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Physical training as the basis of professional activities of patrol policemen

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A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

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abstract

Background: Physical training is an integral part of policemen's professional training. The aim of the study is to verify experimentally the effectiveness of the authors' methodology of training future patrol policemen targeted at increasing their general physical fitness level during the primary professional training course.

Material and methods: The study involved the patrol policemen of the primary professional training course (N = 115) of the National Academy of Internal Affairs. The level of physical fitness was assessed by the following tests: 100-m race, pull-ups, push-ups, 1000-m race, shuttle run 4 x 9 m, sit-ups, standing long jump, sitting forward bend, and the plank.

Results: The obtained data show that the level of general physical fitness of experimental groups' policemen is significantly better ($p<0.05–0.001$) than in control groups' policemen at the end of the experiment in terms of the level of power, endurance, flexibility, speed and static endurance.

Conclusions: The excellent physical fitness level, which was formed during the primary professional training course, will contribute to maintaining a proper level of physical condition and health of policemen and their professional longevity, as well as improving their professional performance.

Key words: patrol policemen, physical training, general physical fitness.

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INTRODUCTION

The new concept of the development of the National Police of Ukraine (NPU) puts increasing demands on professional training of patrol policemen. This is due to the specifics of their official activities, which are rather prevention-focused and require that public order should be maintained, and offences and other anti-social phenomena should be prevented and eliminated [1–3]. When performing functional duties, patrol policemen constantly deal with different segments of the population [4–6]. Therefore, the level of policemen's professional training is a determining factor not only in the quality of performing these duties but also in forming the authority of the NPU and increasing public confidence in this law enforcement agency [1, 2, 7, 8]. The processes of forming and improving professional training of patrol policemen take place during the primary professional training course, which allows future policemen to obtain the necessary theoretical knowledge of the legal framework and the basics of professional training, and to develop special motor skills through working out the probable situations of future professional activities [2, 7, 9–11]. Physical training, as one of the main components, is the basis for effective professional training of future law enforcement officers and their further career [12–15]. According to many scholars [16–19], professional activities of patrol policemen do not imply the highest level of developing only one physical quality but their integrity and optimality in relation to the specifics of the performed tasks. This is due to the following main requirements: firstly, patrol policemen spend most working hours in a forced static (sitting) position in a police car (the main work is performed by visual and auditory analyzers and is characterized by such indicators as attention concentration, span and switch, visual memory, etc.), which requires well-developed back and abdominal muscles to maintain their intellectual capacity (improving blood supply to the brain) and physical condition; secondly, in case of violations, patrol policemen are forced to make a sharp transition (mobilizing all the reserves of the body) to the actions related to chasing and detention of offenders, which requires a wide range of motor qualities (speed – when running short distances, power – when detaining offenders, endurance – when chasing offenders, dexterity – when overcoming obstacles during the chase, skills in using special means and methods of physical influence – in case of arrest resistance) [5, 6, 12, 20–22]. All of this requires that patrol policemen should have an excellent level of general physical fitness, which indicates the relevance of this research. The characteristics of patrol policemen's professional activities in Ukraine which prove the need to enhance the level of their general physical fitness are the following: unregulated working hours, a need to work at night, a need to wear a bulletproof vest, nervous tension caused by emergencies and conflict situations, stress from constant contact with offenders, chronic fatigue leading to wrong actions, health deterioration and reduction of professional longevity [23–27]. However, the low level of physical fitness in candidates for service in patrol police departments reduces the effectiveness of the primary professional training course [9, 10, 28, 29], which suggests the need to justify the current effective methodology for training patrol policemen during the primary professional training course that would fully meet the requirements of their future professional activities.

Therefore, the aim of the study is to verify experimentally the effectiveness of the authors' methodology of training future patrol policemen targeted at increasing their general physical fitness level during the primary professional training course.

Tasks:

1. To determine the initial level of physical fitness in patrol policemen (males and females) at the beginning of the primary professional training course.
2. To study the influence of training sessions based on the authors' methodology on the level of developing different physical qualities of patrol policemen (males and females) during the primary professional training course.

MATERIAL AND METHODS

Participants

In order to realize the first task, the research involved 229 policemen of the primary professional training course (142 males and 87 females) of the first age group (up to 25 years old). In order to realize the second task, the research involved the policemen of the primary professional training course (N = 115) from the primary professional training centre, titled «The Academy of Police» of the National Academy of Internal Affairs (the 2018 admission campaign). Two experimental groups (EG) and two control groups (CG) were formed: EG1 – male policemen (N = 31), EG2 – female policemen (N = 28); CG1 – male policemen (N = 30), CG2 – female policemen (N = 26). The control and experimental groups were formed with the help of random selection.

Methods

The initial level of physical fitness in patrol policemen (males and females) was determined at the beginning of the primary professional training course based on the following tests: the 100-m race (speed, males and females), complex power exercises (power qualities, males), push-ups (power qualities, females), the 1000-m race (endurance, males and females). The research was conducted in 2015–2017.

In 2018, a pedagogical experiment, involving the policemen first admitted to the police in 2018, was conducted in order to specify the influence of training sessions based on the authors' methodology on the level of developing different physical qualities of patrol policemen (males and females) during the primary professional training course. The level of general physical fitness was assessed at the beginning and at the end of the experiment (during the primary professional training course at the primary professional training centre, titled «The Academy of Police» of the National Academy of Internal Affairs) by the following tests: 100-m race (speed, males and females), pull-ups (power, males), push-ups (power, females), 1000-m race (endurance, males and females), shuttle run 4 x 9 m (dexterity, males and females), sit-ups (power of abdominal muscles, for 1 min) (males and females), standing long jump (speed and power, males and females), sitting forward bend (flexibility, males and females), plank (static endurance of core muscles, males and females). The level of development of policemen's physical qualities was assessed in accordance with the order of the Ministry of Internal Affairs of Ukraine "Provision of Regulation on the Organization of Professional Training of Employees of the National Police of Ukraine" dated January 26, 2016, No. 50 [30].

A set of modern general scientific methods was used to fulfill the research aim and tasks. These include theoretical methods (the method of conceptual and comparative analysis, structural and systematic analysis, synthesis, generalization), empirical methods (testing, pedagogical observation, pedagogical experiment), as well as methods of mathematical statistics.

STATISTICAL ANALYSIS

The methods of mathematical statistics were applied to correctly process the data and identify the difference between the indicators under study and the effectiveness of the designed methodology. The results were reported as Mean ±SD. The authenticity of the difference between the policemen's indicators was determined with the help of Student's t-test. Statistical significance for all statistical tests was set at $p < 0.05$. All statistical analyses were performed with the SPSS software, version 21, adapted to medical and biological research.

RESULTS

The analysis of the legal framework proves that professional training of policemen consists of relevant stages in accordance with the Law of Ukraine "On the National Police" [3]. It includes the following components: primary professional training, training in higher education institutions of the Ministry of Internal Affairs, postgraduate education, service training. This document also indicates that those policemen who only started their career are obliged to enroll in the course of primary professional training. The primary professional training of policemen is aimed at forming their skills and abilities required to perform professional duties of patrol police, including the knowledge about the legal framework, the basics of professional training, skills in wearing, applying and using protective equipment, etc. [2, 8, 9, 20, 25].

The course is based on the designed and approved professional program for primary professional training of policemen who only started their career as patrol policemen. The course lasts 4 months. The program regulates the list of educational subjects and topics which are compulsory for study, their content, scope, goals of training and forms of the final assessment. A typical curriculum contains compulsory and optional subjects. The compulsory part is common for policemen from all police departments. According to the state standard, it consists of three sections: general professional training, professional theoretical training, and professional practical training. The optional part of this professional program covers professional theoretical and professional practical training and contains educational subjects related to the specifics of patrol policemen's activities.

In order to determine the initial level of physical fitness of patrol policemen, the level of basic physical qualities development (speed, power and endurance) in policemen (males and females) was analyzed at the beginning of the primary professional training course (during the entrance examination). The findings are presented in Table 1 and Table 2.

Table 1. The initial level of physical fitness of patrol policemen of Ukraine at the beginning of the primary professional training course (males, 2015–2017, N = 142, Mean ±SD)

The indicators of physical fitness	Years			Statistical significance (p1–p3)
	2015 (N = 47)	2016 (N = 54)	2017 (N = 41)	
100-m race, sec	14.7 ±0.13	14.5 ±0.12	14.6 ±0.14	$p > 0.05$
Complex power exercise, reps	47.6 ±0.94	46.9 ±0.87	46.2 ±0.96	$p > 0.05$
1000-m race, sec	237.1 ±3.91	244.3 ±3.75	249.2 ±4.02	$p < 0.05$

Legend: N – number of subjects; Mean – arithmetical average; SD – standard deviation; p1–p3 – significance of difference between the indicators of policemen's physical qualities development in 2015 and 2017

Table 2. The initial level of physical fitness of patrol policemen of Ukraine at the beginning of the primary professional training course (females, 2015–2017, N = 87, Mean ±SD)

The indicators of physical fitness	Years			Statistical significance (p1–p3)
	2015 (N = 25)	2016 (N = 28)	2017 (N = 34)	
100-m race, sec	17.1 ±0.15	17.4 ±0.13	17.3 ±0.14	$p > 0.05$
Push-ups, reps	17.5 ±0.96	16.8 ±0.92	16.4 ±0.87	$p > 0.05$
1000-m race, sec	305.1 ±4.25	311.9 ±4.18	318.4 ±4.08	$p < 0.05$

Legend: N – number of subjects; Mean – arithmetical average; SD – standard deviation; p1–p3 – significance of difference between the indicators of policemen's physical qualities development in 2015 and 2017

The analysis of male policemen's results in 100-m race shows that the indicators of speed development did not significantly change in three years ($p > 0.05$) (Table 1). During all the years of the research, however, the development level of policemen's speed is assessed as "satisfactory" and indicates a rather stable level of its development. As regards the results for the complex power exercise, the study shows that the level of future patrol policemen's power qualities deteriorated for these three years. Yet, it did not significantly change ($p > 0.05$) since the difference between the results in 2015 and 2017 was equal to 1.4 reps; the level of power qualities was assessed as "satisfactory". The worst initial level among all the physical qualities of policemen was characteristic of endurance exercises. However, there is a tendency towards the further deterioration of the results for the 1000-m race. In 2015, the average result for 1000-m race was 3 min 57 sec, in 2016 – 4 min 4 sec and, finally, in 2017 – 4 min 9 sec. The difference between the initial and final data of the research is equal to 12.5 sec and is reliable ($p < 0.05$). The initial level of endurance in male policemen was assessed as "low" during all the years of the research. A similar trend in the physical fitness indicators is observed when analyzing the results of female policemen (Table 2). Indeed, the indicators characterizing their speed qualities are the most stable: their results of the 100-m race in 2017 (17.3 sec) deteriorated relative to 2015 (17.1 sec) by only 0.2 sec ($p > 0.05$). In accordance with the regulatory requirements, the development level of female policemen's speed was assessed as "satisfactory" at the beginning of the primary professional training course. The analysis of power development shows that the results of push-ups are deteriorating year by year. In 2015, the average result for this exercise was equal to 17.5 reps and in 2017 – to 16.4 reps, thus, the difference being 1.1 reps ($p > 0.05$). The power qualities of female policemen were assessed as "low".

The analysis of endurance development of female policemen shows that, like for male policemen, this was the worst developed quality. In addition, the level of endurance development significantly deteriorated by 13.3 sec during the experiment. According to the results of the 1000-m race in 2015, the level of endurance development in female policemen was assessed as "satisfactory". In 2016 and 2017, it was already "low". The conducted analysis of the development of future patrol policemen's physical qualities at the beginning of the primary professional training course indicated a low level of their general physical fitness, which should be taken into account when doing the mentioned course.

In the context of the primary professional training course, the main forms of physical training include morning exercise, training classes and individual training (sports clubs) [2, 20, 24, 31]. Morning exercise takes place five times per week and lasts for up to 40 min; training classes are conducted within the framework of tactical training (16 hours per week are allocated for tactical

training, among which 4 hours per week – for physical training); individual training includes 5 hours per week (1 hour daily). During tactical training, an average of 30% of the study time is allocated for general physical training, whereas the rest of it – for forming skills and abilities required to perform special actions and use some police measures (prevention, coercion). An important form of training is individual training. It belongs to policemen's extracurricular activities and, considered as a process promoting self-actualization, it is a factor in the forming of a future specialists' personality. The current program suggests involving future patrol policemen in active extracurricular activities (training in specialized sports clubs, participation in competitions, individual training, etc.). Based on the findings obtained by the authors [2, 10, 32, 33] and taking into account the works of many leading scholars in this field [5, 9, 12, 20, 24, 25, 34, 35], we have designed a methodology for training future patrol policemen aimed at increasing the level of their general physical fitness. This methodology is based on the Crossfit system during training in specialized sports clubs. It aims to ensure the effectiveness of the primary professional training course and future professional activities of patrol policemen in Ukraine. The main objectives of the authors' methodology include facilitating adaptation to the new training and professional conditions, increasing the level of general physical fitness, improving the physical condition and strengthening the health of policemen, creating the basis for mastering professional skills and abilities, involving policemen in systematic physical exercise and sports, promoting a healthy lifestyle and preventing disorders in the body as a result of the adverse factors of professional activities. Training classes with EG policemen (males and females) were conducted five times per week (for 1 hour) based on the Crossfit system. The essence of this system lies in the focus on simple and accessible physical exercises in order to develop different muscle groups by means of high-intensity training [36–39]. The intervals and repetitions are the basic methods of such training. The advantages of the Crossfit system, in comparison with traditional methods of physical training and sport, are the following: lack of equipment costs (most exercises are done with one's own body weight), a short period of time to do a set of exercises (the goal is to minimize the exclusion of policemen from the educational process during the primary professional training course), a possibility to organize training outdoors, in a sports hall, within a limited space, a possibility of organizing training with a large group of people; a wide range of simple and accessible exercises eliminates adaptation to the same type of physical load; a possibility of conducting training sessions with policemen of different sexes and with different levels of physical fitness [40–43]. CG policemen trained in accordance with the current program of physical training during the primary professional training course (gymnastics and athletic training, sports games, track and field and race, martial arts). In both EG and CG, physical training was allocated 12 hours per week.

In order to study the influence of training classes based on the authors' methodology on the level of different physical qualities developing of patrol policemen (males and females) during the primary professional training course, a pedagogical experiment was conducted. Testing included eight exercises which reflect the development level of different physical qualities of patrol policemen and comprehensively characterize the level of their general physical fitness (Table 3 and Table 4). The analysis of the development level of EG and CG policemen's physical qualities (males and females) at the beginning of the experiment showed that it was reliably the same ($p > 0.05$).

Table 3. The dynamics of the indicators of general physical fitness of EG1 (N = 31) and CG1 (N = 30) policemen during the pedagogical experiment (males)

Before the experiment				After the experiment			
EG1	CG1	Statistical significance		EG1	CG1	Statistical significance	
Mean ±SD	Mean ±SD	t	p	Mean ±SD	Mean ±SD	t	p
100-m race, sec							
14.5 ±0.11	14.4 ±0.12	0.61	> 0.05	14.1 ±0.10	14.2 ±0.11	0.67	> 0.05
Pull-ups, reps							
8.8 ±0.54	9.0 ±0.59	0.25	> 0.05	14.7 ±0.63	11.3 ±0.67	3.70	< 0.001
1000-m race, sec							
248.9±4.71	245.5 ±4.52	0.52	> 0.05	223.6 ±3.91	235.4 ±4.40	2.04	< 0.05
Shuttle run 4 x 9 m, sec							
9.8 ±0.42	9.9 ±0.38	0.18	> 0.05	9.2 ±0.33	9.6 ±0.35	0.83	> 0.05
Sit-ups (for 1 min), reps							
35.3 ±1.08	33.9 ±1.10	0.91	> 0.05	41.8 ±1.02	36.2 ±1.05	3.83	< 0.001
Standing long jump, cm							
223.1 ±2.46	221.9 ±2.38	0.35	> 0.05	235.7 ±2.19	227.1 ±2.30	2.71	< 0.01
Sitting forward bend, cm							
7.3 ±0.97	7.7 ±0.89	0.30	> 0.05	10.5 ±0.82	8.0 ±0.87	2.09	< 0.05
Plank, sec							
105.9 ±5.24	110.0 ±5.52	0.54	> 0.05	129.1 ±5.03	113.6 ±5.43	2.10	< 0.05

Legend: N – number of subjects; Mean – arithmetical average; SD – standard deviation; t – value of t-test, p – significance of difference between the indicators of EG1 and CG1 policemen physical fitness

The analysis of the results of 100-m race shows that the indicators of speed development of policemen of EG1 and CG1 tend to improve during the primary professional training course: in EG1, the results improved by 0.4 sec, whereas in CG1 – by 0.2 sec. In EG1, however, the difference between the initial and final data of the experiment is reliable ($p < 0.05$); in CG1 – not reliable ($p > 0.05$). At the end of the experiment, the results of 100-m race in EG1 were better than those in CG1 by 0.1 sec. Still, the difference between them was not reliable ($p > 0.05$) (Table 3). According to the standards at the beginning of the experiment, the indicators of speed qualities development for policemen of both groups were assessed as "satisfactory" and towards the end – as "good". At the end of the experiment, the results of pull-ups in EG1 turned out to be significantly better than those in CG1 by 3.4 reps ($p < 0.001$). During the experiment, the results of pull-ups in both groups significantly improved: in CG1 – by 2.3 reps ($p < 0.05$) and in EG1 – by 5.9 reps ($p < 0.001$), which indicates a greater effect of the authors' methodology than the current program of physical training. At the beginning of the experiment, the level of policemen's power qualities in both groups was assessed as "satisfactory", towards the end in CG1 – as "good" and in EG1 – as "excellent". The indicators of endurance development show that at the end of the experiment, the results of the 1000-m race in EG1 (3 min 44 sec) were significantly better than those in CG1 (3 min 55 sec) by 11.8 sec ($p < 0.05$). During the experiment, however, the development level of endurance in EG1 significantly improved by 25.3 sec ($p < 0.001$), in CG1 – by 21.9 sec ($p > 0.05$), which indicates the positive influence of training classes based on the authors' methodology on the development of policemen's endurance (Table 3). At the beginning of the experiment, the level of endurance of policemen in both groups was assessed as "low", towards the end – as "satisfactory" in EG1. It must be noted that there were no changes in CG1.

Table 4. The dynamics of the indicators of general physical fitness in EG2 (N = 28) and CG2 (N = 26) policemen during the pedagogical experiment (females)

Before the experiment				After the experiment			
EG1	CG1	Statistical significance		EG1	CG1	Statistical significance	
Mean ±SD	Mean ±SD	t	p	Mean ±SD	Mean ±SD	t	p
100-m race, sec							
17.2 ±0.12	17.1 ±0.13	0.57	> 0.05	16.9 ±0.11	17.0 ±0.12	0.61	> 0.05
Pull-ups, reps							
18.1 ±0.89	18.3 ±0.82	0.16	> 0.05	27.7 ±0.72	23.1 ±0.75	4.42	< 0.001
1000-m race, sec							
340.3 ±4.20	343.1 ±4.15	0.47	> 0.05	317.0 ±4.11	329.6 ±4.09	2.17	< 0.05
Shuttle run 4 x 9 m, sec							
11.3 ±0.66	11.4 ±0.70	0.10	> 0.05	10.8 ±0.59	11.2 ±0.67	0.45	> 0.05
Sit-ups (for 1 min), reps							
29.4 ±1.02	30.2 ±1.08	0.54	> 0.05	39.5 ±0.92	34.4 ±1.01	3.56	< 0.001
Standing long jump, cm							
166.5 ±2.27	167.5 ±2.19	0.32	> 0.05	178.2 ±2.17	171.9 ±2.13	2.07	< 0.01
Sitting forward bend, cm							
12.6 ±0.93	13.0 ±0.99	0.29	> 0.05	17.1 ±0.88	14.2 ±0.95	2.24	< 0.05
Plank, sec							
87.3 ±4.12	85.7 ±4.27	0.27	> 0.05	103.8 ±4.06	90.4 ±4.11	2.32	< 0.05

Legend: N – number of subjects; Mean – arithmetical average; SD – standard deviation; t – value of t-test, p – significance of difference between the indicators of EG1 and CG1 policemen physical fitness

The results of the shuttle run 4 x 9 m of female policemen during the experiment did not improve much in both groups ($p > 0.05$). At the end of the experiment, the indicators of dexterity in EG2 were better than those in CG2 by 0.4 sec, although the difference between them is unreliable ($p > 0.05$). At the beginning of the experiment, the level of dexterity in both groups was assessed as "satisfactory", towards the end of the experiment, in EG2 – as "good" and in CG2 – as "satisfactory". The analysis of female policemen's results in sit-ups (for 1 min) shows that, at the end of the experiment, the results of EG2 were significantly better than those of CG2 by 5.1 reps ($p < 0.001$). During the experiment, the results significantly increased in both groups: by 10.1 reps in EG2 ($p < 0.001$) and by 4.2 reps in CG2 ($p < 0.01$). At the beginning of the experiment, the level of abdominal muscles power in both groups was assessed as "satisfactory", towards the end of the experiment in CG2 – as "good" and in EG2 – as "excellent". The analysis of the results of standing long jump shows that, at the end of the experiment, the indicators of EG2 female policemen were significantly better than those of CG2 by 6.3 cm ($p < 0.05$) (Table 4). During the experiment, the results of EG2 significantly improved by 11.7 cm ($p < 0.001$), while the results of CG2 increased only by 4.4 cm ($p > 0.05$). At the beginning of the experiment, the development level of speed and power qualities of female policemen of both groups was assessed as "satisfactory", towards the end of the experiment in EG2 – as "good" and in CG2 – as "satisfactory". The analysis of the results of the sitting forward bend exercise suggests that, at the end of the experiment in EG2, the flexibility level significantly improved by 4.5 cm ($p < 0.001$) and is assessed as "good", in CG2 – by 1.2 cm ($p > 0.05$) and assessed as "satisfactory". At the end of the experiment, the results in this exercise of EG2 female policemen turned out to be better than those of CG2 female policemen by 2.9 cm ($p < 0.05$), which indicates the effectiveness of the authors' methodology. The study of female

policemen's results of plank suggests that, at the end of the experiment, the level of static endurance of muscles in EG2 was significantly better than that in CG2 by 13.4 sec ($p < 0.05$). During the experiment, the results of CG2 improved only by 4.7 sec ($p > 0.05$), whereas the results of EG2 – by 16.5 sec ($p < 0.01$). At the beginning of the experiment, the level of static endurance of muscles in both groups was assessed as "satisfactory", at the end of the experiment in EG2 – as "good" and in CG2 – as "satisfactory".

DISCUSSION

At the beginning of the primary professional training course, the analysis of the initial level of patrol policemen's physical fitness (males and females) indicates an inadequate development level of their basic physical qualities (speed, power and endurance). The results of the 100-m race and pull-ups (males) and push-ups (females) correspond to a satisfactory level of development. The results of the 1000-m race of male and female policemen are assessed as "low". Moreover, over the three years of the experiment, one could observe some deterioration of the level of physical fitness of the youth who wish to join the NPU. The indicated results are confirmed by many scholars' research [9, 20, 21, 24, 28, 44] and require that the primary professional training course should include physical training. Taking into account the above-mentioned data, we have designed original methodology for training future patrol policemen aimed at increasing the level of their general physical fitness. This methodology is based on the application of the Crossfit system during individual work (training in sports clubs). In accordance with this methodology, we have designed more than 50 exercise sets for policemen of different sexes, which were used depending on the availability of equipment, inventory and training conditions. The physical load was distributed taking into account the policemen's physical condition, changing the number of reps, the number of sets, and the duration of rest, etc. Variation is the main principle of combining exercises in sets (the variation of loads and use of different exercises).

To verify the effectiveness of the authors' methodology, a four-month pedagogical experiment was conducted. The obtained results reliably proved a more positive influence of training classes based on the authors' methodology than the current program of physical training. The most significant ($p < 0.05–0.001$) changes took place in the indicators of power development (pull-ups (males), sit-ups and push-ups (females)), endurance (1000-m race), speed and power (standing long jump), flexibility (sitting forward bend), and static endurance of trunk muscles (plank). The obtained data prove the positive influence of Crossfit on the development of physical qualities of future specialists, as well as the results of studies by many scholars [37, 38, 40, 43, 45, 46].

To assess the level of patrol policemen's general physical fitness, we have established four levels of fitness: excellent, good, satisfactory, and low. A policeman who received 50% of excellent grades from 8 checked tests and good grades from the rest of the tests has an excellent level of general physical fitness, 50% of excellent grades from 8 checked tests and satisfactory grades from the rest of the tests – a good level, 100% of positive grades and more than 50% of satisfactory grades – a satisfactory level, at least one unsatisfactory grade – a low level. The ratio of EG and CG policemen (males and females) to the levels of general physical fitness is presented in Table 5.

Table 5. The levels of general physical fitness of EG and CG policemen during the pedagogical experiment, %

The levels of general physical fitness	Before the experiment		After the experiment	
	EG	CG	EG	CG
	Male policemen (EG – N=31, CG – N=30)			
Low	16.1	16.7	6.5	10
Satisfactory	48.4	43.3	25.8	36.7
Good	25.8	33.3	45.2	43.3
Excellent	9.7	6.7	22.6	10.0
	Female policemen (EG – N=28, CG – N=26)			
Low	14.3	15.4	3.6	7.7
Satisfactory	42.9	38.4	35.7	42.3
Good	32.1	30.8	39.3	34.6
Excellent	10.7	15.4	21.4	15.4

The analysis shows that, in EG1, the number of policemen with a low level of physical fitness decreased by 9.6% and at the end of the experiment it was only 6.5%. The number of EG1 policemen with a satisfactory level reduced by almost a half. It must be noted that the number of EG1 policemen with good and excellent levels of physical fitness increased by 19.4% and 12.9%, towards the end of the experiment – it was 45.2% and 22.6% respectively. In CG1, the number of policemen with low and satisfactory levels of physical fitness also decreased, but not significantly: by 6.7% and 6.6% respectively. The increase in the number of CG1 policemen with good and excellent levels of physical fitness amounted to 10% and 3.3% respectively.

In EG2, the number of female policemen with a low level of general physical fitness decreased by 10.7% from 14.3% to 3.6%, with a satisfactory level – by 7.2%. At the end of the experiment, it equaled 35.7%. During the experiment, the number of EG2 female policemen with good and excellent levels of general physical fitness increased by 7.2% and 10.7% (Table 5). In CG2, the number of female policemen with a low level of general physical fitness decreased by half to 7.7%. The number of female policemen with satisfactory and good levels increased to 42.3% and 34.6% respectively. As for female policemen with excellent levels, their number remained unchanged (15.4%). The analysis proved our preliminary conclusions on the positive influence of training classes based on the authors' methodology on the level of general physical fitness of EG policemen (males and females).

CONCLUSIONS

It has been found that the initial level of general physical fitness of future patrol policemen (both males and females) who entered the primary professional training course is not sufficient for effective training and further professional activities. If the development of speed and power qualities corresponds to a satisfactory level, the development of endurance is low. The dynamics of the results for the discussed tests over the past three years has proved a negative tendency in the level of future policemen's physical fitness.

It is specified that, at the end of the pedagogical experiment, the level of policemen's general physical fitness in EG was significantly better ($p < 0.05$–0.001) than that in CG: pull-ups – by 3.4 reps (males), push-ups – by 4.6 reps (females), 1000-m race – by 11.8 sec (males) and by 12.6 sec (females), sit-ups – by 5.6 reps (males) and by 5.1 reps (females), long standing jump – by 8.6 cm

(males) and by 6.3 cm (females), sitting forward bend – by 2.5 cm (males) and by 2.9 cm (females), plank – by 15.5 sec (males) and by 13.4 sec (females). This indicates a more pronounced effect of training classes based on the authors' methodology, compared with the current program of physical training within the primary professional training course. The excellent level of general physical fitness of patrol policemen, formed during the primary professional training course, will help to maintain a proper level of physical condition and health of policemen and extend their professional longevity and improve professional performance.

The prospects for further research include justifying the methodology for improving professionally important physical qualities of patrol policemen during training classes in the system of service training.

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