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FEATURES OF THE TECHNICAL AND TACTICAL ARSENAL OF HIGHLY QUALIFIED ATHLETES (MEN AND WOMEN) WHO SPECIALIZE IN JUDO

According to the results of the analysis of the scientific and methodological, special and reference literature, the members of the research group established, that the issue of comparative analysis (analytical and statistical review) of the technical and tactical preparation of highly qualified judokas (men and women) – is dedicated to the insufficient number of scientific and methodological works, which requires further research and emphasizes the relevance and practical component of the chosen direction of scientific research.

The main goal of the study is to conduct a comparative analysis of the technical and tactical arsenal of highly qualified judokas (men and women) of the finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan). During the theoretical research, the following methods were used: axiomatic, idealization, historical and logical, descent from the concrete, formalization (mathematical and statistical), etc.

As a result of a theoretical study by the members of the research group (according to the plan of the initiative scientific project "Championship Judo", 2022), a comparative analysis of the technical and tactical arsenal of highly qualified judokas (men and women) of the finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan).

In order to increase the effectiveness of the competitive activity of Ukrainian athletes (men and women) who specialize in judo at various stages of their long-term training, it is advisable to focus the attention of leading coaches on the development of appropriate training programs (pedagogical models) that provide: perfect mastery by judokas of the theoretical aspects of the current rules of judo; increasing the number and variety of attacking and defensive techniques; increasing the reliability coefficient of technical and tactical actions (combinations); development of tactile sensitivity and coordination; formation of high psychophysical readiness for long-term competitive activity (high training loads); the rational construction of a competitive fight taking into account the individual typological (psychophysical) features of the opponents; development of "explosive power", increasing the intensity of the training load; increasing the number of technical and tactical actions (combinations) per unit of time; development and improvement of special physical readiness, etc.

Prospects for further research in the chosen field of scientific research include an analytical review of the technical and tactical preparedness of female athletes who specialize in sambo wrestling (champions and medalists of the 2022 World Championship).

Keywords: analytical review, high qualification, judo, judokas (men, women), research, competitions of higher ranks, comparative analysis, sports of higher achievements, statistics, technical preparation

Маріонда Іван, Самоїленко Оксана, Анацький Руслан, Леоненко Андрій, Чередніченко Сергій, Красілов Андрій. Особливості техніко-тактичного арсеналу спортсменів та спортсменок високої кваліфікації, які спеціалізуються в дзюдо. Відповідно до результатів аналізу науково-методичної, спеціальної та довідкової літератури членами науково-дослідної групи (SRG) встановлено, що питанням порівняльного аналізу (аналітико-статистичного огляду) техніко-тактичної підготовленості дзюдоїстів та дзюдоїсток високої кваліфікації –

присвячено недостатню кількість науково-методичних праць, що потребує подальших досліджень та підкреслює актуальність і практичну складову обраного напрямку наукової розвідки.

Головною метою дослідження є проведення порівняльного аналізу техніко-тактичного арсеналу дзюдоїстів чоловічої та жіночої статі високої кваліфікації фіналістів Чемпіонату світу 2022 року з дзюдо (Ташкент, Узбекистан). Під час теоретичного дослідження були використані наступні методи: аксіоматичні, ідеалізації, історичні і логічні, сходження від конкретного, формалізації (математично-статистичні) тощо.

В результаті дослідно-аналітичної роботи членами SRG (відповідно до плану ініціативного наукового проєкту «ЧС-Дзюдо», 2022 р.) проведено порівняльний аналіз техніко-тактичного арсеналу дзюдоїстів чоловічої та жіночої статі високої кваліфікації фіналістів Чемпіонату світу 2022 року з дзюдо (Ташкент, Узбекистан).

З метою підвищення результативності змагальної діяльності українських спортсменів (чоловіків та жінок), які спеціалізуються в дзюдо на різних етапах їхньої багаторічної підготовки доцільним є зосередження уваги провідних тренерів на розроблення відповідних тренувальних програм (педагогічних моделей), які забезпечують: досконале опанування дзюдоїстами теоретичних аспектів діючих правил дзюдо; збільшення кількості та різноманіття атакуючих і захисних прийомів; підвищення коефіцієнту надійності техніко-тактичних дій (комбінацій); розвиток тактильної чутливості та координації; формування високої психофізичної готовності до тривалої змагальної діяльності (високих тренувальних навантажень); раціональну побудову змагальної сутички із урахуванням індивідуально-типологічних (психофізичних) особливостей суперників; розвиток «вибухової сили», підвищення інтенсивності тренувального навантаження; збільшення кількості техніко-тактичних дій (комбінацій) за одиницю часу; розвиток та удосконалення спеціальної фізичної підготовленості тощо.

Перспективи подальших досліджень у обраному напрямку наукової розвідки передбачають проведення аналітичного огляду техніко-тактичної підготовленості самбісток високої кваліфікації чемпіонок та призерок Чемпіонату світу 2022 з боротьби самбо.

Ключові слова: аналітичний огляд, висока кваліфікація, дзюдо, дзюдоїсти (чоловіки, жінки), дослідження, змагання вищих рангів, порівняльний аналіз, спорт вищих досягнень, статистика, технічна підготовленість

Articulation of issue and literature route. According to a number of analytical and statistical reports of martial arts specialists: A. Alekseeva, K. Ananchenko, N. Boychenko, F. Zagura, I. Matsai, A. Pyroga, O. Khatsaiuk – judo is a fairly popular sport, as well as an effective means of self-defense and physical development of the personality.

It is worth emphasizing that the above-mentioned Olympic sport is practiced on all continents, in addition to this, the International Judo Federation annually holds world championships, continental championships and other competitions of various ranks. It is important for the further development and popularization of judo that this type of wrestling is included in the program of the Summer Olympic Games.

A preliminary analysis of the performance of leading Ukrainian judokas (men and women), members of the national team of Ukraine and other competitors at the World, European and Olympic Games (other competitions of the highest ranks) in recent years shows that the existing programs of their training are not fully measures meet today's requirements. This, in turn, requires the development of relevant pedagogical models, technologies, pedagogical conditions, methods, etc., which will contribute to the success of their competitive activities.

Taking into account the results of the review analysis of the special scientific and methodological literature in the selected research area [1-5], we believe that today it is possible to implement it in practice, provided that a qualitative and effective analytical and statistical analysis of indicators of competitive activity (comprehensive preparedness: technical, tactical, special physical, psychological, etc.) of highly qualified judokas "Top-3" of the world judo rating (male and female).

The study was carried out in accordance with the plan of research and development works: Department of Physical Education, State University, «Uzhhorod National University», Department of pedagogy, andragogy and psychology of Faculty of Nature and Humanitarian Sciences of University Of Prešov, Department of Physical Training and Sports of the National Academy of the National Guard of Ukraine, Department of theory and methods of physical culture of Sumy State Pedagogical University named after A.S. Makarenko, as well as specialized departments of higher education institutions in accordance with agreements on inter-departmental cooperation (World Champ. Judo initiative project, 2022).

Analysis of literature sources (1st stage, September – October 2022) in the chosen direction of scientific research allowed to identify a number of scientists: A. Rovniy, K. Mulyk, V. Perebeynos, K. Ananchenko, V. Pasko, V. Perevoznyk, A. Aleksieiev, V. Dzhyh [6], V. Perebeynos [7], M. Koryukaev, A. Sobolenko [8], Yu. Martynov, A. Krylov [9], R. Mykhaylov [10], who in their works highlighted the topical issues of organizing the system of long-term training of athletes (men and women), who specialize in judo.

No less interesting, performed at a high scientific and methodological level, are the works of scientists: S. Ilichenko, O. Solodka, A. Fedorishko, Sh. Kovach, O. Kravchenko, O. Ponomarenko [11], Yu. Palamarchuk, O. Solodka, O. Kusovska, P. Mamotko, G. Gavrish, R. Kokhanovsky [12], A. Dyachenko, I. Raitarovska [13], O. Solodka, V. Bilobrov, O. Nesterov, O. Kusovska, A. Korolev, M. Makhinko, O. Khatsaiuk [14] – which contain the results of analytical and statistical reports of comparative analyzes of the technical and tactical arsenal of highly qualified judokas (men and women) according to the results of their participation in competitions of the highest ranks.

According to the results of the analysis of scientific-methodical, special and reference literature (monitoring of Internet sources), it was established that an insufficient number of scientific-methodical works is devoted to the issue of comparative analysis (analytical-statistical review) of the technical-tactical preparedness of highly qualified judokas (men and women), which requires further research and emphasizes the relevance and practical component of the chosen direction of scientific research.

The purpose of the study is to conduct a comparative analysis of the technical and tactical arsenal of highly qualified

judokas (men and women) of the finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan).

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

1) to conduct an analysis of special scientific-methodical and reference literature (monitoring of Internet resources) in the direction of organizing a system of long-term training of athletes (men and women) who specialize in judo;

2) to determine the essential and substantive characteristics of the analytical reports of the participation of athletes (men and women) of high qualification who specialize in judo according to the results of their participation in competitions of the highest ranks.

Research methods: axiomatic, idealization, historical and logical, descent from the concrete, formalization (mathematical and statistical), etc. In addition, we used our own experience of organizing a system of multi-year training of athletes who specialize in single combat, in particular, in judo.

Presentation of the main study material. In the dynamics of the second stage of the research (November 2022 January 2023), in accordance with the results obtained at the end of the first stage, as well as in accordance with the results of previous studies [13, 14], competitive fights of judokas (male and women), finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan, table 1).

It should also be noted that athletes from 5 continents participated in the 2022 World Judo Championship (82 countries: African Judo Union 17 countries, 59 participants; Judo Union of Asia 17 countries, 141 participants; European Judo Union 35 countries, 294 participants; Oceania Judo Union 2 countries, 5 participants; Pan-American Judo Confederation 11 countries, 72 participants) [15], the total number of participants was 571 people, including: 310 men and 261 women.

Table 1

Quantitative and qualitative characteristics of competitive bouts of judokas (men and women) finalists of the 2022 World Championship (Tashkent, Uzbekistan, table 1)

Personal place	Surname and first name of the athlete (male, female), country	Technical and tactical components					Total t of fights (hours, minutes, seconds)	GS (the total amount)
		Ippon	Waza-ari	P prevent	The number of fights			
1	2	3	4	5	6	7	8	
Weight category up to 60 kg (men, total number of participants 42)								
I place	Takato Naohisa (JPN)	5	5	-	5	00:10:01	-	
II place	Enkhtaivan Ariunbold (MGL)	4	5	-	5	00:23:07	2	
III place	Smetov Yeldos (KAZ)	-	5	5	5	00:19:06	3	
	Yang Yung Wei (TPE)	-	5	10	5	00:17:42	2	
Total for weight category:		9	20	15	20	01:09:56	7	
Weight category up to 48 kg (women, total number of participants 38)								
I place	TSUNODA Natsumi (JPN)	4	4	2	5	00:05:49	-	
II place	MENZ Katharina (GER)	3	-	1	6	00:13:45	1	
III place	SCUTTO Assunta (ITA)	4	1	4	5	00:11:28	-	
	ABUZHAKYNOVA Abiba (KAZ)	3	2	6	5	00:20:03	2	
Total for weight category:		14	7	13	21	00:51:05	3	
Weight category up to 66 kg (men, total number of participants 44)								
I place	Abe Hifumi (JPN)	-	5	10	5	00:17:28	1	
II place	Maruyama Joshiro (JPN)	-	6	12	6	00:17:33	1	
III place	An Baul (KOR)	3	-	8	5	00:27:18	3	
	Vieru Denis (MDA)	4	-	4	5	00:21:41	1	
Total for weight category:		7	11	34	21	01:24:00	6	
Weight category up to 52 kg (women, total number of participants 34)								
I place	ABE Uta (JPN)	3	4	5	5	00:17:50	1	
II place	GILES Chelsie (GBR)	3	2	3	5	00:16:04	1	
III place	KRASNIQI Distria (KOS)	4	-	3	5	00:11:54	2	
	BUCHARD Amandine (FRA)	4	2	3	5	00:22:26	2	
Total for weight category:		14	8	14	20	01:08:14	6	

Weight category up to 73 kg (men, total number of participants 51)							
I place	Tsend-Ochir Tsog. (MGL)	5	-	5	5	00:17:19	1
II place	Hashimoto Soichi (JPN)	-	-	10	5	00:24:58	4
III place	Cargnin Daniel (BRA)	5	-	6	5	00:13:17	1
	Heydarov Hidayat (AZE)	4	-	5	5	00:24:57	-
Total for weight category:		14	-	26	20	01:20:31	6
Weight category up to 57 kg (women, total number of participants 42)							
I place	SILVA Rafaela (BRA)	4	-	5	5	00:13:47	1
II place	FUNAKUBO Haruka (JPN)	4	-	2	5	00:13:35	-
III place	KLIMKAIT Jessica (CAN)	3	2	5	5	00:17:45	-
	LKHAGVATOGOO Enkhriilen (MGL)	4	-	9	5	00:28:45	2
Total for weight category:		15	2	21	20	01:13:52	3
Weight category up to 81 kg (men, total number of participants 47)							
I place	Grigalashvili Tato (GEO)	-	5	10	5	00:24:51	3
II place	Casse Matthias (BEL)	-	5	-	5	00:28:44	3
III place	Nagase Takanoni (JPN)	4	-	5	5	00:24:41	3
	Borchashvili Shamil (AUT)	4	5	-	5	00:23:09	1
Total for weight category:		8	15	15	20	01:41:25	10
Weight category up to 63 kg (women, total number of participants 41)							
I place	HORIKAWA Megumi (JPN)	5	2	4	5	00:15:08	-
II place	BEAUCHEMIN-PINARD Catherine (CAN)	4	-	2	5	00:09:11	-
III place	DEKETER Manon (FRA)	4	1	1	5	00:13:43	-
	TIMO Barbara (POR)	5	1	3	6	00:23:24	2
Total for weight category:		18	4	10	21	01:01:26	2
Weight category up to 90 kg (men, total number of participants 49)							
I place	Bobonov Davlat (UZB)	-	5	10	5	00:17:02	1
II place	Parlati Christian (ITA)	5	-	6	6	00:22:11	2
III place	Maisuradze Luka (GEO)	-	4	8	5	00:17:17	1
	Bekauri Lasha (GEO)	3	4	-	5	00:14:27	1
Total for weight category:		8	13	24	21	01:10:57	5
Weight category up to 70 kg (women, total number of participants)							
I place	MATIC Barbara (CRO)	5	-	2	5	00:16:26	2
II place	CVJETKO Lara (CRO)	4	-	8	5	00:28:57	3
III place	NIIZOE Saki (JPN)	6	1	5	6	00:22:13	1
	VAN DIJKE Sanne (NED)	4	1	5	5	00:21:54	2
Total for weight category:		19	2	20	21	01:29:30	8
Weight category up to 100 kg (men, total number of participants 41)							
I place	Turobojev Muzaffarb. (UZB)	-	5	10	5	00:17:19	1
II place	Reyes Kyle (CAN)	5	-	5	6	00:13:32	1
III place	Korrel Michael (NED)	-	5	10	4	00:15:08	-
	Kotsoiev Zelym (AZE)	1	3	2	5	00:18:01	-
Total for weight category:		6	13	27	20	01:04:00	2
Weight category up to 78 kg (women, total number of participants 33)							
I place	AGUIAR Mayra (BRA)	5	-	4	5	00:13:47	-
II place	MA Zhenzhao (CHN)	4	2	5	5	00:17:20	1
III place	LYTVYNNENKO Yelyzaveta (UKR)	4	-	3	5	00:10:24	-
	PACUT-KLOCZKO	3	2	7	5	00:17:54	1

	Beata (POL)						
Total for weight category:		16	4	19	20	00:59:25	2
Weight category over 100 kg (men, total number of participants 36)							
I place	Granda Andy (CUB)	5	-	-	5	00:19:18	1
II place	Saito Tatsuro (JPN)	5	-	6	5	00:24:30	3
III place	Tushishvili Guram (GEO)	5	-	5	5	00:13:57	-
	Kim Minjong (KOR)	-	5	-	5	00:12:35	-
Total for weight category:		15	5	11	20	01:10:20	4
Weight category over 78 kg (women, total number of participants 29)							
I place	DICKO Romane (FRA)	2	4	2	4	00:09:25	-
II place	SOUZA Beatriz (BRA)	3	-	6	4	00:12:19	1
III place	TOMITA Wakaba (JPN)	2	4	2	5	00:13:35	1
	TOLOFUA Julia (FRA)	3	-	5	5	00:20:19	2
Total for weight category:		10	8	15	18	00:55:38	4
Notes: 1) in the process of research and analytical work, the official protocols of the "World Championship 2022" were used, as well as the video archive of the website of the International Judo Federation (IJF) [15]; 2) the name of the country participating in the competition is given in accordance with generally accepted international standards of abbreviations; 3) column 3 defines the total number of Ippon scores; 4) column 4 defines the total number of Waza-ari grades; 5) column 5 defines the total number of prevents; 6) in column 6, the total number of held competitive fights is determined; 7) column 7 defines the total time spent on all competitive fights; 8) column 8 defines the total number of use cases to determine the winners of extra time (GS).							

The above-mentioned statistical indicators testify to the high popularity of the studied martial arts on different continents of the world, which indicates the high professional competence of officials (heads of structural units) of the International Judo Federation (IJF).

According to the protocols of the World Championship 2022 [15], the gold award was won by the national team of Japan (5 gold medals, 4 silver medals, 3 bronze medals), "silver" - judokas and judokas of the national team of Brazil (2 gold medals, 1 silver medal, 1 bronze medal), "bronze" – athletes of the national team of Uzbekistan (2 gold medals).

It should be emphasized that the national team of Ukraine at the above-mentioned competitions of the highest rank took 20 overall team place (1 bronze medal E. Lytvynenko, weight category 78 kg; 7 places were occupied by: B. Yadov, weight category 66 kg; Ya. Khamo, weight category + 100 kg; D. Bilodid, weight category 57 kg - official IJF statistics [15]).

In accordance with the plan developed in advance, the next block of our research involved conducting a comparative analysis of the technical and tactical arsenal of highly qualified judokas (men and women) who are finalists of the 2022 World Championship. In order to qualitatively organize a comparative analysis, taking into account the current rules of judo, the members of the scientific research group (SRG) divided judokas (men and women) by weight categories, which are identical in number (7 weight categories for men and women) and typology (table 2).

Table 2

Comparative analysis of quantitative and qualitative characteristics of competitive bouts of judokas (men and women), according to weight categories according to the results of the 2022 World Cup

Weight category (male, female)	General number of participants	Technical and tactical components					
		Ippon	Waza-ari	P prevent	The number of fights	Total t of fights (hours, minutes, seconds)	GS (the total amount)
1	2	3	4	5	6	7	8
60 kg men	42	9	20	15	20	01:09:56	7
48 kg women	38	14	7	13	21	00:51:05	3
Difference (Δ <, >, =)	4>	<5	13>	2>	<1	>00:58:51	4>
66 kg men	44	7	11	34	21	01:24:00	6
52 kg women	34	14	8	14	20	01:08:14	6
Difference (Δ <, >, =)	10>	<7	3>	20>	1>	>00:15:46	=
73 kg men	51	14	-	26	20	01:20:31	6
57 kg women	42	15	2	21	20	01:13:52	3
Difference (Δ <, >, =)	9>	<1	<2	5>	=	>00:06:39	3>
81 kg men	47	15	2	21	20	01:13:52	3
63 kg women	41	18	4	10	21	01:01:26	2

Difference (Δ <, >, =)	6>	<3	<2	11>	<1	>00:12:26	1>
90 kg men	49	8	13	24	21	01:10:57	5
70 kg women	44	19	2	20	21	01:29:30	8
Difference (Δ <, >, =)	5>	<11	11>	4>	=	<00:18:33	<3
100 kg men	41	6	13	27	20	01:04:00	2
78 kg women	33	16	4	19	20	00:59:25	2
Difference (Δ <, >, =)	8>	<10	9>	8>	=	>00:44:35	=
+100 kg men	36	15	5	11	20	01:10:20	4
+78 kg women	29	10	8	15	18	00:55:38	4
Difference (Δ <, >, =)	7>	4>	<3	<4	2>	>00:54:42	=
Notes: 1) in the process of research and analytical work, the official protocols of the 2022 World Championship were used [15]; 2) column 3 defines the total number of "Ippon" scores; 3) in column 4 - the total number of "Waza-ari" ratings; 4) in column 5 - the total number of prevent; 5) in column 6 - the total number of held competitive fights; 6) in column 7 - the total time spent on all competitive matches; 7) in column 8 - the total number of cases of using additional time "GS" for the purpose of determining the winner of the match.							

As a result of the research by SRG members, it was also established that the most effective judokas (among men) who won by "Ippon" (regardless of weight category) were: Takato Naohisa (JPN), Tsend-Ochir Tsogtbaatar (MGL), Cargnin Daniel (BRA), Cargnin Daniel (BRA), Parlati Christian (ITA), Reyes Kyle (CAN), Granda Andy (CUB), Saito Tatsuro, (JPN) Tushishvili Guram (GEO). In turn, the wrestler Maruyama Joshiro (JPN) received the highest number of "Waza-ari" scores (6 technical actions) in continuous competitive fights.

The following athletes (judokas), NIIZOE Saki (JPN, performed 6 "Ippon") and HORIKAWA Megumi (JPN), TIMO Barbara (POR), MATIC Barbara (CRO), AGUIAR Mayra (BRA) (performed 5 "Ippon"). In turn, the highest number of "Waza-ari" scores during the competition were received by athletes (women): TSUNODA Natsumi (JPN), ABE Uta (JPN), DICKO Romane (FRA), TOMITA Wakaba (JPN) (4 "Waza-ari").

It is also noteworthy that the judokas - finalists of the 2022 World Championship (men): Takato Naohisa (JPN), Enkhtaivan Ariunbold (MGL), Casse Matthias (BEL), Borchashvili Shamil (AUT), Bekauri Lasha (GEO), Granda Andy (CUB), Kim Minjong (KOR). Conversely, Maruyama Joshiro (JPN) received the most comments and prevents (passive conduct of the fight, violation of wrestling rules, etc.) – 12 prevents, as well as judokas: Yang Yung Wei (TPE), Abe Hifumi (JPN), Hashimoto Soichi (JPN), Grigalashvili Tato (GEO), Bobonov Davlat (UZB), Turoboyev Muzaffarbek (UZB), Korrel Michael (NED) - 10 prevents each.

Among the women, according to similar indicators, the following are noted: MENZ Katharina (GER), DEKETER Manon (FRA). On the contrary, the most comments and prevents (passive conduct of the fight, violation of the rules of the fight, etc.) were received by athletes: LKHAGVATOGOO Enkhrillen (MGL) – 9 prevents, CVJETKO Lara (CRO) – 8 prevents, ABUZHAKYNOVA Abiba (KAZ) and SOUZA Beatriz (BRA) – 6 prevents each.

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

According to similar criteria (indicators) among men, the following are noted: Hashimoto Soichi (JPN) (held 4 bouts with extra time). In addition, it is appropriate to single out judoka Casse Matthias (BEL), who spent a total of 28 minutes, 44 seconds on the mat during the competition. Conversely, Takato Naohisa (JPN) had the shortest time (10 min. 01 sec.) on the wrestling mat.

According to the obtained results, the members of the SRG established that the integral indicators (Fig. 1) of comprehensive preparation of athletes who specialize in judo (men and women) are:

- technical-tactical preparedness (total training time, amount of training load, "net time" of training, intensity of training load, number of techniques per unit of time, number of technical-tactical actions and combinations per unit of time, etc.);
- indicators of the biological control subsystem (strength and speed of execution of technical and tactical actions and combinations (individual throws), amplitude and frequency of throws, force that develops when interacting with the support (resistance reaction), "positive" angular movements in the joints, effective and dynamic acceleration general center of mass and its biolinks, explosive power of individual muscles, etc.);
- indicators of activity and effectiveness of competitive actions (volume of attacking and defensive actions, number and variety of attacking and defensive techniques, coefficient of "positive" activity, coefficient of reliability of technical and tactical

actions and combinations, qualitative assessment of technical action, time of attack or defense, time of transition from protection before attack, minimizing the time of a competitive fight to achieve victory over the opponent, etc.).

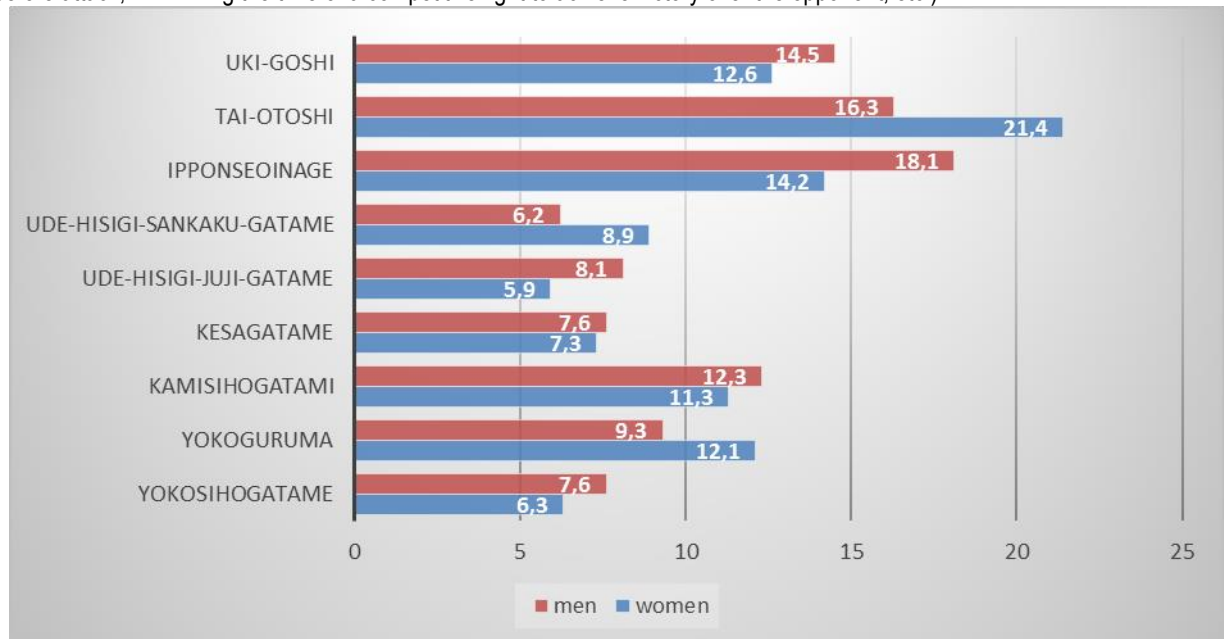


Fig. 1. The most effective technique in %, finalists (men and women) of the 2022 World Judo Championship

Summarizing the results of the theoretical research, we believe that the tasks set before us have been fulfilled, and the main goal of the research has been achieved.

Conclusion. As a result of a theoretical study by the members of the scientific research group (in accordance with the plan of the initiative scientific project "World Judo Championship, 2022"), a comparative analysis of the technical and tactical arsenal of highly qualified judokas (men and women) - finalists of the 2022 World Judo Championship (Tashkent, Uzbekistan).

In order to increase the effectiveness of the competitive activity of Ukrainian athletes (men and women) who specialize in judo at various stages of their long-term training, it is advisable to focus the attention of leading coaches on the development of appropriate training programs (pedagogical models) that provide: perfect mastery by judokas of the theoretical aspects of the current rules of judo; increasing the number and variety of attacking and defensive techniques; increasing the reliability coefficient of technical and tactical actions (combinations); development of tactile sensitivity and coordination; formation of high psychophysical readiness for long-term competitive activity (high training loads); rational construction of a competitive fight taking into account the individual typological (psychophysical) features of the opponents; development of "explosive power", increasing the intensity of the training load; increasing the number of technical and tactical actions (combinations) per unit of time; development and improvement of special physical fitness, etc.

The results of the theoretical research are implemented in the system of long-term training of higher education graduates who specialize in judo: State University "Uzhhorod National University", Uzhhorod, Ukraine; University of Prešov (Slovak Republic); National Academy of the National Guard of Ukraine, Kharkiv, Ukraine; Sumy State Pedagogical University named after A.S. Makarenko, Sumy, Ukraine.

Prospects for further research in the chosen field of scientific research include conducting an analytical review of the technical and tactical preparedness of athletes (women) who specialize in highly qualified sambo wrestling and finalists of the 2022 World Sambo Championship.

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DEVELOPMENT OF PHYSICAL QUALITIES OF STUDENTS BY MEANS OF ATHLETICS

The article reveals the peculiarities of the development of physical qualities by means of athletics. It was determined that physical education at the current stage of the development of society plays an important role in the formation of personality, and the process of its popularization among the younger generation is complicated by insufficient interest of students in generally accepted forms of conducting practical classes on physical education on the one hand and overloading of educational programs on the other. Therefore, it is important to improve the system of physical education by means of athletics due to the improvement of their indicators of the development of physical qualities.

Some high jumpers set the bar to a desired height at home and therefore get used to it. This type of psychological "setting" also contributes to successful overcoming of high altitudes. The illusion of weight is often used in the training of throwers. Unbeknownst to the athlete, while maintaining the previous shape of the lightweight device, its weight is gradually increased, bringing it to the desired level. As a result of such preparation, most throwers throw both a lightweight device and one whose weight has been imperceptibly increased far. Health is a state of complete physical, mental and social well-being, not just the absence of disease or physical defects. The ability of the organism to adequately change its functional indicators and maintain optimality in various conditions is the most characteristic criterion of the norm of health.

Keywords: physical education, students of higher education, athletics, physical qualities.

Ускова С. М., Прус Н. М., Кривенда В. С., Журавльов С. О. Розвиток фізичних якостей у студентів засобами легкої атлетики. В статті розкрито особливості розвитку фізичних якостей засобами легкої атлетики. Визначено, що фізичне виховання на сучасному етапі розвитку суспільства відіграє важливу роль у становленні особистості, а процес його популяризації серед підростаючого покоління ускладнюється недостатньою зацікавленістю студентства загальноприйнятими формами проведення практичних занять з фізичного виховання з одного боку і перенавантаженням навчальних програм – з іншого. Тому важливе значення має вдосконалення системи фізичного виховання засобами легкої атлетики через покращення у них показників розвитку фізичних якостей.

Ключові слова: фізичне виховання, здобувачі вищої освіти, легка атлетика, фізичні якості.

Formulation of the problem. The essence of health orientation as an important principle of the physical education system is that physical culture should promote health. Health is not simply means the absence of diseases: it is something positive, it is a cheerful and desirable fulfillment of the duties that life imposes on a person. Health is a state of complete physical, mental and social well-being, not just the absence of disease or physical defects. The ability of the organism to adequately change its functional indicators and maintain optimality in various conditions is the most characteristic criterion of the norm of health [2].

Modern medicine does not have sufficiently developed technologies the formation of a healthy lifestyle, therefore, the center of her attention is not a healthy, but a sick person. The unfavorable state and negative trends of health indicators require