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ANALYTICAL AND STATISTICAL ANALYSIS OF THE TECHNICAL PREPARATION OF HIGHLY QUALIFIED FEMALE ATHLETES WHO SPECIALIZE IN JUDO

According to the results of the analysis of scientific and methodical, special and reference literature (monitoring of Internet sources), the members of the research group established, that there is an insufficient number of scientific and methodological works devoted to the issue of qualitative and quantitative analysis of indicators of technical and tactical preparedness of highly qualified female athletes who specialize in sports types of struggle (martial arts). This, in turn, requires further research and emphasizes the relevance and practical component of the chosen direction of scientific research.

The purpose of the study is – is an analysis of the technical and tactical arsenal of highly qualified judoka (women) champions and medalists of the 2022 World Championship. Research methods: abstraction, measurement, expert evaluation, survey, comparison, observation, etc. In addition, the personal experience of organizing a system of long-term training of highly qualified wrestlers was used.

As a result of the theoretical study, the members of the research group conducted an analysis of the technical and tactical arsenal of female athletes (highly qualified), who specialize in judo - champions and medalists of the 2022 World Championship (Tashkent, Uzbekistan). Analyzing the results of the theoretical research, it is expedient to update the existing programs (pedagogical models, organizational and pedagogical conditions, etc.) of long-term training of female athletes in accordance with today's requirements, who specialize in judo (taking into account the stages of their long-term training).

The results of the research are incorporated into the system of long-term training of female athletes who specialize in judo: Vinnitsia, Kyiv, Dnipropetrovsk, Zaporizhzhya and Kharkiv regions. Prospects for further research in the chosen field of scientific research include an analytical review of the technical and tactical preparedness of highly qualified athletes who specialize in sambo wrestling (sports sambo, combat sambo) based on the results of their performance at the 2022 World Championship.

Keywords: *analytics, judo, competitive activity, qualification, rating, statistics, technical readiness, technical arsenal, comparative analysis, female judokas*

Хацаюк Олександр, Солodka Оксана, Яковлів Володимир, Миронов Юрій, Кусовська Ольга, Мердов Станіслав, Белошенко Юрій. Аналітично-статистичний аналіз технічної підготовленості спортсменок високої кваліфікації, які спеціалізуються в дзюдо. *Відповідно до результатів аналізу науково-методичної, спеціальної та довідкової літератури (моніторингу Інтернет-джерел) членами науково-дослідної групи встановлено, що питанням якісного та кількісного аналізу показників техніко-тактичної підготовленості спортсменок високої кваліфікації, які спеціалізуються в одноборствах присвячено недостатню кількість науково-методичних праць. Це у свою чергу потребує подальших досліджень та підкреслює актуальність і практичну складову обраного напрямку наукової розвідки.*

Головною метою дослідження є визначення техніко-тактичного арсеналу спортсменок, які спеціалізуються в дзюдо високої кваліфікації – чемпіонок та призерок чемпіонату світу 2022 року (м. Ташкент, Узбекистан). Під час теоретичного дослідження були використані наступні методи: аксіоматичні, ідеалізації, історичні і логічні, сходження від конкретного, формалізації тощо. Крім цього, було використано досвід багаторічної підготовки однокласниць різних вікових груп (вагових категорій).

В результаті теоретичного дослідження членами науково-дослідної групи проведено аналіз техніко-тактичного арсеналу спортсменок, які спеціалізуються в дзюдо високої кваліфікації – чемпіонок та призерок чемпіонату світу 2022 року (м. Ташкент, Узбекистан). Аналізуючи результати теоретичного дослідження доцільним є оновлення відповідно до вимог сьогодення існуючих програм (педагогічних моделей, організаційно-педагогічних умов тощо) багаторічної підготовки спортсменок, які спеціалізуються в дзюдо (із урахуванням етапів їхньої багаторічної підготовки).

Результати дослідження впроваджені у систему багаторічної підготовки спортсменок, які спеціалізуються в дзюдо: Вінницької, Київської, Дніпропетровської, Запорізької та Харківської областей. Перспективи подальших досліджень у обраному напрямі наукової розвідки передбачають проведення аналітичного огляду техніко-тактичної підготовленості спортсменів високої кваліфікації, які спеціалізуються в боротьбі самбо (спортивний та бойовий розділи) за підсумками їхнього виступу у «Чемпіонаті світу 2022».

Ключові слова: аналітика, дзюдо, змагальна діяльність, кваліфікація, рейтинг, статистика, технічна підготовленість, технічний арсенал, порівняльний аналіз, дзюдоїстки

Articulation of issue and literature route. According to the reports of the leading analysts of martial arts (A. Bazdrev, I. Babadzhanov, N. Gorshenin, F. Uspensky, O. Khatsaiuk), as well as leading trainers in wrestling sports (A. Alekseev, K. Ananchenko, O. Zaika, A. Pyrog, M. Khasanov, V. Shandrygos) – today, judo is a fairly effective means of self-defense, as well as a modern system of physical and harmonious development of the personality.

It should be noted that competitions of various ranks with the participation of the world's leading judokas attract the attention of a wide range of spectators. It should be noted that competitions of various ranks with the participation of the world's leading judokas attract the attention of a wide range of spectators. In turn, the help of patrons, as well as modern advertising activities contribute to the formation of a prize fund, which is the motivation of sportsmen and sportswomen for professional self-development.

Thus, in today's realities, it is relevant to conduct an appropriate analytical and statistical study in the direction of technical and tactical preparation of highly qualified female judokas, which will ensure high-quality and comprehensive training of Ukrainian sportswomen who specialize in single combat (different age groups, weight categories) for competitions of various ranks, in particular - to the world championships, the Olympic Games, etc.

The study was carried out in accordance with the plan of scientific research and research and development works of the Department of Boxing, Wrestling and Weightlifting of the Prydniprovsk State Academy of Physical Culture and Sports, as well as specialized departments of higher education institutions (higher military educational institutions) in accordance with agreements on interdepartmental cooperation (initiative project "Judo Championship", 2022).

Analysis of literature sources (1st stage, September – October 2022) allowed to identify the following martial arts specialists: V. Sazonov [1], V. Perebiynis [2], H. Miyata, D. Kobayashi, A. Sonoda, H. Motoike, S. Akatsuka [3], O. Khatsaiuk, S. Cherednichenko, A. Dyachenko, N. Partiko, A. Korolchuk, D. Stetsenko, A. Antonyuk [4], Yu. Martynov, A. Krylov [5] and other scientists and practitioners (G. Arzyutov, K. Ananchenko, N. Boychenko, S. Kurylyuk, O. Prymakov, V. Sazonov), who in their works highlighted the peculiarities of the organization of the system of long-term training of highly qualified sportsmen and women who specialize in judo (and other sports of wrestling).

The work of scientists: A. Dyachenko, I. Raitarovska [6], S. Ilchenko, O. Solodka, A. Fedorishko, Sh. Kovach, O. Kravchenko, O. Ponomarenko [7], Yu. Palamarchuk, O. Solodka, O. Kusovska, P. Mamotko, H. Gavrish, R. Kokhanovskiy [8], A. Zabora, S. Zamrozovych-Shadrina, V. Kolesnikov, O. Khatsaiuk, R. Pavlov [9], O. Solodka, V. Bilobrov, O. Nesterov, O. Kusovska, A. Korolov, M. Makhinko, O. Khatsaiuk [10] and other specialists (S. Ilchenko, I. Kovalev, M. Latyshev, M. Lyannoi, M. Linets, O. Morgunov) – which reveal the peculiarities of the organization of analytical and statistical studies of the technical and tactical preparedness of female athletes who specialize in single combat (martial arts).

According to the results of the analysis of the scientific-methodical, special and reference literature by the members of the research group, it was established that insufficient number of scientific-methodical papers were devoted to the issue of qualitative and quantitative analysis of indicators of technical and tactical preparedness of highly qualified female athletes who specialize in single combat. This, in turn, requires further research and emphasizes the relevance and practical component of the chosen direction of scientific research.

The purpose of the study is – is an analysis of the technical and tactical arsenal of highly qualified judoka champions and medalists of the 2022 World Championship.

To achieve the goal of scientific research it was planned to solve the following tasks:

- to conduct an analysis of scientific and methodological literature in the direction of comprehensive provision of a system of long-term training of highly qualified sportsmen and women who specialize in judo (and other sports of wrestling);
- to carry out an analysis of special and reference literature in the direction of the organization of analytical and statistical studies of the technical and tactical preparedness of sportswomen who specialize in single combats;
- to determine and analyze the quantitative and qualitative characteristics of the competitive bouts of the champions and medalists of the 2022 World Judo Championship (Tashkent, Uzbekistan).

Research methods: abstraction, measurement, expert evaluation, survey, comparison, observation, etc. In addition,

the personal experience of organizing a system of long-term training of highly qualified wrestlers was used.

Presentation of the main study material. The empirical research is organized in two stages (September-December 2022). In order to qualitatively work out the tasks provided for in the research plan and achieve its main goal, a research group was created consisting of: O. Khatsaiuk, O. Solodka, V. Yakovliv, Yu. Myronov, O. Kusovska, S. Merdov, Yu. Beloshenko (leading scientists and practitioners in the chosen field of scientific research).

Analyzing the protocols of the 2022 World Judo Championship (Tashkent, Uzbekistan [11]) it was established that athletes from 5 continents (82 countries) took part in the highest-level competition, the total number of participants was 571, including: 310 judokas and 261 judoka). In the overall medal tally, the national team of Japan won gold, judokas from Brazil won silver, and representatives of the national team of Uzbekistan won bronze. The Ukrainian team took 20th place at the above competitions (in 2021, at the highest-level competitions, the national team of Ukraine took 18th place, which indicates a deterioration in the indicators of competitive activity).

In the process of further research and analytical work (November-December 2022), on the basis of the results obtained at the end of the first stage, as well as in accordance with the results of previous studies [5-9], the members of the research group (RG) conducted a comparative analysis of technical indicators - tactical preparation of female champions and medalists of the 2022 World Judo Championship (Table 1).

The most effective female athletes (judokas) who won by the "Ippon" rating are: NIIZOE Saki (JPN, performed 6 "Ippon") and HORIKAWA Megumi (JPN), TIMO Barbara (POR), MATIC Barbara (CRO), AGUIAR Mayra (BRA) (performed 5 "Ippon") [11]. In turn, the most "Waza-ari" scores during the competitive bouts were received by female athletes: TSUNODA Natsumi (JPN), ABE Uta (JPN), DICKO Romane (FRA), TOMITA Wakaba (JPN) (4 "Waza-ari") [11].

Table 1

Indicators of technical and tactical preparedness of highly qualified female athletes who specialize in judo (champions and medalists of the 2022 World Cup)

Place at the competition	Surname and first name of the athlete (country)	Technical and tactical components					
		Ippon	Waza-ari	P (numer.)	Total number of matches	Total time of the competitive match	GS (numer.)
1	2	3	4	5	6	7	8
Weight category 48 kg (total number of participants 38 women)							
1st place	TSUNODA Natsumi (JPN)	4	4	2	5	00:05:49	-
2nd place	MENZ Katharina (GER)	3	-	1	6	00:13:45	1
3rd place	SCUTTO Assunta (ITA)	4	1	4	5	00:11:28	-
3rd place	ABUZHAKYNOVA Abiba (KAZ)	3	2	6	5	00:20:03	2
Weight category 52 kg (total number of participants 34 women)							
1st place	ABE Uta (JPN)	3	4	5	5	00:17:50	1
2nd place	GILES Chelsie (GBR)	3	2	3	5	00:16:04	1
3rd place	KRASNIQI Distria (KOS)	4	-	3	5	00:11:54	2
3rd place	BUCHARD Amandine (FRA)	4	2	3	5	00:22:26	2
Weight category 57 kg (total number of participants 42 women)							
1st place	SILVA Rafaela (BRA)	4	-	5	5	00:13:47	1
2nd place	FUNAKUBO Haruka (JPN)	4	-	2	5	00:13:35	-
3rd place	KLIMKAIT Jessica (CAN)	3	2	5	5	00:17:45	-
3rd place	LKHAGVATOGOO Enkhriilen (MGL)	4	-	9	5	00:28:45	2
Weight category 63 kg (total number of participants 41 women)							
1st place	HORIKAWA Megumi (JPN)	5	2	4	5	00:15:08	-
<i>continuation of table 1</i>							
1	2	3	4	5	6	7	8
2nd place	BEAUCHEMIN-PINARD Catherine (CAN)	4	-	2	5	00:09:11	-
3rd place	DEKETER Manon (FRA)	4	1	1	5	00:13:43	-
3rd place	TIMO Barbara (POR)	5	1	3	6	00:23:24	2

Weight category 70 kg (total number of participants 44 women)							
1st place	MATIC Barbara (CRO)	5	-	2	5	00:16:26	2
2nd place	CVJETKO Lara (CRO)	4	-	8	5	00:28:57	3
3rd place	NIIZOE Saki (JPN)	6	1	5	6	00:22:13	1
3rd place	VAN DIJKE Sanne (NED)	4	1	5	5	00:21:54	2
Weight category 78 kg (total number of participants 33 women)							
1st place	AGUIAR Mayra (BRA)	5	-	4	5	00:13:47	-
2nd place	MA Zhenzhao (CHN)	4	2	5	5	00:17:20	1
3rd place	LYTVYENENKO Yelyzaveta (UKR)	4	-	3	5	00:10:24	-
3rd place	PACUT-KLOCZKO Beata (POL)	3	2	7	5	00:17:54	1
Weight category +78 kg (total number of participants 29 women)							
1st place	DICKO Romane (FRA)	2	4	2	4	00:09:25	-
2nd place	SOUZA Beatriz (BRA)	3	-	6	4	00:12:19	1
3rd place	TOMITA Wakaba (JPN)	2	4	2	5	00:13:35	1
3rd place	TOLOFUA Julia (FRA)	3	-	5	5	00:20:19	2

Note: 1) in the process of research and analytical work, the official protocols of the "CHS-2022" were used, as well as the video archive of the website of the International Judo Federation (IJF) [11]; 2) column 3 defines the total number of Ippon scores; 3) column 4 defines the total number of Waza-ari grades; 4) column 5 defines the total number of penalty points; 5) in column 6, the total number of held competitive fights is determined; 6) column 7 defines the total time spent on all competitive matches; 7) column 8 defines the total number of use cases to determine the winners of extra time (GS)

It is interesting that the judokas – finalists of the 2022 World Championship: MENZ Katharina (GER), DEKETER Manon (FRA) did not receive the slightest warning for passivity, violation of wrestling rules, etc. On the contrary, the most comments and warnings (passive conduct of the fight, violation of the rules of the fight, etc.) were received by athletes: LKHAGVATOGOO Enkhriilen (MGL) – 9 warnings, CVJETKO Lara (CRO) – 8 warnings, ABUZHAKYNOVA Abiba (KAZ) and SOUZA Beatriz (BRA) – 6 warnings each.

In the process of further analytical and statistical analysis by RG members, it was established that the most victories in extra time (during the fight in "GS") were won by judokas: CVJETKO Lara (CRO) – 3 «GS», ABUZHAKYNOVA Abiba (KAZ), KRASNIQI Distria (KOS), BUCHARD Amandine (FRA), LKHAGVATOGOO Enkhriilen (MGL), TIMO Barbara (POR), VAN DIJKE Sanne (NED) and TOLOFUA Julia (FRA) – spent on 2 «GS». In addition, it is appropriate to single out the following athletes: LKHAGVATOGOO Enkhriilen (MGL) and CVJETKO Lara (CRO), who collectively spent more than 28 minutes, 30 seconds on the mat during the competition. Conversely, judoka TSUNODA Natsumi (JPN) had the shortest time (5 min 49 sec) on the mat, which indicates a high individual technical and tactical preparedness, which ensured that she won the gold award (the title of world champion in judo).

Quantitative and qualitative characteristics of competitive activities of highly qualified athletes who specialize in judo according to individual weight categories are given in the table. 2.

Table 1

Quantitative and qualitative characteristics of the competitive activity of female judokas, champions and medalists of the 2022 World Championship

Weight categories	Technical and tactical components (total sum)					
	Numer. Ippon	Numer. Waza-ari	Numer. P	Total number of matches	Total fight time	GS (Numer)
1	2	3	4	5	6	7
48 kg	14/10 (-4)	7/5 (-2)	13/11 (-2)	21/16 (-5)	00:51:05/ 00:58:07 (Δt-00:07:02)	3/3 (=)
<i>continuation of table 2</i>						
52 kg	14/11 (-3)	8/5 (-3)	14/8 (-6)	20/17 (-3)	01:08:14/ 01:07:02 (Δt-00:01:12)	6/5 (-1)
57 kg	15/8 (-7)	2/6 (4)	21/8 (-13)	20/16 (-4)	01:13:52/ 01:05:38 (Δt-00:08:14)	3/6 (3)
63 kg	18/11 (-7)	4/6 (2)	10/10 (=)	21/19 (-2)	01:01:26/ 01:16:21 (Δt-00:14:55)	2/8 (6)

70 kg	19/8 (-11)	2/10 (8)	20/19 (-1)	21/18 (-3)	01:29:30/ 01:56:22 (Δt -00:26:52)	8/6 (-2)
78 kg	16/11 (-5)	4/5 (1)	19/10 (-9)	20/16 (-4)	00:59:25/ 00:45:05 (Δt -00:14:20)	2/2 (=)
+78 kg	10/12 (2)	8/4 (-4)	15/6 (-9)	19/16 (-3)	00:55:38/ 00:57:10 (Δt +00:01:32)	4/3 (-1)

Note: 1) column 2 defines the total number of Ippon scores; 2) column 3 defines the total number of Waza-ari grades; 3) column 4 defines the total number of warnings; 4) in column 5, the total number of held competitive fights is determined; 5) in column 6, the total time spent on all competitive fights is determined; 6) column 7 defines the total number of cases of use for determining the winners of extra time (GS); 8) through - "/" the indicators of the competitive activity of elite judokas (athletes) according to the results of the XXXII Summer Olympic Games - 2020 [6] (held in 2021 in connection with the coronavirus pandemic)

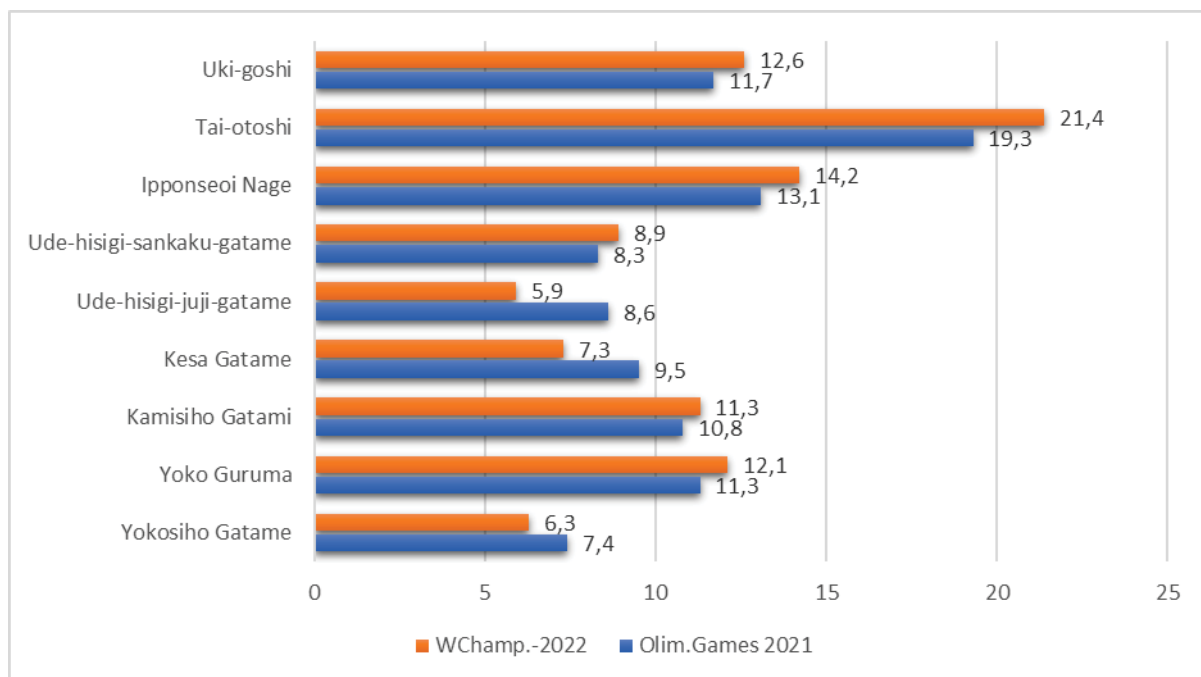


Fig. 1. The most effective technique (in %) demonstrated by the finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan)

Analyzing the official protocols [11] of the above-mentioned competitions of the highest rank, the members of the NDG determined the largest number of female athletes (judokas) – 44 women, weight category up to 70 kg. Conversely, the weight category up to 78 kg turned out to be the least numerous – 33 women.

The most effective technique in the percentage (%) ratio of female champions and medalists of the 2022 World Judo Championship, regardless of weight categories, is shown in Fig. 1 (official competition results [11] were used).

Conclusion. As a result of a theoretical study, members of the research group conducted an analysis of the technical and tactical arsenal of highly qualified judo athletes - champions and medalists of the 2022 World Championship (Tashkent, Uzbekistan).

Analyzing the results of the theoretical research, it is advisable to update the existing programs (pedagogical models, organizational and pedagogical conditions, etc.) of long-term training of female athletes who specialize in judo (taking into account the stages of their long-term training), which should provide for:

1) optimization of indicators of technical and tactical preparedness of female athletes (balanced increase in training load; gradual increase in the density and density of training loads; increasing the volume of the training load taking into account the individual and typological characteristics of judokas and taking into account the corresponding stage; gradual increase in the time of educational and training classes; balanced and gradual increase in the intensity of the training load; gradual increase in the number of technical and tactical actions per unit of time);

2) introduction of modern and effective means of physical and special physical preparation into the educational and training process of judokas;

3) organization of a system of physical therapy (ergotherapy) for judokas with the involvement of relevant specialists;

4) improvement of the subsystem of biochemical control (development and improvement of explosive force); development and improvement of flexibility (increase in angular movements in the joints); development and improvement of vestibular stability (optimization of the acceleration of the general center of mass and individual biolinks); development and improvement of speed

and strength of technical and tactical actions (separate technique), which will contribute to increasing the performance of Ukrainian judokas in competitions of various ranks.

The results of the research are incorporated into the system of long-term training of female athletes who specialize in judo: Vinnitsia, Kyiv, Dnipropetrovsk, Zaporizhia, and Kharkiv regions.

Prospects for further research in the chosen field of scientific research include an analytical review of the technical and tactical preparedness of highly qualified athletes who specialize in sambo wrestling based on the results of their performance at the 2022 World Championship.

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THE INFLUENCE OF SWIMMING CLASSES ON THE PHYSICAL CONDITION OF STUDENTS OF HIGHER EDUCATION INSTITUTIONS

The article reveals the influence of swimming lessons on the physical condition of students of higher education institutions. The concept of physical condition of higher education graduates is defined. Indicators of the state of health, physical fitness and the attitude of higher education students to swimming classes in a pedagogical institution of higher education were studied, including the analysis and assessment of passive attitude to attending physical education classes and the reasons that determine such an attitude. In order to improve the physical condition of students, as well as to eliminate the causes of a passive attitude to physical education classes, general conceptual provisions regarding the formation of innovative technology for teaching swimming to students based on the use of the game method are proposed. Generalization data indicates a significant amount of information and the presence of author's approaches of selective direction in teaching swimming. Their meaningful content is directly related to the general recommendations for teaching swimming, the goals of anticipatory training, the specifics of working with different categories of the population and overcoming practical situations, the general essence of the health-improving effect of swimming on the body students, etc. According to traditional views, confirmed practical and scientific searches, among which is mastery by students systems of motor skills and swimming skills. System-forming tasks for ensuring physical development, raising the level functional capabilities, professional and applied physical fitness, formation factors and pedagogical conditions for ensuring health-saving technologies, maintenance student self-improvement and self-development young people are represented at different levels of research.

Key words: *students, physical education, physical condition, swimming.*

Парахонько В. М., Хіміч І. Ю. Вплив занять плавання на фізичний стан студентів закладів вищої освіти. *В статті розкрито вплив занять з плавання на фізичний стан студентів закладів вищої освіти. Визначено поняття фізичного стану здобувачів вищої освіти. Досліджено показники стану здоров'я, фізичної підготовленості та відношення здобувачів вищої освіти до занять з плавання у педагогічному закладі вищої освіти, включаючи аналіз та оцінку пасивного ставлення до відвідування занять з фізичного виховання та причин, що визначають таке відношення. З метою покращення фізичного стану студентів, а також усунення причин пасивного ставлення до занять фізичного виховання запропоновано загальні концептуальні положення щодо формування інноваційної технології навчання плаванню студентів на основі використання ігрового методу.*

Ключові слова: *студенти, фізичне виховання, фізичний стан, плавання.*

Formulation of the problem. The priorities laid down as a basis for the process of physical education of student youth, provide for her mandatory mastery of the system of applied skills and abilities [1]. Their content is determined by the normative requirements of a healthy lifestyle, historical ideas about a harmoniously developed personality [2]. According to traditional views, confirmed practical and scientific searches, among which is mastery by students systems of motor skills and swimming skills. System-forming tasks for ensuring physical development, raising the level functional capabilities, professional and applied physical fitness, formation factors and pedagogical conditions for ensuring health-saving technologies, maintenance student self-improvement and self-development young people are represented at different levels of research [3]. To date, a significant number of original approaches to teaching swimming and solving a number of scientific and practical tasks of this