

Tactical training of elite athletes in Olympic combat sports: practice and experience

OLHA ZADOROZHNA, YURIY BRISKIN, MARYAN PITYN, ALINA PEREDERIY,
NEONILA NERODA

Abstract

Introduction. The work studied specifics of tactical training in Olympic combat sports. According to the current researches, technical and tactical training is the basis of athletes' training, but in most papers and official documents, tactical training is not substantiated. **Aim of Study.** This study aimed to analyze the practical experience of tactical training performed by elite athletes in Olympic combat sports. **Material and Methods.** We have recruited 40 coaches. Their average experience was almost 15 years. Experts had to rank the components of tactical training such as directions, means, and methods of tactical training, control of tactical preparedness, components of tactical knowledge. **Results.** In some questions expert's opinions were similar, but in other questions, they were different inside groups and between them. Average and strong concordance ($p < 0.05$) was found in such groups of experts: fencing – about directions of tactical training (0.56); verbal, visual and practical methods (0.53; 0.63; 0.62 respectively); means and methods of control (0.53); wrestling – about directions and practical methods (0.74 and 0.59 respectively); boxing – only about practical methods (0.56); taekwondo – about directions (0.58); verbal, visual and practical methods (0.55; 0.64; 0.73 respectively); means and methods of control (0.64); karate – about verbal, visual and practical methods (0.62; 0.64; 0.70 respectively); means and methods of control (0.72); information blocks “Basics of Tactics in Sports” (0.55) and “Competition performance” (0.61). In judo, concordance was weak in all questions (0.41-0.45). **Conclusions.** The general algorithm of tactical training of elite athletes consists of six steps and is aimed to prepare for the main competition of the year (the Olympic Games or World Championship). The tasks are to choose an effective strategy; to develop the most effective tactical actions against the main rivals; to train to make correct decisions during the bout; to learn how to predict the opponent's actions.

KEYWORDS: knowledge, tactical skills, competition, preparedness, training.

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Corresponding author: ozadorozhna@ukr.net

Lviv State University of Physical Culture named after Ivan Bobersky, Department of Theory of Sports and Physical Culture, Lviv, Ukraine

Introduction

The specificity of competitive activity in combat sports dictates its requirements for the implementation of different aspects of athletes' training. The current trends in fencing, boxing, wrestling, judo, taekwondo, karate could be characterized by the intensification of competitive activity, changes in competition rules, improvement of various aspects of training of experienced athletes [2, 3, 4, 9, 10, 11]. Analysis of recent publications illustrates that during the last five-ten years scientific researches in combat sports were focused on issues of technical and tactical training, physical skills and their indicators, psychological aspects of training and formation of special knowledge [2, 3, 7, 12, 15, 18]. Moreover, a considerable number of researchers are convinced that the main reason for the low and unstable results of competition performances is the insufficient level of athletes' technical and tactical skills [17, 18, 25, 26]. According to this point of view, the main accent during the training process should be made on improving technical and tactical preparedness, while other components of athletes' skills are considered as an additional option [6, 14, 27, 28].

Analysis of scientific publications indicates that such an approach is actual for the majority of combat sports represented in the Olympic program. In most of the works, tactical training is presented mainly in combination with technical one [3, 6, 12] and the efforts are mainly directed to the development of innovative tools and methods of technical and tactical training [6, 13, 14, 17]. In this tandem, however, technical training is dominant both in the official documents (programs for the sports clubs, curriculums at physical education colleges) and in the scientific literature [1, 5, 6, 8, 28]. At the same time, the implementation of tactical training is, in our opinion, insufficiently substantiated and contradictory, what, in our opinion, may be a serious obstacle in preparations for the competitions at the highest level – World and European Championships, and the Olympic Games. Practice demonstrates that in the face of fierce competition at the international stage, athletes who are the most physically trained do not always win. The ability to make the right decision and implement it at the right moment in the fight is much more important. Because the competition rules, the specificity of movements, the structure of competitive and training activities, as well as the peculiarities of athletes' training in combat sports are similar, it is possible to use the general algorithm of tactical training in different types of combat sports. Therefore, this study aimed to analyze the practical experience in tactical training of elite athletes in fencing, boxing, wrestling, judo, taekwondo, and karate, and to create the organizational and methodological foundations for tactical training in combat sports.

Material and Methods

The first stage of our research was the theoretical analysis of literary sources and identification of the main problems of tactical training in combat sports represented in the Olympic program. Analysis of the sports club's programs, the curriculums of physical education colleges, scientific and methodological literature in combat sports [1, 5, 6, 8, 28], enabled to determine the most controversial aspects of tactical training of elite athletes. Those aspects were connected with the directions of tactical training, its methods, ways of tactical skills' control, theoretical tactical knowledge, and factors influencing the training strategy during competitions.

The next step of our research was to develop a questionnaire, which included all controversial questions (Appendix). The questionnaire included the following five sections: 1) Tactical training directions (5 components), 2) Factors that influence the training

strategy for competitions (5 components), 3) Theoretical material within the tactical training (9 components in each of 3 questions: basics of tactics in sports, competition performance, theory and methodology of tactical training), 4) Methods and means of tactical training (6 components in 2 questions about verbal and visual methods, and 10 components in question about practical methods of tactical training), and 5) Control in tactical training (9 components).

The next step included an expert's assessment (February–August 2019). There were 6 expert groups recruited. The total number of 40 experts included 8 in fencing, 8 in wrestling (freestyle and Greco-Roman), 6 in amateur (Olympic) boxing, 6 in judo, 6 in taekwondo WTF, and 6 in karate WKF. The experts were well educated (ten among them held Ph.D. diplomas) and experienced 4 coaches of the national teams (three of Ukrainian national teams, one of USA national teams), 2 world category referees, and 8 athletes – national team's members. On average, experts had almost 15 years of experience in training Olympic combat sports athletes of different ages. The questionnaires were administered to the experts in two different ways. 25 questionnaires were administered in a paper form and filled under the supervision of the researcher. The other 15 questionnaires were distributed by e-mail. Each expert was asked to rank the components of tactical training in each section. The number of components in sections ranged from 5 to 10. Rank 1 was always considered the most significant. The highest rank indicated the least important component (eg. in section with 9 components, rank 9 was the least important). In most questions, experts could add their components and to rank them, but none of them did.

In order to confirm the accuracy of the answers, the 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 [24], the critical value of the concordance coefficient was defined as $W = 0.5$. Therefore, at $0.69 > W \geq 0.5$, 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 training provisions in every expert group).

Results

An analysis of the experts' answers indicated that in most combat sports similar components of tactical training were estimated as the most or the least significant. At

the same time, within some questions, the degree of agreement of experts' opinions in different sports within one question could be average, strong, weak ($p < 0.05$) or unreliable ($p > 0.05$).

The priority of factors that influence the training strategy for competitions is presented in Table 1. Experts indicated that elite athletes should more emphasize: improvement of tactical thinking (average ranks: 1.50-2.67) in fencing, wrestling, and judo, and practical implementation of tactical preparedness (average ranks: 1.75-2.17) in boxing, taekwondo, and karate. The least significant in all expert groups, except for judo, was the study of the essence and basics of sports tactics (average ranks: 3.67-4.63). In judo, the least significant was the study of information necessary for the practical implementation of tactical preparedness (average rank: 3.50).

The priority of components that influence the training strategy for competitions is presented in Table 2. In all expert groups, except judo, priority was given to the functional preparedness and psychological status of the athletes or team (average ranks: 1.50-2.75). In wrestling, in addition to this factor, experts suggested to take into account the level of opponents' preparedness, and in judo – the level of technical and tactical skills of the athletes or team (average rank: 2.17). However, when selecting the least significant factor, the expert's opinions in different groups were different. In boxing, judo, and karate the least significant factor was the level of opponents' preparedness (average ranks: 3.67-4.17), in wrestling – the level of competitions and their formula (average rank: 3.50), in fencing and taekwondo – knowledge about the opponents' preparedness (average ranks: 4.00 and 4.17 respectively).

Table 1. Experts' opinions on the importance of the components of tactical training of elite athletes in Olympic combat sports (n = 40, $p < 0.05$)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	The study of the essence and basics of sports tactics	4.38	4.63	3.67	2.83	4.25	4.08
2	The study of the basic elements, techniques, options of tactical actions	4.00	4.13	3.00	3.00	4.17	3.92
3	The study of information necessary for practical implementation of tactical preparedness (information about opponents, competition)	2.75	2.88	3.33	3.50	2.67	2.58
4	Practical implementation of tactical preparedness (the use of tactical actions during competition)	2.38	1.50	2.17	3.00	1.75	1.83
5	Improvement of tactical thinking (how to trick an opponent and make him make a mistake)	1.50	1.88	2.83	2.67	2.17	2.58
	Concordance coefficient	0.56	0.74	0.13*	0.04*	0.58	0.38*

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient ($p > 0.05$)

Table 2. Experts' opinions on the importance of components influencing the training strategy for competitions of elite athletes in Olympic combat sports (n = 40, $p < 0.05$)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	The level of technical and tactical skills of athletes (teams)	2.63	2.88	2.50	2.17	2.50	3.08
2	Functional preparedness and psychological status of athletes (teams)	1.63	2.75	1.50	2.33	2.00	2.00
3	The level of competition and their formula	3.00	3.50	3.33	3.33	2.50	2.50
4	The level of opponents' preparedness	3.75	2.75	4.17	3.67	3.83	3.83
5	Knowledge about the opponents' preparedness	4.00	3.13	3.50	3.50	4.17	3.58
	Concordance coefficient	0.36	0.04*	0.42	0.19*	0.36*	0.23*

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient ($p > 0.05$)

The priority of components in information blocks “Basics of Tactics in Sports”, “Competition Performance”, “Theory and Methodology of Tactical Training” is presented in Tables 3-5. As shown in Table 3, the most attention should be devoted to the following topics: in

fencing, judo and taekwondo – “The varieties and content of tactical techniques and actions” (average ranks: 2.81-3.83), in wrestling and karate – “Competition strategy and tactics” (average ranks: 2.87-3.50). At the same time, two components were estimated as equal in karate: “The

Table 3. Experts’ opinions on the importance of components in information block “Basics of Tactics in Sports” in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	“Te importance of tactics in sports”	7.19	6.50	8.67	6.17	9.00	8.67
2	“The interrelation of tactical skills with other parties of preparedness”	4.44	3.88	6.00	4.17	7.00	7.83
3	“The varieties and content of tactical techniques and actions”	2.81	4.38	5.67	3.83	3.50	3.67
4	“Competition strategy and tactics”	3.94	2.88	5.33	4.00	4.00	3.50
5	“Forms of tactics”	4.75	5.63	4.67	4.50	3.50	4.00
6	“Directions of tactical training”	7.31	7.00	3.33	4.83	4.00	6.17
7	“The interrelation of the athlete’s specialized feelings with tactics”	4.13	5.25	3.17	5.33	4.33	3.50
8	“Tactical plan, tactical scheme”	4.75	3.75	3.00	5.50	4.33	4.17
9	“Current trends in tactics of the chosen sport”	5.69	5.75	5.17	6.67	5.33	3.50
	Concordance coefficient	0.31	0.25	0.42	0.14*	0.46	0.55

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient (p > 0.05)

Table 4. Experts’ opinions on the importance of components in information block “Competition Performance” in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	“Competition rules”	6.06	4.38	6.67	2.00	3.67	5.33
2	“International competition system”	3.19	3.75	5.50	3.08	3.67	2.42
3	“National competition system”	4.19	3.50	5.50	3.50	4.67	4.83
4	“Duties of judges and refereeing of competitions”	4.69	5.75	4.67	5.00	6.67	4.50
5	“Organization of competitions”	5.31	5.75	4.33	5.58	7.67	7.00
6	“Competition terminology”	6.38	6.38	5.00	5.67	7.17	7.67
7	“Requirements for equipment and inventory”	6.25	8.13	4.50	6.67	5.33	7.83
8	“Participation of national and foreign athletes (teams) in competitions of different levels”	5.31	3.88	5.50	7.00	4.33	2.83
9	“Individual styles of competition performance”	3.63	3.50	3.33	2.00	1.83	2.58
	Concordance coefficient	0.18*	0.34	0.12*	0.41	0.49	0.61

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient (p > 0.05)

interrelation of the athlete's specialized feelings with tactics" and "Current trends in tactics of the chosen sport". At the same time, the following components were estimated as the least significant: in boxing, taekwondo, and 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).

Judo experts chose the components "Competition rules" and "Individual styles of competitive activity" (average rank: 2.00; Table 4). In fencing and karate, the most significant was the "International competition system" (average ranks: 2.42-3.19), in wrestling – "National competition system" (average rank: 3.50), in taekwondo – "Individual styles of competition performance" (average rank: 1.83). Besides, experts' opinions were different when defining minor components. In wrestling, and karate the least significant was: "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 – "Organization and holding competitions, competition regulations" (average rank: 7.67).

In wrestling, boxing, judo, and taekwondo the most important was the topic: "Individual training plan"

(average rank: 2.17-3.33) and in fencing and karate – "Formation of a tactical plan and choice of a tactical scheme" (average ranks: 2.88 and 2.33 respectively), in judo – "Model characteristics of tactical skills of elite athletes" (average rank: 3.33; Table 5). At the same time, the least significant were such topics: in boxing and taekwondo – "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 – "Methods and means of tactical training" (average rank: 7.50).

The priority of verbal, visual and practical methods of tactical training is represented in Tables 6-8. Among the verbal methods, the leaders in all expert groups except boxing were analysis and discussion (average ranks 1.83-2.12; Table 6). In boxing, preference was given for guidance and recommendations (average rank: 1.83). At the same time, the last place in the ranking in fencing, wrestling, judo, and taekwondo was a lecture (average ranks: 4.58-5.83), and in boxing and karate – a story (average ranks: 5.50 and 5.67 respectively).

As depicted in Table 7, experts from all groups agreed and preferred to use video (average ranks: 1.00-2.50). However, they did not agree on the least significant visual aids. In fencing and karate, the use of photographs

Table 5. Experts' opinions on the importance of components in information block "Theory and Methodology of Tactical Training" in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	"Basics of tactical training in sports"	4.25	5.88	7.17	4.67	8.33	7.00
2	"Individual training plan"	4.88	3.13	2.67	3.33	2.17	3.83
3	"Methods and means of tactical training"	6.63	4.13	5.83	4.67	3.67	7.50
4	"Control of tactical skills"	6.75	4.00	4.50	5.33	5.83	4.67
5	"Model characteristics of tactical skills of elite athletes"	4.75	3.38	5.50	3.33	5.50	4.17
6	"Periodization of tactical training"	5.38	6.50	4.00	5.67	4.67	3.83
7	"Planning of tactical training"	4.25	6.75	3.50	6.17	4.50	4.67
8	"Formation of a tactical plan and choice of a tactical scheme"	2.88	4.25	5.50	5.17	3.33	2.33
9	"Forming a team, defining the functions of its members"	5.25	7.00	6.33	6.67	7.00	7.00
	Concordance coefficient	0.19*	0.22*	0.28*	0.18*	0.48	0.42

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient (p > 0.05)

is considered inappropriate (average ranks were 5.25 and 5.00 respectively), in wrestling and taekwondo – graphs and diagrams (4.87 and 4.75 respectively) and in boxing – educational films (average rank: 4.33), in judo – tables (average rank: 4.42).

Among the practical methods, experts of all groups except boxing and judo preferred training with a partner (average ranks: 1.17-2.50; Table 8). Instead, in boxing and judo, they preferred to use training with an opponent (average ranks: 1.67 and 2.17 respectively). At the same time, learning tactical actions from other sports were recognized as the least important in all expert groups except wrestling and karate (average ranks: 7.83-9.50). In wrestling, experts recommended to use referee practice (average rank: 8.37), and in karate – conducting training sessions by athletes (average rank: 9.50).

The priority of means and methods of control in tactical training is presented in Table 9. In all expert groups, except fencing, participation in competitions was valued as the best way to evaluate the tactical skills (average ranks: 1.33-3.00). Besides, in boxing and karate analysis of competitive performance was considered equivalent. In turn, the following methods were recognized as unimportant: in fencing, wrestling and boxing – keeping and checking athletes' diaries (average ranks: 6.50-6.67), in taekwondo and karate – conducting training sessions by athletes (average ranks: 7.17 and 7.76 respectively), in judo – execution of intellectually-developing tasks (average rank: 6.83). In addition, fencing and boxing were not recommended to focus on the use of the refereeing of training and competitive bouts.

Table 6. Experts' opinions on the importance of verbal methods of tactical training of elite athletes in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	Story	4.25	3.75	5.50	3.83	3.33	5.67
2	Explanation	3.38	3.50	4.17	4.50	3.50	3.33
3	Lecture	5.75	5.38	3.67	4.58	5.83	4.83
4	Conversation	3.25	2.75	3.83	3.83	4.00	3.00
5	Analysis and discussion	1.88	2.13	2.33	2.00	1.83	2.00
6	Guidelines and recommendations	2.50	3.50	1.83	2.25	2.50	2.17
Concordance coefficient		0.53	0.35	0.50	0.36*	0.55	0.62

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient (p > 0.05)

Table 7. Experts' opinions on the importance of visual methods of tactical training of elite athletes in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	Graphs and diagrams	3.31	4.88	3.83	3.83	4.75	3.33
2	Tables	4.06	4.13	3.50	4.42	4.58	2.67
3	Slides	4.50	3.13	3.67	3.83	4.75	4.50
4	Photos	5.25	3.75	3.17	4.17	3.50	5.00
5	Videos	1.19	1.63	2.50	1.50	1.67	1.00
6	Educational films	2.69	3.50	4.33	3.25	1.75	4.50
Concordance coefficient		0.63	0.34	0.11*	0.32*	0.64	0.64

Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
* unreliable concordance coefficient (p > 0.05)

Table 8. Experts' opinions on the importance of practical methods of tactical training of elite athletes in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	Training with a partner	2.00	1.38	2.50	3.83	1.17	2.50
2	Training with an opponent	2.38	2.00	1.67	2.17	2.92	2.50
3	Training with an imaginary opponent	2.63	4.38	3.33	4.17	3.00	3.00
4	Training without a rival	4.63	5.63	4.83	5.67	4.00	6.33
5	Keeping and checking diaries	7.75	7.38	6.17	5.67	7.33	8.50
6	Referee practice	7.56	8.38	7.00	6.17	7.33	6.83
7	Use of technical devices	6.38	5.50	6.67	5.33	5.50	4.67
8	Conducting training sessions by athletes	6.88	7.50	7.67	7.67	8.17	9.50
9	Execution of intellectually-developing tasks (training games)	6.88	5.75	7.33	4.83	6.92	4.00
10	Learning tactical actions from other sports	7.94	7.13	7.83	9.50	8.67	7.17
	Concordance coefficient	0.62	0.59	0.56	0.45	0.73	0.70

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
 * unreliable concordance coefficient (p > 0.05)

Table 9. Experts' opinions on the importance of means and methods of control in tactical training of elite athletes in Olympic combat sports (n = 40, p < 0.05)

No.	Components of tactical training	Average rank form groups of experts					
		1	2	3	4	5	6
1	Analysis of competitive performance	1.63	2.38	2.67	3.83	1.67	1.67
2	Participation in competitions	1.88	3.13	2.67	2.00	1.33	1.67
3	Control standards	4.50	5.63	4.83	3.50	4.00	3.33
4	Testing (topic-specific surveys)	5.25	6.25	5.67	5.67	5.58	5.50
5	Keeping and checking athletes' diaries	6.75	6.13	6.17	6.00	5.83	7.67
6	Conducting training sessions by athletes	6.00	5.00	5.50	5.50	7.17	7.67
7	Refereeing of training and competitive bouts	6.63	6.50	7.00	5.83	6.58	6.83
8	Execution of intellectually-developing tasks (training games)	6.38	5.25	7.67	7.33	6.00	5.00
9	Use of technical devices	6.00	5.00	2.83	5.33	6.83	5.67
	Concordance coefficient	0.53	0.27	0.48	0.34*	0.64	0.72

Note: Groups of experts: 1 – fencing (n = 8); 2 – wrestling (n = 8); 3 – boxing (n = 6); 4 – judo (n = 6); 5 – taekwondo (n = 6); 6 – karate (n = 6)
 * unreliable concordance coefficient (p > 0.05)

Discussion

The analysis of scientific and methodological literature concerning tactical training in combat sports indicates that the main accent of athletes' training is put on the development of technical and tactical skills [5, 7, 9, 10]. At the same time, in official documents (programs

for sports clubs and colleges) tactical training is not substantiated properly [8, 19, 20, 22].

According to Platonov [19], 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 competition's development, to change their tactics), tactical skills (trained tactical actions) and their combinations, and tactical thinking (athlete's thinking aimed at solving tactical problems).

The formation of tactical skills and the use of the most effective tactical actions in combination with technical actions are the most discussed in scientific papers [4, 16, 20, 23, 25, 26, 27]. At the same time, most contradictory are questions about tactical knowledge, which is the basis for the development of tactical skills, and the amount of time spent on tactical practice in the training process.

The most fundamental research devoted to tactical skills in combat sports during the last 10 years was made by Ryzhkova [20]. The author also used expert assessment for the determination of the most essential components of tactical preparedness. However, it included only information connected with tactical decision-making (act immediately or wait, provoke a rival or make a real action). The main accent was put on tactical information about the technological components of the construction of fights: specialized positions and movements of the blade chosen before the fight, typical combat operations, the results of the analysis of the alleged varieties of enemy actions in the upcoming battle, distances selected before combat [20]. According to this information, Ryzhkova developed technologies for the formation and improvement of athletes' tactical skills at different stages of long-term training [20]. The effectiveness of such technologies was revealed in pedagogical experiments. In our opinion, this research is very useful for fencers, but it doesn't take into account the specifics of other combat sports.

The next research in fencing, also tested as a pedagogical experiment, was held by Kriventsova et al. [16]. It was dedicated to student's tactical training. The technology of students' skills development was similar to previous research. The author suggested to use various methods and their combinations according to the students' experience in fencing. Some of them practiced fencing before entering the university, some of them tried that kind of sport for the first time. According to the traditional approach there should be no difference between tactical training at the university level for those students who practiced fencing before and those who have never done it. The results of the experiment proved that the author's approach to student's tactical training was more effective than the traditional one. But again, those findings are effective only in fencing.

During the last 10-15 years the authors of papers related to tactical training in combat sports were most

interested in: the activity of athletes in different conflict situations [25]; tactical training as a basis for modeling the motor actions of coaches and sportsmen [2, 3, 7, 11]; individualization of tactical training of experienced athletes and formation of special style [15]; formation and development of tactical knowledge, skills, and abilities in the system of long-term training [6, 20]; structure and content of technical and tactical actions of athletes of different age and qualification [13, 14, 26, 27, 29]; planning of technical and tactical improvement in the annual macrocycle [15]. Scientists also developed a great amount of technical devices to improve technical and tactical skills, eg.: "Spuderg simulator" by Savchin [22], computer program "Analysis and modeling of competitive activity of fencers" by Shevchuk [23], fighting simulator "Spartak" by Velychenko and Zherdzinsky [29], "A device for evaluating some of the special physical skills of the boxer" by Saenko et al. [21], "Tyshler's Simulator (TTD)" by Tyshler and Ryzhkova [27]. In our opinion, the disadvantage of those methods is that they could be used only for the improvement of the individual aspects of preparedness, and do not provide integral control over the technical, tactical, special physical, psychophysiological aspects of the preparedness of combat sports. Moreover, their use doesn't involve the acquisition of specific knowledge of sports theory by athletes and the fulfillment of tasks in the conditions of counteracting the opponent in real-time.

The data obtained according to expert's assessment allowed us to conclude that practical experience of tactical training in combat sports is different, that is why coaches use various approaches. The choice of the particular approach depends on the coach's experience, his or her affiliation to the traditional sports schools, which were formed in different countries and regions over the years. The comparison of average ranks in all expert groups allowed us to make conclusion that some approaches in different combat sports are similar. It concerns the choice of the most significant and the least significant components of tactical training.

According to expert's assessment in tactical training of elite athletes in Olympic combat sports priority should be given to the following components:

- among the directions of tactical training – the practical implementation of tactical preparedness (in boxing, taekwondo and karate) and the improvement of tactical thinking (in fencing, wrestling and judo);
- among the factors that influence the training strategy for competitions – the functional preparedness and psychological state of the athlete or team (except judo);

- in information block “Basics of Tactics in Sports” – topics: “The varieties and content of tactical techniques and actions” (in fencing, judo and taekwondo) and “Competition strategy and tactics” (in wrestling and karate);
- in information block “Competition performance” – topics: “International competition system” (in fencing and karate), “Individual styles of competition performance” (in boxing and taekwondo);
- in information block “Theory and Methodology of Tactical Training” – topics: “Individual training plan” (in wrestling, boxing, judo, taekwondo), “Formation of a tactical plan and choice of tactical scheme” (in fencing and karate);
- among verbal methods – analysis and discussion (except boxing);
- among visual methods – videos;
- among practical methods – training with a partner (in fencing, wrestling, taekwondo, and karate) and training with an opponent (in boxing, judo, and karate);
- among the means and methods of control – the analysis of participation in control competitions (in boxing, judo, taekwondo, and karate) and indicators of competition performance (in fencing, wrestling, boxing, and karate).

Analysis of the research results allowed us to form a generalized algorithm of tactical training which could be useful for elite athletes in Olympic combat sports: fencing, freestyle, and Greco-Roman wrestling, amateur (Olympic) boxing, judo, taekwondo WTF, karate WKF. Elite athletes, to keep or increase their position in the national and international rankings or to win a quota place for the next Olympic Games, take part in various competitions during the sports season. Therefore, their tactical training should aim at the practical implementation of tactical preparedness and the improvement of tactical thinking – the main accent should be given to 1) the development of the most effective tactical actions against the main rivals, 2) the ability to make a correct decision during the bout, and 3) to predict the opponent’s actions. When preparing for the particular event or bout the choice of the tactics should always be based on the functional preparedness and psychological state of the athlete or team (in team events). The athletes should be familiarized with the most important theoretical topics as they are the basis for the improvement of the athlete’s tactical knowledge and tactical thinking. The coach may also use analysis and discussion when choosing the most appropriate strategy for the competition. Usually, he supposes the strategy for the whole competition – to win all bouts in the preliminary stage with the maximum

score or to win only the number of fights that will allow moving on to the next stage of the competition. Then the coach and the athlete may discuss which actions to use against different rivals and options if the chosen tactics would be ineffective. After discussion, they should use videos of the duels in which the athlete has already competed with these opponents and analyze them (to choose the most effective actions). The next step is to improve these actions in training with a partner when another sportsman or a coach creates easier conditions for using the chosen actions. Then the athlete attempts to use these actions with an opponent in sparring matches. All the attempts should be recorded on video. The athlete and the coach review the video and correct the mistakes. If there is an additional event (less important tournament) before the main competition, the athlete may try to use these actions in the match with new opponents. In the future, the coach concludes whether these actions can be used at the main competition (the Olympic Games or World Championship) with particular opponents.

In brief, the algorithm of tactical training for elite athletes in Olympic combat sports should aim to prepare for the main competition of the year (the Olympic Games or World Championship). The tasks should be to choose an effective strategy; to develop the most effective tactical actions against the main rivals; to train undertaking correct decisions during the bout; to learn how to predict the opponent’s actions. The developed steps of tactical training are: 1) to analyze the functional preparedness and psychological state of the athlete or team before the event; 2) to learn more about the varieties and content of tactical techniques and actions, competition strategy and tactics, individual styles of competition performance, tactical plans and choice of tactical schemes; 3) to choose the most appropriate strategy for the competition and tactics for each bout with different opponents; 4) to determine the range of the most effective and reliable actions; 5) to improve these actions, using training with the partner and the opponent; 6) to analyze the quality of performance of these actions, to make eventual corrections.

In our opinion, this algorithm of tactical training may be useful for elite athletes in all Olympic combat sports. At the same time, it may be more detailed depending on the types and amount of competition during the season, the athletes’ other important tasks, their functional and psychological state, and the preparedness of the main opponents.

Conclusions

1. Tactical training is one of the most important components of athletes’ tactical preparedness in

modern Olympic combat sports. It is aimed to develop tactical knowledge and skills which are essential to defeating different opponents.

2. Despite that in modern Olympic combat sports, the coaches use various approaches, the general algorithm of tactical training of elite athletes could be used. It consists of six steps and is aimed to prepare for the main competition of the year (the Olympic Games or World Championship). The tasks are to choose an effective strategy; to develop the most effective tactical actions against the main rivals; to train to make a correct decision during the bout; to learn how to predict the opponent's actions.

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Appendix

Dear expert!

We ask you to express your opinion regarding the tactical training of elite athletes in your kind of sport (Olympic combat sports).

Full name:; age:;
 kind of sport:; qualification:;
 coaching category:;
 scientific degree:;
 experience as a coach and/or teacher:;
 place of work:

Section 1. TACTICAL TRAINING DIRECTIONS

Indicate the importance of the tactical training directions of elite athletes, ranging from 1 (most significant direction) to 5 (least significant direction).

No.	Directions of tactical training	Rank
1.	The study of the essence and basics of sports tactics	
2.	The study of the basic elements, techniques, options of tactical actions	
3.	The study of information necessary for practical implementation of tactical preparedness (information about opponents, competition)	
4.	Practical implementation of tactical preparedness (the use of tactical actions during competition)	
5.	Improvement of tactical thinking (how to trick an opponent and make him make a mistake)	

Section 2. FACTORS THAT INFLUENCE THE TRAINING STRATEGY FOR COMPETITIONS

Indicate the importance of factors that influence the training strategy for competitions, ranging from 1 (most significant direction) to 5 (least significant direction).

No.	Directions of tactical training	Rank
1.	The level of technical and tactical skills of athletes (teams)	
2.	Functional preparedness and psychological status of athletes (teams)	
3.	The level of competition and their formula	
4.	The level of opponents' preparedness	
5.	Knowledge about the opponents' preparedness	

Section 3. THEORETICAL MATERIAL WITHIN THE TACTICAL TRAINING

Indicate the importance of topics in the blocks of the tactical training at different stages of the long-term development, ranking them from 1 (the most important topic) to 10 (the least important topic).

Information block “Basics of Tactics in Sports”

No.	Topics	Rank
1.	“The importance of tactics in sports”	
2.	“The interrelation of tactical skills with other parties of preparedness”	
3.	“The varieties and content of tactical techniques and actions”	
4.	“Competition strategy and tactics”	
5.	“Forms of tactics”	
6.	“Directions of tactical training”	
7.	“The interrelation of the athlete’s specialized feelings with tactics”	
8.	“Tactical plan, tactical scheme”	
9.	“Current trends in tactics of the chosen sport”	
	Your offer:	

Information block “Competition Performance”

No.	Topics	Rank
1.	“Competition rules”	
2.	“International competition system”	
3.	“National competition system”	
4.	“Duties of judges and refereeing of competitions”	
5.	“Organization of competitions”	
6.	“Competition terminology”	
7.	“Requirements for equipment and inventory”	
8.	“Participation of national and foreign athletes (teams) in competitions of different levels”	
9.	“Individual styles of competition performance”	
	Your offer:	

Information block “Theory and Methodology of Tactical Training”

No.	Topics	Rank
1.	“Basics of tactical training in sports”	
2.	“Individual training plan”	
3.	“Methods and means of tactical training”	
4.	“Control of tactical skills”	
5.	“Model characteristics of tactical skills of elite athletes”	

6.	“Periodization of tactical training”	
7.	“Planning of tactical training”	
8.	“Formation of a tactical plan and choice of a tactical scheme”	
9.	“Forming a team, defining the functions of its members”	
	Your offer:	

Section 4. METHODS AND MEANS OF TACTICAL TRAINING

Indicate the importance of verbal methods and means of tactical training, ranging from 1 (most significant direction) to 7 (least significant direction).

No.	Verbal methods and means of tactical training	Rank
1.	Story	
2.	Explanation	
3.	Lecture	
4.	Conversation	
5.	Analysis and discussion	
6.	Guidelines and recommendations	
	Your offer:	

Indicate the importance of visual methods and means of tactical training, ranging from 1 (most significant direction) to 7 (least significant direction).

No.	Visual methods and means of tactical training	Rank
1.	Graphs and diagrams	
2.	Tables	
3.	Slides	
4.	Photos	
5.	Videos	
6.	Educational films	
	Your offer:	

Indicate the importance of practical methods and means of tactical training, ranging from 1 (most significant direction) to 11 (least significant direction).

No.	Practical methods and means of tactical training	Rank
1.	Training with a partner	
2.	Training with an opponent	

3.	Training with an imaginary opponent	
4.	Training without a rival	
5.	Keeping and checking diaries	
6.	Referee practice	
7.	Use of technical devices	
8.	Conducting training sessions by athletes	
9.	Execution of intellectually-developing tasks (training games)	
10.	Learning tactical actions from other sports	
	Your offer:	

Section 5. CONTROL IN TACTICAL TRAINING

Indicate the importance of methods and means of control in tactical training, ranging from 1 (most significant direction) to 10 (least significant direction).

No.	Practical methods and means of tactical training	Rank
1.	Analysis of competitive performance	
2.	Participation in competitions	
3.	Control standards	
4.	Testing (topic-specific surveys)	
5.	Keeping and checking athletes' diaries	
6.	Conducting training sessions by athletes	
7.	Refereeing of training and competitive bouts	
8.	Execution of intellectually-developing tasks (training games)	
9.	Use of technical devices	
	Your offer:	

Date *Signature*

Thank you for your help!