

## THE PHYSICAL CONDITION FOR THE FIRST TIME ACCEPTED THE SERVICE OF OFFICERS OF INTERNAL AFFAIRS OF UKRAINE

Verenga Y.V., Prontenko K.V., Bondarenko V.V., Bezpal S.M., Hutoryansky O.V.

National Academy of Internal Affairs

Zhitomir Military Institute

**Annotation.** The analysis of the level and dynamics of the physical condition and the adaptive capacity of the first accepted the service of police officers. The study involved 112 employees of the first medical-age group, which took initial training courses. The index of physical condition and the adaptive capacity of the cardiovascular system was analyzed. Found that the initial level of physical condition in 52.7% of employees is defined as the average. Adaptive capabilities of the majority of workers (76.8%) are characterized by stress adaptation mechanisms. Found non-significant deterioration in the value of the index of physical condition and the adaptive capacity of the first year of service. Proven lack of effectiveness of physical training of workers in the period of initial training. Found that one of the ways to improve the physical fitness of workers is to validate the content of physical training with regard to their physical condition and the posts to which they are assigned.

**Keywords:** physical state, adaptive capacity, initial training, physical training, worker.

### Introduction

One of negative characteristics of professional activity of most regular personnel of (MHA) Ministry of Home Affairs of Ukraine higher educational establishments (HEE) is low motion activity [2, 3].

By the present time the fact of internals' pathology, resulted from limited motion activity, has been commonly recognized; practically there is no organ or system, which would remain unchanged under influence of motion deficit. Hypo-dynamic mode of activity results in a complex of functional disorders, which spread on functions of blood circulation and respiratory systems, supporting motor system, metabolic processes and result in significant worsening of organism's adapting abilities, owing to what it can not effectively resist the complex of negative factors of activity. As a result health worsens, workability and efficiency of service activity reduces [3, 4, 9].

An important criterion of physical workability of a specialist of any profile is his physical level. It is determined by a number of factors, the main of which are indicators of cardio-vascular system, body mass, age and some other. From biological point of view, physical state of a person is determined by a combination of interdependent characteristics (functional state of organs and systems, physical development and level), which characterize human personality, the state of health, posture and constitution [1, 6].

A number of authors [1, 5, 6, 9] notes that evaluation of physical level and adapting abilities of Home Affairs officers can be used as criterion of health improving efficiency of physical training process as well as a criterion of health and readiness for efficient execution of duties.

Researches of physical level and adapting abilities of Home Affairs officers will permit to plan selection of means and methods of physical training for improvement of their health and physical level.

In special literature (V.L. Karpman, 1988; Ye.A. Pyrogorova, 1989; R.M. Bayevskiy, 1986; L.Ya. Ivaschenko, N.P. Strapko, 1988 et al.) a lot of tests is offered, with the help of which it is possible to evaluate physical state and adapting abilities of a person. Index of physical state (IPS), which is determined by regression equation, developed by Ye.A., Pyrogorova (1989), can be considered to be an integral indicator of physical state, which reflects the state of functional reserves and level of physical health. The base of IPS is formula of interconnection between physiological indicators in rest and the level of maximal physical workability. Components are: heart beats frequency (HBF), arterial blood pressure, body mass, height and age.

For evaluation of adapting abilities methodic of determination of adapting potential (AP), offered by R.M. Bayevskiy (1979), is used. As far as generalized indicators of adapting responses of all organism is cardio-vascular system, then adapting potential is regarded as complex indicator of interconnection of age, blood circulation system' indicators (HBF, BP) and physical development (body mass and height).

Analysis of special literature showed that significant quantity of works is devoted to researches of physical trainings' efficiency of police officers and cadets of HEE of MHA of Ukraine [2, 5, 7, 10]. However, insufficient attention has been paid to the problems of physical state's evaluation of newly taken on Home Affairs service officers as well as to scientific foundation of their physical training. That is why, determination of physical state and adapting abilities of just taken on service officers is an urgent direction of scientific researches in order to improve academic physical training program in the period of initial preparation.

The work has been fulfilled as per combined plan of scientific & research works in the sphere of physical culture and sports for 2011-2015 of Ministry of family, youth and sports of Ukraine, in the frames of subject 3.8. "Theoretical-methodological principles of system of mass control and evaluation of different population's groups' physical level and development" (state registration number 0111U000192).

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

*The purpose of the work* is to study the level and dynamics of physical state of just taken on Home Affairs service officers.

*The tasks:*

- 1) Determine initial level of IPS and AP of just taken on Home Affairs service officers;
- 2) Study dynamics of physical state indicators of just taken on Home Affairs service officers, their adapting abilities during first year of service.

*The methods of the research:* analysis of literature sources, pedagogic observation, testing, methods of physical state and adapting potential's evaluation, methods of mathematical statistics.

### Results of the researches

In order to determine physical level of just taken on Home Affairs service officers we analyzed IPS and AP of cardio-vascular system. Examination were carried out with personnel staff of first medical-age group (men) of preparatory courses at National academy of Home Affairs (NAHA) (n=112), who studied in the period from 2008 to 2012. The examined personnel staff included also officers, who did not study at HEEs of MHA of Ukraine.

Analysis of privacies, of just taken on Home Affairs service officers, permitted to divide them into three groups depending on their previous activity:

1 group – those, who had been on active service in Armed Forces of Ukraine before they were taken on Home Affairs service (49 persons; 43,8%);

2 group – persons, who were taken on service just after graduating from civil HEE of Ukraine (41 officer; 36,6%);

3 group – those, who had been on active service in Armed Forces of Ukraine, but worked in different branches without any physical training for some time before they were taken on service (22 persons; 19,6%).

Using the methods of mathematical statistics, we determined mean indicators of physical state of just taken on Home Affairs service officers: HBF in rest; BP (systolic, diastolic and average); age; body mass and height (see table 1). It was found that groups have different initial level of the researched indicators.

The best initial IPS was registered at first group – 0.683 conv.un.- that corresponds to physical level higher than middle (see table 1). IPS of second group members was 0.666 conv.un. and corresponded to middle level. In the third group initial physical level was also evaluated as “middle” at the moment of its members' entering the courses, but it was the lowest in comparison with other groups and was 0.635 conv. units. Calculation of confidentiality of the obtained data showed that difference between IPS of the first and second groups is 0.017 conv.un. ( $P < 0.05$ ), between second and third groups – 0.031 conv.un., ( $P < 0.01$ ), between first and third groups – 0.045 conv.un. ( $P < 0.001$ ).

Table 1

*Initial level and physical state of just taken on Home Affairs service officers after first year of service (2008–2012, n=112,  $\bar{X} \pm m$ )*

Indicators of physical state and adapting abilities	Groups					
	1 <sup>st</sup> group (n=49)		2 <sup>nd</sup> group (n=41)		3 <sup>rd</sup> group (n=22)	
	Initial level $\bar{X} \pm m$	After 1 <sup>st</sup> year of service, $\bar{X} \pm m$	Initial level $\bar{X} \pm m$	After 1 <sup>st</sup> year of service, $\bar{X} \pm m$	Initial level $\bar{X} \pm m$	After 1 <sup>st</sup> year of service, $\bar{X} \pm m$
HBF in rest, b.p.m.	72,6±0,30	72,8±0,44	73,1±0,48	73,7±0,51	74,9±0,73	74,7±0,68
BP syst. mm.merc.col.	118,9±0,63	118,5±0,62	120,2±0,66	120,8±0,67	124,1±1,50	123,9±1,44
BP diast. mm.merc.col.	74,1±0,57	74,2±0,54	76,5±0,62	76,9±0,51	78,2±0,61	78,0±0,59
BP average mm.merc.col.	89,0±0,44	89,1±0,41	91,1±0,48	91,5±0,42	93,5±0,77	93,3±0,76
Age, years	19,5±0,12	20,5±0,12	22,8±0,20	23,8±0,19	23,6±0,17	24,6±0,17
Body mass, kg	72,9±0,82	73,2±0,74	76,0±0,57	75,8±0,66	78,3±1,58	78,7±1,21
Height, cm	176,8±0,71	177,2±0,64	175,5±0,77	175,7±0,75	176,2±1,20	176,2±1,21
IPS conv.un.	0,683±0,004	0,682±0,005	0,666±0,006	0,658±0,006	0,635±0,009	0,638±0,007
AP conv.un.	2,12±0,01	2,13±0,01	2,25±0,02	2,28±0,02	2,37±0,03	2,38±0,03

In general initial level of 59 just taken on service officers (52,7%), during first year of study at preparatory courses is determined as “middle”, for 53 – it is determined as “higher than middle” (47,3%). It is important that such physical levels as “low” or “high” were not registered at all.

Analyzing dynamics of physical state after one year of service, we should note that IPS practically did not change in all three groups (see table 1). So, in first and second groups IPS unconsciously worsened in relation to results,

which were registered at the moment of entering the preparatory courses ( $P>0.05$ ), in the third group it improved by 0,003 conv.un., but difference is also unconfident ( $P>0.05$ ). IPS evaluation showed that physical levels of officers did not change during one year of service. Correlation of initial level and IPS level of just taken on service officers is shown in fig.1.

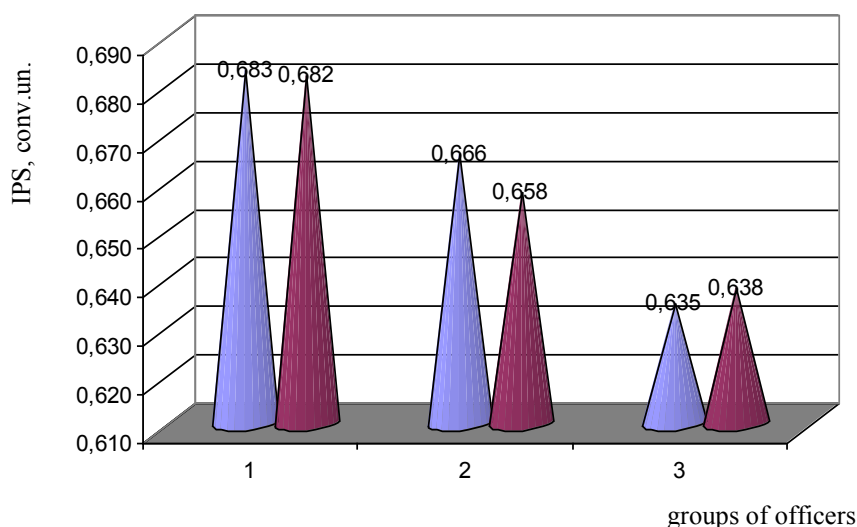


Fig 1. Initial level and the level of index of physical state of just taken on Home Affairs service officers after 1<sup>st</sup> year of service (2008-2012,  $n=112$ ,  $y.m.o.d.$ )

- initial level of index of physical state
- level of index of physical state after 1<sup>st</sup> year of service officers.

The study of dynamics of such important indicators of physical state of just taken on service officers as body mass, HBF, BP permits to note that they did not confidently improve in all groups during one year of service ( $P>0.05$ ). It witnesses about insufficient effectiveness of existing academic program on physical training in the aspect of police officers' physical state improvement.

A number of scientists note [4, 6], that the problem of physical state and level's improvement should be approached from positions of adapting theory. Adapting is the process of adapting of organism's functions to environmental conditions [6]. It has been also proved that physical exercises are the main mean of training of all organism's functional systems, as far as adapting mechanisms are trained as a result of interaction of physical, psychological load and restoration. The more trained organism is the quicker adapting progresses. The higher adapting abilities of blood circulation system are the less is BP.

With it, scientists [1,4,6] accentuate that under the influence of different negative factors of service activity, the primary response of organism is ensured by certain physiological systems: cardio-vascular and respiratory. So, for provision of successful adapting process of newly taken on service officers it is necessary, with the help of physical training, to increase functional abilities exactly of systems, supplying organism with oxygen – cardio-respiratory system. And this is possible to be realized in the process of general physical training, with the help of aerobic exercises, oriented on development of endurance.

Analyzing initial BP value of newly taken on service officers and its dynamics after first year of service, it we should note reduction of this indicator in all examined groups. However, no confident difference of the obtained results was found ( $P>0.05$ ), (see table 1).

In all three groups of newly taken on service officers BP is evaluated as "straining of adapting mechanisms". Initial BP of the members of first group was 2,12 conv.un., that by 0,13 conv.un. is better ( $P<0.001$ ), than the same of the second group's members (2,25 conv.un.) and by 0,25 conv.un. ( $P<0.001$ ) – than the same of the third group's members (2,37 conv.un.) (see table). Difference between BP values in second and third groups is 0,12 conv.un. and is confident ( $P<0.01$ ).

In the whole, initial level of adapting abilities of 86 of newly taken on service officers (76,8%) is characterized by straining of adapting mechanisms, of 26 officers (23,2%) – by satisfactory adapting (see fig.2). At the end of research correlation of BP levels changed to worsening of officers' adapting abilities (77,6% against 22,4%). It is important to note that BP in third group at the beginning as well as at the end of studying at preparatory courses of 100% of all officers was evaluated as "straining of adapting mechanisms".

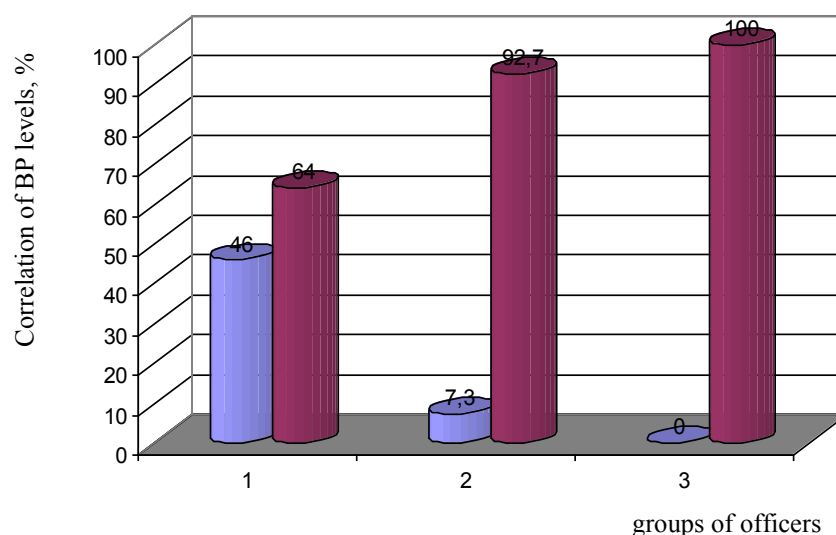




Fig.2. Correlation of BP levels of just taken on Home Affairs service officers at the moment of entering preparatory courses (2008, n=112, y %)

 – satisfactory adapting  
 – straining of adapting mechanisms

BP increasing after first year of service witnesses about negative dynamics. After first year of service BP of members of the first group worsened by 0.01 conv.un., and of the second – by 0.03 conv.un.; of the third – by 0.01 conv.un. Difference between BP initial and final results is unconfident in all groups ( $P > 0.05$ ).

#### Summary

Analysis of indicators of physical state and adapting abilities of newly taken on service officers permitted to find out that their level is insufficient for strengthening of health, increasing of workability and ensuring of future service activity with high efficiency level.

It has been established that one of directions of physical training's perfection of newly taken on service officers in the period of primary preparation is foundation of physical training's content, considering their physical state and positions, to which they are assigned.

*The prospects of further researches.* It is envisaged to develop and ground the program of physical perfection of newly taken on Home Affairs service officers with different physical levels.

#### References:

- 1 Apanasenko G., Dolzhenko L. *Teoriia i metodika fizichnogo vikhovannia i sportu* [Theory and methods of physical education and sport], 2007, vol.1, pp. 17–21.
- 2 Babenko V. Suchasna sistema fizichnoyi pidgotovki ta perspektivi yiyi udoskonalennia v organakh i pidrozdilakh MVS Ukrayini [The modern system of physical training and prospects for improvement in the organs and departments of Internal Affairs of Ukraine]. *Fizichna pidgotovka vijs'kovosluzhbovciv* [Physical training of personnel], 2003, pp. 7–11.
- 3 Bezpalij S. M., Veren'ga Iu. V *Visnik Chernigivs'kogo derzhavnogo pedagogichnogo universitetu* [Bulletin of the Chernihiv State Pedagogical University], 2011, vol.91(1), pp. 44–48.
- 4 Borodin Iu.A. *Fiziceskoe vospitanie studentov* [Physical Education of Students], 2003, vol.10, pp. 60–76.
- 5 Volkov V.L. *Pedagogika, psihologia ta mediko-biologicni problemi fizichnogo vikhovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2012, vol.4, pp. 25–28.
- 6 Dubrovskij V.I. *Sportivnaia medicina* [Sport medicine], Moscow, Vldos-Press, 2005, 528 p.
- 7 Zakorko I.P. *Fiziceskoe vospitanie studentov* [Physical Education of Students], 2010, vol.1, pp. 49–52.
- 8 Kompaniie' Iu.A. *Pedagogika, psihologia ta mediko-biologicni problemi fizichnogo vikhovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2012, vol.9, pp. 48–52.
- 9 Poddubnyj O.G., Sukhorada G.N., Kirpenko V.N. *Fiziceskoe vospitanie studentov* [Physical Education of Students], 2009, vol.2, pp. 79–83.
- 10 Sergiienko Iu.P., Antonenko S.A., Lavrent'iev O.M. *Pedagogika, psihologia ta mediko-biologicni problemi fizichnogo vikhovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2011, vol.2, pp. 111–114.

**Information about the authors:**

**Verenga Y.V.:** verenga@ukr.net; National Academy of Internal Affairs;  
Sq. Solomenskaya, 1, Kiev, 03035, Ukraine.

**Prontenko K.V.:** prontenko-kostya@mail.ru; Zhitomir Military Institute ;  
World boulevard 22, Zhitomir, 10023, Ukraine

**Bondarenko V. V.:** gurya@i.ua; National Academy of Internal Affairs;  
Sq. Solomenskaya, 1, Kiev, 03035, Ukraine.

**Bezpaluy S. M.:** s\_bezpaluy@mail.ru; National Academy of Internal Affairs;  
Sq. Solomenskaya, 1, Kiev, 03035, Ukraine.

**Hutoryansciy O.V.:** s\_bezpaluy@mail.ru; National Academy of Internal Affairs;  
Sq. Solomenskaya, 1, Kiev, 03035, Ukraine.

---

**Cite this article as:** Verenga Y.V., Prontenko K.V., Bondarenko V.V., Bezpaluy S.M., Hutoryansky O.V. The physical condition for the first time accepted the service of officers of internal affairs of Ukraine. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.5, pp. 18-22. doi:10.6084/m9.figshare.707093

The electronic version of this article is the complete one and can be found online at: <http://www.sportpedagogy.org.ua/html/arhive-e.html>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited (<http://creativecommons.org/licenses/by/3.0/deed.en>).

---

Received: 26.03.2013  
Published: 31.05.2013