

# Impact of physical and sports rehabilitation on the level of physical fitness of combatants

Nataliia Krushynska, Iryna Kohut, Ievgen Goncharenko

National University of Ukraine on Physical Education and Sport, Kyiv, Ukraine

## Abstract

The anti-terrorist operation, the operation of the joint forces, and the full-scale war in Ukraine have a significant physical and psychological impact on the participants of the hostilities. One of the negative consequences of war is the loss of physical health which further affects the process of socialization during a peaceful life. At the same time, the process of restoring physical health with the help of physical culture and sports rehabilitation has not been researched enough, which confirms the relevance of the chosen topic.

**Objective:** to determine the impact of physical culture and sports rehabilitation on the level of physical fitness of combatants.

**Material and methods:** the research was carried out on the basis of the National Sports Complex "Olympiyskyi" in the group "Veteran Ten" during 2020-2021. The main sports competitions the combatants were preparing for were various marathons.

40 combatants who had completed their military service took part in the research. During the research, there were used the following methods: pedagogical experiment, and methods of mathematical statistics.

**Results:** During a year, combatants participated in the research in the framework of which they trained and prepared to participate in mass races. The content of the training included both running exercises and exercises aimed at developing strength qualities (mainly strength endurance), flexibility, and coordination. The level of physical fitness of combatants was tested in dynamics (before the start of training and after a year of training). The level of physical fitness of combatants was determined according to the approved tests and standards of the "Annual Assessment of Physical Fitness of the Population of Ukraine". Based on the results of the research, it was established that at the initial stage, 75% of the combatants had a low level of physical fitness, 23% had a medium level, and 2% had a sufficient level. Upon the completion of the pedagogical experiment, the level of physical fitness of the combatants improved: 33% of the combatants had a low level of physical fitness, 50% had a medium level, and 17% had a sufficient level, which demonstrates the effectiveness of training sessions as a means of physical culture and sports rehabilitation.

**Conclusions.** The positive impact of physical culture and sports rehabilitation on the level of physical fitness of combatants was determined. With the help of the tests and standards of the "Annual Assessment of Physical Fitness of the Population of Ukraine", it was discovered that the indicators of physical fitness of the combatants at the first stage of the research were in the range from 2 to 21 and on average were (11.83; 4.49) points. In the second stage, they ranged from 11 to 24, their average physical fitness score was (11.28; 3.20) points. At the same time, 46.1% of the participants of the research got an observed increase in the indicator which turned out to be statistically significant ( $t=13.563$ ;  $df=39$ ;  $p<0.05$ ). Therefore, it can be stated that running sessions have a positive impact on the level of physical fitness of combatants.

**Keywords:** physical fitness, physical culture and sports rehabilitation, combatants.

## Анотація

Наталія Крушинська, Ірина Когут, Євген Гончаренко. Вплив фізкультурно-спортивної реабілітації на рівень фізичної підготовленості учасників бойових дій. Антитерористична операція, операція об'єднаних сил, повномасштабна війна в Україні чинить значний фізичний та психологічний вплив на учасників бойових дій. Одним із негативних наслідків війни є втрата фізичного здоров'я, що в подальшому

## Original Paper

DOI: 10.15391/sns.v.2023-1.006

Received: 22.02.2023;

Accepted: 04.03.2023;

Published: 30.03.2023

### Citation:

Krushynska, N., Kohut, I. & Goncharenko, Ie. (2022). Impact of physical and sports rehabilitation on the level of physical fitness of combatants. *Slobozhanskyi Herald of Science and Sport*, 27(1), 42-47. <https://doi.org/10.15391/sns.v.2023-1.006>

Corresponding author:

**Krushynska Nataliia**

National University of Ukraine on Physical Education and Sport, Kyiv, Ukraine

orcid.org/0000-0003-1661-9177

e-mail: krusynskanataliia@ukr.net

**Kohut Iryna**

orcid.org/0000-0002-8862-9545

**Goncharenko Ievgen**

orcid.org/0000-0002-7196-3061

впливає на процес соціалізації до мирного життя. Разом з тим, досліджень, що висвітлювали б процес відновлення фізичного здоров'я за допомогою фізкультурно-спортивної реабілітації недос-татньо, що підтверджує актуальність обраної теми.

**Мета:** визначення впливу фізкультурно-спортивної реабілітації на рівень фізичної підготовленості учасників бойових дій.

**Матеріал і методи:** дослідження здійснювались на базі Національного спортивного комплексу «Олімпійський» у групі «Ветеранська десятка» протягом 2020 – 2021 рр. Основними спортивними змаганнями до яких готувались учасники бойових дій були різновиди марафонів.

У дослідженні взяли участь 40 учасників бойових дій, які завершили військову службу. Під час проведення дослідження застосовувались наступні методи: педагогічний експеримент, методи математичної статистики.

**Результати:** учасники бойових дій протягом року брали участь у дослідженні, в межах якого вони тренувались і готувались до участі в масових забігах. Зміст тренувальних занять передбачав як бігові вправи, так і вправи, спрямовані на розвиток силових якостей (переважно силової витривалості), гнучкості, координації. Тестування рівня фізичної підготовленості учасників бойових дій відбувалось в динаміці (до початку тренувальних занять та після року занять). В учасників бойових дій рівень фізичної підготовленості визначався за затвердженими тестами і нормативами «Щорічного оцінювання фізичної підготовленості населення України». Виходячи з результатів дослідження, встановлено, що на початковому етапі у 75% учасників бойових дій був низький рівень фізичної підготовки, в 23% – середній рівень та 2% – достатній. По завершенню педагогічного експерименту було покращено рівень фізичної підготовленості в учасників бойових дій: низький – 33%, середній – 50%, достатній – 17%, що свідчить про ефективність тренувальних занять як засобу фізкультурно-спортивної реабілітації.

**Висновки.** Визначено позитивний вплив фізкультурно-спортивної реабілітації на рівень фізичної підготовленості учасників бойових дій. За допомогою тестів та нормативів «Щорічного оцінювання фізичної підготовленості населення України» досліджено, що показники фізичної підготовленості учасників бойових дій на першому етапі дослідження знаходились в діапазоні від 2 до 21 і в середньому становили (11,83; 4,49) балів. На другому етапі вони коливались від 11 до 24, їх середня оцінка фізичної підготовленості скла-ла (11,28; 3,20) балів. При цьому спостережуваний приріст показника у 46,1 % учасників дослідження виявився статисти-чно значущим ( $t=13,563$ ;  $df=39$ ;  $p<0,05$ ). Отже, можна стверджувати, що заняття бігом позитивно впливають на рівень фізичної підготовленості учасників бойових дій.

**Ключові слова:** фізична підготовленість, фізкультурно-спортивна реабілітація, учасники бойових дій.

## Introduction

Since 2014, the anti-terrorist operation, the operation of the joint forces, and the full-scale war in Ukraine have been affecting the physical and psychological state of combatants. One of the negative consequences of the war is a significant decrease in the level of health of combatants, which makes it difficult for them to socialize and return to a peaceful life.

One of the effective means of improving the physical and

psychological state of combatants is physical culture and sports rehabilitation which involves the use of physical exercises to restore health and is aimed at restoring and compensating the body's functional capacities through the means of physical education and sports. In addition, the physical culture and sports rehabilitation directs and motivates the combatants to achieve results in sports activities, and participation in competitions of various levels which in its turn encourages not only other participants in hostilities but also members of their families to regularly engage in physical activity, bringing people together, supporting and inspiring which contributes to recovery from combat.

Domestic and foreign scientists have studied the issue of restoring and increasing the level of physical fitness of combatants using various methodological approaches. For example, Yu. Bryndikov (2018) considered the rehabilitation of military personnel from the point of view of a medical-psychological and social-psychological approach. Blavt O. (2021) singled out innovative pedagogical approaches in the development of an inclusive environment for war veterans in institutions of higher education through adaptive physical culture. Prykhodko, I., Matsehora, Y., Kolesnichenko, O., Stasiuk, V., Bolshakova, A., Bilyk, O. (2021) studied the psychological ways of recovery of combatants after returning to a peaceful life. Melnyk, O., Lukomska, S. (2019) analyzed the age-specific features of the adaptation of combatants to the conditions of a civil life. At the same time, scientific works devoted to the research of the influence of physical culture and sports rehabilitation on the level of physical fitness of combatants are practically absent in the available literature which confirms the relevance of the chosen topic.

Relationship of research with scientific or practical tasks, plans, and programs. The scientific work was carried out in accordance with the Research Plan of the National University of Physical Education and Sports of Ukraine for 2021-2025. on topic 1.4. Theoretical and methodological foundations for the development of professional, non-Olympic, and adaptive sports in Ukraine in the context of reforms in the sphere of physical culture and sports (state registration number 0121U108294).

**Objective.** Determination of the impact of physical culture and sports rehabilitation on the level of physical fitness of combatants.

## Material and Methods of the research

### Participants

The research involved 40 combatants (men, the average age of the participants was  $42.35\pm 8.98$ ), who during 2020-2021 were engaged in physical culture and sports rehabilitation and preparation for all-Ukrainian and international competitions in the running disciplines of athletics. The participants' training program included the use of athletics (in particular, running), and consisted of both running exercises and exercises aimed at developing strength qualities (mainly strength endurance), flexibility, and coordination. The combatants were informed about all the specifics of the research and gave their consent to participate in it.

### Methods

In the framework of the research, there were applied pedagogical observation, pedagogical testing, and methods of mathematical statistics. The research program includes tests and standards for persons whose annual assessment of physical fitness is conducted voluntarily, approved by the Order of the Ministry of Youth and Sports of Ukraine No. 4607 under

date of October 4, 2018 (<https://ips.ligazakon.net/document/RE32659>).

#### Procedure (research organization)

Pedagogical testing was conducted on the basis of the National Sports Complex "Olympiyskyi". 40 combatants having completed military service took part in the research. The testing was carried out by the coach at the first training session and then after a year of the physical culture and sports rehabilitation sessions, during the preparation for international and all-Ukrainian competitions in the running disciplines of athletics. All the participants were informed about the use of test materials and gave consent for their processing.

Since the combatants were no longer classified as active military personnel and were not required to meet the standards of physical fitness of military personnel, besides, the majority of combatants had combat injuries, the tests and standards for the civilian population approved by the Ministry of Youth and Sports were chosen for the research.

The research program included tests and standards of the "Annual Assessment of the Physical Fitness of the Population" in accordance with the Resolution of the Cabinet of Ministers of Ukraine under date of December 9, 2015 No. 1045 "On Approval of the Procedure for the Annual Assessment of the Physical Fitness of the Population of Ukraine".

The testing program included running at medium and long distances; flexion and extension of arms at the push-up position; pulling up on the crossbar; pulling up on a low crossbar; performing sit-ups during 1 minute; standing long jump; kettlebell snatch; squat; running for 30 m, 60 m, 100 m; shuttle run 4 x 9 m; bending the body forward from a sitting position.

There were additional points for calculating the body mass index (BMI) for participants aged 36–50.

The tests used during the research corresponded to the age category of the participants, for persons of mature age (21–70 years). The obtained results were assessed according to the scale of the results of the performed tests and standards (Table 1).

**Table 1.** Scale of the results of completed tests and standards for persons of mature age (21–70 years)

Points	Level of physical fitness	Assessment of the level of physical fitness
30-26	High	Excellent
25-21	Sufficient	Good
20-16	Medium	Satisfactory
15 and less	Low	Unsatisfactory

The final assessment of the level of physical fitness of participants aged 21 to 70 years is based on the sum of the points obtained for the performance of 5 types of optional tests and additional points for calculating the body mass index.

#### Statistical analysis

In order to process the scientific materials, the methods of mathematical statistics were used for the quantitative analysis of the obtained results. The research results were processed with the help of "Excel 2016" (Microsoft, USA).

The Shapiro-Wilk  $W$ -test was used to check the hypothesis concerning the submission of empirical data to the normal law of distribution. Since the assessments of the levels of physical fitness of the combatants, regardless of the testing stage, cor-

responded to the normal law of distribution ( $W=0.982$ ;  $p=0.758$  and  $W=0.972$ ;  $p=0.413$  for the first and the second stages, respectively), the average indicators were presented in the form ( $\bar{X}$ ;  $SD$ ), where  $\bar{X}$  is the medium,  $SD$  is the standard deviation, and the comparison of medium scores was carried out using the Student's parametric  $t$ -test for dependent samples. At the same time, the degrees of freedom of  $df$  were calculated using the formula  $df = n - 1$ , where  $n$  is the number of observations.

Pearson's  $\chi^2$  consistency criterion was used to assess the compliance of divisions of athletes by levels of physical fitness with the uniform distribution law (Shynkaruk, O., 2019). It should be noted that during the use of frequency analysis, different levels of physical fitness were considered (low, medium, and sufficient).

The level of significance was  $\alpha = 0.05$  ( $p < 0.05$ ). At the same time, if the value of the  $p$ -level exceeded 0.001, its value was indicated by an approximate number, and in other cases, it was presented as " $p < 0.05$ ".

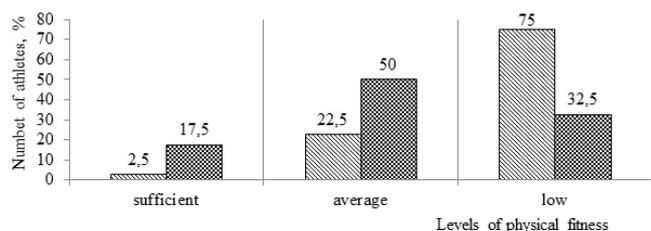
## Results of the research

The research was carried out in two stages (before the beginning of physical culture and sports rehabilitation sessions and after 1 year of training sessions). As a result of the first test, it was found that the indicators of the level of physical fitness of the combatants were in the range from 2 to 21 and on average were (11.83; 4.49) points. In the second stage, there was found a probable improvement in the dynamics of the results ( $p < 0,05$ ) which ranged from 11 to 24, their average assessment of physical fitness was (11.28; 3.20) points. At the same time, 46.1% of the participants of the research got an observed increase in the indicator which turned out to be statistically significant ( $t=13.563$ ;  $df=39$ ;  $p < 0.05$ ). Therefore, it can be stated that running sessions have a positive impact on the level of physical fitness of combatants.

At the same time, the analysis of the results obtained during the first stage of the research shows that 75% of combatants (30 people) had a low level of physical fitness, 23% (9 people) had a medium level of physical fitness, and 2% (1 person) had a sufficient level. There was no research participant with a high level of physical fitness. It has been proven that the number of participants with a low level of physical fitness is statistically significantly higher than the number with medium and sufficient levels ( $\chi^2=10.0$ ;  $df=1$ ;  $p=0.002$ ).

During a year, the combatants trained to prepare for all-Ukrainian and international competitions in the running disciplines of athletics: "MARATHON NO ONE WANTS TO RUN", the race "I respect soldiers, I run for the Heroes of Ukraine", "Veteran's Ten", "MILITARY RUN UA", "Veteran's mile in Кольце", the Marine Corps Marathon in the USA, the peace marathon in Кольце and others (Krushynska N. and others (2021). The training sessions were held three times a week under the supervision of a coach, and combatants also trained individually twice a week.

According to the results of the second (control) testing, a significant increase in the level of physical fitness of the combatants was recorded. 33% of combatants (13 people) had a low level of physical fitness indicators. 50% of combatants (20 people) showed a medium level, and 17% of combatants (7 people) showed a sufficient level (Fig. 1). It should be noted that at this stage, the number of research participants with a medium and sufficient level was statistically significantly higher ( $\chi^2=16.9$ ;  $df=1$ ;  $p < 0.05$ ) compared to the number of combatants with a low level of physical fitness.



**Fig. 1. Division of combatants by levels of physical fitness depending on the stage of the study(n=40):**

□ - first stage; ■ - second stage

Therefore, based on the data obtained upon carrying out the testing of the “Annual Assessment of the Physical Fitness of the Population of Ukraine”, it was established that at the second stage of the research, the number of combatants with a low level decreased by 42.5% ( $\chi^2=14,5$ ;  $df=1$ ;  $p=0,0001$ ) due to an increase in the number of research participants with a medium level by 27.5%, and those with a sufficient level - by 15%. It should be noted that among the participants, regardless of the stage, there was found no one with a high level of physical fitness. In our opinion, this may be related to the short period of time to reach a high level of physical fitness. However, it can be stated that the results of the second stage of testing testify to the effectiveness of the chosen means of physical culture and sports rehabilitation and their positive impact on the physical fitness of the combatants.

It should be noted that the content of training sessions aimed at preparing for participation in mass races included both running exercises and exercises aimed at developing strength qualities (mainly strength endurance), flexibility, and coordination. Also, it is important to note that the better dynamics of improvement in physical fitness indicators was demonstrated by those participants who attended training sessions regularly, showed responsibility for completing the tasks of the coaches, performed additional exercises at home, and followed the sleep and nutrition regime. As a result of the survey of combatants, conducted regularly during training sessions, it was found that the opportunity to participate in competitions both in Ukraine and abroad became an important factor in forming a responsible attitude to training sessions and the main motive for regular training for the majority of the research participants. This fact allows us to assume that purposeful preparation for various competitions (races) significantly increases interest in sports in general and contributes to increasing motivation for regular training.

## Discussion

Analyzing the literary sources by Kogut I. (2022), Kravchenko O. (2022), Sergienko V. (2022), and Shidelko A. (2022), we can conclude that regular sessions within the framework of physical culture and sports rehabilitation have a positive effect not only on the level of physical fitness, general condition and level of health but also play a decisive role in the socialization of combatants.

The physical culture and sports rehabilitation contribute to the formation of value orientations to health, encourage to engage independently in sports and physical activity, and use them for self-improvement, recreation, and organization of leisure. Scientists Sergienko V., Kogut I., Matveev S., and Jagiello M. consider physical culture and sports rehabilitation as a versatile activity of a person in the field of physical culture and sports that should be aimed at the realization of social and per-

sonally significant needs for strengthening health and a healthy lifestyle.

To determine the level of physical fitness of the combatant and control the dynamics of indicators, there were used tests and standards for persons whose annual assessment of physical fitness is carried out voluntarily, approved by the Order of the Ministry of Youth and Sports of Ukraine No. 4607 under date of October 4, 2018.

The purpose of the annual assessment is to determine and increase the level of physical fitness of the population of Ukraine, to create appropriate conditions for the physical development of various population groups, to improve their health, to ensure the ability for highly productive work, to protect the sovereignty and territorial integrity of Ukraine, as well as to promote patriotic education and the formation of public position. The main tasks of the annual assessment are: determining the level of physical fitness of the population of Ukraine; promoting the development of physical culture among the population of Ukraine; formation of the need for physical activity among the population of Ukraine; directing the activities of educational institutions to the physical development of youth, physical culture and sports organizations to ensure the proper level of physical fitness of the population of Ukraine; enabling the population of Ukraine to independently assess the level of physical fitness; determination of military personnel's most important physical and special qualities, military-applied skills taking into account their physical fitness, which are primarily necessary for the effective performance of their tasks; promoting the formation of a healthy lifestyle, patriotism and national consciousness of the population of Ukraine, increasing the level of interest in serving in the Armed Forces and other military units formed in accordance with the laws, the State Service of Special Communications, law enforcement agencies, in particular the National Police, emergency and other special services, readiness for protection of the Motherland; promoting the creation of appropriate conditions for the preparation and conducting of the annual assessment of various population groups of Ukraine (<https://ips.ligazakon.net/document/RE32659>).

Analyzing the research of domestic scientists, it was found that they mostly consider the recovery of combatants using a medical-psychological and social-psychological approach. For example, Yu. Bryndikov (2018) in most of his studies pays attention to social, psychological, and medical rehabilitation. At that time, in his works, he does not emphasize the important role of the positive dynamics of the level of physical fitness in improving the condition of combatants. The research carried out by us shows that the regular use of physical culture and sports rehabilitation has a positive effect on increasing the level of physical fitness of combatants.

Scientists Prykhodko, I., Matsehora, Y., Kolesnichenko, O., Stasiuk, V., Bolshakova, A., Bilyk, O. (2021) consider the issue of first psychological aid for combatants upon returning to a peaceful life. However, in their research, they do not take into account the influence of physical fitness on their socialization. In our research, to improve the condition of the combatants upon returning to a peaceful life, it was suggested to use the means of physical culture and sports rehabilitation, in particular: regular training “Open training of ATO veterans at the NSC Olimpiyskiy”; various competitive events: Invictus Games, “Marathon in New York that no one wants to run” (2021), “I respect the soldiers, I run for the Heroes of Ukraine” race (2018), “Veteran's Terh” (2018), “Military Run UA” (2021), “Veteran Mile in Кольце” (2021), that can contribute to accelerating the pace of their social integration.

Researcher Blavt O. suggests using the means of adaptive physical culture as an innovative pedagogical approach in the development of an inclusive educational environment for war veterans. At that time, our research emphasized the importance of organizing and conducting joint training sessions and focused on the continuity of the training process and the continuous improvement of physical culture and sports rehabilitation measures for combatants.

Therefore, the analysis of the professional literature and our research shows that the anti-terrorist operation, the operation of the joint forces, and the full-scale war in Ukraine cause significant injuries to combatants and are reflected in their socialization upon returning to a peaceful life. Therefore, it is high time to develop and introduce the tools of physical culture and sports rehabilitation, such as running sessions to prepare for all-Ukrainian and international competitions, which positively affect the physical fitness and integration of the combatants into society, into their training process.

## Conclusions

1. The positive impact of physical culture and sports rehabilitation on the level of physical fitness of combatants was determined using the tests and standards of the "Annual Assessment of Physical Fitness of the Population of Ukraine". The conducted research has shown that combatants aged 40-60 improve their physical fitness more slowly. At the same time, the physical fitness of combatants depends on their responsible attitude to the training process. Athletes who did not attend training sessions systematically have significantly lower rates of improvement in physical fitness.

2. The results of the conducted research made it possible to determine that physical culture and sports rehabilitation (in particular, running and general physical training) have a positive effect on the level of physical fitness of combatants having completed military service. At the initial stage, 75% of combat-

ants had a low level of physical fitness, 23% had a medium level, and 2% had a sufficient level. It was established that at the first stage of the research, among its participants, there was a statistically significant ( $p < 0.05$ ) prevalence of combatants with a low level of physical fitness. After the introduction of physical culture and sports rehabilitation tools into their training process, in particular running classes (within 1 year), the level of physical fitness of combatants improved and their division by the level of physical fitness became as follows: low - 33%, medium - 50%, sufficient - 17%, which indicates the effectiveness of the use of means of physical culture and sports rehabilitation. It should be emphasized that at the second stage of the research, there was recorded a statistically significant ( $p < 0.05$ ) smaller number of combatants with a low level of physical fitness. At the same time, there was proven a statistically significant ( $p < 0.05$ ) increase in the assessment of the level of physical fitness of combatants under the influence of physical culture and sports rehabilitation tools. The obtained results prove the effectiveness of the selected means and the expediency of their use in the training process of combatants.

**Further research** is planned to be aimed at establishing the dynamics of the stress level of combatants under the influence of physical culture and sports rehabilitation means.

## Author Contributions

Krushynska Nataliia – research planning, data collection;  
Kohut Iryna – data interpretation, data analysis;  
Goncharenko Ievgen – literature analysis, manuscript preparation.

## Conflicts of Interest

The authors declare no conflict of interest.

## Funding

This article didn't receive financial support from the state, public or commercial organizations.

## References

- Blavt, O. (2021). Innovative pedagogical approaches in the development of an inclusive environment for students of war veterans by means of adaptive physical culture. *Innovations in education*, (14), 24–34. doi:10.35619/iiu.v1i14.395.
- Bryndikov Yu. (2018). Theory and practice of rehabilitation of servicemen participating in hostilities in the system of social services: [Unpublished. thesis ... Dr. Ped. Sciences:]. Khmelnytskyi National university; Ternopil national ped. University named after V. Hnatyuk.
- Haida, I., Badyuk, M., Sushko, Yu. (2018). Peculiarities of the structure and course of modern combat trauma in servicemen of the Armed Forces of Ukraine. *Pathology*, 15(1(42)):73-6.
- Kravchenko, O. (2022). Changes in the personality structure of military servicemen under contract, who have the status of a participant in hostilities. *Bulletin of the National Defense University of Ukraine*, 53–63. doi:10.33099/2617-6858-2022-65-1-53-63.
- Krushynska, N., Kogut, I. (2021). Marathon running as a means of socialization of combatants in Ukraine and the world. *Youth and the Olympic Movement* (p. 254–256).
- Matveev, S., Krushynska, N., Krasnyanskyi, K. (2022). Sport of servicemen who were wounded during hostilities: Status, problems, prospects. *Theory and methods of physical education and sports*, (4), 3–7. doi:10.32652/tmfvs.2021.4.3-7.
- Sergienko V. M. Physical culture and sports activity of a coach from a sport: training manual. Sumy: Sumy State University, 2022. – 184 p. ISBN 978-966-657-909-9
- Shidelko, A. (2022). Consequences of the impact of combat stress on the psychological state of the soldier's personality. *Perspectives and innovations of science*, (1 (6)). doi:10.52058/2786-4952-2022-1(6)-476-486.
- Bech, S. C., Dammeyer, J., & Liu, J. (2021). Changes in personality traits among candidates for special operations forces. *Military Psychology*, 1–8. doi:10.1080/08995605.2021.1902178 (in Ukrainian).

- Krushynska, N., Kohut, I., Matveev, S., & Jagiello, M. (2022). Effect of running classes on the stress level of combatants. *Slobozhanskyi Herald of Science and Sport*, 26(3), 83–87. <https://doi.org/10.15391/sns.v.2022-3.004>
- Kohut, I., Borysova, O., Marynych, V., Chebanova, K., Filimonova, N., Kropyvnytska, T., & Krasnianskiy, K. (2021). Organizational basics of inclusive education and training process for karate athletes with disabilities. *Sport Mont*, 19(S2), 107–112. doi:10.26773/smj.210918 (in Ukrainian).
- Melnyk, O., Lukomska, S. (2019). Age specificities of the combatants adaptation to civil life conditions. *Scientific Bulletin of Kherson State University. Series Psychological Sciences*, (2), 71–77. doi:10.32999/ksu2312-3206/2019-2-10 (in Ukrainian).
- Prykhodko, I., Matsehora, Y., Kolesnichenko, O., Stasiuk, V., Bolshakova, A., & Bilyk, O. (2021). Psychological first aid for military personnel in combat operations: The ukrainian model. *Military Behavioral Health*, 9(3), 289–296. doi:10.1080/21635781.2020.1864530 (in Ukrainian).
- Shynkaruk, O., Byshevets, N., Stepanenko, O., Gerasymenko, S., Tkachenko, S. and et. (2019). Development skills implementation of analysis of variance at sport-pedagogical and biomedical researches. *Journal of Physical Education and Sport (JPES)*, 19, 2062-2065.
- Ukrinform. (2021, 10 жовтня). До 30-richchya ZSU vidbuvsya pershyy viys'kovyy zabih MilitaryRunUA. Retrieved from <https://www.ukrinform.ua/rubric-kyiv/3330438-do-30ricca-zsu-vidbuvsya-persij-vijskovij-zabig-military-run-ua.html>.
- On supporting the development of the system of sports rehabilitation of combatants who took part in anti-terrorist operations, in measures to ensure national security and defense, repel and deter armed aggression of the Russian Federation in the Donetsk and Luhansk regions, Decree of the President of Ukraine No. 123/2018 (2018 ) (Ukraine). Taken from <https://zakon.rada.gov.ua/laws/show/123/2018#Text>.
- Registration for the All-Ukrainian race “I honor the soldiers, I run for the heroes of Ukraine” has started. (2022, August 10). Retrieved from <https://novynarnia.com/2022/08/10/startuvala-reyestraciya/>.
- The Marine Corps Marathon started in the USA with the participation of the Ukrainian military. (2019, October 27). Taken from <https://wz.lviv.ua/news/399810-u-ssha-startuvav-marafon-morskoi-pikhoty-za-uchasti-ukrainskykh-viiskovykh>.
- For a participant of the veteran top ten | work.uakyivhalfmarathon. (2022, August 1). Retrieved from <https://workua.kyivhalfmarathon.org/dlya-uchasnika-veteranskoyi-desyatki/>.
- A separate type of sports activity has appeared in Ukraine - veteran sports. (2022, February 15). Taken from [https://mva.gov.ua/ua/news/v-ukrayini-zyavivsya-okremij-vid-sportivnoyi-diyalnosti-veteranskij-sport?fbclid=IwAR3WznGBfM3HK69jBVx49xGR7WZA0jOaPHpREpFAjGtsdUjJLGO\\_GFU1nNg](https://mva.gov.ua/ua/news/v-ukrayini-zyavivsya-okremij-vid-sportivnoyi-diyalnosti-veteranskij-sport?fbclid=IwAR3WznGBfM3HK69jBVx49xGR7WZA0jOaPHpREpFAjGtsdUjJLGO_GFU1nNg)
- On the approval of tests and standards for persons whose annual assessment of physical fitness is carried out on a voluntary basis, Instructions on the organization of its conduct and forms of the Report on the results of its conduct, Order of the Ministry of Youth and Sports of Ukraine No. 4607 (2018) (Ukraine). Taken from <https://zakon.rada.gov.ua/laws/show/z1207-18#Text>