

Characteristics of the development of motor and volitional qualities of future law enforcement officers in the process of their specialized training

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ABSTRACT

Aim: To investigate the impact of specialized training (hand-to-hand combat training) on the development of motor and volitional qualities indicators in cadets during their studies at higher educational institutions with a specific learning environment.

Materials and Methods: The research, conducted in the 2024-2025 year, involved 298 male cadets, who were divided into three groups: HHC Group (n = 47), whose cadets were involved in hand-to-hand combat; SC Group (n = 82), whose cadets trained in other sports clubs (games, strength, athletics); C Group (n = 169), whose cadets did not engage in additional sports activities. Research methods: analysis and generalization of literary sources, testing, psychodiagnostic methods, and statistical methods.

Results: It has been found that, according to most of the tests and methods used, the cadets of the HHC Group showed significantly better results in terms of motor and volitional qualities in their senior training years than those in the C Group. At the same time, no significant difference was found between the indicators of cadets in the HHC and SC groups, which indicates the effectiveness of additional sports activities in developing cadets' motor and volitional qualities.

Conclusions: The comprehensive impact of hand-to-hand combat training on indicators of motor and volitional qualities in future law enforcement officers has been demonstrated. This emphasizes the advisability of a wider introduction of hand-to-hand combat techniques into the specialized training of future law enforcement officers during their studies, to improve their professional training and increase the effectiveness of their future service activities.

KEY WORDS: motor qualities, volitional qualities, specialized training, hand-to-hand combat, cadet

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INTRODUCTION

The profession of a law enforcement officer is among the most responsible and dangerous in the world. In carrying out their service duties, law enforcement officers perform several essential tasks, which determine the high level of requirements for their professional training [1, 2]. An analysis of the specifics of law enforcement activities, especially in conditions of martial law, gives reason to conclude that modern law enforcement officers must possess not only knowledge of the legislative framework, but also developed motor and volitional qualities, as well as established skills and abilities to apply physical force and coercion [3, 4]. Therefore, improving the professional readiness of future law enforcement officers is a key area of activity for higher educational institutions with a specific learning environment (HEIs with SLE), which require specialists

to search for effective means to ensure the maximum efficiency of the educational process [5].

Experts argue that the basis for the professional training of future law enforcement officers in the current conditions of training in HEIs with SLE should be specialized physical training (SPT), which is as close as possible to the real conditions of service activities and which is capable of ensuring a high level of physical and psychological readiness of future law enforcement officers for effective actions in extreme conditions [6, 7]. According to many scientists [8, 9], one of the most effective SPT methods for future law enforcement officers is hand-to-hand combat (HHC). HHC has a large number of tools for developing motor and volitional qualities that determine the physical and psychological readiness of law enforcement officers to act effectively in extreme situations during their service activities [10].

Scientists [11] argue that during HHC training, law enforcement officers effectively develop motor qualities such as speed, coordination, agility, explosive power, speed and strength, and endurance. Among the volitional qualities that are developed during HHC training are: determination, courage, initiative, perseverance, durability, self-control, and confidence in one's own abilities [12].

AIM

The aim is to investigate the impact of specialized training (hand-to-hand combat training) on the development of motor and volitional qualities indicators in cadets during their studies at higher educational institutions with a specific learning environment.

MATERIALS AND METHODS

PARTICIPANTS

The research, conducted in the 2024-2025 academic year, involved 298 male cadets from Lviv State University of Internal Affairs (LSUIA, Lviv, Ukraine). To achieve the research aim, based on the results of the survey, we formed three groups of cadets: HHC Group (n = 47) included cadets who, while studying at the HEI with SLE, in addition to attending compulsory training sessions in SPT, also systematically participated in a hand-to-hand combat sports club during their sporting and mass participation activities (SMPAs) (1st training year – 12 people, 2nd training year – 13 people, 3rd training year – 11 people, 4th training year – 11 people); SC Group (n = 82) included cadets who also additionally participated in sports in various sports clubs of the HEI with SLE during their SMPAs hours, including sports games, strength sports, and athletics (1st training year – 21 people, 2nd training year – 24 people, 3rd training year – 20 people, 4th training year – 17 people); C Group (n = 169) included cadets who, during their studies, attended only compulsory training sessions in SPT and did not additionally engage in sports within their SMPAs hours being conducted according to the standard program (1st training year – 43 people, 2nd training year – 38 people, 3rd training year – 42 people, 4th training year – 46 people). The amount of physical activity per week (in hours) did not differ between the study groups. The primary variable was the content of the training sessions across the groups. Inclusion criteria: male cadets, willingness to engage in a particular sport during training (determined by a survey at the beginning of the academic year), no health contraindications to sports; exclusion criterion – the cadet's desire to withdraw from the research at any convenient time.

RESEARCH METHODS

Analysis and generalization of literary sources, testing of motor qualities, psychodiagnostic methods, and statistical methods. Analysis and generalization of literary sources were used to conduct an analytical review of scientific sources on the outlined range of issues (24 sources from PubMed, Scopus, Web of Science, and Index Copernicus were analyzed).

Testing was used to assess the development of cadets' motor skills during their HHC training sessions. The following tests were used: 100 m run (cadets' speed qualities were assessed); exercises on the horizontal bar (1st training year – pull-ups, 2nd training year – hip-swing-ups, 3rd and 4th training years – breast-ups) (strength qualities were assessed); 3 km run (overall endurance was assessed); 6x100 m shuttle run (agility and applied motor skills in accelerated movement were evaluated). Psychodiagnostic methods were used to determine the development of cadets' volitional qualities during their HHC training sessions. Two methodologies were used: "Are you decisive?" (according to E. Berne) and "Study of the Locus of Subjective Control" (according to J. Rotter) [13, 14].

STATISTICAL METHODS

Statistical methods were used to process the data obtained. The compliance of the sample data distribution with the Gauss' law was assessed using the Shapiro-Wilk W test. The reliability of the difference between the indicators was determined using the Student's t-test. The reliability of the difference was set at $p < 0.05$. All statistical analyses were performed using SPSS software, version 10.0, adapted for medical and biological research.

ETHICS

The procedure for organizing the study and the topic of the article were previously agreed with the Committee on compliance with Academic Integrity and Ethics of the LSUIA. Also this study followed the regulations of the World Medical Association Declaration of Helsinki. Informed consent was received from all cadets who took part in this study.

FRAMEWORK

This scientific article was carried out according to the plan of the research work of the Lviv State University of Internal Affairs for 2020-2026 "Psychological, pedagogical and sociological support of law enforcement officers» (state registration number 0113U008196).

Table 1. Level of development of cadets' motor qualities in the HHC Group (n = 47), the SC Group (n = 82), and the C Group (n = 169), M ± m

Training year	Number of people	HHC Group	Number of people	SC Group	Number of people	C Group	Level of significance, p		
							HHC-SC	HHC-C	SC-C
100 m run, s									
1 st	12	14.2±0.17	21	14.1±0.15	43	14.4±0.13	>0.05	>0.05	>0.05
2 nd	13	14.0±0.15	24	13.9±0.13	38	14.2±0.12	>0.05	>0.05	>0.05
3 rd	11	13.8±0.16	20	13.7±0.13	42	13.9±0.11	>0.05	>0.05	>0.05
4 th	11	13.5±0.18	17	13.3±0.14	46	13.7±0.11	>0.05	>0.05	<0.05
Strength exercises on the horizontal bar, times									
1 st	12	14.2±0.58	21	14.5±0.71	43	13.9±0.38	>0.05	>0.05	>0.05
2 nd	13	10.9±0.85	24	11.3±0.92	38	8.8±0.54	>0.05	<0.05	<0.05
3 rd	11	8.9±0.79	20	9.1±0.63	42	7.5±0.49	>0.05	>0.05	<0.05
4 th	11	10.2±0.82	17	10.3±0.68	46	8.2±0.43	>0.05	<0.05	<0.05
3 km run, s									
1 st	12	767.8±9.06	21	761.9±7.85	43	774.1±5.97	>0.05	>0.05	>0.05
2 nd	13	742.9±8.81	24	737.2±7.42	38	756.5±6.13	>0.05	>0.05	<0.05
3 rd	11	725.2±9.23	20	718.6±7.61	42	743.2±6.04	>0.05	>0.05	<0.05
4 th	11	707.4±9.85	17	696.7±7.79	46	733.8±5.87	>0.05	<0.05	<0.01
6x100 m shuttle run, s									
1 st	12	135.4±3.17	21	136.7±2.59	43	132.9±1.88	>0.05	>0.05	>0.05
2 nd	13	146.7±3.02	24	148.3±2.67	38	141.2±1.92	>0.05	>0.05	<0.05
3 rd	11	158.1±2.87	20	162.1±2.32	42	153.5±1.79	>0.05	>0.05	<0.01
4 th	11	171.3±3.15	17	177.2±2.18	46	162.1±1.66	>0.05	<0.05	<0.001

Notes: M – arithmetic mean; m – error of the arithmetic mean; p – reliability of the difference between the indicators of the cadets of the studied groups, which was determined using Student's t-test

Source: compiled by the authors of this study

RESULTS

The analysis of the level of development of cadets' speed qualities based on the results of the 100 m run showed that in the 1st training year, cadets' results across all three study groups were not significantly different ($p > 0.05$). In the 2nd and 3rd training years, the best results were observed in cadets of the SC Group (13.9 and 13.7 s, respectively); however, they did not differ significantly from those of cadets of the HHC and C groups ($p > 0.05$). In the 4th training year, the results of the 100 m run in cadets of the SC Group were significantly better than those of cadets of the C Group by 0.4 s ($t = 2.25$; $p < 0.05$). However, no significant difference was found between the results of the HHC and SC groups, as well as the HHC and C groups ($p > 0.05$) (Table 1).

A significant improvement in the results of the 100 m run was also observed among cadets from all three groups during their training at the HEI with SLE ($p < 0.01$; $p < 0.001$). At the same time, the level

of motor skill development in this test among cadets from all three groups studied is rated as excellent. The analysis showed that both the traditional SPT program at the HEI with SLE and, in particular, additional training sessions in various sports have a positive effect on the development of speed qualities in cadets – future law enforcement officers.

The analysis of cadets' results in strength exercises on the horizontal bar showed that in the 1st training year, there was no significant difference in indicators across all three groups ($p > 0.05$). However, in the HHC and SC groups, the indicators are better than in the C Group by 0.3 and 0.6 times. In the hip-swing-up exercise in the 2nd training year, the results ratio between the groups studied did not change: the best results were found in the SC Group (11.3 times), the worst in the C Group (8.8 times). At the same time, the results of cadets in the HHC Group and the SC Group are significantly ($t = 2.06$; $t = 2.34$; $p < 0.05$) better than those of cadets

Table 2. Level of development of cadets' volitional qualities in the HHC Group (n = 47), the SC Group (n = 82), and the C Group (n = 169) by the "Are You Decisive?" methodology, M ± m

Training year	Number of people	Possible amount of points	Answer options						
			A	B	C	D	F	J	
HHC Group									
1 st	12	120	9.3	35.0	7.9	12.9	17.8	17.1	
2 nd	13	130	8.7	36.3	5.6	10.0	15.0	24.4	
3 rd	11	110	12.3	35.4	6.2	10.7	16.2	19.2	
4 th	11	110	9.6	35.8	3.6	4.5	18.2	28.3	
Total	47	470	10.4	35.1	5.9	9.8	16.7	22.1	
SC Group									
1 st	21	210	8.8	32.1	9.6	14.6	17.9	17.0	
2 nd	24	240	9.6	32.7	7.3	11.2	18.1	21.1	
3 rd	20	200	9.1	36.1	6.5	6.9	16.5	24.9	
4 th	17	170	9.3	40.1	5.6	6.1	11.7	27.2	
Total	82	820	9.9	34.4	7.4	10.0	16.4	22.0	
C Group									
1 st	43	430	15.7	16.4	15.8	16.4	20.2	15.5	
2 nd	38	380	15.8	17.6	14.0	15.3	22.7	14.7	
3 rd	42	420	17.9	17.6	13.0	13.9	21.3	16.3	
4 th	46	460	18.5	18.0	12.3	12.9	21.6	16.7	
Total	169	1690	17.1	17.4	13.7	14.6	21.4	15.8	

Note: A, B, C, D, F, J - the answer options offered in the methodology questionnaire

Source: compiled by the authors of this study

in the C Group, by 1.1 and 1.5 times, respectively; the difference between the HHC Group and the SC Group is insignificant ($p > 0.05$). In the 3rd and 4th training years, the results of the breast-ups in cadets of the HHC Group and the SC Group were also significantly ($t = 2.07-3.61$; $p < 0.05-p < 0.01$) better than those of the C Group, which indicates a positive effect of additional systematic sports activities (HHC or other) on the development of motor skills of future law enforcement officers. A comparison of the average results of cadets in pull-ups on the horizontal bar in the senior training years confirmed the previous conclusions: the indicators for cadets in the HHC and the SC groups are significantly the same ($p > 0.05$), while cadets in the C Group had significantly worse strength indicators than those in the HHC and the SC groups by 1.7 ($t = 2.51$; $p < 0.05$) and 1.8 ($t = 4.33$; $p < 0.001$) times. However, the assessment of cadets' strength qualities showed that cadets from all three groups received excellent results in strength exercises in all training years.

The study of endurance development indicators in cadets shows that in the 1st training year, the results of the 3 km run did not differ significantly across all studied groups ($p > 0.05$). However, in the HHC and the SC groups, endurance development was rated as good, whereas in the C Group it was rated as satisfactory. In

the 2nd training year, the 3 km run results of cadets in the SC Group (12 min 17.2 s) were significantly ($t = 2.01$; $p < 0.05$) than those of cadets in the C Group (12 min 36.5 s), by 19.3 s, and were significantly the same as the results of cadets in the HHC Group (12 min 22.9 s) ($p > 0.05$). In the 2nd training year, the endurance level of cadets in the HHC Group and the C Group was rated as good, and that of the SC Group as excellent. In the 3rd training year, both the SC Group (11 min 58.6 s) and the HHC Group (12 min 05.2 s) showed better results than the C Group (12 min 23.2 s), by 24.6 s and 18 s, respectively. In the 4th training year, a significant difference was already found between the HHC Group and the C Group (26.4 s; $t = 2.30$; $p < 0.05$), and between the SC Group and the C Group (37.1 s; $t = 3.80$; $p < 0.01$), while no significant difference was found between the HHC Group and the SC Group ($p > 0.05$). In the senior training years, the level of endurance development of cadets in the HHC Group and the SC Group is rated as excellent, and in the C Group as good, which allows us to conclude that additional HHC training sessions and other sports activities have a greater impact on the development of endurance in future law enforcement officers than SPT sessions. Studying the indicators of cadets in the 4th and 1st training years of all the groups studied, we found that the results improved significantly in all groups: in

Table 3. Level of development of cadets' volitional qualities in the HHC Group (n = 47), the SC Group (n = 82), and the C Group (n = 169) by the "Study of the Locus of Subjective Control" methodology, $M \pm m$

Training year	Number of people	HHC Group	Number of people	SC Group	Number of people	C Group	Level of significance, p		
							HHC-SC	HHC-C	SC-C
1 st	12	28.8±2.46	21	27.5±1.67	43	27.8±1.38	>0.05	>0.05	>0.05
2 nd	13	31.4±1.35	24	30.8±1.42	38	30.2±1.09	>0.05	>0.05	>0.05
3 rd	11	34.6±1.22	20	33.7±1.16	42	32.9±0.95	>0.05	>0.05	>0.05
4 th	11	38.5±1.15	17	37.9±1.02	46	35.6±0.78	>0.05	<0.05	>0.05

Notes: M – arithmetic mean; m – error of the arithmetic mean; p – reliability of the difference between the indicators of the cadets of the studied groups, which was determined using Student's t-test

Source: compiled by the authors of this study

the HHC Group – by 1 min 04.0 s ($t = 4.51$; $p < 0.001$); in the SC Group – by 1 min 5.2 s ($t = 5.30$; $p < 0.001$); in the C Group – by 40.3 s ($t = 4.81$; $p < 0.001$).

The evaluation of cadets' results in the 6x100 m shuttle run shows that, as in the analysis of other motor skills, no significant difference was found between the results of all three groups in the 1st training year ($p > 0.05$). In the 2nd training year, an important difference was found between the results of cadets in the SC Group (2 min 05.1 s) and the C Group (2 min 09.1 s) – 4 s ($t = 2.22$; $p < 0.05$). In the 3rd training year, the ratio of the results of the 6x100 m shuttle run between the studied groups did not change – the best results were found in cadets of the SC Group (2 min 00.9 s); they are significantly better than those of cadets in the C Group (2 min 06.3 s) by 5.4 s ($t = 2.22$; $p < 0.05$) and significantly the same as the results of the HHC Group (2 min 02.3 s). In the 4th training year, the results of cadets in the C Group (2 min 03.9 s) were significantly worse than those of the SC Group and the HHC Group by 7.5 s ($t = 4.48$; $p < 0.001$) and 4.6 s ($t = 2.11$; $p < 0.05$), respectively. The difference between the results of cadets in the SC Group and the HHC Group in the 4th training year is insignificant ($p > 0.05$), which indicates the effectiveness of additional sports activities (HHC and other types) on the formation and improvement of applied motor skills of future law enforcement officers than in the C Group, by 4.9 s ($t = 4.27$; $p < 0.001$) and 3.3 s ($t = 2.31$; $p < 0.05$), respectively. It should be noted that the results of cadets in the 6x100 m shuttle run in all three study groups in all training years are rated as excellent. The analysis of the dynamics of the results of the 6x100 m shuttle run shows that in all groups they significantly improve during the training process at the HEI with SLE ($p < 0.001$), however, the difference between the results of cadets in the 1st and 4th training years in the

HHC Group is 11 s ($t = 4.34$), in the SC Group – 12.3 s ($t = 6.44$), and in the C Group – 7.5 s ($t = 4.86$).

The analysis showed that cadets who additionally participated in the HHC sports club during their training at the HEI with SLE had a significantly ($p < 0.05-0.001$) better level of development of all qualities than cadets who used the traditional SPT program and did not participate in additional sports. Compared with cadets who also practiced other sports, all indicators studied for cadets in the HHC Group did not show a significant difference from those in the SC Group ($p > 0.05$). This indicates that additional sports activities during training at the HEI with SLE are more effective than the traditional SPT methodology in promoting the development of cadets' motor skills.

The impact of HHC training sessions on the volitional qualities of cadets was assessed according to such qualities as determination and locus of subjective control. Determination, as a volitional quality of personality, enables a person to carry out a decision without unnecessary hesitation. Law enforcement officers who lack this quality often cannot bring a case to a successful conclusion and doubt the correctness of their chosen execution method. An essential condition for determination is courage, i. e., the willingness to take justified risks. Of course, determination must be based on deep prudence and only come into play when a person finally decides what they need. There is a whole chain here: consideration of goals, struggle of motives, doubts, etc. The presence of doubts during this period does not indicate indecisiveness, but rather the opposite, because an intense battle of motives is characteristic of a thinking person. But decisive people quickly struggle with their motives; they know how to act quickly, calmly, and professionally, despite possible danger, while indecisive people take a long time to

make a decision. The level of decisiveness among cadets was studied using the "Are You Decisive?" methodology (by Eric Berne). Cadets had to choose one answer from the options provided (A, B, C, D, F, J) for each of the 10 questions. If the majority of the cadet's answers (more than 50 %) corresponded to letters B and J, his level of decisiveness was assessed as high; if the majority of the cadet's answers (more than 50 %) corresponded to letters A and F and B and J, his level of decisiveness was assessed as average; if the majority of the cadet's answers (more than 50 %) corresponded to the letters C and D, his level of determination was assessed as low. The study of cadets' determination shows that during their training, the level of determination improves: the number of people in each group who chose answers B and J increased (in the HHC Group from 35.0 and 17.1 % to 35.8 and 28.3 %, respectively; in the SC Group from 32.1 and 17.0 % to 40.1 and 27.2 %, respectively); those who chose options A and F also increased slightly (in the HHC Group from 9.3 and 17.8 % to 9.6 and 18.2 %, respectively; in the SC Group from 8.8 to 9.3, respectively); and those who chose options C and D decreased (in the HHC Group from 7.9 and 12.9 % to 3.6 and 4.5 %, respectively; in the SC Group from 9.6 and 14.6 % to 5.6 and 6.1 %, respectively) (Table 2). In the HHC and the SC groups, the distribution of answers across all training years shows a similar trend: the majority (over 50 %) of cadets chose options B and J, and less than 10 % chose options D and C. In the C Group, there is a practically even distribution of answer options in all training years: options B and J were chosen by 31.9-34.7 % of cadets; options A and F – by 35.9-40.1 % of cadets; options C and D – by 32.2-25.2 % of cadets.

The analysis of the overall ratio of cadets' responses confirmed the above trend—a high level of determination in the HHC and the SC groups, and an average level in the C Group. The analysis showed that sports, and HHC in particular, have a positive effect on the development of a volitional quality among future law enforcement officers, namely determination. It is essential to add that the most significant number of cadets who chose answer options characterizing a high level of determination was found in the HHC Group, further confirming the effectiveness of HHC training sessions in developing the volitional qualities of future law enforcement officers.

Using J. Rotter's methodology, we determined the locus of subjective control of cadets, which reflects their level of development of volitional qualities. The locus of control is a characteristic of a person's volitional sphere that demonstrates their tendency to attribute responsibility for the outcomes of their activities to external forces or to their own abilities and efforts. At-

tributing responsibility for the results of one's actions to external forces is called an external locus of control, while attributing responsibility to one's own abilities and efforts is called an internal locus of control. Every person has a specific position on the continuum from external to internal. With a low level of internal locus of control, people see little connection between their actions and the events in their lives that are important to them. They do not consider themselves capable of controlling the development of such events and believe that most of them are the result of chance or the actions of other people. Therefore, "externalists" are emotionally unstable, prone to informal communication and behavior, uncommunicative, have poor self-control, and are highly strung. A high level of internality corresponds to a high level of subjective control over any significant events. People with this locus of control believe that most important events in their lives are the result of their own actions, that they can control these events, and that they feel responsible for these events and for how their lives unfold in general. "Internals" with high levels of subjective control are emotionally stable, stubborn, decisive, sociable, and characterized by significant self-control, restraint, and tolerance. The level of subjective control among cadets was assessed using the internality indicator, which is considered low at 11 points or fewer and high at 33-44 points. Thus, the analysis of the obtained indicators shows that in the 1st, 2nd, and 3rd training years, the level of subjective control among cadets in all three groups is reliably the same ($p > 0.05$) (Table 3).

In the 4th training year, the level of subjective control in the HHC Group is the best among the groups (38.5 points), significantly better than in the C Group (35.6 points), by 2.9 points ($t = 2.02$; $p < 0.05$), and significantly the same as in the SC Group (37.9 points) ($p > 0.05$). The analysis of the mean values shows that, although the indicators in the HHC and the SC groups are better than those in the C Group, no significant difference was found between them ($p > 0.05$). The study of changes in cadets' indicators of subjective control shows that across all three groups, there was a significant improvement, with the greatest changes observed in the HHC and the SC groups. Thus, the difference between the indicators of the 1st and 4th training years in the HHC Group is 9.7 points ($t = 3.57$; $p < 0.001$), in the SC Group – 10.4 points ($t = 5.23$; $p < 0.001$), and in the C Group – 7.8 points ($t = 4.92$; $p < 0.001$). Assessment of cadets' subjective control in the study groups shows that in the 1st and 2nd training years, the indicators of all three groups were at the average level, and in the 3rd and 4th training years, at the high level. It was also found that, during senior

training, more than 70 % of cadets in each group had an internal locus of subjective control.

The results show that the vast majority of cadets in all groups, especially in the senior training years, have a conscious motivation to achieve success, both in their service activities and in their personal lives, demonstrate independence in decision-making, responsibility for the results of their activities, and resilience in overcoming difficulties, linking their successes in academic training to achievements in their future professional careers. All these traits and qualities of cadets are most effectively revealed during sports activities, including HHC, which confirms the need for their widespread introduction into the SPT process for future law enforcement officers.

DISCUSSION

Scientists [3, 15, 16] note that a modern law enforcement officer must be able to ensure their own safety and that of those around them, using sufficient force and methods if necessary; distinguish between dangerous situations; and act without prejudice in all circumstances, guided by ethical standards. The analysis of law enforcement practices shows that the functional duties of a law enforcement officer can only be performed by a person who has a high level of responsibility for the results of their own professional activities, possesses a complex of knowledge, practical skills, and professionally important motor and volitional qualities [10, 17]. In view of this, it should be noted that these components ensure that law enforcement officers are professionally ready to perform complex, sometimes atypical, and dangerous tasks effectively.

As noted by scientists [6, 7], the basis of professional training for future law enforcement officers during their studies at HEIs with SLE is SPT, one of the most effective types of which is hand-to-hand combat. Experts [8, 9] believe that hand-to-hand combat, as a type of martial arts, belongs to physical exercises of variable intensity, of an acyclic nature, with continuous responses to the opponent's actions. HHC is associated with significant motor activity and, depending on its intensity and the opponent's actions, can involve moderate, high, or submaximal physical exertion at certain moments. Scientists [12] note that in HHC, work is performed in a mixed aerobic-anaerobic zone, and oxygen demand and oxygen debt are determined by the difficulty of the work and by the high nervous and mental stress associated with the risk to life and the possibility of injury. The authors, studying the results of the Ruffier test, the Kerd index, the level of physical working capacity, and maximum oxygen consumption, found that cadets who systematically engage in HHC have a high level of functional capacity of the cardiovascular

and respiratory systems [18]. This is confirmed by the results we obtained.

Repeated performance of various actions with weapons and means of physical influence and without weapons (hand and foot strikes, pain techniques, throws, chokeholds, etc.) during HHC training sessions primarily contributes to the development of motor skills, where the leading role belongs to psychomotorics as a means of motor response to external stimuli. At the same time, a complex spatial-temporal conditioned reflex plays a special role – law enforcement officers develop a reaction to a moving object [11]. The need to constantly keep your distance during HHC, to compare the moment of applying force with the opponent's movement, requires a high level of analysis (visual, motor, and vestibular), as well as the ability to assess the opponent's distance, speed of movement, and location. The use of painful techniques also has a beneficial effect on the pain analyzer, increasing pain sensitivity thresholds [6]. Instantaneous switching of attention, its stability, distribution, and concentration, rapid processing of information, independence and correctness of decision-making, the ability to develop action plans when making decisions and make adjustments to them taking into account the opponent's countermeasures, the ability to maintain performance and an optimal emotional state in extreme situations, the ability to interact with partners (brothers-in-arms, comrades) – these are the components of successful law enforcement actions as a result of HHC training [19]. Our research also showed that cadets who additionally participated in HHC training sessions during their studies at the HEI with SLE demonstrated a higher level of development in all the above-mentioned qualities than those who did not participate in HHC training.

As experts point out [11], systematic HHC training effectively affects the central nervous system: constant stimulation of multiple nerve centers during hand-to-hand combat promotes the development of skills for performing movements that require considerable speed, strength, and endurance.

According to scientists [12], in leading countries worldwide, HHC is considered a specialized training tool and an indispensable means of psychological hardening for law enforcement officers, instilling self-confidence, courage, determination, and resilience in the face of stressful conditions. Studying the impact of HHC training on cadets' psychological readiness for future professional combat activities, scientists [5] found that mastering HHC techniques is inevitably associated with a specific fear: fear of pain from missed enemy blows, unsuccessful falls after throws, etc. Overcoming this fear requires the manifestation of qualities such as

courage and determination. Improving combat techniques and actions involves their repeated duplication, which also requires cadets to demonstrate discipline and independence. Constantly changing situations in which HHC techniques are perfected foster ingenuity and quick-wittedness in cadets [10]. Training fights – conditioned, semi-conditioned, and especially unconditioned (free) – are particularly valuable for improving the psychological preparedness of cadets, since their conduct requires the manifestation, and therefore the cultivation, of the entire spectrum of volitional qualities that make up their psychological preparedness [2, 5].

According to scientists [13, 20, 21], the volitional qualities cultivated in combat training sessions as a result of the phenomenon of transfer will also be manifested in the course of performing service duties. The specificity of HHC lies in its ability to activate internal motivation, which, in turn, leads to self-improvement and self-education. We also noticed this during our research. After all, the vast majority of cadets across all groups have a conscious motivation to achieve success in both their service activities and their personal lives, and demonstrate independence in decision-making. They gain experience in overcoming psychological difficulties and improve their assessment of absolute risk, which is quite important and valuable in dangerous situations in their professional activities.

Scientists [22] identify the following main characteristics of HHC: direct contact with the enemy; the aggressiveness of the enemy and their active opposition; a lack of time and information, and the need to make quick and responsible decisions on which the safety and lives of both the soldier and their brothers-in-arms depend; experiencing negative emotional states, primarily fear, etc. According to scientists [23], well-trained personnel in HHC techniques are characterized by self-control, a sense of physical and psychological superiority over the enemy, and a constant, functional, proactive attitude. Our results confirm the conclusions of many scientists [8, 9, 11, 17, 22, 24] and complement them. It has been established that HHC training sessions have a positive effect on the development of cadets' working capacity and endurance, as well as their motor and volitional

qualities (in particular, determination, courage, responsibility, etc.), which will generally contribute to improving the effectiveness of performing specific tasks in their future service activities.

CONCLUSIONS

It has been found that hand-to-hand combat is an effective means of specialized training for cadets as future law enforcement officers in interaction with offenders, as well as an effective means of developing and improving their physical and psychological preparedness, forming various motor skills, fostering courage, determination, confidence in their own abilities, etc.

It has been established that during hand-to-hand combat training, cadets effectively develop both motor skills (speed, coordination, agility, strength, endurance) and volitional qualities (determination, courage, responsibility, etc.). In the HHC Group, most indicators studied in the senior training years are significantly better than in the C Group, indicating a more pronounced effect of HHC training sessions on the development of motor and volitional qualities of future law enforcement officers compared with the traditional SPT methodology. At the same time, no significant difference was found between the indicators of cadets in the HHC Group and the SC Group, which allows us to conclude that additional training in any sport is effective in developing the motor and volitional qualities of cadets. However, no other sports activities have such a comprehensive impact on the development of motor skills and applied motor skills, as well as on the cultivation of volitional qualities, as HHC training sessions. This emphasizes the advisability of wider implementation of HHC into the physical training programs of cadets during their studies at HEIs with SLE to improve the effectiveness of their future service activities.

PROSPECTS FOR FURTHER RESEARCH

It is planned to investigate the impact of strength sports on the development of motor and volitional qualities of cadets during their studies at HEIs with SLE.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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