

Original Article

Adoption of youth`s bodies to educational conditions in higher educational institutions

KLYMOVYCH VOLODYMYR¹, OLKHOVYI OLEH², ROMANCHUK SERHII¹

¹National Army Academy, Lviv, UKRAINE

²Kharkiv State Academy of Physical Culture, Kharkiv, UKRAINE

Published online: July 30, 2016

(Accepted for publication June 10 2016)

DOI:10.7752/jpes.2016.s1098

Abstract:

In the frames of functioning of PT system in higher educational institutions, a 4-year pedagogical test was made, with implementation of directed technology of military applied motor ability acquirement. According to the results of experimental technology test, accurate dynamics (4,61%, $p < 0,05$) of youth`s bodies adoption (n=23) to training conditions in higher educational institutions was established, as a fact, new adopted behavior and even more favorable adoption of their bodies to further professional activity was formed.

Keywords: functional, adoption, physical training, youth.

Introduction

Adoption processes, that happen in the bodies of youth in the process of acquirement of professional skills, abilities and experience in higher educational institutions are determined by a lot of educational, everyday activity factors, by behavior - each of these aims to achieve the best final result in education in higher military educational institutions. During educational – training process in military educational institutions youth adopts to new schedule of education, military service conditions, relaxation, psychological and physical tension [2, 4, 7], but the challenge of index dynamic of youth`s bodies functional system is in sphere of our interests.

The subject „Physical training, special physical training and sport ” is taught in higher military institutions for all years of education (except the last term), and its military applied task oriented implementation contributes to adoption of functional abilities of youth`s bodies to further professional activity [2, 4, 7]. It is worth mentioning, that cadets do PT exercises in the military uniform, moreover, military applied exercises are performed with weapon, in extreme environment. All these above, on one hand, through integration influence of many internal and external environmental factors contributes to positive dynamic of adoption, and on the other hand, demands additional efforts and sufficient physical preparedness of future officers to perform these exercises.

Analyses of the last research and publications show that the biggest activation of adoption processes of the youth`s bodies functional system to the new conditions of educational environment and especially cadet`s life, begins from the first year of education, due to the influence of short and durable extreme situations on the body [2, 4, 7]. The consequences of some stages of educational-training process on the youth`s bodies in higher educational institutions were examined thoroughly by O.Boiarchuk, 2009; O.Husak, 2011; V.Kyrpenko, 2007-2014; A. Marakushyn, 2006-2010; V.Paievskiy, 2010; O.Petrachkov, 2012; O.Popov, 2009; K.Prontenko, 2008 та ін. [5, 7]. But it wasn't fully characterized the dynamic of indexes, characterizing the adoption processes, which happen in the bodies of those, who study in the military institutions, and how they experience the training exercises and also perspectives for professional activity by means of physical preparedness during all period of education [2, 5, 7].

Arrangement and the methods of research.

To determine how the implementation of directed technology of acquirement of motor skills by graduates of military educational institutions influences the state of adoption abilities of their bodies, we made a pedagogical test in conditions of ordinary educational-training process of higher military institutions and it was of experimental nature. The researches were made during the whole period of education and in accordance with the curriculum of preparation of tactical level officers, that is why it wasn't necessary to make changes in educational-training process.

During testing period the lessons were conducted with the representatives of control and testing groups in accordance with the educational programme "Physical education, special physical training and sports". In general, there were no differences in quantity of different kinds of lessons and trainings. However, the lessons in testing group were conducted in accordance with developed test educational programme, with implementation of test methodic influence of directed technology of military applied motor skills acquirement.

To receive the reasonable advantage in diagnosis of the whole, according to a lot of characteristic and more accurate information about test groups, we employed random individual examination of the whole, in terms of its total strength using the more wide programme. The amount of testing subjects (n) was equal to 20 % of the whole. From the whole of those, who studied in 2011 two groups were selected (n=47), one of these was control (n=24), and the other was the test one (n=23).

The measurements of height and weight of body were taken in accordance with standard methods.

The height was taken with stadiometer. Those who were tested, stood barefoot on the platform of stadiometer, so as their heels and backside touch the vertical pole, they looked forward and made deep inspiration. Horizontal plank was put down to the crown of head, the taken measurement was accurate to 0,5 sm.

The weight was taken with medical scales (accuracy to 100 gr). The representatives of test groups were in underwear. The frequency of heart beats, as one of the most important index, that characterizes the state of cardiovascular system during physical effort was taken with heart rate monitor (pulsimeter) SIGMA PC – 15. Systolic and diastolic pressure were taken with blood pressure meter and mercurial sphygmomanometer on the method of M.Korotkov according to the rules of International organization of Health Care (1996).

Taking into consideration, that the index of adoption accurately characterizes the level of youth's body adoption to the new factors of educational environment, and its main components are the indicators of men's health, to determine physical state according to the data of antropometer status and cardiovascular system [3, 6], we made quantity estimation of adoption of youth's blood circulation in testing groups according to R.Baievskyi and others formula [1].

The results of research.

Average data of the gate-control of functional and antropometric data of control and test groups, that took part in pedagogical test, wasn't accurate (p>0,05), it testified the homogeneity of tested selections (table. 1).

Table 1. Dynamic of control group adoption CG (n=24) and test group TG (n=23) according to the results of forming pedagogical test (2011-2015 years.)

Indexes (measurement units)	Period of testing	Group	\bar{X}	S	m	Change s %	BT-AT		CG-TG			
							t	p	BT		AT	
									t	p	t	p
Weight (kg)	BT*	TG	76,22	4,03	0,84	1,07	0,72	0,05	0,47	0,05	1,55	0,05
	AT*		77,04	3,71	0,77							
	BT	CG	75,63	4,56	0,93	0,57	-0,29	0,05				
	AT		75,25	4,19	0,86							
Height (sm)	BT	TG	176,17	4,12	0,86	0,13	0,18	0,05				
	AT		176,39	3,93	0,82							
	BT	CG	179,08	6,16	1,23	0,05	0,07	0,05				
	AT		179,17	5,59	1,21							
Frequency of heart beats (b./min.)	BT	TG	73,91	7,12	1,49	11,76	-4,73	0,001	1,05	0,05	2,28	0,05
	AT		65,22	5,18	1,08							
	BT	CG	71,83	6,38	1,3	4,4	-1,89	0,05				
	AT		68,67	5,19	1,06							
Blood pressure systolic (m.mer.col)	BT	TG	117,83	5,99	1,25	2,21	-1,72	0,05	0,21	0,05	2,38	0,05
	AT		115,22	4,12	0,86							
	BT	CG	117,5	4,66	0,95	0,18	0,19	0,05				
	AT		117,71	2,94	0,6							
Blood pressure diastolic (mm.mer.col)	BT	TG	78,26	5,76	1,2	4,17	-2,23	0,05	0,29	0,05	2,64	0,05
	AT		75,0	3,99	0,83							
	BT	CG	78,75	5,76	1,18	1,33	-0,79	0,05				
	AT		77,71	2,94	0,6							
Adoption (re.val.u)	BT	TG	2,17	0,19	0,04	4,61	-2,15	0,05	1,13	0,05	1,85	0,05
	AT		2,07	0,11	0,02							
	BT	kg	2,11	0,14	0,03	0,47	0,33	0,05				
	AT		2,12	0,08	0,02							

*NB: BT – before testing, AT – after testing; CG – control group, TG – test group.

The level of adoption potential of youth's bodies of both groups, according to R.Baievsky formula, didn't differ significantly at the very beginning of test. However, during adoption period it was stated „the tension of adoption mechanism” (table. 1) [1], the tension of regulatory system and disadoption of youth's bodies to the environmental influence were fixed. It was proved, that at the beginning if their education at the higher educational institutions, the youth's bodies are in fact in donozological state, and this state is presented in both groups, as in control, as well as in test one.

According to the results made after test control, it was stated that (table. 1), the average level of antropometric and functional data of control group representatives, in comparison with testing state, is of positive dynamic (p>0,05). The index state of the heart beats frequency (table. 1) of the control group youth, according to the results of the final test, had positive accurate changes, in comparison with the final test, which was made 4 years ago. The difference of these indexes is 4,4% (t=1,89). This dynamic can be explained by age

changes in the youth's bodies, and certainly, by stabilization of motion activity schedule, according to the results of education in higher military institutions. The comparative statistic analysis of gate-control and final control of average level of antropometric and functional data of test group youth (table. 1) stated the positive dynamic of all indexes, except the height and body's weight ($p > 0,05$). According to the results of tests with directed implementation of testing methodological influence in the form of directed technology of youth's acquirement of military applied motor skills, positive dynamic of functional indexes of FHB among the representatives of test group was shown, for instance:

- Frequency of heart beats in still stand-by – 8,69 beats/min. (11,76%, $t = -4,73$);
- Systolic blood pressure – 2,61 mm. mer. col. (2,21%, $t = -1,72$);
- Diastolic blood pressure – 3,26 mm. mer. col. (4,17%, $t = -2,23$).

For more detailed examination of the consequences of directed technology implementation of military applied motor skills of test group youth, the comparative statistic analysis of antropometric and functional data the final test of this group and control group was made (table 1). According to the results of comparative analysis, it was notified the lack of statistic accurate difference of antropometric data of both tested groups. Total measures of bodies those who were tested correspond to sex-age indexes, and it shows the balancy of physical development of youth, but functional FHB indexes differ essentially:

- Frequency of heart beats in still stand-by – 3,45 beats./min., $t = 2,28$;
- Systolic blood pressure – 2,49 mm. mer. col., $t = 2,38$;
- Diastolic blood pressure – 2,71 mm. mer. col., $t = 2,64$.

Discussion of results.

Comparing the level of youth's bodies adoption of groups that were under test to new factors of educational environment according to the R. Baievskiy formula of adoption potential, its advantage in 0,05, $t = 1,85$ (table 1) was determined among test group youth [1].

Quantity percentage of control group representatives, who were in state of „satisfactory adoption” in before and after test period stayed unchangeable – 41,67%, but it changed in test group representatives from 34,78% to 65,22%. At the same time, if the adoption potential of control group representatives was changed inaccurately to 0,01 and is still in the state of „adoption mechanism tension”, as it was at the beginning of test, in test group it was changed accurately to 0,1 (4,61%, при $t = -2,15$) and is in the state of „satisfactory adoption” to the educational-training environment. All these above states the sufficient level of functional abilities and lowest tension of regulatory system, the formation of new adoptive behavior and more favourable body adoption of the test group representatives to the factors of further professional activity was testified at the final stage of education in the higher military educational institutions.

Conclusion.

Data of testing proved that experimental usage of methodological influence with directed implementation of technology of motor skills acquirement by graduates of higher military institutions:

- influences the dynamic of functional indexes of youth (17–22 years old) from test group according to the results of education in higher educational institution;
- contributes to the improvement of adoption of test group bodies from the level of „tension of adoption mechanisms” to the level of „satisfactory adoption” to the environmental conditions [1];
- forms new adoption behavior and more favorable adoption of youth's bodies of test group to further professional activity.

In perspective we are going to continue testing the efficiency of PP system, functioning in higher military institutions, according to the results of implementation of directed technology of acquirement of military applied motor skills by cadets.

References

- Baevsky R.M. Assessment and classification of levels of health from the perspective of adaptation theory / R.M. Baevsky // Vestn. Academy of Medical Sciences of the USSR. - 1989. - № 8. - P. 73 - 78
- Borodin U.A. Physical preparation of cadets of higher military educational institutions of engineering and operator type: monograph / U.A. Borodin. - K.: NEA Dragomanov, 2009. - 417 p.
- Kenneth C. Heart Rate Variability/ C. Kenneth, M.D. Bilchick, D. Ronald, M.D. Berger // J. Cardiovasc. Electrophysiol. – 2006 – 17(6). – P. 691-694.
- Olkhovy O.M. Theoretical and methodical foundation of cadet physical training professionally directed of high military educational institutions.: [monograph] / O.M. Olkhovy. – K.: AFUK, 2012. – 286 p.
- Olkhovy O.M. Dynamics of antropometric and functional parameters of youths (17-22 years) as a result of training in higher educational school/ O.M. Olkhovy // Science magazine National Pedagogical Dragomanov University Series 15 "Scientific and pedagogical problems of physical training (physical culture and sport)" - Kyiv: National Pedagogical Dragomanov University 2014 - Output 3K (45) 14 - P. 219 - 224.
- Rajendra Acharya U. Heart rate analysis in normal subjects of various age groups / Acharya U. Rajendra, N. Kannathal, Ong Wai Sing, Y.P. Luk // BioMedical Engineering. – 2004. – 3 – P. 24-30.
- Romanchuk S. V. Cadets' physical training of military educational establishments of the Land Forces of Ukraine: [monograph] / S. V. Romanchuk. – L.: ALF. – 2012. – 367 p.