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Trends in somatic health indicators among representatives of the security and defense sector during the war

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Тенденція показників соматичного здоров'я у представників сектору безпеки і оборони під час війни

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Introduction

In the modern world, against the backdrop of the continuous development of geopolitical crises and terrorist threats, the concept of "martial law" ceases to be an abstraction and becomes a reality that society and its security forces must face. Under these conditions, the role of the security and defense sector is of particular importance, as the armed forces and law enforcement agencies act not only as a means of defending the state and ensuring law and order in peacetime, but also as a key guarantor of defense and security of society during martial law [1]. Given this reality, there is a need to improve and adapt training programs for security and defense sector representatives to the challenges posed by martial law. This task is important and a real test for modern law enforcement agencies, which must be prepared to respond effectively to emergencies and ensure the safety of citizens [2].

The effectiveness of performing service tasks, the ability to defend themselves and protect citizens, as well as resilience and endurance in stressful situations, directly depend on the physical condition of the security and defense sector representatives, the level of their somatic health [3]. According to many scientists [4], motor activity (physical training) is an effective tool for forming the readiness of the security and defense sector representatives for training and combat activities under martial law, increasing their effectiveness, and strengthening somatic health and restoring mental health.

According to O. I. Kamaiev et al. and B. Melton and colleagues [5; 6], physical training plays a key role in improving the professional efficiency of military and law enforcement personnel, becoming an integral part of their professional development. In the face of constant changes in the social environment and new challenges, physical readiness becomes a crucial factor that ensures the personal safety of military and law enforcement personnel and the effectiveness of their service duties. Regular physical training helps to strengthen not only the body but also the mind. This allows the security and defense sector representatives to maintain a high level of physical fitness necessary for long-term exposure to stressful situations, rapid response to unforeseen circumstances, and effective resolution of conflict situations [7; 8]. In addition, systematic physical activity helps to improve somatic health, increase self-confidence, enhance concentration and self-control, which are important components of successful work in the security and defense sector. At the same time, the impact of physical training on maintaining and strengthening the somatic health of the security and defense sector representatives during their training and combat activities under martial law is not sufficiently studied, which led to the research topic.

The aim of the study is to compare somatic health indicators in security and defense sector representatives who complied (Group A) and did not comply (Group B) with the motor activity regimen during their training and combat activities.

Object, materials and research methods

Participants. The research, which was conducted in 2024–2025, involved 443 security and defense sector representatives – cadets (n = 281), officer trainees (n = 65) and commissioned officers (n = 97) of the S. P. Korolov Zhytomyr Military Institute (Zhytomyr, Ukraine) who complied (Group A, n = 112) and did not comply (Group B, n = 331) with the motor activity regimen during their training and combat activities. The group of cadets included higher education students (cadets) of the 1-4th training years (bachelor's level of higher education), whose training and combat activities lasted 2–4 weeks

and took place in the form of practical training sessions at shooting grounds that maximally simulate the real conditions of war activities in combat units. The group of officer trainees included the 5th training year military students (master's degree), whose training and combat activities lasted 1 month and were carried out during their utilization tours in military and combat units. The group of commissioned officers included officers of the higher military educational institution who performed special and combat missions in the combat zone for 3-6 months. All participants in the research were male.

To study the impact of motor activity during martial law training and combat missions on the somatic health indicators of security and defense sector representatives, we conducted a survey among cadets, officer trainees, and commissioned officers to determine whether they engaged in physical activity during their training and combat missions to overcome stress and improve somatic health. Based on the survey results, two groups were formed: Group A (n=112) – participants of which systematically (2–3 times a week) were engaged in physical exercises at training grounds, during utilization tours and rotations; Group B (n=331) – participants who did not exercise for various reasons or did not exercise systematically.

The main criteria for inclusion of the research participants in the experiment were participation in training and combat activities (cadets – in practical training at training grounds, officer trainees – in utilization tours in practical units, commissioned officers – in special and combat missions to repel the russian aggressor) and compliance or non-compliance with the regime of motor activity in the course of their training and combat activities. In addition, all participants were informed about the aim of the research and provided voluntary written consent to participate. The issue of participants' compliance or non-compliance with the motor activity regimen was revealed by interviewing them using a specially designed questionnaire containing 5 questions: bibliographic data, duration of participation in training and combat activities, whether or not they were or were not engaged in physical exercises for maintaining somatic health, how many times a week, by what means. Age, education, marital status, financial well-being were not considered. The exclusion criterion was the desire of participants to withdraw from the research at any time.

Research methods: analysis and generalization of literature sources, medical and biological methods, methods of data processing. Analysis and generalization of literature sources was used to conduct an analytical review of scientific sources on the outlined range of issues (25 sources from MedLine, Scopus, Web of Science, and Index Copernicus were analyzed).

The physical health of security and defense sector representatives was assessed according to the Prof. H. L. Apanasenko's methodology [9]. H. L. Apanasenko's methodology involves the calculation of body mass index, vital index, strength index, Robinson's index, Martine-Kushelevsky index and, on their basis, as a sum of five indices, determination of somatic health level (SHL) (in points). If the sum of points is 0-3 points, the SHL is assessed as low, 4–6 points – below average, 7–11 points – average, 12–15 points – above average, 16–18 points – high. Body mass index (BMI) was determined by the ratio of body weight in kg to height in m^2, vital index (VI) was determined by the ratio of vital capacity of the lungs in ml to body weight in kg, strength index (SI) was determined in % by the ratio of dynamometry of the stronger hand in kg to body weight in kg, Robinson's index (RI) was determined in c. u. as the product of heart rate in beats/min and systolic blood pressure in ml Hg at rest. Martine-Kushelevsky index (MKI) was determined in sec as the heart rate recovery time after a standard load (20 squats in 30 seconds).

Data processing. The compliance of the sample data distribution with the Gauss' law was assessed using the Shapiro-Wilk W test. All the data had a normal distribution, and therefore a Student's t-test was chosen to check the reliability of the difference in the comparison groups. The reliability of the difference was set at $p<0.05$. The results were presented as Mean ± SE, where Mean is the arithmetic mean and SE is the standard error of the arithmetic mean. 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 S. P. Korolov Zhytomyr Military Institute. Also this study followed the regulations of the World Medical Association Declaration of Helsinki. Informed consent was received from all participants who took part in this study.

Research results

The results of the assessment of the dynamics of somatic health indicators of the security and defense sector representatives in terms of their body mass, vital, strength, Robinson, Martine-Kushelevsky indices, and the level of somatic health in the participants of groups A and B before and after performing combat training tasks are presented in Table 1.

The study of the BMI shows that during training and combat activity under martial law, both groups experienced a deterioration in their BMI. Still, in Group A, there were no statistically significant differences ($p>0.05$). In Group B, there was a significant ($p\leq0.05$-0.001) deterioration in the BMI in cadets, by 0.13 kg/m^2, in officer trainees, by 0.66 kg/m^2, and in commissioned officers, by 1.42 kg/m^2. At the end of the research, the participants in Group A had a significantly ($p\leq0.05$) higher BMI than those in Group B, by 0.38 kg/m^2 in cadets, 0.73 kg/m^2 in officer trainees, and 1.24 kg/m^2 in commissioned officers.

The study of the VI indicates its deterioration in the participants of both groups. It was found that there were no

Table 1

Dynamics of somatic health indicators before and after training and combat activities in cadets (n=281), officer trainees (n=65) and commissioned officers (n=97) who adhered (Group A) and did not adhere (Group B) to the motor activity regimen (Mean±SE), points

Research participants	Group A		Group B		t_{AB}	
	Before	After	Before	After	Before	After
BMI, kg/m^2						
Cadets	23.77±0.15	23.81±0.16	24.06±0.09	24.19±0.10	1.66	2.01
Officer trainees	24.58±0.21	24.66±0.22	24.73±0.18	25.39±0.19*	0.54	2.51
Commis. officers	26.03±0.20	26.37±0.22	26.19±0.14	27.61±0.15***	0.66	4.66
VI, ml/kg						
Cadets	56.48±0.39	56.29±0.41	56.39±0.33	55.74±0.35	0.18	1.02
Officer trainees	56.67±0.57	56.40±0.59	56.18±0.43	54.93±0.45*	0.69	2.00
Commis. officers	55.95±0.51	55.48±0.54	55.76±0.37	53.69±0.39**	0.30	2.69
SI, %						
Cadets	64.16±0.33	63.89±0.35	63.85±0.27	62.91±0.29*	0.70	2.16
Officer trainees	64.39±0.48	63.83±0.50	63.92±0.39	62.45±0.41*	0.76	2.17
Commis. officers	63.25±0.46	62.11±0.47	62.97±0.31	60.66±0.33***	0.50	2.52
RI, c.u.						
Cadets	86.79±0.52	86.93±0.54	86.91±0.34	87.75±0.36	0.19	1.26
Officer trainees	86.64±0.69	87.05±0.72	86.83±0.59	88.54±0.61*	0.21	1.58
Commis. officers	89.37±0.65	90.51±0.66	89.81±0.49	92.47±0.51**	0.54	2.35
MKI, s						
Cadets	119.7±2.05	121.2±2.09	121.5±1.11	124.8±1.14*	0.77	1.51
Officer trainees	118.3±2.76	122.7±2.80	120.9±2.28	127.6±2.32*	0.73	1.35
Commis. officers	125.4±2.84	130.9±2.89	128.7±2.10	138.5±2.16**	0.93	2.11
SHL, points						
Cadets	5.58±0.18	5.31±0.19	5.34±0.16	4.91±0.17	0.99	1.57
Officer trainees	5.85±0.34	5.44±0.35	5.70±0.22	4.57±0.23**	0.37	2.08
Commis. officers	4.57±0.36	3.68±0.38	3.98±0.16	2.39±0.18***	1.5	3.07

Legend: n – sample size; Mean – arithmetic mean; SE – standard error; t_{AB} – Student's t-test value between the indicators of groups A and B; p – p-value; *, **, *** – statistically significant differences between the indicators of group before and after training and combat activities at the level of $p\leq0.05$; $p\leq0.01$; $p\leq0.001$.

statistically significant changes in Group A, whose participants regularly exercised ($p>0.05$). In Group B, where participants did not adhere to the regimen of motor activity, the changes were more pronounced: in cadets, the deterioration was 0.65 ml/kg, in officer trainees, 1.25 ml/kg, in commissioned officers, 2.07 ml/kg. It was also stated that after completing the tasks, the cadets, officer trainees, and commissioned officers of Group A had significantly ($p\leq0.05$) better VI indicators than those of Group B, by 0.55, 1.47, and 1.79 ml/kg.

The comparative analysis of the SI indicators showed that during the research period, the participants in both groups experienced a deterioration in strength indicators. Still, more pronounced changes were observed in Group B. Thus, in Group A, the changes were 0.27%, 0.56% and 1.14% ($p>0.05$), respectively, in cadets, officer trainees and commissioned officers, and in Group B – 0.94% ($p\leq0.05$), 1.47% ($p\leq0.05$) and 1.91% ($p\leq0.001$), respectively. After completing the tasks of training and combat activities in Group A, the indicators of the SI were also significantly ($p\leq0.05$) better than in Group B, by 0.98% in cadets, by 1.38% in officer trainees and by 1.45% in commissioned officers, which emphasizes the effectiveness of motor activity training sessions in maintaining physical health indicators at the achieved level.

The study of the dynamics of the RI also indicates a deterioration in the RI indicators of the participants in both groups. However, in Group A, the indicators after training and combat activities do not have statistically significant differences ($p>0.05$). In Group B, the participants' indicators significantly ($p\leq0.01$) deteriorated by 0.84, 1.71, and 2.66 c. u., respectively. Comparing the performance of the participants' indicators in groups A and B after completing their combat and training tasks, we found that in Group A indicators were better than in Group B by 0.82, 1.49, and 1.96 c. u., respectively, for cadets, officer trainees, and commissioned officers. The analysis suggests that systematic physical exercises during training and combat activities contribute to improving the functional capabilities of the cardiovascular system of the security and defense sector representatives.

The analysis of the MKI, which allows for assessing the state of the cardiorespiratory system of the body by the rate of recovery of heart rate after exercise, showed that, like all previous indices, the MKI also tends to deteriorate in both groups. However, the magnitude of changes

in the indicators of the participants in Group A is not statistically significant. In Group B, the changes are more reliable ($p \leq 0.05$) and amount to 3.3 s, 6.7 s, and 9.8 s, respectively, for cadets, officer trainees, and commissioned officers. After completing the tasks, the best MKI indicators were also found in Group A: the difference between the indicators of the participants in both groups was 3.6 s, 4.9 s, and 7.6 s, respectively.

The study of the SHL shows that during training and combat activities under martial law, the participants of both study groups experienced a deterioration in their SHL. However, in Group A, there were no statistically significant differences between the indicators before and after combat training tasks ($p > 0.05$). In Group B, the differences were 0.43 points for cadets, 1.13 points for officer trainees, and 1.59 points for commissioned officers. After completing the tasks, the SHL of the participants of Group A was statistically ($p \leq 0.01$) better than in Group B, by 0.40 points for cadets, by 0.87 points for officer trainees, and by 1.29 points for commissioned officers (Fig. 1).

This confirms our previous conclusions about the positive impact of motor activity on health promotion in the security and defense sector representatives during their intense training and combat activities under martial law.

Discussion of research results

Russia's armed aggression against Ukraine and the conduct of hostilities have significantly increased the requirements for physical fitness of law enforcement officers. The performance of service tasks under martial law (the growing role of mobile groups, special operations, and combat operations in urban areas and other features) requires a high level of somatic and mental health, the development of all physical qualities from security forces [10–12]. Our results prove this necessity, because the correctly organized process of motor activity during the performance of tasks of training and combat activities contributes to the strengthening of the health of employees of law enforcement agencies.

According to experts [13; 14], a military conflict differs from everyday training and combat activities, including active hostilities, fire exchange, and a high threat to life. The security and defense sector representatives need appropriate physical and psychological training to perform their duties successfully in such conditions.

According to scholars [15–17], the physical training of the security and defense sector representatives in the combat zone (during combat operations) has certain features and requirements. One of the key components of physical exercises during training and combat activities is the focus of physical exercises on developing endurance, which allows one to withstand prolonged physical loads and stressful situations. Considerable attention should be paid to developing strength qualities and speed, since a military conflict may require a quick response and physical strength in case of hostilities. However, as the results show, developing physical qualities should be systematic. In particular, compared to cadets and officer trainees, commissioned officers demonstrated better indicators, as motor activity training sessions allow them to maintain their physical health at the achieved level. The security and defense sector representatives should be trained to use weapons and technical equipment, such as bulletproof vests and other personal protective equipment [18]. Military conflict has a serious psychological impact on members of the security and defense sector, so psychological training is an integral part of physical training. Representatives of the security and defense sector must be prepared for combat operations, stressful situations, and risk to life [1; 19; 20].

As rightly noted by scientists [21; 22], and also proved by the results of our research, non-compliance

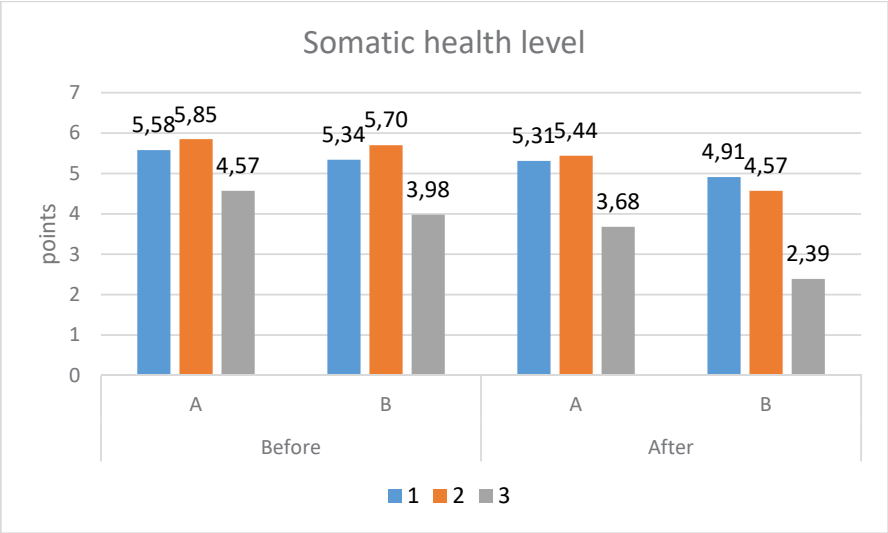

Fig. 1. Dynamics of the SHL before and after training and combat activities in cadets (1), officer trainees (2), and commissioned officers (3) who adhered (Group A) and did not adhere (Group B) to the regimen of motor activity, points

with the motor activity regimen by the representatives of the security and defense sector during their training and combat activities can lead to serious health problems, including cardiovascular disease, type 2 diabetes, and others. It also affects mental health, leading to mood disorders, decreased concentration, and general malaise. The complexity of performing a wide range of professional tasks by the security and defense sector representatives under martial law is exacerbated by irregular working hours, significant nervous tension, and difficult interpersonal contacts. Therefore, servicemembers who do not pay attention to their physical health are at risk of burnout syndrome [23]. A prolonged decrease in physical activity leads to atrophic changes in muscles and bone tissue, disturbed metabolism, decreased protein synthesis, and increased body weight. Insufficient motor activity has an extremely unfavorable effect on brain function, causing headaches, insomnia, and people become emotionally unbalanced [24].

Our research confirms the work of many scientists [6; 10; 15; 16; 25] on the positive impact of physical training during martial law on the somatic health indicators in the security and defense sector representatives: cadets – during their practical training sessions at shooting grounds, officer trainees – during their utilization tours in military units, commissioned officers – during their special and combat missions in the combat zone.

Prospects for further research

It is planned to investigate the impact of physical exercise on the preservation of mental health in the security and defense sector representatives during assigned tasks.

Conclusions

It has been found that in the course of training and combat activities, the somatic health indicators (body mass indexes, vital, strength, Robinson, Martine-Kushelevsky, as well as the level of somatic health) of the security and defense sector representatives in both groups deteriorated, but in Group A the changes in all indicators were unreliable ($p > 0.05$), and in Group B – reliable ($p \leq 0.01–0.001$). Thus, the BMI in Group B deteriorated by 0.13, 0.66 and 1.42 kg/m^2 in cadets, officer trainees and commissioned officers, respectively; the VI – by 0.65, 1.25 ml and 2.07 ml/kg; the SI – by 0.94, 1.47 and 1.91 %; the RI – by 0.84, 1.71 and 2.66 c.u.; the MKI – by 3.3, 6.7 and 9.8 s; the SHL – by 0.43, 1.13 and 1.59 points.

It has been found that at the end of the research, the cadets, officer trainees and commissioned officers of Group A had all the studied indicators of somatic health significantly ($p \leq 0.01–0.001$) better than in Group B, in terms of their body mass index – by 0.38, 0.73 and 1.24 kg/m^2 in cadets, officer trainees and commissioned officers, respectively; in terms of their vital index – by 0.55, 1.47 and 1.79 ml/kg; in terms of their strength index – by 0.98, 1.38 and 1.45 %; in terms of their Robinson index – by 0.82, 1.49 and 1.96 c. u.; in terms of their Martine-Kushelevsky index – by 3.6, 4.9 and 7.6 s; in terms of their somatic health level – by 0.40, 0.87 and 1.29 points.

The effectiveness of motor activity (physical exercises) in improving somatic health in the security and defense sector representatives during their training and combat activities under martial law has been proven.

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The purpose of the work is to compare somatic health indicators in security and defense sector representatives who complied (Group A) and did not comply (Group B) with the motor activity regimen during their training and combat activities.

Materials and methods. The research, which was conducted in 2024–2025, involved 443 security and defense sector representatives – cadets (n=281), officer trainees (n=65) and commissioned officers (n=97) of the S. P. Korolov Zhytomyr Military Institute (Zhytomyr, Ukraine) who complied (Group A, n=112) and did not comply (Group B, n=331) with the motor activity regimen during their training and combat activities. Research methods: analysis and generalization of literature sources, medical and biological methods, methods of data processing.

Results. It has been found that in the course of training and combat activities, the somatic health indicators of the security and defense sector representatives in both groups deteriorated, but in Group A the changes in all indicators were unreliable ($p>0.05$), and in Group B – reliable ($p\leq0.01–0.001$). It has been found that at the end of the research, the cadets, officer trainees and commissioned officers of Group A had all the studied indicators of somatic health significantly ($p\leq0.01–0.001$) better than in Group B, in terms of their body mass index – by 0.38, 0.73 and 1.24 kg/m^2 in cadets, officer trainees and commissioned officers, respectively; in terms of their vital index – by 0.55, 1.47 and 1.79 ml/kg; in terms of their strength index – by 0.98, 1.38 and 1.45%; in terms of their Robinson index – by 0.82, 1.49 and 1.96 c. u.; in terms of their Martine-Kushelevsky index – by 3.6, 4.9 and 7.6 s; in terms of their somatic health level – by 0.40, 0.87 and 1.29 points.

Conclusions. The effectiveness of motor activity (physical exercises) in improving somatic health in the security and defense sector representatives during their training and combat activities under martial law has been proven.

Key words: somatic health, motor activity, security and defense sector representatives, war.

Мета: здійснити порівняльний аналіз показників соматичного здоров'я у представників сектору безпеки та оборони, які під час навчально-бойової діяльності дотримувалися (група А) та не дотримувалися (група Б) режиму рухової активності.

Матеріали та методи. У дослідженні, яке проводилося у 2024–2025 рр., взяли участь 443 представники сектору безпеки і оборони: курсанти (n=281), слухачі (n=65) та офіцери (n=97) Житомирського військового інституту імені С.П. Корольова (Житомир, Україна), які під час навчально-бойової діяльності дотримувалися (група А, n=112) та не дотримувалися (група Б, n=331) режиму рухової активності. До групи курсантів увійшли здобувачі вищої освіти (курсанти) I–IV курсів (бакалаврський рівень вищої освіти), навчально-бойова діяльність яких тривала 2–4 тижні і

проходила у вигляді практичних занять на полігонах, що максимально моделюють реальні умови бойової діяльності у бойових підрозділах. До групи слухачів увійшли здобувачі вищої освіти V курсу (магістерський рівень вищої освіти), навчально-бойова діяльність яких тривала один місяць і здійснювалася під час стажування у військових частинах і бойових підрозділах. Група офіцерів охоплювала офіцерів вищого військового навчального закладу, які впродовж 3–6 місяців виконували спеціальні та бойові завдання у зоні бойових дій. Усі учасники дослідження були чоловічої статі. Для дослідження впливу занять руховою активністю під час виконання завдань навчально-бойової діяльності в умовах воєнного стану на показники соматичного здоров'я представників сектору безпеки і оборони нами було проведено опитування серед курсантів, слухачів та офіцерів чи займалися вони фізичними вправами під час виконання завдань навчально-бойової діяльності для зміцнення здоров'я. За результатами опитування сформовано дві групи: група А (n=112), учасники якої систематично (2–3 рази на тиждень) займалися фізичними вправами на полігонах, під час стажування та ротацій; група Б (n=331), учасники якої не займалися фізичними вправами з різних причин або займалися несистематично. Основними критеріями включення учасників дослідження до експерименту були участь у навчально-бойовій діяльності (курсантів – у практичній підготовці на полігонах, слухачів – у стажуванні, офіцерів – у виконанні спеціальних і бойових завдань щодо відсічі російського агресора) та дотримання або недотримання ними режиму рухової активності у процесі навчально-бойової діяльності. Окрім того, усі учасники були повідомлені про мету дослідження і надали добровільну письмову згоду на участь у дослідженні. Питання дотримання або недотримання учасниками режиму рухової активності виявлялося шляхом їх опитування за спеціально розробленим опитувальником, який містить п'ять запитань: бібліографічні дані, тривалість участі у навчально-бойовій діяльності, займалися чи не займалися фізичними вправами для підтримання соматичного здоров'я, скільки разів на тиждень, якими засобами. Вік, освіта, сімейний стан, фінансове благополуччя не бралися до уваги. Критерієм виключення було бажання учасників вийти з дослідження у будь-який час. Методи дослідження: аналіз та узагальнення літературних джерел, медико-біологічні методи, методи обробки даних. Фізичне здоров'я представників сектору безпеки і оборони оцінювалося за методикою професора Г.Л. Апанасенка, яка передбачає розрахунок індексів маси тіла, життєвого, силового, Робінсона, Мартіна – Кушелевського та на їх основі як сума п'яти індексів, визначення рівня соматичного здоров'я.

Результати. Виявлено, що у процесі навчально-бойової діяльності в представників сектору безпеки і оборони обох груп показники соматичного здоров'я (індекси маси тіла, життєвий, силовий, Робінсона, Мартіна – Кушелевського, а також рівень соматичного здоров'я) погіршилися, однак у групі А зміни за всіма показниками є недостовірними ($p>0,05$), а в групі Б – достовірними ($p\leq0,01–0,001$). Так, ІМТ у групі Б погіршився на 0,13, 0,66 та 1,42 кг/м^2 у курсантів, слухачів та офіцерів відповідно; ЖІ – на 0,65, 1,25 мл та 2,07 мл/кг; СІ – на 0,94%, 1,47% та 1,91%; ІР – на 0,84, 1,71 та 2,66 у. о.; ІМК – на 3,3, 6,7 та 9,8 с; РСЗ – на 0,43, 1,13 та 1,59 бали. Установлено, що у курсантів, слухачів та офіцерів групи А наприкінці дослідження усі досліджувані показники соматичного здоров'я є достовірно ($p\leq0,01–0,001$) кращими, ніж у групі Б, індексом маси тіла – на 0,38, 0,73 та 1,24 кг/м^2 у курсантів, слухачів та офіцерів відповідно; за життєвим індексом – на 0,55, 1,47 та 1,79 мл/кг; за силовим індексом – на 0,98%, 1,38% та 1,45 %; за індексом Робінсона – на 0,82, 1,49 та 1,96 у. о.; за індексом Мартіна – Кушелевського – на 3,6, 4,9 та 7,6 с; за рівнем соматичного здоров'я – на 0,40, 0,87 та 1,29 бали.

Висновки. Доведено ефективність рухової активності (занять фізичними вправами) у зміцненні соматичного здоров'я у представників сектору безпеки і оборони під час навчально-бойової діяльності в умовах воєнного стану.

Ключові слова: соматичне здоров'я, рухова активність, представники сектору безпеки і оборони, війна.

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