound; 3- sensing of time; 4- sensing of space; 5- operative memory; 6- scope of attention; 7- operative thinking.

#### Conclusions:

The received results permitted to determine models of physical, mental, psycho-physiological and functional fitness before and after experiment. As a result of experiment all models showed even increment of experimental group's indicators in comparison with indicators of control group, that witness about formation of future military officers' professional readiness to execution of combat tasks.

The offered by us integral methodic of formation of cadets' professional readiness to future professional functioning witnesses about purposefulness of its introduction in academic process of senior years of study in order to increase adaptation to future professional functioning and accelerating the process of education.

Meanwhile, this methodic does not solve all aspects of problem of the research. Further development of these studies shall be oriented on expansion of researching of professional readiness components in order to ensure professional functioning in all power structures of Ukraine.

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**Cite this article as:** Sergienko Y.P., Andreianov A.M. Models of professional readiness of students of higher military schools of the Armed Forces of Ukraine. *Physical education of students*, 2013, vol.6, pp. 66-72. doi:10.6084/m9.figshare.840507

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Received: 17.09.2013  
Published: 30.11.2013