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ESTIMATION OF HEALTH INDICES OF THE BORDER GUARDS EMPLOYED IN THE RECOVERY AND RECREATION PROGRAM OF THE BODY

Dontova Natalia,
State University of Physical Education and Sports, Chisinau, Republic of Moldova

Abstract. *Some indicators of the state of health of border guards do not fall within the limits of physiological norms of age and gender. Only 8.33% of police officers have high functional cardiovascular reserve and 91.67% of medium functional reserves. The possibility of some of them to perform activities in the absence of sufficient oxygen supply is below the physiological norm of age and gender, their share being 45,83%.*
Keywords: *border guards, health indicators, methods.*

Introduction. The continuous increase of the requirements towards the physical and intellectual capabilities of the border guards makes it increasingly important to implement the methods and means of physical culture in their professional field. Their use should be based on the scientific information obtained on the ground, arguing the necessity of implementing recovery and recreational methods, capable of optimizing the psychological and physiological functions of a person working [4].

Addressing the issue of maintaining and strengthening the health of border guards in the course of the service is current and stringent. It is well known that the requirements and exigencies of their day-to-day activity are extremely high, perhaps even exaggerated, because they refer to state security. But at the same time, in our view, the state's concern about the health aspects of this contingent of employees must be directly related to their role and social value. Measures are needed to improve the state of health and work capacity of border guards, to create favorable working conditions.

Their professional activity is characterized by a number of specific features, including: taking on more responsibilities and risks, linking to the state border guard, which determines psychological, emotional and intellectual strain, accompanied by stress; the permanent change in working conditions and the living environment, shift work, the need to continuously improve the level of training, etc. These tasks present higher demands on the health of border guards [6].

We anticipate that the use of accessible and easy-to-use methods and means of recovery and recreation of the body could improve the workforce capability of border guards and the functional state of the main organ systems. However, in order to confirm this hypothesis, there is a need for in-depth scientific research on the health status indicators and their intellectual work capacity.

The aspects of using effective recovery and recreational technologies in the field of border police are poorly studied. At the same time, the profound research of the functional state of the main organ systems, the cardiovascular system, the respiratory system and the central nervous system does not take place, which ensures that the body adapts to excessive physical and intellectual efforts, to the ever changing conditions in which border police officers work [2].

The latest studies in this direction are carried out among the military, sportsmen, railway workers [5], etc. At the same time, the activity of border guards is characterized by a number of peculiarities, which have a bad influence on the health of the body, which dictates the necessity of the current scientific study.

Aim of the paper: estimation of the border health indicators of the border guards.

Organization of research: 24 frontier police officers, 25-30 years old, assigned to the control and experimental groups participated in the research. The people in the experimental group

were to participate in the recovery and recreation program, which we developed, and those in the control group - to act on a regular basis. The researches were carried out in November (2017), using the mathematical and statistical methods of processing the obtained results.

Methods of scientific research. To assess cardiovascular activity, we used data on frequency of heart rate (FHR), systolic (SBP) and diastolic blood pressure (DBP), parameters reflecting the functional status of the cardiovascular system.

Determination of heart rate and blood pressure was performed according to traditional methods: The FHR was assessed by palpation for 15 seconds, recalculating at one minute, and blood pressure, using the Korotkov method (mmHg). Blood pressure was determined in the sitting position after 5 minutes of rest.

The Stanghe test was used to investigate the anaerobic capabilities of the body, and the indices obtained - to assess the oxygen supply to the body.

It is important to use information indices that would objectively reflect the state of the systems primarily responsible for physical exercise, and would confirm and complement the results obtained by other methods for the assessment of the functional state of the body. That is why we determined the functional reserves of the cardiovascular system of police officers involved in the research, calculating the Robinson (IR) index, according to the formula:

IR = FHR (rest) x TAS / 100 units,

the results being as follows: 70-110 units - medium level; over 110 units - low level; under 70 units - high level .

The pull ups at the fixed bar, used to assess the *force of the arms*, were made from the hanging position. The exercise is considered to be fulfilled when hanging with both hands extended, the traction being valid only if the chin passes the bar. The number of repetitions was recorded.

Speed run 100 m (min), in which the speed and coordination of the movements were evaluated.

The respective notar tests reflect the ability to maintain and improve muscle strength and speed, to increase the functional capacity to carry out day-to-day activities, the quality of motor functions.

The results obtained. The functional state of organ systems is a criterion for the health of the body, its ability to adapt to physical effort. For this reason, our research has investigated the systems that ensure the effective adaptation to the conditions of the occupational environment and the fulfillment of the functional obligations of the border guards. Thus, as a result of the cardiovascular system research, it was established that in the resting state, the FHR varied within the limits of 57 and 77bps / min, constituting an average of 66,23±1,85 beats / min for the experimental group and 63,42 ± 1,57bps for the control group, the difference between them being insignificant (t=0, 86, P>0,05). These results are enroled within the physiological age limits of the contingent and can be used to determine complex indicators, such as the Robinson index.

Analyzing the results obtained in the calculation of the Robinson index, we established that only 8,33% of the police have high functional cardiovascular reserves and 91,67% of the average functional reserves. These data invoke the idea that in this sphere of activity are employed persons with a good functional status of the cardiovascular system but who have not fully utilized their physiological potential, having great reservations in this regard.

The systolic blood pressure (SBP) in the control group ranged from 98 to 129 mmHg and in the experimental group between 118 and 134 mmHg, averaging 120,4 ± 2,86 mmHg and 124 ± 1,48 mmHg. The normal systolic tension in adults (men) is between 100 and 130 mmHg, which indicates that among the researched persons there are also some with lower values but also higher than the norm. Among the factors that influence the rise or fall in blood pressure are age, gender, health (some illnesses seriously affect blood pres-

sure), cardiac output (the volume of blood the heart pumps), blood viscosity, peripheral resistance, elasticity blood vessels (normally the blood vessels relax in the systole and return to the initial state of diastole). It should be known that not only age influences blood pressure but also other factors encountered in everyday life. For example, adult blood pressure always increases in physical effort when strong emotional states occur when there are stressors [1].

In the control group, diastolic blood pressure (DBP) varies between 63 and 75 mmHg, and in the experimental group - between 50 and 70 mmHg, averaging 66,25±1,11 mmHg and 64,8 ± 1,55 mmHg, respectively. Blood pressure is considered normal, then the systolic value is less than 129 mmHg and diastolic less than 84 mmHg. So, in this case, we mention that the TAD values are within the physiological norm of age and sex.

To assess the anaerobic capacities of the body, we performed the breath-holding test with inspiration - the Stanghe test. We established that the persons in the control group can hold their respiration from 30,05sec to 61,03sec and those from the experimental group from 29,5 to 65,03sec, the mean values being 46,85 ±2,86sec and 46,3 ± 3,28 sec. According to the data in the bibliography, the mean values for men should be 50-60 sec [8]. The results show that the possibility for border guards to perform activities in the absence of sufficient oxygen supply is below the physiological norm of age and gender.

We have also analyzed the level of training of border guards because they reflect to a large extent the biological potential of the body and determine the individual's state of health [4]. We established that border guards demonstrate results ranging from 7 to 13 trajectory to the fixed bar, the average value for the control group being 10,58± 0,55 pull-ups, and for the experimental group 10,42±1,11 pull-ups. According to the data in the bibliography, army force borders [7] have to execute 10 pull-ups on the fixed bar. In the control and experimental group, respectively 25% and 33.33% of the police showed a lower score than this control indicator. In support of the "Speed Run to 100 m" test, the results of the control and experimental team consisted of 15,82 ± 0,22 and 15,57±0,88 sec, which is within the limits of control numbers for soldiers who is 15 seconds. At the same time, 29,17% of policemen had lower scores than this clue.

Thus, by analyzing the indices of the functional status of the border guards body, we have established that:

1. Only 8,33% of police officers have high functional cardiovascular system reserves, and 91.67% of medium functional reserves.

2. Systolic blood pressure values vary from person to person, including some with lower, but higher, physiological age and gender norms.

3. The ability of border guards to perform activities in the absence of a sufficient supply of oxygen by the body is below the physiological norm of age and gender.

4. In the control and experimental group, 25% and 33,33% of police officers showed lower results than the control index in the "Fixed bar pull-up" test, and in the "Speed tests 100 m", 29, 17% of them have poor results than the control norm for soldiers of age and gender.

References:

1. Moroşan, R., Delipovici, I., Moroşan, I. (2015). *Stresul – factor de risc pentru sănătate şi rolul exerciţiilor fizice în prevenirea şi combaterea lui.* În: Teoria şi arta educaţiei fizice în şcoală, nr.2, p.57-60.
2. *Poliția de frontieră.* [https://ro.wikipedia.org/wiki/Poli%C8%9Bia_de_Frontier%C4%83 (Republica_Moldova)] (accesat la 11.07.17).
3. *Cum influențează vârsta tensiunea arterială.* https://sendo.info/ro/cum-influenteaza-varsta-tensiunea-arteriala/ (accesat la 17.06.18).
4. Глебов, Ю.А. (2000). Повышение физического состояния работников промышленных производств под влиянием индивидуальных средств физической рекреации и двигательной реабилитации: Автореф. дис.

канд. пед. наук. Смоленск. 20с.
5. Еркегул, С., Тармаева, И.Ю., Савченков, М.Ф. (2016). *Оценка тяжести и напряженности трудового процесса проводников пассажирских вагонов железной дороги Монголии.* В: Современные проблемы науки и образования, № 6.
6. Бобко, Н.А. *Ночная жизнь неестественна для человека.* http://www.zid.com.ua/rus_creativework/nochnaya-zhyzn-neestestvenna-dlya-cheloveka (accesat la 30.03.18).
7. Новоточин, А. *Нормативы по ФИЗО для военнослужащих.* http://doblest-chest.ru/info/voennaya-sluzhba-i-obrazovanie/313kh (accesat 17.06.18)
8. *Тесты о здоровье.* www.breathing.ru/tests (accesat 05.06.2018).