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- The assessment of the impact of therapy using the Luna-EMG rehabilitation robot on the functional status of patients after total hip replacement
- The effect of a stay in a cardiac thermal station on the physical activity of patients with cardiovascular diseases: Analysis of subjective and objective indicators
- Balneotherapy as a support in the treatment of rheumatic diseases – the importance of natural therapeutic resources in symptom relief and quality of life improvement
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Restoration of physical and intellectual working capacity of combatants in the process of their rehabilitation

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ABSTRACT

Aim: The aim is to substantiate the means of restoring the physical and intellectual working capacity of combatants and determine their effectiveness.

Materials and Methods: The research, which was conducted in 2024–2025, involved 58 male combatants aged 26 to 54 years who underwent physical education and sports rehabilitation after treatment for gunshot wounds, injuries, and traumas of the musculoskeletal system. Physical working capacity was assessed by the Romberg test, the Ruffier index, and the Stange test. Intellectual working capacity was determined by the Bourdon–Anfimov correctional test.

Results: The means of restoring the physical and intellectual working capacity of combatants through their physical education and sports rehabilitation have been substantiated. It has been found that in the course of the research all three groups demonstrated significant ($p < 0.05-0.01$) improvement in the Romberg test (by 1.57–2.36 s), Ruffier index (by 0.83–0.91 c. u.), Stange test (by 9.07–12.0 s), concentration and sustainability of attention (by 3.31–3.78 %), intellectual working capacity (by 76.67–87.53 points), emotional state (by 1.11–1.35 points).

Conclusions: The article highlights the peculiarities and characterizes the specifics of using means to restore the physical and intellectual working capacity of combatants. It has been established that the complex use of targeted physical exercises, combined with other methods, enables the rapid and efficient restoration of the functional state of the musculoskeletal system, cardiovascular and respiratory systems, and improves cognitive functions and the emotional state of combatants.

KEY WORDS: means of rehabilitation, combatant, physical working capacity, intellectual working capacity, physical education and sports rehabilitation, physical exercises

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INTRODUCTION

The performance of service tasks by representatives of the security and defense sector in the context of hostilities involves significant physical and psychological stress. It is characterized by a risk to their lives and health [1]. Prolonged exposure to such stressful conditions reduces the level of physical working capacity of personnel and impairs their cognitive processes. This has a particularly acute impact on the observance of personal safety measures and the effectiveness of combat missions, potentially leading to negative consequences, including overfatigue, overstrain, professional burnout, injuries, and wounds [2]. The need to restore the physical and intellectual working capacity of combatants is primarily due to their prolonged stay in the combat zone, significant overexertion, and insufficient rest periods. In addition, it is essential to restore working capacity and improve the functional capacity of the body (or its individual systems) during physical education and sports rehabilitation (PESR) after treatment for various

injuries, including surgical interventions, contusions, and other conditions. Depending on the type of injury, multiple means of PESR are used [3, 4]. PESR is considered a system of measures developed through physical exercises aimed at restoring and compensating for the body's functional capabilities, thereby improving physical and mental health, as well as overall health level [5, 6]. PESR under martial law aims to reintegrate combatants into socially active life in Ukraine, highlighting the need to find effective means.

The analysis of scientific studies [7, 8, 9] shows that restoration of combatants' working capacity during their PESR involves several stages, including: assessment of the functional state (determination of initial data); evaluation of physical and intellectual working capacity, comparing them with nominal indicators; determination of optimal means and methods of influence aimed at restoring working capacity (development of an individual plan); control measures; adjustment of plans [10, 11]. Based on the study of scientific literature [12], it has been found

that the following set of measures has a positive effect on the restoration of working capacity in combatants during their PESR: kinesiotherapy, therapeutic massage, biomechanotherapy, hydrokinesiotherapy, physiotherapy, herbal medicine, natural physical factors, and hardening [13]. At the same time, scientists [14, 15] are convinced that physical exercises are the most effective means of combatants' PESR in martial law [16]. The primary tasks of PESR for wounded combatants are to prevent joint contractures, muscle hypotonia, and to introduce ergotherapy to facilitate patient adaptation after injuries and surgical treatment [17]. The combination of rationally selected PESR means, taking into account the individual characteristics of each patient, enables the gradual restoration of lost functions and the level of physical and intellectual working capacity in combatants [18].

AIM

The aim is to substantiate the means of restoring the physical and intellectual working capacity of combatants and determine their effectiveness.

MATERIALS AND METHODS

PARTICIPANTS

The research, which was conducted in 2024-2025, involved 58 male combatants aged 26 to 54 years who underwent PESR after their treatment for gunshot wounds of the upper extremities, injuries, and traumas of the musculoskeletal system. The PESR was performed in rehabilitation centers in Kyiv and Zhytomyr. The results were processed at the Department of Physical Education and Sports Rehabilitation of the S. P. Koroliov Zhytomyr Military Institute and the Department of Special Physical Training of the National Academy of Internal Affairs. Depending on age, the participants were divided into three groups: Group 1 – individuals aged 26-30 years (19 participants); Group 2 – those aged 31-40 years (17 participants); and Group 3 – those over 40 years (22 participants). The physical condition of the combatants enabled them to participate in the proposed physical activities and procedures. The effectiveness of the means for restoring physical and intellectual working capacity was determined at the beginning of arrival at the rehabilitation center and after four weeks of systematic training.

METHODS

The research involved the use of theoretical methods (analysis and generalization of literature), empirical methods (biomedical and biological testing), and methods of mathematical statistics. Physical working capacity was assessed by the Romberg test (static coordination), the Ruffier index (cardiovascular system), and the Stange test (timed inspiratory capacity). Intellectual working capacity was assessed by the Bourdon-Anfimov test (concentration and sustainability of attention, level of intellectual functioning). Additionally, we examined the dynamics of combatants' emotional states using Doskin's method.

The Romberg test is a neurological assessment that evaluates a person's static balance and coordination. This

test is based on the principles that an individual must use at least two of the following three elements to maintain the balance of their body: proprioceptive sensitivity (the ability to sense the position of one's body in space); vestibular function (the ability to sense the position of one's head in space); and vision (which corrects actions when the body position changes). In our research, a simple Romberg test was used: the patient stands with full support on two legs, eyes closed, and arms stretched horizontally forward with fingers spread. When assessing the Romberg test, attention is paid to the degree of stability (whether the combatant is standing still or swaying), trembling of the eyelids and fingers (tremor), and most importantly, the duration of balance. Maintaining a stable posture for more than 15 seconds without tremor is considered normal. A slight tremor of the eyelids and fingers when holding the posture for 15 seconds is satisfactory. If the posture is held for less than 15 seconds, it is unsatisfactory [19].

The technique for performing the Ruffier index: after 3-5 minutes of rest, in a sitting position, the HR_1 was calculated for 15 seconds. Then, 30 squats were performed within 45 seconds, with arms extended forward. At the end of the squats, the heart rate was counted in the sitting position during the first 15 seconds (HR_2) and the last 15 seconds (HR_3) of the first minute of recovery. The assessment of the cardiovascular system's functional capabilities was carried out using the formula: $Rf_i = (4 \times (HR_1 + HR_2 + HR_3) - 200) / 10$. The determination of the level of functional capabilities of the cardiovascular system involved the use of the following scale: excellent (0.1-5.0 c. u.); good (5.1-10.0 c. u.); satisfactory (10.1-15.0 c. u.); and unsatisfactory (15.1-20.0 c. u.) [20].

The Stange test, a functional test with a breath-hold during inhalation, was used to assess respiratory function. The test is performed while sitting. The subject should take a deep (but not maximal) breath and hold it for as long as possible, pinching their nose with their fingers. In healthy but untrained individuals, the breath-holding time ranges from 40-60 seconds in men, while the functional capabilities of the respiratory system are assessed as excellent if the breath-holding time is more than 60 seconds, good – 40-60 seconds, satisfactory – 30-40 seconds, poor – up to 30 seconds [21].

The intellectual working capacity of the combatant was assessed using the Bourdon-Anfimov correctional test [22]. The participants received forms with 1480 characters (37 lines of 40 characters each). The task was to underline the letter K and cross out the letter I in each line horizontally, while looking at the lines of letters. The goal was to process as many characters as possible and make as few mistakes as possible. The task was completed within 10 minutes. The following were taken into account: the total number of correctly processed characters, mistakenly crossed-out letters, and missed letters K and I. The indicator of concentration and sustainability of attention was determined by the level of accuracy (correctness) of work (A) in percentage according to the formula: $A = (C - W) / (C + O)$, where C is the total number of crossed out and underlined letters; W

is the number of erroneously crossed out or underlined letters; O is the number of erroneously omitted letters K and I. Concentration and sustainability of attention was assessed as low – up to 84 %; average – 85-89 %; above average – 90-94 %; high – 95 % and more. Intellectual working capacity (E) of the combatant was defined as the product of the accuracy indicator (A) and the total number of processed characters of the correctional table (S) according to the formula: $E = A \times S$. If E is 960 points or less, the level of intellectual working capacity is assessed as low, 961-1110 points – below average, 1111-1257 points – average, 1258-1405 points – above average, 1406 points and more – high.

The emotional state of the combatants was determined by Doskin's "WAN" (Well-being-Activity-Mood) methodology [23]. According to this methodology, it was necessary to assess one's state by selecting adjectives that were opposite in meaning. For each of the characteristics of the dominant emotional state (well-being, activity, mood), the methodology contains 10 pairs of emotional state features. On the scale, it is necessary to cross out the number that characterizes the current state of the combatant. The overall level of emotional state was determined as the arithmetic mean of the scores for the three characteristics of the emotional state. The emotional state was assessed on a 9-point scale: 8-9 points – high level of emotional state, 6-7 points – average, 4-5 points – sufficient, 3 points or less – low.

STATISTICAL ANALYSIS

The methods of mathematical statistics were used for correct processing of the data obtained. The reliability of the difference between the indicators was determined using the Student's t-test. The reliability of the difference was set at $p < 0.05$. All statistical analyses were performed using SPSS software, version 10.0, adapted for medical and biological research. This research was carried out in accordance with the requirements of the Regulations on academic integrity at the S. P. Koroliov Zhytomyr Military Institute and the National Academy of Internal Affairs and the regulations of the World Medical Association Declaration of Helsinki. Prior consent to participate in the study was obtained from all respondents.

RESULTS

The restoration of physical and intellectual working capacity in combatants during PESR process is possible through the integrated use of recovery means, which are classified as pedagogical, medical and biological, and psychological. Pedagogical means of restoring working capacity are based on the body's natural ability to replenish energy and functional reserves, both during the load itself and after it is terminated. Pedagogical means include rational planning of the process of combatants' working capacity restoration following the functional capabilities of their body, correct construction of a separate training session with the use of means for fatigue relief, clear organization of work and rest, optimal alternation of rest intervals between

individual exercises and individual training sessions, personal approach of a rehabilitation specialist to each combatant, etc. Medical and biological as well as psychological means of recovery help increase the body's resistance to loads, accelerate the reduction of acute manifestations of general and local fatigue, facilitate the effective recovery of energy resources, and expedite adaptation processes. By affecting the processes of metabolism, hematopoiesis, thermoregulation, plasticity, and energy utilization, medical and biological means help restore the functions of regulatory mechanisms, reduce fatigue, and increase working capacity, thereby accelerating the natural course of recovery. Among the medical and biological means of restoring working capacity are hygienic, pharmacological, physical, and rational nutrition. Hygienic approach ensures compliance with the duration and organizational forms of events, clothing, exercise content, climatic, geographical, and weather conditions, etc. Pharmacological methods include the use of drugs that help restore energy reserves, increase the body's endurance under stress, stimulate blood formation, and ensure the restoration of vitamins and minerals. They also involve adaptogens of plant and animal origin, along with warming, analgesic, and anti-inflammatory agents. The most common physical means are ultraviolet radiation, aero-ionization, cold and heat procedures, and massage. They act through the skin by physically irritating receptors. As a result, there is a reflex effect on the activity of the muscular system, internal organs, and the central nervous system. Psychological means include psychotherapeutic, psychoprophylactic, and psycho-hygienic methods. The psychotherapeutic means of recovery include induced sleep and rest, muscle relaxation, and special breathing exercises. Psychoprophylactic means include psycho-regulatory training and the use of music. Psycho-hygienic means include the reduction of negative emotions, comprehensive recreation, comfortable living conditions, etc. When applying the aforementioned restoration methods, we took into account the individual characteristics of the body, as well as the severity and specificity of the injuries and damages. The speed and quality of recovery processes can vary significantly from person to person. Accordingly, it is necessary to understand the natural ability of each organism to recover in order to select the appropriate recovery products, procedures, and regimens for its use. We also took into account individual differences in the body's perception of various restoration means, such as age, genetic predisposition, nutritional factors, unhealthy habits, and diseases.

To enhance the effectiveness of restoring the combatants' physical and intellectual working capacity who participated in our research, we employed physical exercises, including steady running, along with various medical and biological treatments, such as cold and heat therapies, and massage. The experiment lasted for four weeks and included: steady slow running three times a week with a heart rate not exceeding 130-140 beats per minute for Group 1 (first week: 15 min, 20 min, 30 min; second week: 30 min, 40 min, 30 min; third week: 40 min, 50 min, 40 min; fourth: 50 min, 60 min,

50 min). For Group 2, the heart rate during running did not exceed 120-130 beats per minute (first week: 10 min, 15 min, 20 min; second week: 20 min, 30 min, 20 min; third: 30 min, 40 min, 30 min; fourth: 40 min, 50 min, 40 min). For Group 3, the heart rate did not exceed 110-120 beats per minute (first week: 5 min, 10 min, 20 min; second week: 10 min, 20 min, 10 min; third: 20 min, 30 min, 20 min; fourth week: 25 min, 35 min, 25 min). Cold procedures were used daily, including a morning cold shower. General massage was performed twice a week, and thermal procedures were conducted three times a week on days free from running exercises: sauna once a week and hydrotherapeutic procedures (Charcot shower) four times a week. The results of assessing the dynamics of physical working capacity in combatants during their PESR are presented in Table 1. In contrast, the results for intellectual working capacity are presented in Table 2.

Evaluation of the dynamics of indicators of the Romberg test testifies that in all three groups of combatants there was an improvement of static coordination, that allows to speak about improvement of a functional state of the musculoskeletal system in combatants during their PESR: in the 1st group indicators of the Romberg test improved by 2.36 s ($p < 0.05$), in the 2nd – by 1.72 s ($p < 0.05$), in the 3rd – by 1.57 s ($p < 0.05$). It should be noted that at the beginning of the research, the Romberg test indicators in all three groups of combatants were at an unsatisfactory level. After rehabilitation, the indicators in Group 1 were within normal limits, and in Groups 2 and 3, they were within acceptable limits, with slight tremors of the fingers and eyelids.

The analysis of the Ruffier index provides grounds to state that the cardiovascular system functionality is at a good level in Groups 1 and 2, and satisfactory in Group 3 at the beginning of the research. Positive dynamics were

observed after the use of the proposed PESR method in combatants – in all three groups, there was a significant ($p < 0.01$) improvement in the Ruffier index by 0.83, 0.87, and 0.91 c. u., respectively. The obtained results demonstrate the positive impact of combining running exercises with physical means on restoring the working capacity of combatants.

Evaluation of the Stange test indicators also demonstrates the positive impact of working capacity restoration measures during PESR on the functional state of the respiratory system of combatants. Thus, during the research period, all three groups demonstrated a significant improvement in the Stange test indicators, with 12.01 seconds in Group 1 ($p < 0.01$), 11.49 seconds in Group 2 ($p < 0.05$), and 9.07 seconds in Group 3 ($p < 0.05$).

The processing of the results of the Bourdon-Anfimov correctional test provides grounds to state that the offered exercises and restoration means have a positive influence on the dynamics of concentration and stability of attention in combatants. During the research period, the indicators of all three groups significantly ($p < 0.05$) improved by 3.78 %, 3.29 %, and 3.31 %, respectively (Table 2). The indicators for all three groups at the end of the research corresponded to the average level of concentration and attention sustainability. The overall level of intellectual working capacity also significantly improved in all research groups during their PESR: the difference between the indicators at the initial and final stages was 76.67 points, 83.80 points, and 87.53 points, respectively. After the research, the intellectual working capacity in all groups was above average. The results obtained can be attributed to the positive effect of the proposed complex on the functional capabilities of the cardiovascular system, resulting in improved blood flow efficiency and better oxygenation of the brain, which in

Table 1. Dynamics of indicators of physical working capacity in combatants during their PESR (n = 58)

Groups	At the initial stage	At the final stage	Reliability of the difference	
	Mean \pm m	Mean \pm m	t	p
Romberg test, s				
Group 1	13.15 \pm 0.77	15.87 \pm 0.65	2.70	$p < 0.05$
Group 2	12.67 \pm 0.81	14.39 \pm 0.76	1.55	$p > 0.05$
Group 3	11.94 \pm 0.82	13.51 \pm 0.80	1.37	$p > 0.05$
Ruffier index, c. u.				
Group 1	8.27 \pm 0.18	7.44 \pm 0.17	3.35	$p < 0.01$
Group 2	9.48 \pm 0.16	8.61 \pm 0.17	3.73	$p < 0.01$
Group 3	10.37 \pm 0.19	9.46 \pm 0.18	3.48	$p < 0.01$
Stange test, s				
Group 1	45.17 \pm 2.74	57.18 \pm 2.65	3.15	$p < 0.01$
Group 2	42.39 \pm 2.93	53.88 \pm 2.89	2.79	$p < 0.05$
Group 3	39.67 \pm 3.04	48.74 \pm 2.91	2.16	$p < 0.05$

Legend: Mean – arithmetic mean, m – error of the arithmetic mean; t – Student's t-test value; p – confidence interval

Source: compiled by the authors of this study

Table 2. Dynamics of indicators of intellectual working capacity and emotional state in combatants during their PESR (n = 58)

Groups	At the initial stage	At the final stage	Reliability of the difference	
	Mean \pm m	Mean \pm m	t	p
Concentration and sustainability of attention (Bourdon-Anfimov correctional test), %				
Group 1	85.38 \pm 0.96	89.61 \pm 0.91	2.86	p<0.05
Group 2	84.83 \pm 0.92	88.12 \pm 0.91	2.54	p<0.05
Group 3	86.63 \pm 0.88	89.94 \pm 0.89	2.64	p<0.05
Level of intellectual working capacity (Bourdon-Anfimov correctional test), points				
Group 1	1275.18 \pm 25.29	1351.85 \pm 24.86	2.16	p<0.05
Group 2	1262.37 \pm 27.04	1346.17 \pm 26.59	2.21	p<0.05
Group 3	1271.09 \pm 26.93	1358.62 \pm 26.61	2.31	p<0.05
Emotional state (WAN methodology), points				
Group 1	5.67 \pm 0.37	7.02 \pm 0.35	2.65	p<0.05
Group 2	5.44 \pm 0.41	6.85 \pm 0.40	2.46	p<0.05
Group 3	5.26 \pm 0.34	6.37 \pm 0.36	2.24	p<0.05

Legend: Mean – arithmetic mean, m – error of the arithmetic mean; t – Student's t-test value; p – confidence interval

Source: compiled by the authors of this study

turn affects the concentration, sustainability of attention, and productivity (working capacity) of the individual.

Evaluation of the dynamics of combatants' emotional state characteristics revealed a significant ($p < 0.05$) improvement in their emotional state during the process of PESR in all groups. The improvement was 1.35 points in Group 1, 1.14 points in Group 2, and 1.11 points in Group 3. The research demonstrated the effectiveness of substantiated means in restoring both physical and intellectual working capacity in combatants during their PESR.

DISCUSSION

The relevance of the research is confirmed by the publications of other scholars [24], who argue that the outbreak of hostilities in Ukraine has led to the actualization of rehabilitation and restorative areas in the field of physical education, as the problem of returning combatants to everyday life after participation in hostilities is urgent. These areas are based on the consistent use of various physical education and therapeutic activities and means [25, 26]. The use of means to restore working capacity under martial law and in the absence of systematic vocational rehabilitation is particularly relevant, as it is necessary to ensure the social integration of combatants into their social environment.

The obtained results confirm the evidence of other scientists regarding the positive impact of the complex use of physical exercises, particularly slow running, in combination with medical and biological means of restoring physical and intellectual working capacity during PESR. According to scientific research [27], the effectiveness of methods for restoring working capacity varies. In particular, the scientific literature indicates that 44.2 % of experts note the low to average effectiveness of pharmacological

means in restoring the working capacity of security and defense sector employees under service conditions, mainly through the use of various drugs [28]. According to experts, physical means are more effective, including the use of temperature procedures, such as hydrotherapy and massage [29]. These means of restoring working capacity are based on changes in the body's reactivity, increasing its resistance to stressful environmental factors, acting through the skin by physically irritating receptors. As a result, there is a reflex effect on the activity of the muscular system, internal organs, and the central nervous system. The high effectiveness of hydrotherapy (shower, bath, steam bath) is emphasized by 40.3 % of experts and 54.8 % – its average effectiveness [15].

A survey of specialists from medical institutions and organizations suggests that after treatment in a hospital, a significant number of combatants still need psychological support and restoration of the body's functional capacity. PESR for combatants after injuries and severe contusions can last from 1-2 to 5-6 months or longer. The complex of rehabilitation treatment measures is designed to restore the bodies of combatants after the acute period, aiming to prevent primary disability or further deterioration of health, while also improving overall physical condition [1, 3, 4]. Injuries and prolonged hospitalization with restricted mobility can lead to muscle atrophy and weakening, which in turn prevent entire movement, activity, and overall well-being. The results of our research do not contradict the findings of other scientists [30], but rather expand and supplement them.

CONCLUSIONS

Based on the study of scientific, educational, and methodological literature, the article highlights the

peculiarities of using means to restore the physical and intellectual working capacity in combatants during their PESR, characterizing the specifics of pedagogical, biological, medical, and psychological means of restoring working capacity. It has been established that the complex application of dosed physical exercises in combination with means of restoring physical and intellectual working capacity allows to improve the functional state of the musculoskeletal system, cardiovascular and respiratory systems, to positively influence the intellectual and emotional spheres of combatants, to achieve the optimal level of personal adaptation and development of professionally essential traits that ensure military and professional working capacity and longevity. It has been found that, during the research, all three groups of combatants demonstrated a significant ($p < 0.05-0.01$) improvement in the Ruffier index (per c.u.).

It has been established that in the course of the research in all three groups of combatants there was a significant ($p < 0.05-0.01$) improvement of the Romberg test indicators, which allowed to estimate the functional state of the musculoskeletal system, (by 1.57-2.36 s), the Ruffier index (by 0.83-0.91 c. u.), the Stange test (by 9.07-12.01 s), concentration and sustainability of attention (by 3.31-3.78 %), intellectual working capacity (by 76.67-87.53 points), emotional state (by 1.11-1.35 points). The obtained results are recommended for use in the course of PESR in security and defense sector of Ukraine.

PROSPECTS FOR FURTHER RESEARCH

We see prospects for further research in substantiating the means of restoring the working capacity in combatants with other diagnoses during their PESR.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article

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VARIA



Summary of the 2nd National Scientific Conference 'Complementary Disciplines of Physiotherapy' John Paul II University in Biala Podlaska, 22nd and 23rd May 2025

Joanna Baj-Korpak, Monika Kadłubowska, Kamil Zaworski, Dominika Wysokińska

On 22nd and 23rd May 2025, the 2nd National Scientific Conference 'Complementary Disciplines of Physiotherapy' took place in Biala Podlaska. The organiser of this event was Department of Physiotherapy of John Paul II University in Biala Podlaska. The conference was held under the honorary patronage of the Rector of John Paul II University in Biala Podlaska, Prof. Jerzy Nitychoruk, PhD, and the President of the National Council of the Polish Society of Physiotherapy, Prof. Andrzej Myśliwiec, PhD. The event was organised under the media patronage of the journal "Acta Balneologica".

Scientific Committee:

President:

associate prof. Elżbieta Rutkowska, PhD – John Paul II University in Biala Podlaska

Members:

prof. Andrzej Myśliwiec, PhD – President of Polish Society of Physiotherapy

prof. Krystyna Chmiel, PhD – John Paul II University in Biala Podlaska

prof. Janusz Kirenko, PhD – Maria Curie-Skłodowska University in Lublin

prof. Robert Latosiewicz, PhD – prof. emeritus, Medical University of Lublin

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associate prof. Barbara Bergier, PhD – John Paul II University in Biala Podlaska

associate prof. Mariusz Drużbicki, PhD – University of Rzeszów / John Paul II University in Biala Podlaska

associate prof. Krystyna Gawlik, PhD – John Paul II University in Biala Podlaska

Elżbieta Horoszewicz, PhD Eng. – University of Siedlce

Marian Stelmach, PhD – John Paul II University in Biala Podlaska





Organising Committee

President:

Joanna Baj-Korpak, PhD – John Paul II University in Biala Podlaska

Members:

Dominika Wysokińska, PhD – John Paul II University in Biala Podlaska

Kamil Zaworski, PhD – John Paul II University in Biala Podlaska

Monika Kadłubowska, MA – John Paul II University in Biala Podlaska

Justyna Chmiel, PhD – Medical University of Lublin

Kamil Chołuj, PhD – Medical University of Lublin

Renata Rzeczowska, MA – secretary – John Paul II University in Biala Podlaska

The conference was opened with an introductory word by the President of the Scientific Committee, associate prof. Elżbieta Rutkowska, PhD, together with the Rector, Prof. Jerzy Nitychoruk, PhD.

The proceedings began with a plenary session, which included three presentations.

- associate prof. Beata Jurkiewicz, PhD, MD – Head of the Department of Paediatric Surgery and Urology, Centre of Postgraduate Medical Education, Warsaw
'Urolithiasis in children as a civilisation disease. The latest minimally invasive treatment techniques'
- Anna Morawska-Borowiec, MA – President of the Board of the 'Faces of Depression' Foundation
'Faces of depression. I do not judge. I accept'
- Krzysztof Robaczyński, MA – 'Fuga Mundi' Foundation
'Selected professional aspects of activating people with disabilities'

On the first day, papers were presented in two scientific sessions in which the authors covered a range of topics, including communication with a patient, medical-legal aspects of professional confidentiality, psychological mechanisms in the activation of people with disabilities, the role of rehabilitation in the process of returning consciousness to comatose patients, social attitudes of Polish and Ukrainian students towards wheelchair users, motor activation, contemporary trends in rehabilitation, including robotics in rehabilitation and other issues. After each scientific session, there was time for discussion and talks during which the participants highlighted the high level of the papers presented.

Following the scientific sessions, the conference participants had the opportunity to take part in one of the two offered workshops:

- *Low Pressure Fitness – a form of core muscle training using specific breathing techniques,*
- *Augmentative and Alternative Communication (AAC).*

At the end of the first day of the conference, the conference participants were invited to a dinner. This social gathering was an opportunity to engage in an exchange of ideas and strengthen inter-university ties.

The next day's proceedings consisted of three sessions – including one poster session aimed at young scientists (students and PhD students). The scientific session covered topics in animal-assisted therapy and physiotherapy of animals, oncological prehabilitation, implementation of mobile rehabilitation teams in Ukraine, technical/engineering support for physiotherapy and many other topics.

During the poster session, 20 posters were presented, whose authors discussed therapeutic problems in their selected cases. The session included a competition with prizes. The competition committee distinguished the poster 'The influence of complex rehabilitation with the use of modern technology on step length and TUG test results in patients after ischaemic stroke' by Marek Piela and Maciej Tomik.

Representatives of Medical Universities, University of Szczecin, University of Warmia and Mazury in Olsztyn, University of Siedlce, University of Lower Silesia in Wrocław, University of Białystok, Jerzy Kukuczka Academy of Physical Education in Katowice, International Academy of Applied Sciences in Łomża, East European Academy of Applied Sciences in Białystok, Ivan Horbachevsky Ternopil National Medical University, Lesya Ukrainka Volyn National University, Clinic for Adults 'Budzik' in Warsaw, Centre of Postgraduate Medical Education in Warsaw, St. Jadwiga Queen Clinical Regional Hospital No. 2 in Rzeszów, 'Fuga Mundi' Foundation, 'Faces of Depression' Foundation, and practitioners from Poland and abroad participated in the exchange of views and experiences in the field of physiotherapy, animal assisted therapy, psychology and pedagogy.

The official summary and conclusion of the proceedings was made by the President of the Scientific Committee, associate prof. Elżbieta Rutkowska, PhD, together with the President of the Organising Committee, Joanna Baj-Korpak, PhD.

It should be noted that the 2nd National Scientific Conference 'Complementary Disciplines of Physiotherapy' was organised as part of a project subsidised by the state budget, awarded by the Minister of Science within the framework of the Excellent Science II Programme. Amount of funding: PLN 58,410.00, total value of the project: PLN 65,010.00 – in accordance with the agreement number KONF/SP/0105/2024/02.

The exhibitors, journals and publishers promoting the conference were also a huge support of the event: Indiba, FizjoActiv, MedenInmed, BTL, Astar, MÓWik, Publishing House of John Paul II University in Białą Podlaską, ALUNA Publishing House.

On behalf of the conference organisers, we would like to thank all the speakers and numerous participants.

We warmly invite you to participate in future editions of the conference.



Wielka Księga Balneologii, Medycyny Fizykalnej i Uzdrowiskowej

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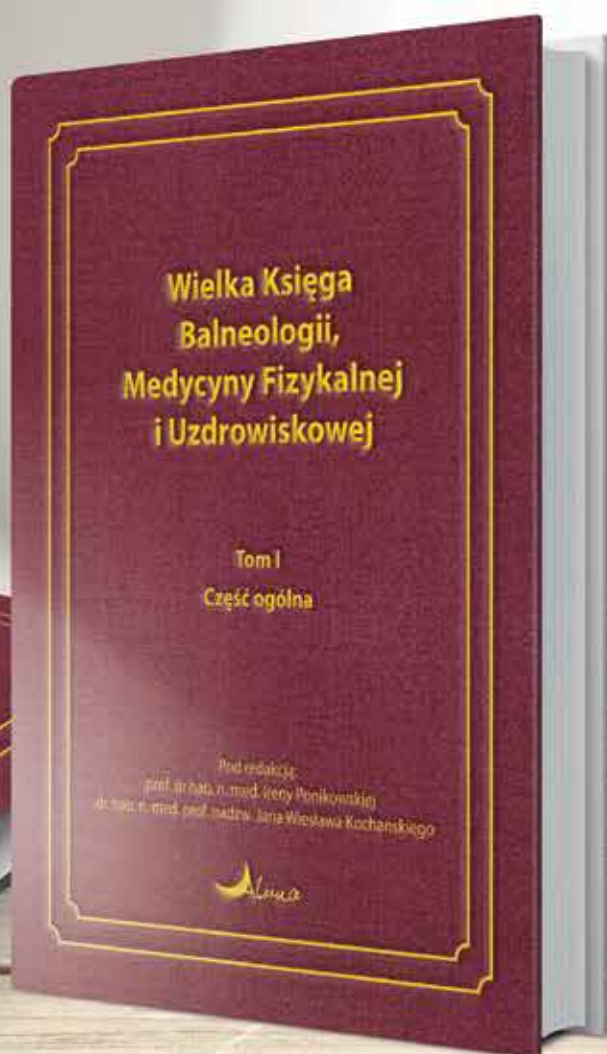
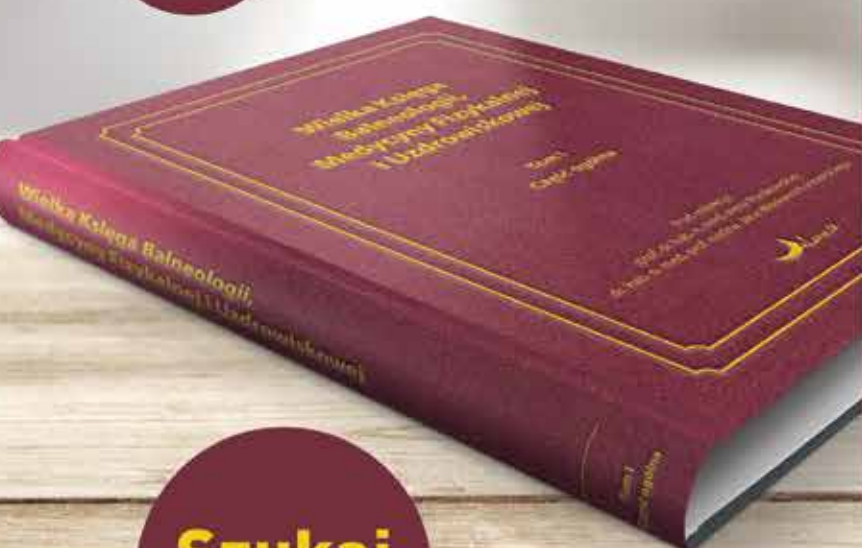
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dr. hab. n. med. prof. nadzw. Jana Wiesława Kochańskiego

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