

Technical and tactical training of qualified Volleyball players by improving attacking actions of players in different roles

YEVGENIY IMAS¹, OLGA BORYSOVA², OLHA SHLONSKA³, IRYNA KOGUT⁴, VIKTORIA MARYNYCH⁵, VIKTOR KOSTYUKEVICH⁶

^{1,2,3,4,5} National University of Ukraine on Physical Education and Sport, Kyiv, UKRAINE

⁶ Vinnitsia State Mykhailo Kotsyubynskyi Pedagogical University

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Abstract

Introduction. One of the major trends in the development of modern volleyball is the use of attacking actions from the back line of the playing court and force service in the jump that provides high efficiency of competitive activity of players in the team. However, at the present stage of the game development insufficient attention is paid to improve these technical and tactical actions in the system of the game of qualified volleyball players. The goal is to raise the efficiency of competitive activity of the qualified volleyball players in the attack by improving the attacking actions of the back line of the playing court and the power serve in the jump. **Material.** The study uses statistical data of the major international competitions: the 2012 Olympic Games, the 2010, 2014 World Championships, the 2010 – 2015 European Championships, the 2010 – 2015 World League. Totally 130 games were analyzed. The pedagogical experiment was conducted with participation of the Ukrainian Super League team «Burevestnik» to solve the problem of increasing the efficiency of competitive activity. The experiment involved 12 qualified volleyball players. **Results.** There were identified the features of the application of technical and tactical actions of attacking the qualified volleyball players, which were later used for evaluation, interpretation and modelling of technical and tactical actions of attacking players in different roles: the first, the second pace attack and «diagonal». It is proved that the use of specific exercises that simulate competitive activity in volleyball increases the efficiency of the main groups of technical and tactical actions in attack, which in the beginning of the pedagogical experiment was significantly lower when compared with the leading volleyball players of the world. **Conclusions.** The effectiveness of the pilot program implementation was confirmed statistically to be trustworthy ($p < 0.05$) increasing the basic indicators of the competitive activity quality of «Burevestnik» team players. The efficiency of the main groups of technical and tactical actions in the attack significantly increased in comparison with the period before they start the pedagogical experiment.

Keywords: model, techniques, tactics, rate, volume, efficiency, action..

Introduction

In modern volleyball success of competitive activity of the qualified athletes depends on many factors, the main of which is technical and tactical preparation (Ye. Imas, O. Borysova, 2016; A.V. Belyaev A.V., 2009; E.Yu. Doroshenko 2014; V.N Platonov, 2004).

This problem was comprehensively studied by scientists and large enough scope of information has been saved up. In V. O. Gradusov's (2011) works, A.V. Belyaeva (4), T.E. Bagotyrtseva (2001) , Yu.N. Kleshcheva (2009) technical performance of different types of serves was considered, and also technique of their training (E.Yu Doroshenko, 2014; Yu.D. Zhelezniak 1991, 2003; A.V Ivoylov A.V. 1991). In B. O. Artemenko's (2013) researches, Yu.A. Horchanyuka (2014), G. Fellingham (2013), Marcelino R. (2012), Memmert D. (2010) the analysis of development of technical and tactical interactions in volleyball was done and their realization in competitive activity is carried out. However, there is no justification of features of application of technical and tactical actions in attack and techniques of their improvement by players of various role.

One of the most important tendencies in development of modern volleyball is application of the attacking actions from baseline of the playground and power serve in jump which provide high efficiency of competitive activity (V.V. Gamaliy, 2016; A.V Ivoylov A.V. 1991; V. Prokopovich, 2013; D. Memmert, 2010). In the investigation of it, our researches have been directed at development of model indicators of application of technical and tactical actions of the qualified volleyball players of different role (players of the first and second rate of attack), and also definition of the importance of the attacking actions which are carried out from baseline of the playground (V.V. Gamaliy, 2014).

The attacking operations are performed by players of various roles from baseline of the playground and jump serve in the jumping will promote improvement of efficiency in competitive activity of the qualified volleyball players. Research objective is efficiency improvement in competitive activity of the qualified

volleyball players in attack oriented at perfection of the attacking operations which are performed from baseline of the playground and power serve in jump.

Materials and methods.

Active participant. In the researching 12 qualified volleyball players of the «Burevestnik» team at the age of 18–23 years took part, including 1 – Master of Sports of Ukraine and 11 – Candidates for Master of Sports of Ukraine. Researches were conducted on educational and training base of the team of Super League of Ukraine «Burevestnik» (the T. G. Shevchenko Chernihiv National Pedagogical University). The parameters of competitive activity, technical and tactical arsenal of the qualified volleyball players were determined at the official games of the championship of Ukraine by volleyball among the Super League teams of 2014 – 2015.

For enhancement of technical and tactical actions in attack of the qualified volleyball players, the consecutive pedagogical experiment was made. The result of which was adopted as the test program of improvement in the attacking actions of volleyball players of various role. Index of pedagogical experiment is dynamics of indicators in efficiency of the attacking actions of players in different roles in the competitive activity.

Results

The problem's essence, that is in the improvement of technical and tactical actions of the qualified volleyball players of various roles, revealing the relevance of highly specialized components of players' game activity, which define possibilities of victory's achievement in the specific game (V.M. Kostyukovich, V.I. Voronova, O.A. Shinkaruk, O.V. Borysova, 2016). For this purpose, we have studied technical and tactical actions in attack of highly skilled volleyball players of the world by results of performances at the largest international competitions: the 2012 Olympic Games, the 2010, 2014 World Cups, the 2010 – 2015 European championships, the 2010 - 2015 World League .Totally 60 games were analyzed. The pedagogical observation of qualified volleyball players was executed based on video surveillance of competitive activity of players who participated in the 2010 – 2015 European championships, the 2010 – 2015 volleyball championships of Ukraine.

The data obtained by means of the researches have allowed revealing certain regularity of application of technical and tactical actions in attack of high-class volleyball players (fig. 1). Essential distinctions are observed when performing the attacking actions by players of the second rate of attack of the best volleyball national teams of the world in comparison with the Ukrainian athletes upon indications of efficiency of tactical interaction «wave» and the attacking blows, which are carried out from playground baseline.

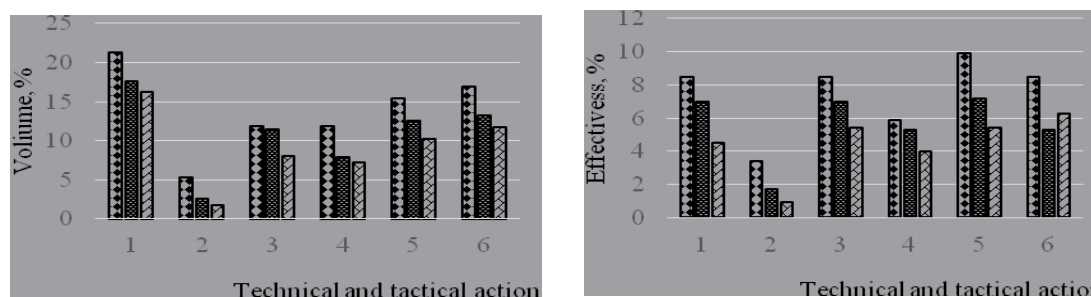





Fig.1. The technical and tactical operations in attack performed by high-class volleyball players throughout one game on volume indicators:

-  – highly skilled volleyball players of the world;
-  – highly skilled volleyball players of Ukraine;
-  – skilled volleyball players of «Burevestnik» team

1 – «wave»; 2 – «echelon»; 3 – «take-off»; 4 – «zone»; 5 – the attacking blows which are carried out from platform baseline; 6 – «A cross»; 7 – «simply»

Volleyball players of world elite teams have accurately expressed the tendency not only to effective carrying out protective actions, but also to successful application of the attacking actions in competitive activity by players of the second rate of attack which are carried out from baseline of the playground and make basis for performance of group interaction «echelon». It should be noted that volleyball players of Super League of Ukraine teams demonstrate indicators of these technical and tactical actions which have the smallest value. That is explained by imperfect possession of the attacking blows technique, which are carried out from platform baseline, and also by the insufficient level of development of the coordination abilities promoting successful interaction of players of the first and second rate of attack.

In competitive activity, «diagonal» players carry out the most part of the attacks due to the attacking blows from « depth» of the platform (D.M. Mishchuk, 2014). The analysis of competitive activity shows that for the best volleyball players of the world the first zone is optimum for performance of the attacking blows that on

indicators of volume and efficiency makes 8,9 and 6,3% and it is connected with effective realization of the diagonal direction of movements of a ball (V.V. Gamaliy, O.L. Shlonska, 2016).

As the result of the analysis of competitive activity of volleyball players of various role, it is defined that the most effective in competitive activity are the tactical actions group in attack, which are expressed in application of tactical action «echelon»: the attacking actions which are carried out from baseline of the playground and jump serve in the jumping that is consequence of low level of technical and tactical readiness of the qualified volleyball players of Ukraine. Considering general provisions of the theory of athletes' training and results of own researches, we have defined the most effective means of correction of training process allocated for increasing in efficiency of competitive activity in volleyball on basis use of model indicators of technical and tactical actions of players of all roles and the program for improving technical and tactical training of the qualified volleyball players is developed. The offered program is based on the definition of model indicators of the attacking actions of the best national teams of the world. The program contains complementary components, and the main component is the selection of means and methods of improvement in the attacking actions of highly skilled volleyball players of various roles. Physical exercises, namely the competitive exercises directed at improvement of technical and tactical readiness of the qualified volleyball players were the main means of technical and tactical improvement.

In pedagogical experiment verbal, visual teaching methods were used, modeling, and also method of practical exercises. Along with the standard methods of training the methods developed by Yu. N. Kleshchev (2003), A. V. Ivoylov (1991) also were used, to which belong the following: repetition of the caused actions in the set game situations; rationing of number of the performed operations; combination of competitive actions at specialized reaction; independent choice of action; modeling of tactical options of the chosen technical and tactical actions with probabilistic result and the sequence of rivals' actions.

The competitive exercises directed at the solution of objectives of the pedagogical experiment have been conditionally subdivided into three groups:

- the technical and tactical actions in attack which are most often found in modern volleyball;
- the exercises at interaction with partners in team directed at improvement of group tactical actions in attack for volleyball players of various game role;
- exercises at interaction with the rival.

The number of repetitions and time allowed for performance from 30 to 90 minutes depending on success of performance of exercises and emotional condition of athletes varied.

The qualified volleyball players of the «Burevestnik» team trained according to the experimental program, which contained complex of the special and game exercises, directed at the improvement of the group tactical construction «echelon», the attacking blows which are carried out from baseline of the playground and power serve in jump.

8 complexes of the educational and training activities focused on correction of technology of the attacking actions which are carried out from playground baseline became the basis of the program. The efficiency of the program was estimated by the results of competitive activity of Super League in the season of 2013 – 2015.

On the basis of the obtained experimental data (table 1) it is established that the greatest gain of the efficiency of the attacking actions of the player of the second rate of attack, it is received for the account of increase in number of the attacking operations which are performed from playground baseline. Their efficiency at the end of the pedagogical experiment has made up 2,7% ($p < 0,05$). Efficiency of power serve has statistically authentically increased in jump for 3,2% and efficiency of tactical construction "echelon" and technical tactical actions «lumbago» for 1,8% ($p < 0,05$).

Table 1. Indicators of efficiency of application of technical and tactical actions in attack by players of the second rate of attack (role – «outside hitter») before carrying out the pedagogical experiment

Technical and tactical action	Indicator of efficiency of technical and tactical actions in attack, %				t	p
	before the experiment, n = 6		after the experiment, n = 6			
	\bar{x}	S	\bar{x}	S		
Wave	1,8	0,2	2,7	0,3	1,8	>0,05
Echelon	0,9	0,2	2,7*	0,6	2,5	<0,05
Zone	1,8	0,2	2,7	0,4	1,8	>0,05
The attacking blows from baseline	0,9	0,2	2,7*	0,2	2,5	<0,05
A cross	1,8	0,5	3,6	0,2	2,5	<0,05
The attacking blows without tactical orientation	5,4	1,8	5,4	0,1	0	0,05
Spiking serve	8,6	0,5	11,8*	0,6	4,0	<0,05

Notes: \bar{x} – arithmetic average value; S – standard deviation; t – Student's criterion; P – statistical importance; * – the difference between indicators before carrying out the pedagogical experiment is statistically significant at the level $p < 0,05$.

Results of the pedagogical experiment are presented in Table 2. The main gain (6,3%) of efficiency of the attacking actions of players of the second rate of attack has increased due to increase in efficiency of the attacking blows which are carried out from baseline of the platform, technical and tactical actions "zone" – 3,6% ($p < 0,05$). Efficiency of spiking serve that is applied by the player of this role at the end of the pedagogical experiment has made up 7,7%.

Table 2. Indicators of efficiency of application of the attacking actions by players of the second rate of attack (role – «diagonal») before carrying out the pedagogical experiment

Technical and tactical action	Indicator of efficiency of technical and tactical actions in attack, %				t	p
	before the experiment, n = 6		after the experiment, n = 6			
	\bar{x}	S	\bar{x}	S		
Wave	0,9	0,3	1,8	0,2	1,8	>0,05
Zone	1,8	0,2	3,6*	0,4	3,0	<0,05
The attacking blows from baseline	3,6	0,3	6,3*	0,3	4,5	<0,05
A cross	3,6	0,2	3,6	0,4	0	>0,05
The attacking blows without tactical orientation	4,5	0,1	4,5	0,6	0	>0,05
The complicated spiking serve	5,3	0,6	7,7*	0,4	3,0	<0,05

Notes: \bar{x} – arithmetic average value; S – standard deviation; t – Student's criterion; P – statistical importance; * – the difference between indicators before carrying out the pedagogical experiment is statistically significant at the level $p < 0,05$.

In fig. 2 The model of application efficiency of technical and tactical actions in attack of highly skilled volleyball players of the world and the qualified volleyball players of the «Burevestnik» team at the beginning and after carrying out the pedagogical experiment.

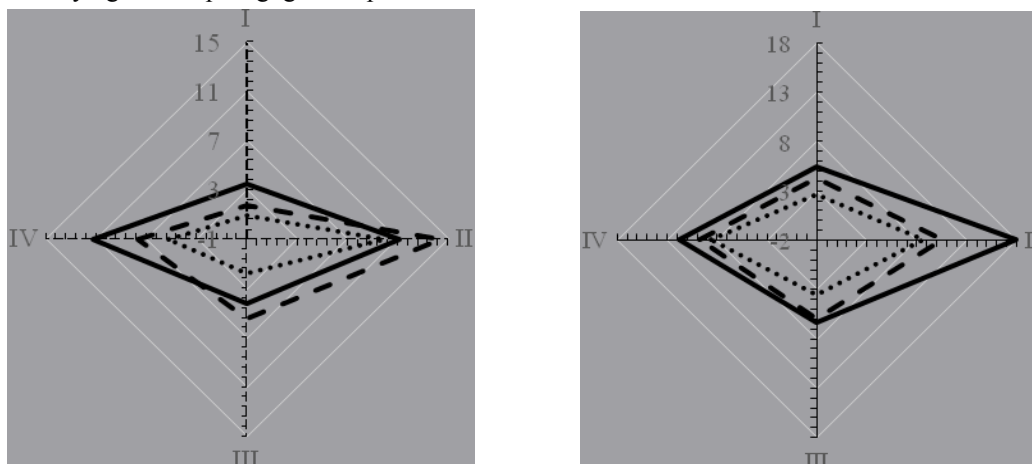


Fig. 2. The generalized models of the indicators of the efficiency of technical and tactical actions in attack of highly skilled volleyball players of Ukraine and the team of Super League of Ukraine «Petrel» before carrying out the pedagogical experiment on indicators of efficiency, %:

- – highly skilled volleyball players of Ukraine;
- – team players of «Burevestnik» (before the experiment);
- — — — — – team players of «Burevestnik» (after the experiment);

I – group tactical actions, II – individual technical and tactical actions; III – the attacking blows which are carried out from baseline of the playground, IV – spiking serve

Thus, increased volume and higher efficiency of application in the competitive activity of the qualified volleyball players of the attacking blows which are carried out from baseline of the platform and power serve in jump, results in significantly improved efficiency of the competitive activity potential. Development of the individual, group and generalized models of application of technical and tactical actions by players of various role allow to predict the level of skills of the qualified volleyball players.

Discussion

As the result of the pedagogical experiment, the positive changes of the indicators of the efficiency of technical and tactical actions in attack of volleyball players of the second rate of attack of the «Burevestnik»

team are revealed. The comparative analysis shows that prior to the experiment and after its termination statistically reliable changes have taken place ($p < 0,05$) on the indicators of volume and efficiency of application of technical and tactical actions in attack by the qualified volleyball players of the Petrel team of different role.

The obtained data confirms results of researches of other authors (Yu.D Zhelezniak, A.V. Ivoylov, 1991; E.Yu. Doroshenko, 2014; Yu.N. Kleshchev 2009), who consider that the technical and tactical preparation has to be carried out taking into account the content of competitive activity of high-class volleyball players. The application of new organizational forms of attack will allow increasing the efficiency of competitive activity in volleyball. Data were added, concerning indicators of volume and efficiency of technical and tactical actions in attack [4], the volume of application of power serve in jump by high-class volleyball players (T.E. Bagotyrtseva, 2001; V.O Gradusov, V.K. Lisnyanskyy, A.Yu. Melnik, 2011; E.Yu. Doroshenko, 2014; A.Yu. Melnik, 2012; D.M Mishchuk, L.V. Anikeyenko, 2014), performing in competitive activity of the attacking blows from baseline of the playground (B.O. Artemenko, 2013).

As the result of the conducted researches, it is established that the greatest contribution to the efficiency of competitive activity is brought by players of the second rate of attack («wing-spiker», «diagonal») by performing the attacking actions which are carried out from baseline of the playground and jump serve in the jumping.

The comparative analysis of competitive activity (fig. 2) of the volleyball players competing at the Championship of Ukraine among teams of Super League proves that at the end of pedagogical experiment, team players of «Burevestnik» (role – «wing-spiker») statistically authentically ($p < 0,05$) have increased values of components of the efficiency of individual technical and tactical actions (14,4%) and the attacking blows which are carried out from playground baseline (5,4%), and the same values have exceeded indicators of highly skilled volleyball players of Ukraine.

For «diagonal» players at the end of pedagogical experiment the increase in all components of attack is established in comparison with volleyball players of teams of Super League of Ukraine ($p < 0,05$). The greatest gain was observed due to increase in efficiency of the attacking operations performed from baseline of the volleyball court. The results of experiment have shown that the offered program of the improvement of the attacking actions promoted the increase in the indicators of the efficiency of the competitive activity of volleyball players of the «Burevestnik» team.

The efficiency of the received results allows to note that the developed program of the improvement of technical and tactical actions in attack of highly skilled volleyball players of different roles which is based on the principles of program and target approach corresponds to the basic provisions of the general theory of preparation and at the corresponding adaptation to a certain game (basketball, handball, rugby, hockey, soccer, etc.), can be used in other team sports.

Conclusions

1. The analysis and synthesis of data of literature, experience of leading experts concerning the improvement of sports skill of high-class volleyball players have shown that the technical and tactical training of athletes is the major factor, influencing both the achievement of high sports results, and the determination of content of training process. The technique of technical and tactical training of highly skilled volleyball players demands further development on the basis of use of technical and tactical operations which are performed from playground baseline. It will allow to optimize the system of the training of the Ukrainian athletes by increase in the efficiency of the attacking actions of players of different role.

2. The comparative analysis of competitive activity of highly skilled volleyball players of the world and Ukraine confirms the existence of certain regularities in its structure, which consist in the volume, and the efficiency of the application of group tactical actions and power serve in jump.

3. The main feature of the experimental program of the improvement of the technical and tactical actions in attack is the organization of technical and tactical training for volleyball players at the stage of realization of the maximum opportunities based on the accented use of the attacking actions, which are carried out from playground baseline.

4. The efficiency of introduction of the experimental program is confirmed statistically reliable ($p < 0,05$) with the increase in the main indicators of quality of the competitive activity at the team players «Petrel». The efficiency has authentically increased concerning the main groups of technical and tactical actions in the attack of players of the first and second rate of attack who at the beginning of the experiment were much lower when comparing with volleyball players of the world (tactical action «echelon» and the attacking blows, which are carried out from platform baseline).

Credit

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