Original Article

Study on the efficiency of attack in the first division senior male in volleyball

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Abstract:
   Problem: The volleyball game contains a series of individual technical-tactical actions that interact throughout the game. Thus, the successive scrolling of the actions during a sequence of games (through a sequence understanding what happens from the side of the net to the passing of the ball into the adversary field) determines the structures and stages of the game (Şerban, M.H. 1999).
   The premises of the study: In the volleyball game, the conditions of entry into possession of the ball within the two gaming structures are different, which will lead to an effective attack, depending on the quality of the pre-action actions.
   Research assumptions: Suppose we can issue as a first hypothesis that there will be a difference in the effectiveness of the attack in all its aspects, in favor of the attack after taking over the service, too, the distribution of the rise for attack will have different proportions depending on the structure playing, being more frequently requested zone 4, as a safety option, after taking the attack.
   The research methods used were the observation method, the computer record, the statistical-mathematical interpretation method and the graphical representation method.
   Discussions: The numerical growth and improvement of the tactical combinations, based on the considerable increase in the speed of the ball, especially on the last trajectory (lift-shooter) and the movement of the players in the finishing phase, gives the decisive importance to the success of the collective actions..
   Conclusions: The record-based study allowed a comprehensive analysis of the content of the actions initiated by team players, giving us the opportunity to establish correlations that are both dependent on the actions of their own team and that of the team against the opposing team; the dependence on setting the efficiency of the reception and the digger or the blocking of the difficulty of our own service are evident in the games of our top teams in the rankings that achieve higher values than the other teams in the actions of service, reception and block.
Key words: efficiency, game, attack, volleyball, seniors

Introduction
   The problem of the study attempts to identify as fully as possible the entire fan of the game and player model components, at the level of the requirements of the current peak performance, as content and methodology references, to which the entire Romanian coach, to the elements prefigured in the model being the essential condition in the unitary materialization of the Romanian game conception, training and model of the player (Zetou, E., Moustakidis, A., Tsigilis, N., and Komninakidou, A. 2007).
   The knowledge of the performance of each player and his comparative contribution to the game play is of great importance for both the technician and the sportsman (Balaiş, F., Păcuraru, Al., 1997).
   Efficiency and economics indexes, which make the athletes' activity more objective, are becoming more and more important, as they are the benchmarks to which all the efforts of coaches and players play together (Baechle TR and Earle RW 2000).
   A sporting team will act tactically efficient if it is competent and prepared to take into account all that surrounds it (Niculescu, M. 2002). Only in this way can we be armed enough to win the "battle" of any attempt at sport performance that is - and last but not least - a question of strategic anticipation and strategic orientation of chances, errors, concretely adjusted by a tactic proper.
   It is necessary to maximize the individual peculiarities of the players and to maximize the accent on areas and positions, where appropriate (Bril M.S., Kleshev U.N., 1988).
At both the high performance and the performance level, the notion of holder and reserve disappeared. A competitive team must have 12 players capable of adapting throughout the game to different game systems (Yiannis, L. and Panagiotis, K. 2005).
   The volleyball game contains a series of individual technical-tactical actions that interact during the course of the game. Thus, the successive scrolling of the actions during a sequence of games (through a sequence

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understanding what happens from the side of the net to the passing of the ball into the adversary field) determines the structures and stages of the game (Şerban, M.H. 1999).

In the following, we will try to sublimate what is meant by the game structure and also what its constituent elements are. We consider it important to make this statement because the action that is the object of the study, namely the attack is found in all the game structures presented by the literature, each of them playing in different conditions.

The premise of the study

In the volleyball game, the entry conditions of the ball in the two game structures are different, which will lead to an effective attack, depending on the quality of the pre-action actions.

Research Hypotheses

Suppose we can issue as a first hypothesis that there will be a difference in the effectiveness of the attack in all its aspects, in favor of the attack after reception.

The distribution of the lifting of the attack will have different proportions depending on the structure of the game, the most frequently requested zone 4, as a variant of the device after reception from attack.

Regarding the setting trajectories, we assume that after the attack will dominate the high trajectories that allow the shooters to adapt to the variables of the game difficult to control in this situation.

Methods of work

For the elaboration of the paper we have set the following tasks:
- Studying the bibliography;
- Establish the level of performance of the study and of the research lot;
- Establishing research hypotheses;
- Establishment of indicators to be registered;
- Elaboration of the registration forms for the actions that we have in the study;
- Recording of game actions and data centralization in specially designed tables;
- Determining the efficiency index of the differential attack action on the two game structures for each recorded match type;
- Analysis of the distribution and efficiency of the attack according to the lifting trajectory;
- Attack distribution and attack analysis by attack area on game structures;
- Analysis of attack distribution on sets according to the lifting trajectory;
- Accompanying each type of analysis with graphical representations;
- Elaboration of partial conclusions for each studied indicator;
- Develop final conclusions.

Methods of research

- Observation method
- The method of computer registration;
- Method of statistical and mathematical interpretation;
- Graphic representation method;

In order to evaluate the effectiveness of the I structure component games, we considered it necessary to give some appropriate ratings to the immediate effect these actions had on the game.

Ranking was done using the assessment scale developed by FIVB and presented in the "Manual for the FIVB Statistical Match Record (SMR)".

In this scale, the result of each action is evaluated using a 5 degree scale based on the effect on the score or on the subsequent control of the ball by the team that plays the ball or by the opponent. Thus, in order: the degree, the evaluation and the award criterion, we have:

- "As" (evaluated 4) - is used only for actions:
- service, attack and jam;
- "Full Control" ((evaluated 3) is used when all the possibilities for further building of the game phase are created;
- "Limited control" (evaluated 2) is used if the subsequent preparation of the attack can not be done using all options;
- "No control" (evaluated 1) is used when the attack is not possible, but the ball is still in play;
- "Mistake" (evaluated 0) is used when the game has been interrupted resulting in the loss of the point.

Result

In the analysis of the attack, the setting trajectory is an extremely important indicator that we must keep under control so that in practice we can direct the attack tactically in relation to the criterion of efficiency.

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Anticipation of attack combinations can usually be done when we use the three-stroke phases and the ball passes to the lift, indicating how the action takes place. Combos in 2-stroke attack are actions to adapt to the actual situation of play that can cancel or be closely related to the action, as a way to continue the phase.

In order to achieve this, we will try to tighten the data related to the lifting trajectories and determine the effectiveness of the attack against it.

Table 1. Efficiency of the attack after reception and dig

	ATTACK AFTER RECEPTION			ATTACK ON DIG		
TRAJECTORYSET	SHORT	MEAN	HIGH	SHORT	MEAN	HIGH
NUMBER OF ACTIONS	22	148	65	11	54	62
EFFICIENCY INDEX	0,67	0,60	0,58	0,79	0,57	0,62
		0,61			**0,66**	
			0,63			

Table 2 Efficiency attack after the attack

		ATTACK AFTER RECEPTION	ATTACK ON DIG
ZONE OF ATTACKK	**Z2**	0,65	0,64
	Z3	0,63	0,66
	Z4	0,62	0,61
	LII	0,37	0,57

The table shows the effectiveness of the attack on areas, so that:
• The maximum efficiency is recorded in zone 3 after the attack, and the lowest value is recorded in the 2nd line;
• There are two zones (zones 3 and L2) in which the attack after the attack takes place is superior to the one after the takeover;
• By associating the distribution with the efficiency, we can see that the highest efficiency is not recorded in the most demanding areas; (area 3 most efficient, 0.66), compared to area 4, most frequently requested.

Table 3 Attack distribution on sets in relation to the lifting trajectory by match

MATCH TYPE		SET	ATTACK AFTER RECEPTION			ATTACK ON DIG		
			SHORT	MEAN	HIGH	SHORT	MEAN	HIGH
	3 – 2	SET 1	1	12	2	0	6	5
		SET 2	2	13	2	0	2	0
		SET 3	1	14	2	1	5	7
		SET 4	0	9	3	3	7	2
		SET 5	1	9	3	3	5	2
	3 – 1	SET 1	0	6	9	1	2	7
		SET 2	1	9	9	1	1	6
		SET 3	3	8	7	1	2	5
		SET 4	1	11	4	0	4	3
	3 – 0	SET 1		12	2	0	4	3
		SET 2		10	2	0	2	0
		SET 3		10	2	0	3	7
	3 – 0	SET 1	2	8	4	1	4	6
		SET 2	3	12	5	1	2	4
		SET 3	1	7	6	0	3	5

Table 4 Distribution quantitative types Match attacks against setting path

	ATTACK AFTER RECEPTION			ATTACK ON DIG		
	SHORT	MEAN	HIGH	SHORT	MEAN	HIGH
3 – 0	4	29,5	11	1	9	12,5
3 – 1	6	34	29	2	9	21
3 - 2	5	57	12	7	25	16

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Discussions

One of the fundamental actions of the volleyball game is the attack, which constantly relates to defense, forming a complex of logical actions that aim at obtaining the point and implicitly winning a game.

The numerical growth and improvement of tactical combinations, based on the considerable increase in the speed of the ball, especially on the last trajectory (lifter-shooter) and the movement of the players in the finishing phase, gives the decisive importance to the success of the collective actions. Combination is made with an attack solution for all 5 players in the field, the teams having 1-2 players specialized for the second line attack, usually in the crowd variant with the players of line I in a field on the net and the attack of line II with the player in the diagonal area, less the "double" attack on the same side as the corresponding player in line II.

Priority in Line II is attacked from area 1 and 5 on a 3-m-long elevation (as for line I) with a forward-jerk and generally long-range attack . For line I construction, it is intended to cluster a two-player field area and move the third one to a deadlock player, but without a priority area being rolled out. The dominance of the area in special situations is determined by the characteristics of the opponent.

Conclusions

The study revealed the following:
- the most numerous attacks were carried out from an average lifting, with a maximum value recorded after the takeover, following the high-lift attacks recording very close values within the two structures;
- regardless of the structure of the game, the most effective attack is from a short lift, which confirms one of the hypotheses, with a maximum recorded after the attack, a paradoxical situation if we consider the more difficult conditions in which the game takes place;
- Structure 1 is predominantly attacking from average lift as a tendency to accelerate the game against the easier conditions of entry into possession of the ball specific to this structure;
- In the dominant structure 2, the frequency of the high lift attacks increases, a situation explained by the more difficult entry conditions in the possession of the ball, which greatly limits the team's ability to build a combinational attack by resorting to safety finishes;
- zone 4 appears to be the most requested attack area in both gaming structures, followed by zone 2 with a number of sensitive actions, then line 2 and lastly zone 3;
- the maximum efficiency is recorded in zone 3, after the attraction, and the lowest value is registered in the 2nd line attack;
- associating the distribution structure with that of efficiency, we can see that the highest efficiency is not recorded in the most demanding areas; (area 3 most efficient, 0.66, compared to area 4, most frequently requested;

The record-based study allowed a comprehensive analysis of the content of the actions initiated by team players, giving us the opportunity to establish correlations that are both dependent on the actions of their own team and that of the team against the opposing team; the dependence on setting the efficiency of the reception and the digger or the blocking of the difficulty of our own service are evident in the games of our top teams in the rankings that achieve higher values than the other teams in the actions of service, reception and block.

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