

Optimization of Cadets' Psychophysical Fitness Through Individual Training Programs

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Abstract - The necessity of individualizing military training for cadets and servicemen is driven by technological advancements and changes in combat tactics. The specialized literature emphasizes the importance and timeliness of an individualized approach; however, the methods of its implementation are not specified. Purpose. The study aims to identify groups of cadets with similar professionally important qualities, develop their characteristics, and justify approaches to individualizing the process of physical training and sports to enhance the effectiveness of military-professional activities. Methodology. A survey was conducted among cadets (n=282) of the Kyiv Institute of the National Guard of Ukraine. The questionnaire included standard methodologies for assessing anxiety levels (STAI), emotional control (Cortlaud Emotional Control Scale), life satisfaction (SWLS, Diener, Emmons, Larsen, and Griffith), and coping strategies (R. Lazarus and S. Folkman). The physical fitness levels of cadets (n=282) were also tested. Descriptive statistics and cluster analysis methods were applied. Results. The cadets were divided into clusters based on their physical fitness and psycho-emotional characteristics. Five groups with relatively homogeneous indicators were identified. We developed "profiles" of psychophysical preparedness. The use of these profiles allowed us to substantiate approaches to individualizing the physical training and sports processes for cadets of five different types to ensure effective military-professional training. During physical training, appropriate

physical loads were selected for cadets in each group, considering volume and intensity. Recommendations were provided on suitable physical activities for independent training for cadets of different types. Conclusions. The implementation of an individualized approach to cadets' physical training, particularly through group segmentation, improves their professionally important qualities, enhances physical fitness, and increases competencies in physical education and sports, ultimately contributing to the effectiveness of their military-professional activities.

Keywords: *physical fitness, anxiety, emotional control, life satisfaction, coping strategies.*

I. INTRODUCTION

In the current context of military aggression on the territory of Ukraine, there is an urgent need to improve the psychophysical readiness of military personnel. This necessity is driven by the insufficient preparedness of security and defense sector personnel to operate effectively under extreme and psychologically challenging conditions [1; 2; 3]. Psychophysical readiness plays a crucial role in ensuring the long-term effectiveness of professional activity in stressful environments [4; 5]. Physical training and sports are foundational to the professional development of future specialists [6; 7], as

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there is a proven link between physical fitness and psycho-emotional stability [8; 9]. Recent research also highlights the importance of individualizing military training for cadets and service members [10–13]. However, the lack of consistent and systematic data in the specialized literature complicates the development of effective training programs for cadets of higher educational institutions of the National Guard of Ukraine. This undermines their ability to perform professional duties efficiently, resist burnout, and ultimately weakens national defense and public safety. The aim of the study is to identify groups of cadets with similar professionally significant qualities, develop their characteristics, and justify approaches to the individualization of physical training and sports to

improve the effectiveness of their military-professional activities.

II. MATERIALS AND METHODS

A survey was conducted among cadets (n=282) of the Kyiv Institute of the National Guard of Ukraine. The questionnaire included standardized methods to determine the level of anxiety (STAI), emotional control (Cortlaud Emotional Control Scale), life satisfaction (SWLS, Diener, Emmons, Larsen, and Griffith), and coping strategies (R. Lazarus and S. Folkman). The level of physical fitness of cadets (n=282) was also tested.

TABLE 1 PHYSICAL FITNESS INDICATORS OF CADET CLUSTERS

Indicators	Clusters	M	SD	SE	Score points	Median	Variance	Shapiro-Wilk	
								W	p
3000 m run, sec	1	741.65	43.38	9.0466	5	750.00	1882.328	0.941	0.187
	2	782.64	70.28	13.2834	3	780.00	4940.534	0.967	0.496
	3	773.44	33.32	4.1991	3	780.00	1110.832	0.909	<.001
	4	751.11	32.92	3.8275	4-5	750.00	1084.098	0.964	0.033
	5	767.83	38.22	7.8030	3-4	765.00	1461.275	0.898	0.020
Shuttle run 10×10 m, sec	1	54.22	7.61	1.5867	2	53.00	57.905	0.949	0.283
	2	28.54	5.90	1.1156	4	27.00	34.851	0.842	<.001
	3	31.86	5.96	0.7450	2	29.00	35.520	0.874	<.001
	4	30.43	5.37	0.6247	2	28.00	28.879	0.851	<.001
	5	55.50	7.54	1.5405	2	54.00	56.957	0.936	0.134
Pull-over exercise, reps	1	7.65	3.47	0.7240	5	6.00	12.055	0.850	0.003
	2	10.75	7.91	1.4957	5	10.00	62.639	0.910	0.020
	3	6.14	3.80	0.4750	5	5.00	14.440	0.811	<.001
	4	8.57	5.03	0.5855	5	6.00	25.372	0.751	<.001
	5	5.25	2.27	0.4633	4	4.50	5.152	0.832	0.001
Pull-ups on a horizontal bar, reps	1	16.17	4.07	0.8497	5	15.00	16.605	0.927	0.096
	2	16.96	6.05	1.1449	5	17.50	36.702	0.975	0.726
	3	12.81	3.06	0.3831	3	13.00	9.393	0.974	0.202
	4	15.49	4.35	0.5063	5	15.00	18.966	0.953	0.008
	5	12.67	2.03	0.4156	3	13.00	4.145	0.951	0.278
Grenade throwing, m	1	40.78	6.09	1.2698	5	38.00	37.087	0.881	0.011
	2	35.68	12.50	2.3632	4	35.00	156.374	0.937	0.093
	3	34.17	6.45	0.8069	4	34.50	41.668	0.936	0.003
	4	38.09	8.78	1.0209	5	36.00	77.128	0.745	<.001
	5	34.17	6.09	1.2448	4	34.00	37.188	0.968	0.608
Complex strength exercise, reps	1	56.61	9.14	1.9077	5	55.00	83.704	0.795	<.001
	2	50.57	12.90	2.4389	4	52.00	166.550	0.894	0.008
	3	48.84	5.28	0.6600	4	48.50	27.880	0.940	0.004
	4	51.97	5.80	0.6743	5	52.00	33.643	0.930	<.001
	5	48.58	3.61	0.7370	4	49.50	13.036	0.885	0.011
Pistol shooting, hits	1	2.83	0.38	0.0808	4	3.00	0.150	0.463	<.001
	2	2.82	0.39	0.0737	4	3.00	0.152	0.468	<.001
	3	2.59	0.52	0.0658	4	3.00	0.277	0.660	<.001
	4	2.74	0.47	0.0546	4	3.00	0.221	0.558	<.001
	5	2.79	0.41	0.0847	4	3.00	0.172	0.503	<.001
Obstacle course, sec	1	101.74	8.75	1.8245	4-5	102.00	76.565	0.964	0.543
	2	163.39	11.80	2.2309	2	162.00	139.358	0.934	0.080
	3	126.97	6.37	0.7974	3	129.00	40.697	0.943	0.005
	4	103.14	7.65	0.8904	4	104.00	58.666	0.909	<.001
	5	122.17	8.95	1.8274	3	121.00	80.145	0.957	0.386

To quantitatively describe the empirical data, the method of descriptive statistics was applied. Cluster analysis was performed to identify groups of cadets with similar characteristics, needs, or behaviors and to segment them into groups. This segmentation allows for a better understanding of the target audience of cadets and

facilitates the development of more effective training strategies for them.

III. RESULTS AND DISCUSSION

Physical Readiness. The analysis of indicators (Table 1) showed that a normal distribution was mostly not

observed. The summarized data confirmed that all cadet clusters demonstrated a high level of physical qualities. The only test in which cadets performed poorly was the shuttle run (10×10 m), as indicated by low scores in four clusters.

Based on the generalization of the results of our study, we were able to distinguish five clusters of cadets with relatively homogeneous psycho-emotional indicators and physical fitness levels. The cluster analysis provided comprehensive information about the performance levels and their assessments for representatives of each cluster.

Cadets in the first cluster were characterized by relatively high physical fitness levels. They exhibited well-developed endurance, strength endurance, and specialized endurance. However, their performance in the shuttle run 10×10 m (54.22±7.61 s) indicated a low level of specialized (speed) endurance.

The second cluster demonstrated the highest performance in the pull-over exercise (10.75±7.91 reps) and pull-ups on a horizontal bar (16.96±6.05 reps), which received the highest scores. This suggests a relatively superior level of upper body strength and strength endurance.

The third cluster had average results in almost all test exercises. They showed a relatively low level of

specialized endurance but a high level of upper body strength endurance. The fourth cluster stood out with the highest overall physical fitness level. Their performance in grenade throwing (38.09±8.78 m) indicated the highest level of speed strength. The only weak point was the shuttle run, which received a low score (2 points), although their result (30.43±5.37 s) was not the worst among the clusters.

In contrast, the fifth cluster had the lowest level of physical fitness. The results of five test exercises were significantly lower than those of the other clusters.

Psycho-emotional indicators (Table 2). The life satisfaction scores (23.61±6.68 points) characterized participants of the first two clusters as somewhat satisfied with life. In contrast, in the third cluster, this score (20.68±7.54 points) was closest to the average level (20 points). The fifth cluster was conditionally named the "average group" since none of its indicators were rated as extreme (either maximum or minimum) compared to other clusters. The second and third clusters contained the most and least satisfied cadets, respectively.

TABLE 2 PSYCHO-EMOTIONAL INDICATORS OF CADET CLUSTERS

Indicators	General data		Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5	
	Mean	SE	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Life Satisfaction	22.28	0.4438	22.63	7.85	23.61	6.68	20.68	7.54	21.61	8.84	22.70	7.18
State Anxiety	57.10	0.6145	59.42	10.83	58.00	10.41	56.25	9.59	54.87	9.50	57.87	10.27
Trait Anxiety	58.84	0.6354	60.08	10.75	59.58	10.57	57.21	12.27	57.43	8.31	59.11	10.99
Aggression Control	15.66	0.2709	15.92	4.59	16.45	3.98	15.50	4.89	15.04	4.38	16.11	4.32
Depression Control	14.35	0.2924	13.67	4.45	14.95	4.60	14.07	5.62	13.70	5.09	14.47	4.82
Anxiety Control	13.61	0.2423	13.67	3.56	14.31	3.24	14.11	5.61	13.74	3.80	14.13	3.97
Confrontational Coping	7.03	0.2302	6.54	3.45	6.89	3.52	7.71	4.46	6.04	3.78	7.02	3.74
Distancing	6.52	0.2291	5.79	3.01	7.00	3.32	7.32	4.55	6.09	3.82	6.83	3.61
Self-Control	8.56	0.2717	8.13	3.95	9.02	4.44	9.21	5.51	7.83	4.51	8.88	4.60
Seeking Support	7.39	0.2327	6.58	3.26	7.78	3.55	8.36	5.04	6.30	3.97	7.67	3.92
Acceptance of Responsibility	4.61	0.1639	4.50	2.47	4.86	2.38	4.82	3.33	4.26	3.05	4.78	2.63
Escape-Avoidance	7.95	0.2796	7.46	3.81	7.88	4.36	9.39	5.88	6.96	3.84	8.16	4.69
Problem-Solving Planning	9.38	0.2889	8.83	4.68	9.77	4.81	9.54	5.19	8.26	4.50	9.52	4.85
Positive Reappraisal	8.98	0.2784	7.71	3.56	9.13	4.50	10.57	5.32	7.48	4.47	9.18	4.60

The highest anxiety scores, both state anxiety (59.42±10.83 points) and trait anxiety (60.08±10.75 points), were observed among cadets in the first cluster. Meanwhile, cadets in the fourth cluster had relatively lower anxiety levels (54.87±9.50 points and 57.43±8.31 points, respectively).

The level of emotional control was moderate across all clusters. However, the control (suppression) of anxiety and depression in cadets of the first cluster was relatively the

lowest (13.67±4.45 points and 13.67±3.56 points, respectively). The highest indicators of emotional control were observed in the second cluster, indicating a relatively high level of suppression (aggression – 16.45±3.98 points, depression – 14.95±4.60 points, anxiety – 14.31±3.24 points). The anger levels of cadets in the fourth cluster were relatively the lowest (15.04±0.914 points).

Confrontational coping was the lowest in cadets of the fourth cluster and was rated below the general data level

(6.04±4.38 points), indicating a low level. Similar low values were recorded in the first cluster (6.54±3.45 points). The highest indicators of confrontational coping were found in cadets of the third cluster (7.71±4.46 points).

A similar situation was observed in distancing: the lowest indicator was recorded in cadets of the first cluster, rated below the general data level (5.79±3.01 points), which is considered a low level. Low values were also noted in the fourth cluster (6.09±3.82 points), while the highest values were recorded in the third cluster (7.32±4.55 points).

In the coping strategy of seeking support, the trend was similar: it was the lowest in cadets of the fourth cluster and was rated below the general data level (6.30±3.97 points), indicating a low level. Low values were also observed in the first cluster (6.58±3.26 points). The highest values were found in the third cluster (8.36±5.04 points).

Self-control showed a similar pattern, except that cadets in the first cluster had moderate rather than low indicators (8.13±3.95 points). However, cadets of the third cluster had the highest values (9.21±5.51 points), consistent with previous subscales. Cadets of the fourth cluster had the lowest values relative to other clusters (7.83±4.51 points), but these were rated as moderate rather than low, unlike the previous subscales.

For the escape-avoidance subscale, cadets of the third cluster had slightly higher indicators (9.39±5.58 points) than in previous subscales. The lowest values were found in cadets of the fourth cluster (6.96±3.84 points), which were considered low.

Regarding positive reappraisal, cadets of the third cluster had the highest indicators (10.57±5.32 points) compared to previous subscales, rated as a moderate level. Cadets of the fourth cluster had the lowest indicators relative to other clusters (7.48±4.47 points), also rated as a moderate level.

For the acceptance of responsibility subscale, all clusters were rated at a low level. However, the lowest values were in the fourth cluster (4.26±3.05 points), while the highest were not in the third but in the second cluster (4.86±0.297 points).

The same trend was observed for the problem-solving planning coping strategy: the lowest indicators were found in the fourth cluster (8.26±4.50 points), while the highest were in the second cluster (9.77±4.81 points). The only difference was that these indicators were rated as moderate.

Thus, five "profiles" of cadets' psychophysical readiness were developed, grouping individuals with similar professionally important qualities. Summarizing the results of this study and the data from specialized literature allowed us to substantiate approaches to individualizing physical training and sports for cadets of five types to ensure successful preparation for military-professional activities.

TABLE 3 RECOMMENDED MEANS OF PHYSICAL ACTIVITY FOR CADETS OF DIFFERENT TYPES OF PSYCHOPHYSICAL READINESS

Means of Physical Training and Sports	Types				
	A	B	C	D	E
Team sports	*		*	*	*
Aerobic exercises: CrossFit, sports orienteering, tennis, swimming, etc.		*	*		
Beep test, shuttle run 10×10 m	*		*	*	*
Military-applied exercises, sports, and multiathlon			*	*	*
Martial arts, combat sports (sambo, combat horting, hand-to-hand combat)	*	*	*		*
Tasks that highlight leadership roles (group leader)	*		*	*	*
Shooting, accuracy exercises, highly coordinated sports			*	*	*
Mountaineering, sport climbing	*		*		*
Horseback riding, yoga, meditation	*	*			*
Military-applied obstacle courses					

The application of the developed "profiles" of cadets' psychophysical readiness during physical training will allow for the selection of appropriate physical loads for cadets from each group (Table 3).

Cadets of Type A are recommended to focus on the enhanced development of specific (speed) endurance while maintaining a balanced development of other physical qualities to sustain the achieved level. They should use physical training and sports activities that reduce anxiety and enhance stress resilience. Team sports, particularly handball, can be beneficial for this purpose [14]. To prevent intense emotional reactions to frustration, it is advisable to develop distancing and confrontation coping strategies. Although confrontation is often perceived as maladaptive, moderate use ensures resistance to difficulties, energy, and initiative in problem-solving, as well as the ability to stand up for oneself and cope with anxiety in stressful conditions [15; 16; 17]. Cadets of this cluster should also be encouraged to apply techniques for developing responsibility skills and to engage in providing support to others.

Cadets of Type B are advised to undergo conditioning training to maintain their level of physical fitness. Special attention should be given to developing aerobic endurance, specific endurance, and agility. Activities such as cross-country running, orienteering, rowing, and cardio workouts are recommended. Exercises involving obstacle courses, military-sports pentathlon, and complex coordination sports (martial arts) can also be beneficial. Additionally, they should be involved in training other cadets to develop responsibility skills.

Cadets of Type C should prioritize physical training, particularly developing muscular endurance in the arms and torso. Their training should include motor activities that foster the ability to defend their interests and cope

with anxiety in stressful situations (confrontational coping strategies).

Cadets of Type D should engage in conditioning training to maintain their level of physical development across all fitness components.

Cadets of Type E are recommended to engage in intensive physical training to improve their overall physical fitness. To enhance their weakest physical attributes, they should incorporate additional activities such as team sports, complex coordination sports (martial arts), and military pentathlon. These activities aim to improve their shuttle run (10x10 m) and pull-up performance. Additional exercises on a single obstacle course or military-sports pentathlon training are also recommended.

The physical readiness of military personnel is closely linked to their psychological resilience. Studies confirm that physical training is a critical factor for stress resistance and combat effectiveness [11; 12; 18; 19; 20]. Research findings [12] emphasize that physical conditioning directly impacts a soldier's ability to function under stress, contributing to overall success in military operations. Physical preparedness is crucial for soldiers to meet the evolving demands of modern warfare. Coordination skills are considered key components of physical fitness, influencing psychophysical readiness for operations in extreme conditions [20]. In this context, specialized training programs that combine high-intensity workouts with firearms and tactical training are seen as promising [11]. The advantage of such programs lies in their systematic approach, incorporating physical assessments, intensive development of fitness qualities, specialized training, and a maintenance phase to retain results. Essential success factors in military training include moral qualities [18] and personal characteristics [19].

Modern research underscores the necessity of individualizing military training for cadets and personnel due to technological advancements and changes in combat tactics [10]. At the same time, limited access to sports facilities during wartime highlights the importance of alternative approaches to physical self-improvement, particularly individual physical training within military academies [21]. Studies indicate that senior cadets are primarily motivated by personal goals in physical training. Therefore, military training programs should be highly differentiated. Based on the psychophysical readiness model for future officers, integrating physical and psychological training is essential for improving performance and reducing anxiety in various combat scenarios [22]. Research findings [18; 19; 20; 21; 22] highlight the significance of both physical and psychological qualities in military personnel across different service branches, emphasizing their role in combat readiness and mission success. This necessitates a comprehensive approach, including not only physical and theoretical training but also the development of moral, psychological, and professionally essential qualities.

An individualized approach to military training enhances learning efficiency and combat readiness. Studies [23; 24] show that implementing personalized training programs in military units is beneficial and yields better results compared to traditional group training methods. In the Ukrainian context [25], the importance of an individualized approach for each cadet is emphasized, fostering creative thinking and independent work. Proposed measures for improving officer and non-commissioned officer training systems aim to equip cadets with new educational and professional competencies, ensuring interoperability with NATO forces. Alongside curriculum modifications, a revised methodology for training sessions has been introduced, focusing on creative problem-solving and individualized instruction. However, while specialized literature highlights the importance of individualized training, specific implementation methods are often lacking. The inconsistent and fragmented data available make it challenging to develop structured individualized training programs for cadets.

To design individualized training programs aimed at developing the professionally essential qualities of cadets, we have identified five types of psychophysical readiness based on characteristic indicators.

Type A is characterized by the lowest levels of specific endurance and speed-strength but the highest levels of aerobic and muscular endurance. These cadets exhibit strong emotional reactions to stressful situations (including war), low stress resilience, and poor control over depression and anxiety. They are typically passive and struggle to defend their interests.

Type B demonstrates high performance across all physical tests, particularly in pull-ups and leg raises. However, they perform poorly in obstacle course runs. These cadets are the most satisfied with life, highly stress-resilient, and have a strong sense of responsibility in problem-solving.

Type C has an average level of physical fitness, with relatively weak results in comprehensive strength exercises. They exhibit the lowest levels of personal anxiety but report the lowest life satisfaction. These cadets tend to use aggressive coping strategies, struggle with planning and foresight, and actively seek support. However, they view difficult situations as opportunities for self-development.

Type D achieves the highest results in most physical tests and has the lowest levels of situational anxiety and aggression. Their coping strategies indicate a lack of ability to actively confront difficulties, an unclear understanding of their personal role in overcoming problems, and a dependent or overly expectant attitude toward others. Nonetheless, they effectively control their emotions and behavior, solve problems systematically, and strive for personal growth.

Type E has the lowest performance in most physical tests, except for pistol shooting and the 3000-meter run, where they maintain average scores. In terms of psychological characteristics, this group demonstrates "average" results, which can be considered an adaptive and optimal level.

Thus, by assessing cadets' physical preparedness, we can propose intervention programs aimed at correcting their "weaker" aspects of psychophysical readiness.

Our proposed classification of cadets into groups facilitates the individualization of physical training and sports activities by:

- ✓ Defining the content focus of training sessions to develop the necessary physical and psycho-emotional qualities for professional duties;
- ✓ Optimally selecting physical workloads for each group;
- ✓ Rationally adjusting training intensity based on cadets' psychophysical readiness type;
- ✓ Encouraging self-directed engagement in individually selected sports activities.

The individualized approach to cadet training, based on psychophysical readiness types, formed the foundation of our technology for developing professionally essential qualities among cadets of the National Guard of Ukraine through physical training and sports [26]. We have demonstrated the high predictive effectiveness of this technology [27]. Its integration into the educational process has contributed to cadets' competencies in individualizing physical training and sports, developing physical qualities, and applying appropriate training techniques. These improvements have led to increased levels of physical fitness. The positive results obtained support the recommendation to implement this technology in the training programs of military education institutions preparing specialists for Ukraine's security and defense sector.

IV. CONCLUSIONS

We identified five types of psychophysical readiness among cadets, each differing in a set of professionally essential qualities.

We developed recommendations for individualizing cadet training based on their psychophysical readiness type.

We established that applying an individualized approach, particularly through classification into groups, fosters the development of professionally essential qualities, enhances physical preparedness, and cultivates competencies in physical training, ultimately improving the effectiveness of military-professional activities.

REFERENCES

- [1] V. S. Otkydach, "Improvement of Cadets' Special Physical Training Through Military-Sports All-Around Competitions," dissertation, Prydniprovsk State Academy of Physical Culture and Sports, Dnipro, 2023.
- [2] Yu. Pavlova, I. Bodnar, V. Kryzhanovskiy, and V. Shvets, "Psychophysical Condition of Cadets—Future Military Law Enforcement Officers in Wartime," in *Physical Culture in University Education: Global Practices and Modern Trends*, Proc. Int. Sci.-Pract. Conf., Dnipro: Dnipro State Univ. of Internal Affairs, Apr. 13, 2023, pp. 54–57.
- [3] V. Pylypchak, "Improving the Physical Training of Cadets in Military Higher Education Institutions Through CrossFit at the Initial Training Stage," dissertation, Lviv State University of Physical Culture named after Ivan Boberskyi, Lviv, 2021.
- [4] O. M. Olkhovyi, *Theoretical and Methodological Foundations of Professionally-Oriented Physical Training of Cadets in Military Higher Educational Institutions of the Armed Forces of Ukraine*, monograph, Kharkiv: KhUPS, 2012.
- [5] S. Kostiv, A. Oderov, V. Yagypov, S. Romanchuk, O. Matveiko, V. Baidala, O. Lesko, M. Ostrovsky, O. Kuprinenko, and O. Sydorko, "Experimental results of the psychophysical endurance development of military professionals," *Journal of Physical Education and Sport*, vol. 21, no. 2, pp. 1076–1083, 2021. DOI: 10.7752/jpes.2021.s2135.
- [6] Yu. V. Verenka, "Improvement of Physical Training of Employees of the Ministry of Internal Affairs of Ukraine at the Stage of Professional Development," abstract, Lviv, 2015.
- [7] N. Vysochina, L. Hunina, O. Khatsayuk, V. Tomashevskiy, and A. Titovych, "Enhancing the Professional Competencies of Officers—Specialists in Physical Training and Sports in the Use of Modern Interactive Technologies," *Military Education*, no. 2(42), pp. 76–88, 2020.
- [8] N. Caddick and B. Smith, "The impact of sport and physical activity on the well-being of combat veterans: A systematic review," *Psychology of Sport and Exercise*, vol. 15, no. 1, pp. 9–18, 2013. DOI: 10.1016/j.psychsport.2013.09.011.
- [9] Andres, V. Kryzhanovskiy, I. Krasovska, et al., "The influence of agility indicators on formation of vocational readiness in law enforcement officers," in *International Scientific Conference «SOCIETY, INTEGRATION, EDUCATION – SIE 2023»*, vol. I, May 26, 2023, pp. 165–179. Available: <http://journals.rta.lv/index.php/SIE/article/view/7105/6068>.
- [10] O. Kulagin, "Individual Training of Military Personnel in Modern Conditions," in *Military Affairs and National Security*, 5th ISPC "Scientific Goals and Purposes in XXI Century," Aug. 19–20, 2023, Seattle, USA, no. 36(167), DOI: 10.51582/interconf.19-20.08.2023.034.
- [11] K. Kyslenko, "A Complex of High-Intensity Training for Physical, Fire, and Tactical-Special Training of Military Personnel (Specialists in Security Activities)," *Scientific Papers of the Interregional Academy of Personnel Management. Pedagogical Sciences*, no. 1(60), pp. 26–32, 2024, DOI: 10.32689/maup.ped.2024.1.5.
- [12] A. Nedilko, T. Bohun, and V. Dmytryshyna, "Pedagogy of Physical Education in Military Personnel Training: Methods and Approaches to the Development of Physical Activity," *Collection of Scientific Papers of the National Academy of the State Border Guard Service of Ukraine, Pedagogical Sciences Series*, no. 3(38), pp. 162–182, 2024, DOI: 10.32453/086vvs27.
- [13] A. Andres, N. Sorokolit, A. Mandiuk, O. Rymar, and O. Khanikiants, "The impact of sports activities on the psycho-emotional state of cadets in higher education institutions during wartime," *ETR*, vol. 4, pp. 23–26, Jun. 2024, doi: 10.17770/etr2024vol4.8206.
- [14] S. V. Fedorchuk, D. D. Ivaskevych, O. V. Borysova, I. O. Kogut, V. L. Marynych, S. V. Tukaiev, and Y. I. Petrushevskiy, "Application of Coping Strategies in Modern Handball Practice," *Sports Medicine, Physical Therapy, and Ergotherapy*, vol. 1, pp. 10–15, 2019, DOI: 10.32652/spmed.2019.1.10-15.
- [15] P. T. Bartone, "Psychosocial development and leader performance of military officer cadets," *Development and Learning in Organizations*, vol. 22, no. 2, 2008, doi: 10.1108/dlo.2008.08122bad.009.
- [16] O. Fedorenko, V. Dotsenko, I. Okhrimenko, K. Radchenko, and D. Gorbenko, "Coping behavior of criminal police officers at

- different stages of professional activity,” *Broad Research in Artificial Intelligence and Neuroscience*, vol. 11, no. 2, pp. 124–146, 2020, doi: 10.18662/brain/11.2/78.
- [17] H. Johnsen, J. C. Laberg, and J. Eid, “Coping strategies and mental health problems in a military unit,” *Military Medicine*, vol. 163, no. 9, pp. 599–602, 1998, doi: 10.1093/milmed/163.9.599.
- [18] O. Shemchuk, V. Havryushenko, and N. Verbyn, “Scientific and Theoretical Aspects of the Morality Psychology of Military Personnel in the Contemporary Russian-Ukrainian War,” *Bulletin of the National Defense University of Ukraine*, vol. 72, no. 2, pp. 146–160, 2023, DOI: 10.33099/2617-6858-2023-72-2-146-160.
- [19] Volkov, “Leading Personal Traits of Military Personnel in Airborne Troops,” *Journal of Psychology Research*, vol. 26, no. 9, pp. 48–60, 2020.
- [20] V. O. Lisowski and R. Yu. Mihuta, “Importance of coordination skills essential psycho-physical demonstrated competencies as a military specialists,” *Physical Education of Students*, vol. 6, pp. 38–42, 2013.
- [21] A.Chudyk and O. Mozev, “Individual Physical Training of Cadets in Wartime Conditions,” *Collection of Scientific Papers of the National Academy of the State Border Guard Service of Ukraine. Pedagogical Sciences Series*, vol. 30, no. 3, pp. 565–577, 2022, DOI: 10.32453/pedzbimyk.v30i3.1180.
- [22] N. Vysochyna, L. Hunina, O. Khatsaiuk, L. Kotlyarenko, R. Holovashchenko, and A. Ivchenko, “Model of Psychophysical Readiness of Future Officers to Perform Tasks as Intended,” *Military Education*, vol. 1, no. 43, pp. 24–43, 2021, DOI: 10.33099/2617-1783/2021-43/24-42.
- [23] “Impact of a 5-week individualised training program on physical and occupational performance in army recruits,” *Journal of Science and Medicine in Sport*, vol. 25, no. 1, pp. 13–18, 2022.
- [24] *Outcome-Based Training and Education*, Army University Press, n.d.
- [25] O. Strutsynskyi, “Current Aspects of Military Specialist Training in Conditions of Hybrid Armed Conflict,” *Science and Technology of the Air Force of the Armed Forces of Ukraine*, vol. 2, no. 43, pp. 38–42, 2021, DOI: 10.30748/NITPS.2021.43.05.
- [26] A.S. Andres and V. O. Kryzhanovskiy, “Technology for Developing Professionally Important Qualities of Cadets of Higher Educational Institutions of the National Guard of Ukraine through Sports and Physical Training,” *Ukrainian Copyright Certificate*, no. 121020, Aug. 2, 2023.
- [27] A.Andres, I. Bodnar, and V. Kryzhanovskiy, “Effectiveness of the technology for developing professionally important qualities of cadets of higher education institutions of the National Guard of Ukraine through sports and physical training,” *Health Problems of Civilization*, 2024, doi: 10.5114/hpc.2024.139342.