UDC 355:796.011.3:159.942
DOI https://doi.org/10.32782/2077-6594/2026.1/14

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Restoring cadets' physical and psycho-emotional state through modern fitness technologies

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Introduction

The training of cadets in Ukrainian higher educational institutions with a specific learning environment (HEIs with SLE) has particular features, as special requirements are imposed on future law enforcement officers, resulting in unique training and service activities [1]. The training of cadets includes a specific list of professional skills and abilities that must be acquired directly through the use of special educational technologies. Adaptation to a particular training environment is due to the gradual, moderate effect of increasing academic loads, which allows cadets to acquire the psychological characteristics necessary for their future professional activities [2; 3]. However, from the first day of russia's full-scale invasion of Ukraine, the situation has significantly deteriorated. At the same time, the requirements for training outcomes have increased, and the stress load on cadets has grown. The previous stressors were compounded by information stress, nighttime alarm calls, prolonged stays in bomb shelters, increased duty shifts, and an intensification of the practical component of the educational process at HEIs with SLE [4]. Staying in such conditions for a long time can lead to a deterioration in both the physical and psycho-emotional state of cadets, accumulation of fatigue, decreased working capacity, deterioration of academic performance, reduced immunity, and an increase in the number and duration of illnesses [5].

Physical activity is an effective means of maintaining cadets' somatic and mental health and restoring their physical and psycho-emotional state while studying under the stressful conditions of martial law [6; 7]. According to scientists [8; 9], physical education in HEIs with SLE is an essential component of cadet training, as it not only develops physical qualities but also cultivates moral and psychological qualities. Physical education for cadets is not only a means to maintain physical fitness but also an integral part of developing stress resilience, discipline, and teamwork. Regular training helps them adapt more quickly to high loads and stressful conditions, which are part of law enforcement officers' professional activities. Training in various sports and participation in sports competitions create the necessary conditions for the comprehensive development of cadets, strengthen their moral, psychological, and physical training, contribute to better assimilation of educational material, shape the personality of future law enforcement officers, and help reveal their abilities and talents [10; 11].

At the same time, wartime conditions require adapting traditional cadet physical education methods to the real challenges facing future law enforcement officers. Therefore, according to scientists [12], one key aspect of cadets' physical education should be the use of training methods that closely resemble the conditions of law enforcement activities. According to scientists [13; 14], functional training is critical, including exercises for strength, endurance, adaptation to oxygen deprivation, and the ability to work under physical and psychological pressure. Considering the above, during training at HEIs with SLE in conditions of martial law in Ukraine, it is essential to use modern and popular sports and physical activities that are accessible to cadets with different levels of physical development, interesting, widely known on social media, and effective for maintaining their physical and mental health and restoring their physical and psycho-emotional state, which would contribute to their academic and future law enforcement activities, as well as those that can be applied in various

training conditions. Among such means, modern fitness technologies occupy an essential place, the most popular among cadets of higher educational institutions of the security forces of Ukraine being CrossFit [15; 16; 17; 18].

The aim of the research is to examine the dynamics of cadets' physical and psycho-emotional indicators during training sessions using modern fitness technologies (CrossFit as an example).

Object, materials and research methods

Participants. The research, conducted in the 2023–2025 years, involved 82 male 1st – 3rd year cadets from Odesa State University of Internal Affairs (OSUIA, Odesa, Ukraine). Two groups of cadets were formed: Group No. 1 (n = 29), whose cadets participated in sporting and mass participation events (SMPEs) in the university's CrossFit sports club under the guidance of a coach; Group No. 2 (n = 53), whose cadets participated in traditional programs during their SMPEs hours under the guidance of a unit commander (course commander, course officer). The research was conducted during the cadets' 1st-3rd years of university training. Cadets were selected for the groups based on their own preferences. The number of hours of physical education for cadets in both groups during the research period was the same. Each cadet signed an informed consent form for voluntary participation in the research, which they could withdraw from at any time.

Research methods: theoretical analysis and generalization of literature, biomedical methods, psychological methods, statistical methods. The method of theoretical analysis and generalization of literature was used to study scientific sources on the topic of research (30 sources from MedLine, Scopus and Web of Science databases were studied). Biomedical methods were used to determine the physical state of cadets.

The cadets' physical state was studied using body mass index (BMI), vital index (VI), strength index (SI), and Robinson index (RI). The body mass index was calculated as body weight divided by height squared. The vital index was determined by the ratio of vital lung capacity to body weight. The ratio of the dynamometry of the stronger hand to body weight determined the strength index. The Robinson index was determined by the ratio of the product of the resting pulse and systolic blood pressure to 100 [19].

The cadets' psycho-emotional state was studied using the methods referred to as "Self-Assessment of Emotional State," "Scaled Self-Assessment of Psychophysiological State," and "Assessment of Nervous and Emotional Tension" [20; 21]. The "Self-Assessment of Emotional State" method is designed to assess cadets' emotional states on a ten-point scale. The cadets were asked to choose from each of the proposed sets of statements ("Stability-Anxiety," "Energy-Fatigue," "Excitement-Depression," "Self-Confidence-Helplessness") the one that most accurately reflects their emotional state at the time of the research and circle the corresponding number on the form. The formula determined the integral indicator of the cadets' emotional state: ES = (I 1 + I 2 + I 3 + I 4) / 4, where ES is the integral indicator of the emotional state; I 1, I 2, I 3, and I 4 are individual indicators on the corresponding scales (sets of statements). Emotional state is assessed on a scale of 1 to 10 points. If ES is within the range of 8–10 points, it can be interpreted as very good; within the range of 6–7 points – as good; 4–5 points – as deteriorated; 1–3 points – as poor.

The "Scaled Self-Assessment of Psychophysiological State" method allows diagnosing not only the parameters of "traditional" states of well-being, proactive attitude, and mood, but also other indicators that characterize the specific psychophysiological state of cadets during certain activities, including emotional, motivational, and other components. The essence of the method is that cadets were asked to assess various characteristics of their state at the time of the examination by marking the appropriate place on uncalibrated scales (representing a straight line 100 mm long) with a vertical score mark, taking into account that the left edge of the scale means the minimum, and the right edge represents the maximum possible manifestation of a particular characteristic. The following factors were assessed: well-being, proactive attitude, mood, working capacity, and self-confidence. Quantitative indicators (from 1 to 100) were obtained by applying a ruler to the uncalibrated scale and determining the distance (in mm) from the left edge of the scale to the point marked by the cadet. A distance of 1 to 20 mm corresponded to a low level of psychophysiological state; 21 to 40 mm – below average; 41 to 60 mm – average; 61 to 80 mm – above average; 81 to 100 mm – high.

The "Assessment of Nervous and Emotional Tension" method comprises 30 characteristics of this state, divided into three degrees of severity (A – low, B – average, C – high). By choosing one of three answer options (A, B, C), cadets assessed their current state of nervous and emotional tension. Data processing was carried out by summing the points: A – 1 point, B – 2 points, C – 3 points. A range of 30–50 points characterizes a low level of nervous and emotional tension among cadets; 51–70 points – average; 71–90 points – high.

Data processing. Statistical analysis was applied to correctly process the data and identify the difference between the indicators under study. The significance of the difference in the results of the cadets was determined based on the Student's t-test. The significance for all statistical tests was set at $p \leq 0.05$. All statistical analyses were performed with the SPSS software, version 11.0.

Ethical approval. This research followed the regulations of the World Medical Association Declaration of Helsinki and ethical principles for medical research involving human subjects and was approved by the Academic Council of OSUIA (Protocol No. 2 dated 04.09.2023). Informed consent was received from all cadets who took part in this research.

Research results

The results of the study of the dynamics of cadets' physical state indicators in groups No. 1 and No. 2 are presented in Table 1.

The BMI study shows that in the 1st and 2nd training years, no significant difference was found between the indicators of groups No. 1 and No. 2 ($p > 0.05$). In the 3rd training year, significantly better BMI indicators were observed in cadets who practiced CrossFit compared with those who trained under the current physical training system: the difference between the groups was 1.29 kg/m^2 ($p \leq 0.001$). During the research period, BMI increased in both cadet groups. Still, in group No. 1, the difference between the indicators of the 1st and 3rd training year cadets was 0.47 kg/m^2 and was not significant ($p > 0.05$). In contrast, in group No. 2, BMI significantly worsened during the training process by 1.75 kg/m^2 ($p \leq 0.001$), indicating that CrossFit training sessions have a more positive effect on cadets' physical state than the current physical training system. It should be noted that the BMI of cadets in both groups in all training years is within the normal range for men of the corresponding age group.

The comparative analysis of the VI in cadets in groups No. 1 and No. 2 showed that in the 1st and 2nd training years, the indicators of the studied groups did not differ significantly ($p > 0.05$), while in the 3rd training year, the VI in group No. 1 was considerably better than in group No. 2, by 4.66 ml/kg ($p \leq 0.01$). During the training period, changes in the VI in group No. 1 were characterized by positive dynamics – the indicators of 3rd training year cadets were significantly better than those of the 1st training year cadets by 3.36 ml/kg ($p \leq 0.05$), while in group No. 2 there were no significant changes – the difference between the indicators of the 3rd and 1st training year cadets is 0.74 ml/kg ($p > 0.05$). This allows us to conclude that CrossFit training sessions have a greater effect on the functional capacity of the respiratory system in cadets. It should also be noted that in group No. 1, the level of functional capacity of the respiratory system of the 1st and 2nd training year cadets was assessed as "average", and in the 3rd training year, as "above average". In group No. 2, an average level of the VI was recorded in all training years.

The analysis of the SI shows that in the 2nd and 3rd training years, its value in group No. 1 is better than in group No. 2. However, a significant difference was found only in the 3rd training year, amounting to 5.04% ($p \leq 0.01$). During the training period, the SI of cadets in group No. 1 showed positive dynamics – the indicators of the 3rd training year cadets were significantly better than those of the 1st training year cadets, by 4.67% ($p \leq 0.05$). In group No. 2, no significant differences were observed ($p > 0.05$), allowing us to conclude that CrossFit training sessions are superior to the current physical training system for improving cadets' strength qualities. The level of arm muscle strength development in cadets in group No. 1 is assessed as low in the 1st training year, below average in the 2nd training year, and average in the 3rd training year. In group No. 2, the SI is assessed as low in all training years.

The Robinson index assessment shows that in the 1st and 2nd training years, the indicators of cadets in groups No. 1 and No. 2 do not differ significantly ($p > 0.05$). In the 3rd

Table 1

Dynamics of cadets' physical state indicators in groups No. 1 (n = 29) and No. 2 (n = 53) during their training at the HEI with SLE (2023-2025), X ± m

Year of study	Groups No. 1 (n=29)	Groups No. 2 (n=53)	Significance of the difference	
			t	p
Body mass index, kg/m2				
1	22.66±0.19	22.67±0.14	0.04	p>0.05
2	23.04±0.20	23.52±0.15	1.92	p>0.05
3	23.13±0.18	24.42±0.16	5.36	p≤0.001
t1-3 (p)	1.80 (p>0.05)	8.23 (p≤0.001)		
Vital index, ml/kg				
1	59.24±1.34	58.68±0.78	0.36	p>0.05
2	60.36±1.29	58.18±0.81	1.43	p>0.05
3	62.60±0.97	57.94±0.79	3.76	p≤0.01
t1-3 (p)	2.03 (p≤0.05)	0.67 (p>0.05)		
Strength index, %				
1	59.11±1.43	59.06±0.92	0.03	p>0.05
2	61.38±1.37	58.97±0.79	1.52	p>0.05
3	63.78±1.10	58.74±0.85	3.63	p≤0.01
t1-3 (p)	2.59 (p≤0.05)	0.26 (p>0.05)		
Robinson index, c. u.				
1	86.92±1.14	87.08±0.72	0.12	p>0.05
2	85.37±1.09	85.94±0.68	0.44	p>0.05
3	82.16±0.98	84.75±0.63	2.22	p≤0.05
t1-3 (p)	3.17 (p≤0.01)	2.44 (p≤0.05)		

Legend: n – number of cadets; X – arithmetic mean; m – error of the arithmetic mean; t – value of Student's t-test; p – degree of error-free judgment.

training year, cadets in group No. 1 showed considerably better indicators, with a difference of 2.59 c. u. ($p \leq 0.05$). The analysis of the dynamics of the RI during the cadets' training at the university showed that in both groups, the average RI values improved significantly: in group No. 1 by 4.76 c. u. ($p \leq 0.01$), and in group No. 2 by 2.33 c. u. ($p \leq 0.05$). It was found that in group No. 1, in the 1st training year, the functional capabilities of the cardiovascular system of cadets correspond to the average level, and in the 2nd and 3rd training years, to above-average levels. In group No. 2, the average level was found in the 1st and 2nd training years, and above average in the 3rd training year. This allows us to conclude that CrossFit training sessions have a more pronounced effect on improving the cardiovascular system's functional capabilities in cadets than the current physical training system.

The results of the study of the dynamics of cadets' psycho-emotional state indicators in groups No. 1 and No. 2 are presented in Table 2.

The integral indicator of cadets' emotional state, which was determined by the indicators of each scale ("Stability-Anxiety", "Energy-Fatigue", "Excitement-Depression", "Self-confidence-Helplessness"), shows that in the 1st and 2nd training years, no significant difference was found between groups No. 1 and No. 2 ($p > 0.05$), while in the 3rd training year, the emotional state of cadets in group No. 1 was significantly better than in group No. 2, by 0.64 points ($p \leq 0.05$). In general, at all stages of the research, the emotional state of cadets in both groups remained good. During the research period, the emotional state improved in both groups, which indicates the effectiveness of any type of physical activity. However, in group No. 1, the changes were significant ($p \leq 0.05$). In contrast, in group No. 2, they were insignificant ($p > 0.05$), which emphasizes the advantage of CrossFit training sessions, as a modern form of fitness technology, in restoring the psycho-emotional state of cadets during their training under the stressful conditions of martial law.

The "Scaled Self-Assessment of Psychophysiological State" method allows us to evaluate cadet characteristics, including well-being, proactive attitude, mood, working capacity, interest in educational activities, willingness to perform tasks, and confidence in their abilities. We assessed the integral assessment of the psychophysiological state (PS) of cadets as the arithmetic mean of all indicators obtained. It was found that in the 1st and 2nd training years, there was no significant difference between groups No. 1 and No. 2 ($p > 0.05$). In the 3rd training year, the PS indicators of cadets in group No. 1 were significantly ($p \leq 0.05$) higher than those in group No. 2 by 6.30 points. In the 1st training year, the PS of cadets in both groups corresponded to the average level, and at other stages of the research, above average. During cadets' training at the university, their PS in both groups improved: by 8.52 points ($p \leq 0.01$) in group No. 1 and by 3.09 points ($p > 0.05$) in group No. 2. This indicates that CrossFit training sessions have a more positive effect on the psychophysiological state of cadets compared to traditional physical training methods.

The assessment of cadets' nervous and emotional tension (NET) shows that in the 1st and 2nd training years, no significant difference between the indicators of groups No. 1 and No. 2 was found ($p > 0.05$), while in the 3rd training year, the level of NET in group No. 1 was significantly ($p \leq 0.05$) lower than in group No. 2, by 4.70 points. The level of NET in cadets from both groups at all stages of the research is within the average range. During the research period, there was a significant decrease in NET by 6.30 points ($p \leq 0.05$) in group No. 1 and an insignificant reduction of 2.23 points ($p > 0.05$) in group No. 2, confirming our previous conclusions regarding the effectiveness of CrossFit training sessions.

Table 2

Dynamics of cadets' psycho-emotional indicators in groups No. 1 (n = 29) and No. 2 (n = 53) during their training at the HEI with SLE (2023-2025), X ± m, points

Year of study	Groups No. 1 (n=29)	Groups No. 2 (n=53)	Significance of the difference	
			t	p
Emotional state				
1	6.22±0.16	6.05±0.11	0.88	p>0.05
2	6.53±0.18	6.14±0.12	1.80	p>0.05
3	6.91±0.17	6.27±0.13	2.99	p≤0.05
t_{1-3} (p)	2.96 (p≤0.05)	1.29 (p>0.05)		
Psychophysiological state				
1	60.94±1.98	60.07±1.64	0.34	p>0.05
2	66.19±1.92	62.76±1.57	1.38	p>0.05
3	69.46±1.87	63.16±1.51	2.62	p≤0.05
t_{1-3} (p)	3.13 (p≤0.01)	1.39 (p>0.05)		
Nervous and emotional tension				
1	61.74±1.87	62.37±1.40	0.27	p>0.05
2	59.45±1.82	61.39±1.35	0.86	p>0.05
3	55.44±1.76	60.14±1.29	2.15	p≤0.05
t_{1-3} (p)	2.45 (p≤0.05)	1.17 (p>0.05)		

Legend: n – number of cadets; X – arithmetic mean; m – error of the arithmetic mean; t – value of Student's t-test; p – degree of error-free judgment.

Discussion of research results

According to the World Health Organization (WHO), more than 25 % of adults and more than 80 % of adolescents do not follow the recommendations for physical activity [22]. According to scientists [4; 9; 23], regular physical activity significantly reduces cortisol levels (a stress hormone) in the human body. Cortisol is released during stressful situations and hurts our health. During physical activity, our bodies produce chemicals called endorphins and serotonin, also known as "happiness hormones." They play a key role in improving mood, reducing pain and stress, and maintaining overall mental health. This is confirmed by the results, which show that any type of physical activity demonstrates a positive effect on restoring the psycho-emotional state of cadets during their training under the stressful conditions of martial law.

It has also been shown that regular physical activity increases blood flow to the brain and improves its structure [7]. Studies [24; 25; 26] show that just 30 minutes of moderate exercise can significantly reduce anxiety symptoms, and regular exercise improves sleep quality, cognitive functions, and emotional self-regulation. According to our observations, improved cognitive function enhances memory, concentration, motivation, and learning quality. Including physical activity in the daily routine enhances mood and positively affects cadets' overall mental health.

Fitness technologies, one of the main types of which is CrossFit [16; 27], can be a modern and quite popular means of physical activity for cadets – future law enforcement officers during their training in conditions of martial law. According to experts [14; 28], the essence of the CrossFit system lies in performing simple, accessible physical exercises to develop different muscle groups through high-intensity circuit training. The uniqueness and originality of CrossFit lie in the many variations of exercise combinations, mainly strength-oriented, and in the fact that each workout is significantly different from the previous one. Scientists [1; 7; 9; 11; 28] indicate that the main advantages of CrossFit for cadets, compared to traditional means of physical training and applied sports, are: no material costs for equipment; minimization of time spent on training sessions; the ability to use it in any conditions (in a gym, in a limited space, in the field); accessibility for cadets with different levels of physical fitness; significant opportunities for varying loads; the ability to train a large group of cadets at the same time; effectiveness in developing professionally important physical qualities and improving the functional capabilities of future law enforcement officers; formation of knowledge and skills for the independent use of CrossFit equipment in future professional activities.

Studying the impact of CrossFit training sessions on the physical fitness of people of different ages, genders, and professions, scientists [29] have established that as a result of systematic CrossFit training, in addition to the development of physical qualities, there is an improvement in physical growth and the functional state of the body's central systems: the volume of the heart muscle increases, the network of blood vessels expands, changes in blood composition (increased red blood cell and hemoglobin counts), increased chest circumference and vital lung capacity, improved central nervous system activity, strengthened musculoskeletal system, and enhanced psychological readiness and mental health.

In our research, taking into account the peculiarities of training cadets at HEIs with SLE during martial law, as well as the specifics and requirements of modern service activities for the preparedness of law enforcement officers, we proposed to investigate the impact of CrossFit training sessions on the restoration of the physical and psycho-emotional state of cadets, compared with traditional means of physical training. Based on the results of the research, we found a positive effect of CrossFit training sessions on the dynamics of indicators characterizing the physical and functional development of cadets, as well as on indicators characterizing their psycho-emotional state. Hence, CrossFit is a constantly varied, high-intensity exercise that offers an advantage over the current physical training system for cadets. Our findings complement those of many scientists [7, 18, 28; 29; 30] on the effectiveness of CrossFit in preparing future law enforcement officers for professional service.

Prospects for further research

It is planned to investigate the impact of other modern fitness technologies on the restoration of physical and psycho-emotional state indicators in cadets, including women, during their training at HEIs with SLE under martial law.

Conclusions

It has been established that CrossFit training sessions have a positive effect on cadets' physical and psychological recovery. The indicators of the body mass index, vital index, strength index, Robinson index, emotional state, psychophysiological state, as well as nervous and emotional tension in cadets who practiced CrossFit were significantly ($p \leq 0.015$-0.001) better in their senior training year than in cadets who practiced the traditional physical training system. In addition, during the research period, cadets in group No. 1, unlike those in group No. 2, showed a significant improvement in all studied indicators of physical and psycho-emotional state. The most pronounced effect of CrossFit training sessions was on the indicators of the cardiorespiratory and muscular systems of future law enforcement officers, reducing nervous and emotional tension and improving well-being, mood, proactive attitude, and self-confidence.

The results obtained allow us to conclude that the high level of cadets' physical and psycho-emotional state will contribute to maintaining their somatic and mental health during training under martial law, reduce stress, and ensure the effectiveness of their academic and future professional activities.

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Purpose. The purpose of the work is to examine the dynamics of cadets' physical and psycho-emotional indicators during training sessions using modern fitness technologies (CrossFit as an example).

Materials and methods. The research, conducted in the 2023–2025 years, involved 82 male 1st – 3rd year cadets from the Odesa State University of Internal Affairs (OSUIA, Odesa, Ukraine). Two groups of cadets were formed: Group No. 1 (n = 29), whose cadets participated in sporting and mass participation events (SMPEs) in the university's CrossFit sports club under the guidance of a coach; Group No. 2 (n = 53), whose cadets participated in traditional programs during their SMPEs hours under the guidance of a unit commander (course commander, course officer). The research was conducted during the cadets' 1st-3rd years of university training. Research methods: theoretical analysis and generalization of literature, biomedical methods, psychological methods, statistical methods. The cadets' physical state was studied using body mass index, vital index, strength index, and Robinson index. The cadets' psycho-emotional state was studied using the methods referred to as "Self-Assessment of Emotional State," "Scaled Self-Assessment of Psychophysiological State," and "Assessment of Nervous and Emotional Tension".

Results. It has been established that CrossFit training sessions have a positive effect on cadets' physical and psychological recovery. The indicators of the body mass index, vital index, strength index, Robinson index, emotional state, psychophysiological state, as well as nervous and emotional tension in cadets who practiced CrossFit were significantly ($p \leq 0.015–0.001$) better in their senior training year than in cadets who practiced the traditional physical training system. In addition, during the research period, cadets in group No. 1, unlike those in group No. 2, showed a significant improvement in all studied indicators of physical and psycho-emotional state. The most pronounced effect of CrossFit training sessions was on the indicators of the cardiorespiratory and muscular systems of future law enforcement officers, reducing nervous and emotional tension and improving well-being, mood, proactive attitude, and self-confidence.

Conclusions. The results obtained allow us to conclude that the high level of cadets' physical and psycho-emotional state will contribute to maintaining their somatic and mental health during training under martial law, reduce stress, and ensure the effectiveness of their academic and future professional activities.

Keywords: physical state, psycho-emotional state, somatic health, mental health, fitness technologies, CrossFit, cadets.

Мета роботи – дослідити динаміку показників фізичного та психоемоційного стану курсантів у процесі занять сучасними фітнес-технологіями (на прикладі кросфіту).

Матеріали та методи. До дослідження, яке проводилося у 2023–2025 роках, було залучено 82 курсанти-чоловіки 1-го–3-го курсів Одеського державного університету внутрішніх справ (ОДУВС, м. Одеса, Україна). Було сформовано дві групи курсантів: група №1 (n=29), курсанти якої займалися в години спортивно-масової роботи (СМР) у секції університету з кросфіту під керівництвом тренера; група №2 (n=53), курсанти якої у години СМР займалися за традиційною програмою під керівництвом командира підрозділу (начальника курсу, курсового офіцера). Дослідження проводилося впродовж навчання курсантів на 1–3-му курсах університету. Відбір курсантів до груп здійснювався за їх власним бажанням. Кількість годин на фізичне виховання курсантів обох груп на період дослідження була однаковою. Кожен курсант підписав інформаційну згоду на добровільну участь у дослідженні, яке міг залишити у будь-який момент. Методи дослідження: теоретичний аналіз та узагальнення літератури, біомедичні методи, психологічні методи, статистичні методи. Фізичний стан курсантів досліджувався за показниками індексу маси тіла, життєвого індексу, силового індексу, індексу Робінсона. Індекс маси тіла визначався відношенням маси тіла до зросту в квадраті. Життєвий індекс визначався відношенням життєвої ємності легень до маси тіла. Силовий індекс визначався відношенням динамометрії сильнішої кисті до маси тіла. Індекс Робінсона визначався відношенням добутку пульсу у спокою та систолічного артеріального тиску до 100. Психоемоційний стан курсантів досліджувався за методиками «Самооцінка емоційного стану», «Шкалована самооцінка психофізіологічного стану», «Оцінювання нервово-емоційного напруження». Методика «Самооцінки емоційного стану» призначена для самооцінювання емоційних станів за запропонованими наборами тверджень («Стійкість-тривожність», «Енергійність-втомленість», «Піднесення-пригніченість», «Впевненість у собі-безпорадність»). Методика «Шкалованої самооцінки психофізіологічного стану» дозволяє діагностувати параметри не тільки «традиційних» станів самопочуття, активності й настрою, але й інших показників, які характеризують специфічний психофізіологічний стан курсантів за певної діяльності, в тому числі емоційний, мотиваційний та інші компоненти. Методика «Оцінювання нервово-емоційного напруження» дозволяє оцінити 30 характеристик цього стану, розподілених на три ступеня вираженості (А – низький ступінь, Б – середній ступінь, В – високий ступінь).

Результати. Встановлено, що заняття кросфітом позитивно впливають на відновлення фізичного та психоемоційного стану курсантів. Показники індексу маси тіла, життєвого індексу, силового індексу, індексу Робінсона, емоційного стану, психофізіологічного стану та нервово-емоційного напруження у курсантів, які займалися кросфітом, виявилися достовірно ($p \leq 0{,}015–0{,}001$) кращими на старшому курсі, ніж у курсантів, які займалися за традиційною системою фізичної підготовки. Різниця між показниками груп №1 та №2 на 3-му курсі становить 1,29 кг/м² за індексом маси тіла, 4,66 мл/кг за життєвим індексом, 5,04% за силовим індексом, 2,59 у.о. за індексом Робінсона, 0,64 балу за емоційним станом, 6,30 балу за психофізіологічним станом, 4,70 балу за нервово-емоційним напруженням. Крім того, за період дослідження у курсантів групи №1, на відміну від групи №2, відбулося достовірне покращання усіх досліджуваних показників фізичного та психоемоційного стану. Найбільш вираженим виявися вплив занять кросфітом на показники кардіореспіраторної та м'язової систем майбутніх правоохоронців, зниження нервово-емоційного напруження та покращення самопочуття, настрою, активності й упевненості у своїх силах.

Висновки. Отримані результати дозволяють стверджувати, що високий рівень фізичного та психоемоційного стану курсантів сприятиме підтриманню їх соматичного і ментального здоров'я під час навчання в умовах воєнного стану, зниженню стресу та забезпеченню ефективності їх освітньої та майбутньої професійної діяльності.

Ключові слова: фізичний стан, психоемоційний стан, соматичне здоров'я, психічне здоров'я, фітнес-технології, кросфіт, курсанти.

Conflict of interest: absent.
Конфлікт інтересів: відсутній.

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Дата першого надходження статті до видання: 16.12.2026
Дата прийняття статті до друку після рецензування: 19.02.2026
Дата публікації (оприлюднення) статті: 15.04.2026