

KINESIOLOGY & COACHING

OLHA ZADOROZHNA^{1(ABCDEF)}, YURIY BRISKIN^{2(ABDG)}, MARYAN PITYN^{3(ABDG)},
IRYNA SVISTELNYK^{4(BCEF)}, MARIIA ROZTORHUI^{5(BCEF)}, ANDREY VORONTSOV^{6(BCEF)}

¹Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Theory of Sport and Physical Culture, Lviv, Kostyushko st., 11, 79007 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: ozadorozhna@ukr.net

²Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Theory of Sport and Physical Culture, Lviv, Kostyushko st., 11, 79007 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: yuriy.briskin@gmail.com

³Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Theory of Sport and Physical Culture, Lviv, Kostyushko st., 11, 79007 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: pityn7@gmail.com

⁴Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Informatics and Kinesiology, Lviv, Kostyushko st., 11, 79007 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: book@ldufk.edu.ua

⁵Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Athletic sports, Lviv, Kostyushko st., 11, 79007 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: mariia.roztorhyi@gmail.com

⁶National University of Ukraine on Physical Education and Sport, Regional Development Officer (Asia) United World Wrestling Kyiv, Fizkulture st., 1 (Ukraine)

Tel. +38 (032) 260-32-57, e-mail: vorontsov.andrey1988@gmail.com

Corresponding author: Olha Zadorozhna, Lviv State University of Physical Culture named after Ivan Bobers'kyy, Department of Theory of Sport and Physical Culture, 79007, Kostyushko, 11, Lviv, Ukraine.

e-mail: ozadorozhna@ukr.net

The importance of information blocks, which form the basis of tactical knowledge at different stages of long-term development in modern Olympic combat sports

Submission: 26.02.2020; acceptance: 18.03.2020

Key words: tactics, information, competition, Olympic, skills

Abstract

Problem. The problems of tactical training in combat sports are represented in a large number of scientific and methodological works. The efforts of researchers are mostly aimed at expanding the arsenal of technical and tactical actions, and to find the most effective ones which allow athletes to compete against different opponents as successfully as possible. They also develop the tools and methods for such training. However the formation of tactical knowledge and tactical thinking, which are the basis of the tactical preparedness of athletes, is considered fragmentary.

Aim. The purpose of the research was to determine the importance of information blocks which could be the basis of tactical knowledge at different stages of long-term development in modern Olympic combat sports.

Method. The study used theoretical analysis and generalization to identify the main problems of tactical training in Olympic combat sports. Expert assessment was aimed at determining the most important provisions of tactical knowledge. 40 experts in fencing, wrestling, boxing, judo, taekwondo WTF, and karate WKF were recruited. In order to confirm the accuracy of the written examination, the concordance coefficient was determined in each group of experts (W).

Results and Conclusions. Several approaches could be used to form tactical knowledge: a universal one that is the same for all or most Olympic combat sports (3-5 types), and a modified one that is in demand in 1-2 types. The most important for each Olympic combat sport is the topic "Competition rules". Other topics have different significance depending on the stage and kind of combat sport.

Introduction

The present state of Olympic sport could be characterized by intensification of competition in the international arena, changes in competition rules, increasing popularity of tournaments of various levels in the annual macro cycle of athletes' training, the growth of the prestige of winning the highest medals at the Olympic Games and World Championships, the appearance of material incentives [Harmenberg 2007; Jean-Marie 2008; Platonov 2015; Balague *et al.* 2017]. All these factors stimulate the coaches to find out more and more ways for improvement of different sides of athletes' mastership, including tactical preparedness. The last one in combination with the technical side is the basis of sportsmanship in combat sports [Antonov *et al.* 2014; Lisitsyn 2015; Chernozub *et al.* 2018].

The problems of tactical training in combat sports are represented in a large number of scientific and methodological works. During the last 10-15 years the authors have been most interested in the following areas: the activity of athletes in different conflict situations [Tabben *et al.* 2014; Szajna, Bak, Kulasa 2019]; tactical training as a basis for modeling the motor actions of coaches and sportsmen [Ince 2013; Bober *et al.* 2017; Chen 2017; Boroushak 2018], individualization of tactical training of experienced athletes and formation of special style [Korobeynikov, Korobeynikova, Axyutin 2011; Tarrago 2016]; formation and development of tactical knowledge, skills and abilities in the system of long-term training [Cynarski 2006; Borysiuk, Waskiewicz 2008; Ryzhkova 2014; Szajna, Bak, Kulas 2019]; structure and content of technical and tactical actions of athletes of different age and qualification [Kruszewski 2011; Tamura 2012; Tropin 2013; Lisitsyn 2015; Tupeev, Bojko 2015; Johnson 2017]; planning of technical and tactical improvement in the annual macrocycle [Johnson 2015, 2016].

It should be mentioned that in most of the works, tactical training in combat sports is presented mainly in combination with technical [Tyshler, Ryzhkova 2010; Tropin 2013; Lisitsyn 2015; Tarrago *et al.* 2016]. At the same time, the efforts of the researchers are mostly aimed at expanding the arsenal of technical and tactical actions, to find the most effective ones which allow athletes to compete against different opponents as successfully as possible, and develop the innovative tools and methods of such training [Shevchuk 2009; Tyshler, Ryzhkova 2010; Busol 2014; Tupeev, Bojko 2015; Tarrago 2017; Korobeynikov *et al.* 2019a, 2019b]. Instead, the formation of tactical knowledge and tactical thinking, which are the basis of the tactical preparedness of athletes, are considered fragmentary. As a rule, the majority of such research is devoted only to the use of information which allows the athletes to perform quickly and efficiently in different moments of the competition [Cynarski 2006; Shevchuk 2009; Avelar-Rosa 2015; Johnson, Ha 2015].

Moreover, such issues are most widely represented in the works on game sports [Aburachid, Silva, Greco 2013; Giacomini *et al.* 2011; Gonzalez-Villora, Garcia-Lopez, Contreras-Jordan 2015; Ivashchenko *et al.* 2017; Peracek & Perackova, 2018]. As for Olympic combat sports, the most successful attempts to solve this problem have been demonstrated in the work by Ryzhkova [2014] and Kryventsova *et al.* [2017] in fencing. Ryzhkova [2014] has developed a system of structural formation of tactical thinking for fencers of different ages and sports qualifications on the basis of assimilation of special information. However, the implementation provisions of this system corresponded only to the specifics of fencing and did not provide the extrapolation to other kinds of martial arts.

At the same time, the research by Kryventsova *et al.* [2017] was devoted to the formation of tactical skills of students. In both works, the main focus was made on the use of information that will be directly used to perform a particular technical and tactical action at a certain point in the bout and against a specific opponent. Instead, other blocks of information that the athlete may need not only to make a decision during a duel, but also in the preparation phase for a bout with a specific opponent, team or in a separate tournament, were not offered by the authors. That is why, the urgent task is to determine the structure and content of information blocks that should be required for athletes to improve tactical preparedness in the training process and to realize it in competitions of various levels.

Connection with the research topics and plans.

The research was carried out in accordance with the theme: «Theoretical and methodological bases of management of training process and competitive activity in Olympic, professional and adaptive sports» (state registration number: 0116U003167) for 2016-2020 plan of research work of Lviv State University of Physical Culture.

The purpose of the research was to determine the importance of the information blocks which could form the basis of tactical knowledge at different stages of long-term development in modern Olympic combat sports.

Materials and methods

Our research included a few stages. Theoretical analysis and generalization were used during work with literary sources on the problems of research and identification of the main problems of tactical training in combat sports represented in the Olympic program.

Analysis of programs for the sport clubs [Shevchuk 2009; Giacomini *et al.* 2011; Gonzaga *et al.* 2014; Busol 2014; Antonov *et al.* 2014; Ryzhkova 2014; Ivashchenko *et al.* 2017; Nakonechnyi, Galan 2017], curriculum at physical education colleges, scientific and methodological literature in combat sports enabled to compose three information blocks which could be used to improve tactical knowledge: "Basics of Tactics in Sports", "Com-

petition Performance”, “Theory and Methodology of Tactical Training”. Each block consisted of 9 topics.

The list of topics in information block “Basics of Tactics in Sports” included:

- “The importance of tactics in sports”;
- “The interrelation of tactical skills with other parties of preparedness”;
- “The varieties and content of tactical techniques and actions”;
- “Competition strategy and tactics”;
- “Forms of tactics”;
- “Directions of tactical training”;
- “The interrelation of the athlete’s specialized feelings with tactics”;
- “Tactical plan, tactical scheme”;
- “Current trends in tactics of the chosen sport”.

The list of topics in information block «Competition Performance» included:

- “Competition rules”;
- “International competition system”;
- “National competition system”;
- “Duties of judges and refereeing of competitions”;
- “Organization of competitions”;
- “Competition terminology”;
- “Requirements for equipment and inventory”;
- “Participation of national and foreign athletes (teams) in competitions of different levels”;
- “Individual styles of competition performance”.

The list of topics in information block “Theory and Methodology of Tactical Training” included:

- “Basics of tactical training in sports”;
- “Individual training plan”;
- “Methods and means of tactical training”;
- “Control of tactical skills”;
- “Model characteristics of tactical skills of elite athletes”;
- “Periodization of tactical training”;
- “Planning of tactical training”;
- “Formation of a tactical plan and choice of a tactical scheme”;
- “Forming a team, defining the functions of its members”.

These information blocks were included in a questionnaire for expert assessment. The questionnaires were administered to the experts in two different ways in the following quantities: 15 questionnaires by e-mail; 25 questionnaires administered in a paper form, under the supervision of the researcher.

The next step included an expert assessment (February – August 2019). 6 expert groups were recruited – in total, 40 experts, including 8 in fencing, 8 in wrestling (freestyle and Greco-Roman), 6 in amateur (Olympic) boxing, 6 in judo, 6 in taekwondo WTF, 6 in karate WKF. Their average experience was almost 15 years. Among them there were: 10 PhD, 4 coaches of the national teams (3 coaches of Ukrainian national teams, 1 coach of the

USA national team), 2 referees of the world category, 8 athletes-members of national teams. It should be mentioned that all experts had experience of training athletes of different ages in the Olympic combat sports.

Experts were asked to fill out a questionnaire and to rank the topics in each information block. In all questions rank 1 was the most significant and rank 9 was the least important. It should be mentioned that in all questions experts could add their own topics of tactical knowledge and to rank them. However, no one among them did it.

In order to confirm the accuracy of the written examination, concordance coefficient was determined in each group of experts (W). The statistical validity of the concordance coefficient was verified using the χ^2 criterion (Pearson’s chi-squared test). According to Shiyan, Edinak, Petryshyn [2012] the critical value of the concordance coefficient was defined as $W=0.5$. Therefore, at $0.69 \leq W < 0.7$, the agreement of experts’ opinions was evaluated as average, at $W \geq 0.7$ as high (strong), and at $W < 0.5$ as low (weak).

To compare the answers in different expert groups we used the average rank (arithmetic mean of all ranks assigned to a particular position of tactical knowledge in every expert group).

Statistical processing of the data was carried out on a computer using the standard STATISTICA 7.0 program.

In forming the hypothesis of our study, we proceeded from the fact that the competition rules, the specificity of movements, the structure of competitive and training activities, as well as the peculiarities of athletes’ training in Olympic combat sports are similar. Given this, in different kinds of combat sports it is possible to use the general algorithm of tactical training. Expert assessment was used to confirm or refute this assumption.

Results

An analysis of the experts’ answers indicated that the degree of their agreement in different sports within one question could be average, strong, weak ($p < 0.05$) or unreliable ($p > 0.05$). We compared their opinions at different stages of long-term development. According to Platonov [2015] these stages are called “stage of initial development” (athletes aged from 8-9 to 10), “stage of previous basic development” (athletes aged from 11 to 14), “stage of specialized basic development” (athletes aged from 14 to 16), “stage of training for higher achievements” (athletes aged from 17 to 20-21), “stage of maximal realization of individual potential” (athletes aged from 22 to 28), “a stage of sustaining and gradual decline in achievement” (athletes aged from 29 to 35 and over). According to Guittet and Palmi [2010] they are called: Stage 1 “Active Start” (0-6 years old), Stage 2 “Fundamental” (girls 6-8, boys 6-9), Stage 3 “Learn to Train” (girls 8-11, boys 9-12), Stage 4 “Train to Train”

(girls 11-15, boys 12-16), Stage 5 "Train to Compete" (girls 15-21, boys 16-23), Stage 6 "Train to Win" (girls 18+, boys 19+), Stage 7 "Active for Life" (any age). In our research we used age periodization of long-term development suggested by Platonov [2015].

Analyzing the responses of the experts, we compared the topics of tactical knowledge, which received the highest and the lowest position in the rating. Accordingly, the following conclusions were drawn. If the position receives the highest rank, it should be the most relevant for the development of tactical knowledge of athletes. If the position receives the lowest rating, it should not be relevant for the formation of tactical skills of young athletes.

It is known that the training program at each stage of long-term development is complicated and supplemented with new material [Platonov 2015]. Accordingly, the relevance of the topics which are the basis of the formation of tactical knowledge is gradually changing. For convenience of comparing the importance of these topics, we submit them separately for each stage.

Stage 1. "Stage of initial development" (athletes aged from 8-9 to 10)

In the block "Basics of Tactics in Sport", in all the expert groups, except fencing, priority was given to the topic: "The importance of tactics in sports" (average ranks – 1.00-3.62), which, in our opinion, is logical. Instead, in fencing, experts propose to study the topic: "The varieties and content of tactical techniques and actions" (average rank – 2.25). We assume that this is due to the desire of the coaches to create a positive motivation and interest in sports for the athletes.

At the same time, experts' opinions on the least significant topics were different. In fencing, boxing and taekwondo WTF, experts believe that it is inappropriate to acquaint athletes with the topic: "Current trends in tactics of the chosen sport" (average ranks – 6.87-8.33). In wrestling and karate WKF the least important was the theme: "The interrelation of tactical skills with other parties of preparedness" (average ranks – 6.87 and 8.33 respectively), and in judo – "Tactical plan, tacti-

cal scheme" (average rank – 7.33). The concordance of experts' opinions on the provisions of tactical knowledge at the stage of initial development (athletes aged from 8-9 to 10) is represented in Table 1.

In the block "Competition Performance" in all expert groups, the greatest emphasis was placed on the study of the theme: "Competition rules" (average ranks – 1,00-4,08). However, opinions on the least significant material were different. In wrestling, taekwondo WTF and karate WKF experts are assured that it is inappropriate to consider the theme: "Individual styles of competition performance" (average ranks – 7.12-8.83); in fencing – "Participation of national and foreign athletes (teams) in competitions of different levels" (average rank – 6.75), in boxing – "International competition system" (average rank – 7.50), in judo – "Competition terminology" (average rank – 6.50).

A similar situation was revealed in the block "Theory and Methodology of Tactical Training". In all groups, experts believe that young athletes should be familiar with the topic: "Basics of tactical training in sports" (average ranks – 1.33-3.81). However, unimportant topics were different. In boxing, taekwondo WTF and karate WKF, the most important is the issue: "Forming a team, defining the functions of its members" (average ranks – 7.67-7.83), in fencing – "Model characteristics of tactical skills of elite athletes" (average rank – 7.31), in wrestling – "Formation of a tactical plan and choice of a tactical scheme" (average rank – 7.50), in judo – "Control of tactical skills" (average rank – 6.83).

Stage 2. "Stage of previous basic development" (from 11 to 14)

In the formation of tactical knowledge among the topics of the block "Basics of Tactics in Sports" the accent should be made on the following: in fencing, boxing and judo – "The varieties and content of tactical techniques and actions" (average ranks – 2.25-3.50). In addition to this, boxing experts mentioned another topic – "Competition strategy and tactics". In wrestling, taekwondo WTF and karate WKF – the theme still remains relevant: "The importance of tactics in sports" (average ranks – 1.67-

Table 1. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of initial development (athletes aged from 8-9 to 10) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training				Concordance coefficient					
				Group of experts					
				1	2	3	4	5	6
Information Block "Basics of Tactics in Sports"				0.50	0.38*	0.57	0.58	0.83	0.79
Information Block	Block	"Competition Performance"		0.59	0.54	0.54	0.56	0.83	0.69
Information Block	„Theory and Methodology of Tactical Training"			0.35*	0.51	0.51	0.15*	0.65	0.67

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

Table 2. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of previous basic development (athletes aged from 11 to 14) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training	Concordance coefficient					
	Group of experts					
	1	2	3	4	5	6
Information Block „Basics of Tactics in Sports”	0.59	0.54	0.56	0.15*	0.71	0.76
Information Block “Competition Performance”	0.66	0.51	0.25*	0.53	0.82	0.74
Information Block „Theory and Methodology of Tactical Training”	0.13*	0.56	0.53	0.39	0.72	0.59

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

2.00). Experts also shared their opinions on the least significant topic. In fencing, taekwondo WTF and karate WKF the least attention should be paid to studying the issue: “Current trends in tactics of the chosen sport” (average ranks – 6.87-8.25), in wrestling – “Tactical plan, tactical scheme” (average rank – 7.12), in boxing and judo – “The interrelation of tactical skills with other parties of preparedness” (average ranks – 7.00-7.83).

The concordance of experts' opinions on the provisions of tactical knowledge at the stage of previous basic development (athletes aged from 11 to 14) is represented in Table 2.

In the block “Competition Performance”, as on the previous stage, the most relevant information is on the topic: “Competition Rules”. In all expert groups, its average rank was from 1.00 to 2.83. In determining the least priority topic, the opinions of experts in all groups except fencing were identical. Material on the topic: “Individual styles of competition performance” (average ranks – 6.25-9.00) is of secondary importance. In addition, in wrestling, besides the specified topic, there is no need for detailed consideration of two other issues: “Competition terminology” and “Participation of national and foreign athletes (teams) in competitions of different levels” (average rank – 6.25). According to experts, fencers may neglect the issue: “National competition system” (average rank – 6.25).

Experts' answers to the questions about the importance of topics in the block “Theory and Methodology of Tactical Training” were similar in all groups except judo. In the first case, the most attention should be paid to the study of the topic: “Basics of tactical training in sports” (average ranks – 1.00-4.06), in the second – two topics: “Planning of tactical training” and “Formation of a tactical plan and choice of a tactical scheme” (average rank – 3.50). Considering that in previous questions judo experts preferred practical implementation of tactical training, it can be assumed that they seek to develop as early as possible the athletes conscious attitude to improve their own skills. On the other hand,

these answers may indicate the coaches' desire to develop athletes' decision-making not only in individual situations during matches but also throughout the training process. However, under such conditions, the control over the tactical preparedness of the athletes should still be exercised by the coach. This is evidenced by the fact that the topic: “Control of tactical skills” has taken the last place in the rating in the group of judo experts. In other groups, opinions were divided. Thus, experts are convinced that in fencing and wrestling the least relevant is the topic: “Model characteristics of tactical skills of elite athletes” (average ranks – 6.62-7.31). In boxing, taekwondo WTF and WKF karate, the theme is: “Forming a team, defining the functions of its members” (average ranks – 7.33-7.83).

Stage 3. “Stage of specialized basic development” (aged from 14 to 16)

To improve tactical knowledge in the block “Basics of Tactics in Sports” experts recommend to study the material more closely on the topics: fencing, freestyle, judo and taekwondo WTF – “The varieties and content of tactical techniques and actions” (average ranks – 2.25-3.33), in boxing – “Competition strategy and tactics” (average rank – 2.50), in karate WKF – “Forms of tactics” (average rank – 3.17). It should be noted that the least significant issue was also recognized as the most important in judo. In contrast, the topic: “Current trends in the tactics of the chosen sport” was considered the least relevant in fencing, free wrestling, boxing and taekwondo WTF (average ranks – 6.37-7.83). Judo experts recognized the theme: “The importance of tactics in sports” (average rank – 6.67), which, in our opinion, is logical, since this material had to be considered and learnt in the previous stages. In WKF karate, the least attention should be paid to the topic: “Competition strategy and tactics” (average rank – 6.83).

The concordance of experts' opinions on the provisions of tactical knowledge at the stage of specialized basic development (athletes aged from 14 to 16) is represented in Table 3.

In the block "Competition Performance", as in the previous stages, the most relevant theme was: "Competition Rules" (average ranks – 1.00-3.50). However, when choosing the least significant topic, the experts' opinions were again divided: in taekwondo WTF and WKF karate are "Individual styles of competition performance" (middle ranks – 7.00-7.58), in fencing – "Organization of competitions" (average rank – 6.25), in wrestling – "Participation of national and foreign athletes (teams) in competitions of different levels" (average rank – 7.00), in boxing – "Requirements for equipment and inventory" (average rank – 6.67), in judo – "Duties of judges and refereeing of competitions" (average rank – 6.50).

In the block "Theory and Methodology of Tactical Training" the most popular in wrestling, boxing, taekwondo WTF and karate WKF was the topic: "Methods and means of tactical training" (average ranks – 1.83-3.12). This is due to the growing need for the conscious attitude of athletes to improve tactical skills and decision-making in individual episodes of the training process. Instead, in fencing, as in the previous two stages, the most significant was the theme: "Basics of tactical training in sports" (average rank – 2.87), and in judo – "Formation of a tactical plan and choice of tactical scheme" (average rank – 3.00). The least important in wrestling, boxing, taekwondo WTF and WKF karate was the topic: "Forming a team, defining the functions of its members" (average ranks – 7.67-8.83), in fencing – "Model characteristics of tactical skills of elite athletes" (average ranks – 7.06), in judo – "Control of tactical skills" (average rank – 7.17).

Stage 4. "Stage of training for higher achievements" (aged from 17 to 20-21)

Formation of tactical knowledge of athletes at this within the block "Basics of Tactics in Sports" in fencing, wrestling, judo and taekwondo WTF was expedient through an accentuated study of the topic: "The varieties and content of tactical techniques and actions" (average ranks – 2.12-3.50). It should be mentioned that the same opin-

ion was expressed by some experts at the previous stage, and in fencing, this topic was a priority at all stages. In boxing, the most relevant topic was: "Tactical plan, tactical scheme" (average rank – 2.50), in karate WKF – "Forms of tactics" (average rank – 2.67). This topic was also ranked as the priority in WTF taekwondo. At the same time, the following topics were the least important: boxing, WTF taekwondo and WKF karate – "The importance of tactics in sports" (average ranks – 7.83-9.00), which is logical (this information has been already studied by athletes during previous stages). In fencing and wrestling, they are: "Directions of tactical training" (average ranks are 6.19 and 6.25 respectively). At the same time in fencing the least important was one more topic – "Current trends in tactics of the chosen sport". It was in last place in the rating also in judo (average rank – 6.67).

Unlike the previous three stages, where the topic "Competition Rules" was the leader in the block "Competition Performance", at the present stage, it was ranked as the first one only in wrestling and judo (average ranks 3.12 and 3.17 respectively). In taekwondo WTF and WKF karate, the priority was given to the study of the theme: "Individual styles of competition performance" (average ranks – 1.83 and 3.00 respectively), in fencing – the theme: "Duties of judges and refereeing of competitions" (average rank – 3.56), in boxing – "International Competition System" (average rank – 3.67). At the same time, the following topics were the least important: in fencing, WTF taekwondo and WKF karate – "Organization of competitions" (average ranks – 6.31-7.33), in wrestling and boxing – "Competition terminology" (average ranks – 7.25 and 5.83 respectively), in judo – "Participation of national and foreign athletes (teams) in competitions of different levels" (average rank – 6.67). It should be noted that several topics were recognized as the least important in some expert groups. In particular, in the fencing it is also inappropriate to study the material on the topic: "National competition system", in boxing – "Individual styles of competition", in karate

Table 3. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of specialized basic development (athletes aged from 14 to 16) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training			Concordance coefficient					
			Group of experts					
			1	2	3	4	5	6
Information Block „Basics of Tactics in Sports"			0.54	0.59	0.60	0.52	0.50	0.31*
Information Block	"Competition Performance"		0.57	0.56	0.15*	0.58	0.68	0.59
Information Block	„Theory and Methodology of Tactical Training"		0.23*	0.49	0.59	0.61	0.44	0.51

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

Table 4. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of training for higher achievements (athletes aged from 17 to 20-21 years old) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training	Concordance coefficient					
	Group of experts					
	1	2	3	4	5	6
Information Block „Basics of Tactics in Sports”	0.55	0.66	0.58	0.57	0.56	0.65
Information Block “Competition Performance”	0.55	0.62	0.28*	0.46	0.61	0.51
Information Block „Theory and Methodology of Tactical Training”	0.4*	0.51	0.55	0.52	0.67	0.60

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

WKF – “Requirements for equipment and inventory”. It is interesting that at this stage, for the first time, a situation emerged when in different combat sports the topic was rated by one group of experts as the most important for the formation of tactical knowledge and in the other group as the least significant. Such was the theme: “Individual styles of competition”. The polarity of views on the expediency of its study at this stage was revealed in karate WKF and taekwondo WTF, on the one hand, and in boxing on the other.

During the ranking of topics in the block “Theory and Methodology of Tactical Training” the opinions of experts also were different. In fencing and karate WKF, the preference was given to the topic: “Formation of a tactical plan and choice of a tactical scheme” (average ranks 3.50 and 1.50 respectively), in wrestling and WTF taekwondo “Individual training plan” (average ranks – 3.25 and 2.83 respectively). In this case, experts in taekwondo WTF have chosen another topic: “Methods and means of tactical training”, which was also highly rated by boxing experts (average ranks – 2.83 and 2.33 respectively). Judo had the first place in the rating for: “Model characteristics of tactical training of elite athletes” (average rank – 3.50).

Experts in boxing, taekwondo WTF and karate WKF were similar in identifying the least important topic for the athletes. They believe that the least attention should be paid to the study of the theme: “Forming a team, defining the functions of its members” (average ranks – 7.50-8.33). In addition, in WTF taekwondo there was one more unimportant topic in the ranking: “Basics of tactical training in sports” (average rank – 7.67). In fencing and judo – “Control of the tactical skills” (average ranks – 7.37 and 6.67 respectively), in wrestling – “Periodization of tactical training” (average rank – 6.50). Therefore, experts in combat sports have different opinion on the formation of athletes' knowledge about tactical training. We assume this is due to the fact that some coaches are ready to engage in dialogue with athletes during this stage to improve their tactical preparedness. Accordingly, the decision to make adjustments to this process is made by two parties (coach and athlete, but the opinion of the coach is more important). The rest of the coaches

are assured that the athlete should carefully study only the information that is directly related to the practical implementation of tactical training. Instead, the material regarding the ways of forming tactical skills is secondary. According to this approach, the formation and improvement of the tactical preparedness of athletes depends on the experience and competence of the coach. In our opinion, it is more rational to use an approach where key decisions regarding planning and implementation of tactical training are an area of competence of the coach, but the athlete, in case of studying sufficient information, could make suggestions for improving his or her tactical skills.

The concordance of experts' opinions on the provisions of tactical knowledge at the stage of training for higher achievements (athletes aged from 17 to 20-21 years old) is represented in Table 4.

Stage 5. “Stage of maximal realization of individual potential” (aged from 22 to 28)

To improve tactical knowledge in the block “Basics of Tactics in Sports”, the most attention should be devoted to the following topics: in fencing, judo and taekwondo WTF – “The varieties and content of tactical techniques and actions” (average ranks – 2.81-3.83). It is interesting that this topic was rated as the most significant by most expert groups, starting with the second stage (athletes aged from 11 to 14), and was only prioritized by fencing specialists at the first stage (athletes aged from 8-9 to 10). In karate WKF and wrestling, most of the time should be devoted to the study of the topic: “Competition strategy and tactics” (average ranks – 2.87-3.50). At the same time, two topics were recognized as equal in karate WKF: «The interrelation of the athlete's specialized feelings with tactics” and “Current trends in tactics of the chosen sport”. It should be noted that at the previous stages, both topics were recognized by different expert groups as the least significant. In the taekwondo WTF, experts also suggested not to be limited by studying only one topic. In their view, it is also important to study the topic: “Forms of tactics”. Whereas, in boxing the most valuable was the theme: “Tactical plan, tactical scheme” (average rank – 2.87).

Table 5. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of maximal realization of individual potential (athletes aged from 22 to 28) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training	Concordance coefficient					
	Group of experts					
	1	2	3	4	5	6
Information Block „Basics of Tactics in Sports”	0.51	0.55	0.62	0.14*	0.76	0.55
Information Block “Competition Performance”	0.58	0.54	0.12*	0.61	0.59	0.61
Information Block „Theory and Methodology of Tactical Training”	0.19*	0.22*	0.54	0.61	0.51	0.42

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

The concordance of experts' opinions on the provisions of tactical knowledge at the stage of maximal realization of individual potential (athletes aged from 22 to 28) is represented in Table 5.

At the same time, the following topics were of minor importance: in boxing, WTF taekwondo and WKF karate – “The importance of tactics in sports” (average ranks – 8.67-9.00), in fencing and wrestling – “Directions of tactical training” (average ranks – 7.00-7.31), in judo – “Current trends in tactics of the chosen sport” (average rank – 6.67). Thus, in this question, the opinions of karate WKF and judo experts were polar.

The next question about the importance of topics in the block “Competition Performance” also did not reveal a unified approach to the formation and improvement of tactical knowledge. If, in the previous stages, the experts chose the theme: “Competition Rules”, then, from the fourth stage (athletes from 17 to 20-21 years old), it began to lose relevance. At the fifth stage, only judo experts emphasized its importance (average rank is 2.00). For karate WKF and fencing the most significant was the theme: “International Competition System” (average ranks – 2.42-3.19), wrestling – “National Competition System” (average rank – 3.50), in judo and taekwondo WTF – “Individual styles of competition performance” (average ranks – 3.33 and 1.83 respectively). Suppose that the choice of these topics is due to the different attitude of coaches to the tasks of the training process. If in the previous stage the focus was made more on learning of competition rules, which can be used from a tactical point of view, then at the fifth stage it is more important to develop athlete's awareness of national and international competitions. This is partly connected with the need to select athletes for the national teams. Therefore, information about the position of a particular opponent in the standings during the competition and in the overall ranking during the season is more important than competition rules.

When defining minor topics, experts' opinions were again divided. In wrestling and karate WKF there could be neglected the theme: “Requirements for equipment and inventory” (average ranks – 7.83-8.12), in fencing – “Competition terminology” (average rank – 6.37), in

boxing – “Competition Rules” (average rank – 6.67), in judo – “Participation of national and foreign athletes (teams) in competitions of different levels” (average rank – 7.00), in taekwondo WTF – “Organization of competitions” (average rank – 7.67). So, in this question, the opinions of the experts of certain groups were opposite, in particular in boxing and judo.

In contrast to the previous stage, the experts' answers on the block “Theory and Methodology of Tactical Training” at the fifth stage were more consistent. In wrestling, boxing, judo and taekwondo WTF the first place was the theme: “Individual training plan” (average rank – 2.17-3.33), and in fencing and karate WKF – “Formation of a tactical plan and the choice of tactical scheme” (average ranks 2.87 and 2.33 respectively). In this case, in judo they chose the topic: “Model characteristics of tactical skills of elite athletes”. The explanation may be the following. At the fifth stage, coaches consider the athletes competent enough to make aware decisions about the planning and implementation of tasks of different training sides. At the same time, some athletes begin to work as coaches, so the acquired knowledge is used not only to improve their skills, but also to form different aspects of students' preparedness.

Instead, the following topics were unimportant: in boxing and taekwondo WTF – “Basics of tactical training in sports” (average ranks – 7.17 and 8.33 respectively), in fencing – “Control of tactical skills” (average rank – 6.75), in wrestling – “Planning of tactical training” (average rank – 6.00), in judo – “Forming a team, defining the functions of its members” (average rank – 6.67), in karate WKF – “Methods and means of tactical training” (average rank – 7.50).

Stage 6. “Stage of sustaining and gradual decline in achievement” (from 29 to 35 and more years old)

For formation of tactical knowledge in the section “Basics of Tactics in Sports”, experts recommended to focus on the study of the following topics: in fencing, wrestling and boxing – “Tactical plan, tactical scheme” (average ranks – 3.00-3.43), in taekwondo WTF and karate WKF – “The varieties and content of tactical techniques and actions” (average ranks – 3.50 and 2.67 respectively), in

Table 6. Concordance of experts' opinions on the provisions of tactical knowledge at the stage of sustaining and gradual decline in achievement" (athletes aged from 29 to 35 and over) in the Olympic combat sports ($p < 0.05$)

The provisions of tactical training	Concordance coefficient					
	Group of experts					
	1	2	3	4	5	6
Information Block „Basics of Tactics in Sports”	0.55	0.53	0.55	0.47	0.66	0.60
Information Block “Competition Performance”	0.21*	0.59	0.45	0.62	0.59	0.63
Information Block „Theory and Methodology of Tactical Training”	0.55	0.47	0.45	0.61	0.68	0.52

Legend: numbers (groups of experts): 1 – fencing (n=8), 2 – wrestling (n=8), 3 – boxing (n=6), 4 – judo (n=6), 5 – taekwondo WTF (n=6), 6 – karate WKF (n=6); * – provisions of tactical knowledge, which were estimated as unreliable ($p > 0.05$).

judo – “Competition strategy and tactics” (average rank – 3.83). At the same time, in taekwondo WTF there was mentioned one more theme: “Forms of tactics” (average rank – 3.50). At the same time, the following topics deserve the least attention: in fencing, boxing, taekwondo WTF and karate WKF – “The importance of tactics in sport” (average ranks – 6.94-9.00), in wrestling – “Directions of tactical training” (average rank – 7.25), in judo – “Current trends in tactics of the chosen sport” (average rank – 6.75).

In the section “Competition Performance” in wrestling, taekwondo WTF and karate WKF, the priority should be given to the theme: “Individual styles of competition performance” (average ranks – 1.83-2.75), in fencing – “Participation of national and foreign athletes (teams) in competitions of different levels” (average rank – 3.19), in boxing – “Organization of competitions” (average rank – 3.17), in judo – “Competitions Rules” (average rank – 3.67). Specialists consider the least important the following topics: in fencing and wrestling – “Competition terminology” (average ranks – 6.62 and 7.50 respectively), in judo and karate WKF – “Requirements for the equipment and inventory” (average ranks – 5.92 and 8.17 respectively), in boxing – “Participation of national and foreign athletes (teams) in competitions of different levels” (average rank – 6.50), in taekwondo WTF – “Organization of competitions” (average rank – 7.67). Therefore, the approaches to the formation of tactical knowledge of athletes in the sixth stage in the block “Competition Performance” were opposite in fencing and boxing. It should be mentioned that a similar situation was discovered at the fourth and fifth stages. Moreover, in all cases the opinions of boxing specialists did not coincide with the representatives of other combat sports (at the fourth stage – with the experts in karate WKF and taekwondo WTF; at the fifth stage – with judo coaches, at the sixth stage – with fencing specialists).

In the block “Theory and Methodology of Tactical Training” the first place in the rating in different groups of experts was occupied by the following topics: in fencing, boxing and karate WKF – “Formation of a tactical plan and choice of a tactical scheme” (average ranks – 2.83-3.50), in wrestling and taekwondo WTF – “Individual

training plan” (average ranks – 2.63 and 2.17 respectively), in judo – “Model characteristics of tactical skills of elite athletes” (average rank – 3.33). Instead, the last place in the ranking in boxing, judo, taekwondo WTF and karate WKF was taken by the theme: “Basics of tactical training in sports” (average ranks – 6.33-8.33), in fencing – “Forming a team, defining the functions of its members” (average rank – 6.25), in wrestling – “Periodization of tactical training” (average rank – 6.75). The concordance of experts' opinions on the provisions of tactical knowledge at the stage of sustainability and gradual decline in achievement' (from 29 to 35 and more years old) is represented in Table 6.

Discussion

Tactical preparedness is one of the most important components of mastership in combat sports [Harmenberg 2007; Tamura 2012; Johnson 2015, 2016, 2017]. The traditional structure of tactical preparedness includes tactical knowledge (a set of ideas about the means, types and forms of sports tactics), tactical skills (ability to guess the plans of the opponent, to predict the course of development of competition, to change their own tactics), tactical skills (trained tactical actions) and their combinations, tactical thinking (athlete thinking aimed at solving tactical problems) [Platonov 2015; Tarrago 2017]. Thus, tactical preparedness in combat sports largely depends on the intellectual sphere of athletes as a basis for understanding conflict engagement with an opponent [Avelar-Rosa *et al.* 2015; Boroushak 2018].

Moreover, tactical thinking is based on the practical application of appropriate knowledge and experience, the ability to watch attentively, and to perceive and assess the situation of a sport fight quickly. It also includes the ability to make correct decisions immediately. Kryventsova *et al.* [2017] indicates that the process of tactical perfection stipulates the fencer's mastery of a complex combination of theoretical knowledge (means, methods and conditions), which are directly to other components of sportsmanship (technical, physical, intellectual and psychological training).

Table 7. The most important topics of tactical information at different stages of long-term development in modern Olympic combat sports

Stages of long-term development	Age of athletes	Information blocks		
		„Basics of Tactics in Sports”	„Competition Performance”	„Theory and Methodology of Tactical Training”
Topics				
Stage 1. „Stage of initial development”	from 8-9 to 10	„The importance of tactics in sport”	„Competition rules”	„Basics of tactical training in sports”
Stage 2. „Stage of previous basic development”	from 11 to 14	„The varieties and content of tactical techniques and actions”, „The importance of tactics in sport”	„Competition rules”	„Basics of tactical training in sports”
Stage 3. „Stage of specialized basic development”	from 14 to 16	„The varieties and content of tactical techniques and actions”	„Competition rules”	„Basics of tactical training in sports”
Stage 4. „Stage of training for higher achievements” „	from 17 to 20-21	„The varieties and content of tactical techniques and actions”	„Competition rules”, „Individual styles of competition performance”	„Methods and means of tactical training”
Stage 5. „Stage of maximal realization of individual potential”	from 22 to 28	„The varieties and content of tactical techniques and actions”, „Competition strategy and tactics”	„International competition system”, „Individual styles of competition performance”	„Individual training plan”
Stage 6. „Stage of sustaining and gradual decline in achievement”	from 29 to 35	„Tactical plan, tactical scheme”, „The varieties and content of tactical techniques and actions „	„Individual styles of competition performance”	„Individual training plan”

The most fundamental research devoted to tactical information which could be used for athletes' tactical development was conducted by Ryzhkova [2014, 2016]. The author developed several technologies for improvement of tactical thinking, tactical skills and actions. The main idea was the following: tactical decision-making (act immediately or wait, provoke a rival or make a real action) depends on the ability to perceive and analyze information. Tactical information about the technological components of the construction of fights could be divided into two parts. They are an assessment of the tactical essence of the specialized positions and movements of the blade chosen before the fight, typical combat operations, and secondly, the results of the analysis of the alleged varieties of enemy actions in the upcoming battle. The tactical essence of selected standard actions includes information on its variations, in particular: attacks; defenses with riposte, counter-defense with counter-riposte; counter-attacks; repeated touches or kicks. The distances selected before combat can be long, ultralong and middle [Ryzhkova 2016]. On the one hand, this information is essential and influences athlete's decisions and actions. On the other hand, current trends in Olympic combat sports demand much more knowledge which could be useful during competition. First of all, it concerns the knowledge on competition rules [Tamura 2016]. Moreover, the list of topics connected with tactics in different combat sports is not limited by knowledge

on types of technical and tactical actions. That is why our research was aimed to determine importance of the information blocks which could be the basis of tactical knowledge at different stages of long-term development in modern Olympic combat sports.

Another research with similar approach was described in work by Pityn *et al.* [2017]. Authors considered structure and contents of theoretical training in sport. They offered different blocks of information which could be useful for athlete's development. Among them there was a block connected with tactical training. However, it included general information on tactics in sport and did not take into account specifics of combat sports.

Analysis of the results of the expert assessment has led to a number of conclusions (Table 7). In particular, it has been established that in the Olympic combat sports at the Stage 1. "Stage of initial development" (athletes aged from 8-9 to 10 years old) the priority should be given to the following provisions:

- in the block "Competition Performance" – to the topic: "Competition rules" (for all types of combat sports);
- in the block "Theory and Methodology of Tactical Training" – to the topic: "Basics of tactical training in sports".

At the same time, within the block of the "Basics of Tactics in Sports", the theme "The importance of tactics in sport" is important in all sports, except fencing.

At the Stage 2. "Stage of previous basic development" (athletes aged from 11 to 14) the improvement of tactical knowledge in all Olympic combat sports should be based on a focused consideration of the following topics:

- in the block "Competition Performance" – topics: "Competition rules" (for all sports);
- in the block "Basics of Tactics in Sport" – topics: "The varieties and content of tactical techniques and actions" (in fencing, boxing and judo) and "The importance of tactics in sport" (in wrestling, taekwondo WTF, karate WKF);
- in the section "Theory and Methodology of Tactical Training" – topic: "Basics of tactical training in sports" (except judo).

At the Stage 3. "Stage of specialized basic development" (athletes aged from 14 to 16) priority should be given to the following provisions:

- in the block "Competition Performance" – topic: "Competition rules" (for all sports);
- in the block "Basics of Tactics in Sport" – topic: "The varieties and content of tactical techniques and actions" (except karate WKF and boxing);
- in the block "Theory and Methodology of Tactical Training" – topic: "Methods and means of tactical training" (except fencing and judo).

At the Stage 4. "Stage of training for higher achievements" (athletes aged from 17 to 20-21) the most significant are the following topics:

- in the block "Basics of Tactics in Sport" – topics: "The varieties and content of tactical techniques and actions" (except boxing and karate WKF);
- in the block "Competition Performance" – topics: "Competition Rules" (in wrestling and judo), "Individual styles of competition performance" (in taekwondo WTF and karate WKF);
- in the block "Theory and Methodology of Tactical Training" – topics: "Individual training plan" (in wrestling and taekwondo WTF), "Methods and means of tactical training" (in boxing and taekwondo WTF), "Formation of a tactical plan and choice of a tactical scheme" (in fencing and karate WKF).

At the Stage 5. "Stage of maximal realization of individual potential" (athletes aged from 22 to 28) the most important are the following topics:

- in the block "Basics of Tactics in Sport" – topics: "The varieties and content of tactical techniques and actions" (in fencing, judo and taekwondo WTF) and "Competition strategy and tactics" (in wrestling and karate WKF);
- in the block "Competition Performance" – topics: "International competition system" (in fencing and karate WKF), "Individual styles of competition performance" (in boxing and taekwondo WTF);
- in the block "Theory and Methodology of Tactical Training" – topics: "Individual training plan" (in wrestling, boxing, judo, taekwondo WTF), "Formation

of a tactical plan and choice of tactical scheme" (in fencing and karate WKF).

At the Stage 6. "Stage of sustaining and gradual decline in achievement" (athletes aged from 29 to 35 and over) tactical knowledge depends on the following topics:

- in the block "Basics of Tactics in Sport" – topics: "Tactical plan, tactical scheme" (in fencing, wrestling and boxing) and "The varieties and content of tactical techniques and actions" (in taekwondo WKF);
- in the block "Competition Performance" – theme: "Individual styles of competition performance" (in wrestling, taekwondo WTF and karate WKF);
- in the block "Theory and Methodology of Tactical Training" – topics: "Individual training plan" (in wrestling and taekwondo WTF) and "Formation of a tactical plan and choice of tactical scheme" (in fencing, boxing and karate WKF).

Thus, tactical knowledge within some information blocks could be formed and improved by universal algorithm in all Olympic combat sports. At the same time, at some stages within the other blocks, the algorithm may be common to most types of martial arts (3 to 5 types), and may differ for other types (1-2 types). The list of combat sports, for which the same algorithm can be applied, changes at each stage.

Comparison of the answers of experts in different combat sports indicated that they are mostly consentient in the choice of the most important (priority) topics that are the basis for the formation of tactical knowledge. At the same time, the attitude of specialists to minor (least significant) topics within the framework of tactical training is different. In our opinion, the explanation may be this. Some experts consider their use inappropriate in general, since these topics are superfluous to form tactical readiness. Part of the topics is used in practice by several coaches, coaching crews or traditional sports schools, which have been formed in different sports over the years. Other experts consider this material with the athletes from time to time, as they are convinced that these less significant topics are suitable for further improvement of tactical preparedness as an appropriate basis (that is why, they do not have direct, but indirect influence). In addition, the most important for each Olympic combat sport at the Stages 1-3 is the topic "Competition rules". Other topics have different significance depending on the stage and kind of combat sport.

Conclusions

Tactical knowledge is one of the most important components of athletes' tactical preparedness in modern Olympic combat sports. Thanks to this knowledge, athletes gain insight into tactics, varieties of tactical actions, features of their application in different situations and with different opponents. Tactical thinking is based on

tactical knowledge and the ability to make the right decisions quickly. For formation of tactical knowledge there have been offered three blocks of information: "Basics of Tactics in Sport", "Competition Performance", "Theory and Methodology of Tactical Training".

Several approaches could be used to form tactical knowledge: a universal one that is the same for all or most (3-5 types) Olympic combat sports, and a modified one that is in demand in 1-2 types of Olympic combat sports. A universal approach is actual at the first three stages of years of preparation: Stage 1. "Stage of initial development" (athletes aged from 8-9 to 10), Stage 2. "Stage of previous basic development" (athletes aged from 11 to 14), Stage 3. "Stage of specialized basic development" (athletes aged from 14 to 16). In the future (the other stages), it is more appropriate to use modified approaches.

The most important for each Olympic combat sport at the Stages 1-3 is topic "Competition rules". Other topics have different significance depending on the stage and kind of combat sport.

The most important topics need focused consideration as they are the basis for the formation of tactical thinking and tactical skills at a particular stage of training. The minor topics (the least significant) could be ancillary and learned during additional classes or during the off-season.

Financial support of the research was provided by Lviv State University of Physical Culture named after Ivan Bobers'kyy.

References

1. Aburachid L.M.C., da Silva S.R., Greco P.J. (2013), *Tactical knowledge level players and soccer coach's subjective evaluation*, "Revista Brasileira de Futsal e Futebol", vol. 5, no. 18, pp. 322-330.
2. Antonov S.A., Ost'yanov V.N., Komisarenko G.I., Matvienko G.G., Shevchuk Yu.V. (2014), *Boxing: Teach. program for children's and youth sports schools, specialized children-youth schools of the Olympic reserve, schools of higher sporting skills*, National boxing federation, Kyiv [in Ukrainian].
3. Avelar-Rosa B., Gomes M.S.P., Figueiredo A., Lopez-Ros V. (2015), *Fighting knowledge characterization and development: contents of an integrated model for teaching martial arts and combat sports*, "Revista de Artes Marciales Asiaticas", vol. 10, no. 1, pp. 16-33 [in Spanish]; doi: 10.18002/rama.v10i1.1501.
4. Balague N., Torrents C., Hristovski R., Kelso J.A.S. (2017), *Sport science integration: An evolutionary synthesis*, "European Journal of Sport Science", vol. 17, pp. 51-62; doi: 10.1080/17461391.2016.1198422.
5. Bober T., Rutkowska-Kucharska A., Jaroszczuk S., Barabas M., Woznica W. (2017), *Kinematic characterization of the lunge and the fleche in epee fencing: two case studies*. "Polish Journal of Sport and Tourism", vol. 23, no. 4, pp. 181-185.
6. Boroushak N., Eslami M., Kazemi M., Daneshmandy H., Johnson J. (2018), *The dynamic response of the taekwondo roundhouse kick to head using computer simulation*, "Ido movement for culture. Journal of Martial Arts Anthropology", vol. 18, no. 2, pp. 54-60; doi: 10.14589/ido.18.2.8.
7. Borysiuk Z., Waskiewicz Z. (2008), *Information Processes, Stimulation and Perceptual Training in Fencing*, "Journal of Human Kinetics", vol. 19, pp. 63-82.
8. Briskin Yu., Zadorozhna O., Perederiy A., Pityn M., Sydorko O. (2018), *Team composition in epee fencing which accounts for sportsmen's individual performance*, "Journal of Physical Education and Sport", vol. 273, pp. 1863-1870; doi:10.7752/jpes.2018.s4273.
9. Busol V.A. (2014), *Fencing: Teach. program for children's and youth sports schools, specialized children-youth schools of the Olympic reserve, schools of higher sporting skills and schools of the Olympic reserve*, National Fencing Federation, Kyiv [in Ukrainian].
10. Chen T.L. W., Wong D.W.C., Wang Y., Ren S., Yan F., Zhang M. (2017), *Biomechanics of fencing sport: A scoping review*, "PLoS One", vol. 12, no. 2, pp. 123-127; doi.org/10.1371/journal.pone.0171578.
11. Chernozub A., Korobeynikov G., Mytskan B., Korobeinikova L., Cynarski W.J. (2018), *Modelling Mixed Martial Arts Power Training Needs Depending on the Predominance of the Strike or Wrestling Fighting Style*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 18, no. 3, pp. 28-36.
12. Cynarski W.J. (2006), *Recepcja i internalizacja etosu dalekowschodnich sztuk walki przez osoby cwiczace* [Reception and internalization of the Far East martial arts ethos by practitioners], Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszow [in Polish].
13. Giacomini D.S., Soares V.O., Santos H.F., Matias C.J., Greco P.J. (2011), *Declarative and procedural tactical knowledge in soccer players of different ages*, "Motricidade", vol. 7, no. 1, pp. 43-53.
14. Gonzaga A., Albuquerque M.R., Malloy-Diniz L.F., Greco P.J., Teoldo I. (2014), *Affective decision-making and tactical behaviour of Under-15 soccer players*, "PLoS One", vol. 9, no. 6, pp. 1-6.
15. Gonzalez-Villora S., Garcia-Lopez L.M., Contreras-Jordan O.R. (2015), *Decision making and skill development in youth football players*, "Int J Med Sci Phys Act Sport", vol. 15 (59), pp. 467-487.
16. Guittet M., Palmi M. (2010), *Long Term Athlete Development*, Canadian Fencing Federation.
17. Harmenberg J. (2007), *Epee 2.0: The Birth of New Fencing Paradigm*, SK SwordPlay Books, N.Y.
18. Ince M.L. (2013), *Professional development of coaches and teachers: trends and challenges*, "Sport Mont", vol. XI (37-38-39), pp. 3-9.
19. Ivashchenko O., Yarmak O., Galan Ya., Nakonechnyi I., Zoriy Ya. (2017), *Leadership as a fundamental aspect of the*

- performance of student-athletes in university men's sports teams, "Journal of Physical Education and Sport", vol. 2, pp. 472–480.
20. Jean-Marie S. (2008), *The Olympic Games in Beijing. Strategy and Technique*, "Escrime Internationale", FIE, vol. 4, pp. 19-28.
 21. Johnson J.A., Ha P. (2015), *Elucidating pedagogical objectives for combat systems, martial arts, and combat sports*, "Ido Movement for Culture: Journal of Martial Arts Anthropology", vol. 15, no. 4, pp. 65-74.
 22. Johnson J. (2016), *Enhancing Taekwondo Pedagogy through Multiple Intelligence Theory*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 16, no. 3, pp. 57-64; doi: 10.14589/ido.16.3.7.
 23. Johnson J. (2017), *From technique to way: an investigation into taekwondo's pedagogical process*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 17, no. 4, pp. 3-13; doi: 10.14589/ido.17.4.2
 24. Korobeynikov G.V. Korobeynikova L.G. Axyutin V.V. (2011), *The features of perception and processing of visual information in boxers with different style of match*. "Pedagogics, Psychology, Medical-Biological Problems of Physical Training and Sports", vol. 7, pp. 41-44.
 25. Korobeynikov G., Cynarski W.J., Mytskan B., Dutchak M., Korobeynikova L., Nikonorov D., Korobeinikova I. (2019), *The psychophysiological state of athletes with different levels of aggression*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 19, no. 1S, pp. 62-66; doi:10.14589/ido.19.1S.10.
 26. Korobeynikov G., Potop V., Korobeynikova, L., Kolumbet A., Khmel'nitska I., Shtanagey D., Goletc A. (2019), *Research of the Hand Motion Dynamic Characteristics of the Women Boxers with Different Types of Functional Asymmetry*, "Journal of Physical Education and Sport", vol. 19, pp. 2185; doi: 10.7752/jpes.2019.s6328.
 27. Kriventsova I., Iermakov S., Bartik P., Nosko M., Cynarski W.J. (2017), *Optimization of student-fencers' tactical training*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 17, no. 3, pp. 21-30; doi: 10.14589/ido.17.3.3.
 28. Kruszewski A., Zarczuk P., Kruszewski M., Kuzmicki S., Jagiello W., Blach W. (2011), *Directions of changes of technical and tactical skills by wrestlers freestyle within 12 years, 1996-2008*, "Journal of Combat Sports and Martial Arts", vol. 2, pp. 117-123; doi: 10.5604/20815735.1047144.
 29. Lisitsyn V.V. (2015), *Technical and tactical training of highly qualified female boxers. Candidate Dissertation*, Russian State University of Physical Culture, Sports, Youth and Tourism, Moscow [in Russian].
 30. Nakonechnyi I., Galan Ya. (2017), *Development of behavioural self-regulation of adolescents in the process of mastering martial arts*, "Journal of Physical Education and Sport", vol. 17, no. 3, pp. 1002-1008; doi: 10.7752/jpes.2017.s3154.
 31. Peracek P., Perackova J. (2018), *Tactical Preparation in Sport Games and Motivational Teaching of Sport Games Tactics in Physical Education Lessons and Training Units*; doi: 10.5772/intechopen.75204.
 32. Pityn M., Briskin Yu., Perederiy A., Galan Ya., Tsyhykalo O., Popova I. (2017), *Sport specialists attitude to structure and contents of theoretical preparation in sport*, "Journal of Physical Education and Sport", vol. 17, no. 3, pp. 988–994.
 33. Platonov V.N. (2015), *Sports Training Periodization. General Theory and its Practical Application*, Olympic Literature, Kiev [in Russian].
 34. Ryzhkova L.G. (2014), *The choice of tactical model of bout in extreme conditions of competitions in fencing of elite athletes*, "Ekstrem. deyatelnost cheloveka", vol. 2, pp. 123-125 [in Russian].
 35. Ryzhkova L. (2016), *Formation and development of tactical knowledge and skills in the system of long-term training of athletes (on the example of fencing): the dissertation ... Doctor of Pedagogical Sciences: 13.00.04* [Place of defense: Russian State University of Physical Culture, Sports and Tourism].
 36. Shevchuk E. (2009), *Computer program "Analysis and modeling of competitive activity of fencers" as a means and method of preparing for competitions*, "Chernigiv. visnyk", vol. 69, pp. 311-315 [in Ukrainian].
 37. Shiyani B.M. Edinak G.A., Petryshyn Y.V. (2012), *Scientific researches in physical education and sports: scientific manual [for faculty. of Physical education and higher education institutions of the II-IV levels of accreditation]*, Printing House Ruta, Kamianets-Podilskyi [in Ukrainian].
 38. Szajna G., Bak R., Kulasa J. (2019), *Application of conflict algebra in the analysis of fencing and tactical preparation methods*, "Ido Movement for Culture. Journal of Martial Arts Anthropology", vol. 19, no. 1S, pp. 96–101; doi: 10.14589/ido.19.1S.15.
 39. Tabben M., Chaabene H., Coquart J., Franchini E., Ghoul N., Tourny C. (2014), *Time-motion, tactical and technical analysis in top-level karatekas according to gender, match outcome and weight categories*, "Journal of Sports Sciences", vol. 33, pp. 1-9; doi: 10.1080/02640414.2014.965192.
 40. Tamura N., Hirose N., Nakamura M., Saitoh H., Yamauchi N., Tanaka C., Suzuki K., Suganami M. (2012), *Changes in judo kumite tactics according to revisions of the IJF competition rules*, "Research Journal of Budo", vol. 45, no. 2, pp. 143-149.
 41. Tarrago R., Iglesias X., Lapresa D., Anguera M.T. (2016), *A complementary study of elite fencing tactics using lag sequential, polar coordinate, and t-pattern analyses*, "Proceedings of the international conference on sequence analysis and related methods", pp. 339–348.
 42. Tropin Y.M. (2013), *Analysis of technical tactical training of highly skilled fighters of Greco-Roman wrestling*, "Physical Education of Students", vol. 2, pp. 15-19.
 43. Tupeev Yu.V., Bojko V.F. (2015), *Analyzes of methodological approaches during technique studying in sports wrestling*, "Fizicheskoe vospitanie studentov: nauchnyj zhurnal", vol. 3, pp. 116-121 [in Russian].
 44. Tyshler D., Ryzhkova L. (2010), *Fencing. Technical and tactical and functional training*, Academic project, Moscow [in Russian].

Znaczenie bloków informacyjnych, które stanowią podstawę wiedzy taktycznej na różnych etapach długoterminowego rozwoju nowożytnych olimpijskich sportów walki

Słowa kluczowe: taktyka, informacja, konkurencja, olimpiada, umiejętności

Streszczenie

Problem. Problemy szkolenia taktycznego w sportach walki są przedstawiane w wielu pracach naukowych i metodologicznych. Wysiłki badaczy zmierzają przede wszystkim do poszerzenia arsenału działań technicznych i taktycznych, znalezienia tych najefektywniejszych, pozwalających na jak najbardziej skuteczne konkurowanie z różnymi przeciwnikami oraz opracowania innowacyjnych narzędzi i metod takiego szkolenia. Za fragmentaryczne uznaje się natomiast kształtowanie wiedzy taktycznej i myślenia taktycznego, które są podstawą przygotowania taktycznego sportowców.

Cel. Celem badań było określenie znaczenia bloków informacyjnych, które mogłyby stanowić podstawę wiedzy taktycznej na różnych etapach długoterminowego rozwoju nowożytnych olimpijskich sportów walki.

Metoda. Posłużono się analizą teoretyczną i uogólnieniem w celu identyfikacji głównych problemów szkolenia taktycznego w olimpijskich sportach walki. Ocena ekspercka miała na celu określenie najważniejszych przepisów dotyczących wiedzy taktycznej. Pozyskano 40 ekspertów w dziedzinie szermierki, zapasów, boksu, judo, taekwondo WTF, karate WKF. W celu potwierdzenia rzetelności egzaminu pisemnego, w każdej grupie ekspertów (W) ustalono współczynnik zgodności. Wyniki i wnioski. Do zgromadzenia wiedzy taktycznej można wykorzystać kilka podejść: uniwersalne, które jest takie samo dla wszystkich lub większości (3-5 rodzajów) olimpijskich sportów walki, oraz zmodyfikowane, które może być zastosowane w 1-2 rodzajach. Dla każdego z olimpijskich sportów walki najważniejszy jest temat „Zasady konkurencji”. Inne tematy mają różne znaczenie w zależności od etapu i rodzaju sportów walki.