



## A COMPARATIVE STUDY REGARDING THE EFFICIENCY OF GAME RELATIONS IN ATTACK AT THE WOMEN'S VOLLEYBALL TEAMS

MĂRZA-DĂNILĂ DĂNUȚ-NICU, VOINEA NICOLAE-LUCIAN

Faculty of Movement, Sports and Health Sciences, University „Vasile Alecsandri” of Bacau, ROMANIA

### Abstract

**Research objectives:** The main objective of this study is the analysis of game relations in attack, during the women's teams' volleyball games, in order to try to find the best solutions to improve it.

**Research methods:** the study of specialized literature; video analysis; mathematical; graphical.

**Subjects:** The subjects of this study are the female volleyball players of Știința Bacău, Penicilina Iași and the CS Volei 2004 Tomis Constanța, teams that participate during the 2009/2010 season in the National Women's Volleyball League.

**Rezultatele cercetării:** The analysis we made in our study refers, mainly, to the relations established during the attack between: setters and area 4 players, setters and centre players and setters and the area 2 player („false”), aspects that can lead us to an increase in game efficiency in attack for the National League women's volleyball teams.

Following the analysis of the official games data, we observed that the attack relations between the coordinating setter and:

- The players in area 4 have an average efficiency of  $0,721 \pm 0,035$  and a variability coefficient of 4,902;
- The centre players have an average efficiency of  $0,736 \pm 0,062$  and a variability coefficient of 8,467;
- The player in area 2 has an average efficiency of  $0,714 \pm 0,070$  and a variability coefficient of 9,846.

**Conclusions:** Following the obtained results, we can say that the knowledge of the efficiency level for the attack game relations is necessary and compulsory, and it constitutes itself in main guidelines for the quality of training as the demands of today's volleyball game are concerned.

**Keywords:** game relations; attack; volleyball.

### Introduction

Volleyball is a simple game through multilateral training, the speed of developing spectacular actions and his game has come to enjoy more and more practitioners and supporters. Understanding the game of volleyball continuous improvement both nationally and internationally, through this study we tried to bring a small contribution to the enrichment of specialty materials, by clarifying some aspects of relationships play in attack volleyball teams, the National League.

I highlighted and defined the relationship game, direct collaborations between players who are established within a team game. Relationships play in attack, refers to collaborations to be set in the game of attack between: setters coordinators and players to zone 4 (drag), setters center coordinators and players (zone 3) and setters area coordinators and players 2 ( "false") .Up and continued development of volleyball game, eventually leading to an increase in both directions to show more and more complex content and rich in technical processes in the global component of relations play in attack. A troubling aspect of particular importance to specialists in the field, it is clarifying, defining and highlighting the relationship game and finding the best solutions for their efficiency in the game of attack and thereby increase the chances of making a point, set and match by default. Important in high performance volleyball is that players should be preparing for those games in which they are applied within both the number of shares involved in during a game and effort characteristics (volume, intensity and complexity) made for their conduct, especially in those games disputed in small intervals of time (20-28 hours), with value close teams. Knowing the characteristics and

applications that are subject to players, is important for programming training. Taking as its starting point a game of volleyball, try to see what happens in terms of application and effectiveness of relationships play in attack (V. Ghenadi et al., 1995). From performances at major competitions, the FIVB's computer, we can see that assessments are based on key issues, the essence of the game of volleyball, presenting findings highlighting effective action game on percentage of gain or loss (V. Ghenadi et al., 1995). And other sports games are the records show effectiveness, but winning or losing the game of volleyball action game ends immediately and every time with winning or losing a point (V. Ghenadi et al., 1994). This specific feature of essentially volleyball puts mark on each execution of the game, so to increase their effectiveness, it must be made and training. In an objective analysis of the determinants of team or players to lose a game action, could see the true causes of not winning. Most often they are driven by psychological factors, but are in other parts of the game, namely: technical training, tactical, physical or theoretical and is carried by individual mistakes in the relationship game. In all actions during the game, the efficiency is the governing and subject, in the relationship game, each player's intentions and executions in attack or defense. In volleyball action execution performance review, the game or in practice, is accompanied by proper routing to specific implementation that emerged from the weight and effectiveness of game-specific relations, used game for attack. In conclusion, efficiency and overall play of each game relationships and actions of subordinates manage and govern over all its components and concepts that direct the execution from beginning to end. Knowing

the ratio and efficiency of the game relations is currently used to track the performance of all teams, and where training is actually conducted by these indicators. Thus, volleyball players must be trained according to the position held within the team, given the weight of player relations for the job and their level of efficiency achieved in a game.

**Research objectives:** The main objective of this study is the analysis of game relations in attack, during the women's teams' volleyball games, in order to try to find the best solutions to improve it.

The study had the following tasks:

- Collecting specific information about the effectiveness of game relations in attack, from the official matches of a number of National League women's volleyball teams.
- Entabulating the information and emphasizing the most characteristic aspects regarding the ratio and effectiveness of game relations in attack.
- Making a deep analysis of the game relations in attack, interpreting the data and drawing certain conclusions with direct applicability in the training process.

**Hypothesis:** Knowing the ratio and the effectiveness of game relations in attack will lead to a better organization of the game and training and it will contribute to an increase in the general effectiveness of the team's play.

**Research methods:** documenting; video analysis; statistical-mathematical; graphical

**Subjects:** The subjects of this study are the female volleyball players of Știința Bacău, Penicilina Iași and the CS Volei 2004 Tomis Constanța, teams that participate during the 2009/-2010 season in the National Women's Volleyball League.

**Results of the research:** The analysis we make during our study refers mainly to the relations established during attack between: setters and area 4 players, setters and center players and setters and the area 2 player („false”), aspects that can lead us to an increase in game efficiency in attack for the National League women's volleyball teams.

Data and information collected during official parties, and were processed and evaluated for efficiency calculation relationships play in attack we used a scale with five levels.

The scaling and encoding on 5 levels, used for assessing the effectiveness of game relations in attack (D. Mârza, 2006), is as follows:

„=” lost point, mistake;

„-” playing the ball unfavorably for your own team, almost mistake;

„0” continuing the phase, through indecisive actions;

„+” playing the ball favorably for your own team, optimal conditions for continuing the phase;

„#” point won, positive chance of scoring.

The formula used by the FIVB in establishing the effectiveness of actions and game relations in volleyball, for a 5 level scaling (D. Mârza, 2006), is as follows:

$$E = \frac{x + 0,75y + 0,50z + 0,25q}{x + y + z + q + w}, \text{ where:}$$

**x** – represents the finalized actions – which have a value of 1;

**y** – represents the favorably played actions – which have a value of 0.75;

**z** – represents the indecisive actions – which have a value of 0.50;

**q** – represents the unfavorably played actions – which have a value of 0.25;

**w** – represents the lost actions – they do not have a value.

Effectiveness analysis of relationships play in attack, on this basis, highlights the practical ways that lead to winning or losing points, their knowledge by coaches and players can contribute to specific training efficiency and eliminating errors.

After processing data from official games, I found that relationships play in coordinating and Players setter attack of the area 4, had an average efficiency of  $0.721 \pm 0.035$  as can be seen in table and chart no. 1. The match between teams Penicillin Iasi and Science Bacau, number relationships play in attack is approximately the same (57 to 54), which shows that lift both teams have a good and balanced cooperation with both player of the 4, the effectiveness of this collaboration is But for the team in Bacau (0.718 to 0.675). The match between teams Bacau Science and CS Tomis Constanta Volleyball 2004, the share of relationships in the game of attack is clearly in favor of Constanta team (39 to 71), and efficiency is 0.761 to 0.731 for the same team. These issues led to the conclusion that the team used mainly in Constanta Bacau Science game plays that relationship, because both the higher value of their hitters in area 4, and less suppression in area 2, the team Bacau.

Table no1.

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iași	57	19	16	8	14	0	0.675	0.721±0.035	4.902
	Bacău	54	22	18	3	7	4	0.718		

BC-CT	Bacău	39	11	21	3	1	3	0.731		
	Constanța	71	39	12	9	6	5	0.761		

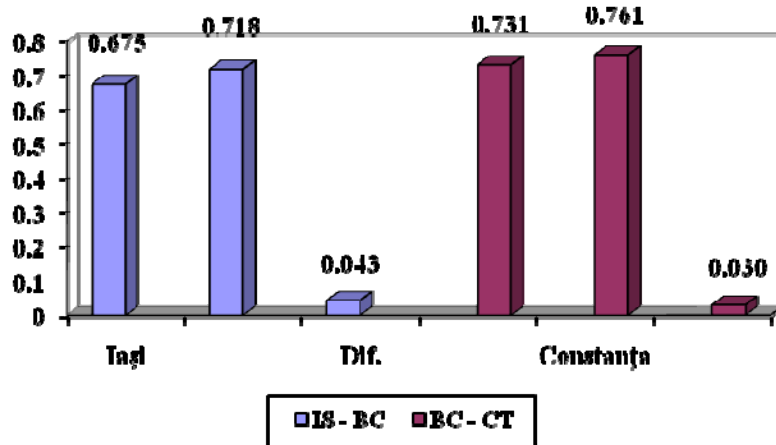


Figure 1

Where cooperation between setter players coordinating center and, after processing the games analyzed, we found that the relationship game (averaging 38-39) are shown effectiveness  $\pm 0.062$  0.736 average and a 8.467 coefficient of variability. Largest number of relations game between rising and center, the attack was conducted by Science Team Players Bacau. The match between teams penicillin effectiveness Iasi and Bacau Science review of the relationship game, and Players setter coordinating center, is 0.725 to 0.669 for team science, be critical in

winning the game, taking into account the large number of attacks ( 40) Players that made the team in Area 3. However, although the match between Bacau Science and CS Tomis Constanta Volleyball 2004, the number of relations between the rising and center players, the team was clearly in favor of science, their lower efficiency compared to 0.820 0.732 (science team has made 17 55 action points and the team made 14 points in Constanta only 25 shares) was not sufficient to win the game.

Table 2

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iași	34	15	4	6	7	2	0.669	0.736±0.062	8.467
	Bacău	40	19	8	4	8	1	0.725		
BC-CT	Bacău	55	17	28	2	5	3	0.732		
	Constanța	25	14	8	1	0	2	0.820		

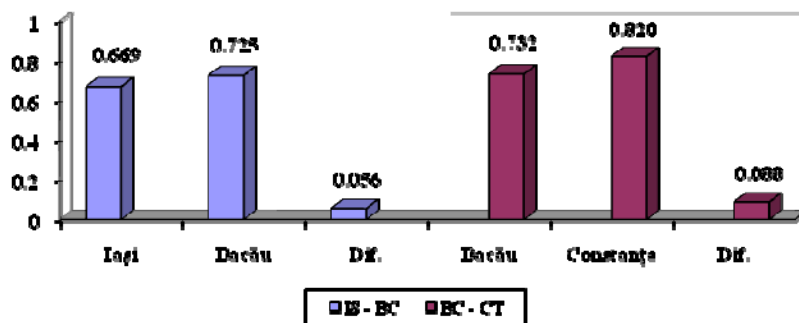


Figure 2

If relations between the game in attack the setter area coordinator and 2, we found that the average efficiency of  $0.714 \pm 0.070$ . It noted the high number of appeals made the player action of area 2 (approximately 36 per match), following relationship with the setter game coordinator, actions that teams 4-5

points per set. The match between teams' effectiveness Penicillin Iasi and Bacau Science relationships play in coordinating and setter attack of the area 2 is 0.715 to 0.632 for Bacau science team, and the match between teams Bacau Science and CS Tomis Constanta Volleyball 2004 effective relationships game is 0.804

to 0.706 for Science team Bacau. Analyzing the data in table and graph # 3, it appears that although the highest efficiency was achieved by the team player Bacau game was lost. This and the results presented above may lead to the conclusion that we lost the game by the

team Sscience Bacau with CS Tomis Constanta Volleyball in 2004, was not due to inefficiency of the game in attack, but defensive errors in the game, namely: block errors, taking attack and takeover of service.

Table 3

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iași	36	10	14	1	7	4	0.632	0.714±0.070	9.846
	Bacău	36	15	11	1	8	1	0.715		
BC-CT	Bacău	28	12	11	4	1	0	0.804		
	Constanța	45	18	14	3	7	3	0.706		

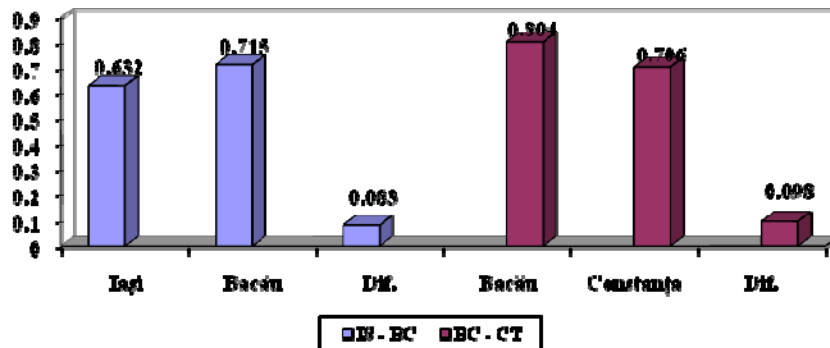


Figure 3

Our results demonstrate that effective relationships between the setter as attack game coordinator and other players participating in the attack, is often teams win games favorable. If the games we examined relations between the setter game in attack and coordinating and Players 4 Players of the center are good teams that have won the match (Volleyball 2004 Science Bacau and CS Tomis Constanta) and effective relationships between the game in attack the setter as the player area coordinator and 2 were positive both in Bacau Science team won the match with Penicillin Science and the match lost to CS Tomis Constanta Volleyball 2004.

**Conclusions:** Following the obtained results, we can say that the knowledge of the efficiency level for the attack game relations is necessary and compulsory, and it constitutes itself in main guidelines for the quality of training as the demands of today's volleyball game are concerned. The elaboration of all the efficiency models, the defense components, must have as a basis the competitive game, so it will be elaborated according to the data and information that the official game, the competition, offers. The models and parameters regarding the effectiveness of game relations in attack must constitute initial guidelines for the game and training, obtaining valuable results being conditioned by permanently overcoming these game relations. The full planning and programming of the training must respect the importance of the components of the content competition model with efficiency indexes as high as possible.

### Bibliography

- GHENADI, V., CIUHUREANU, I., GRAPĂ, F., MĂRZA, D., 1994, *Model și modelare în voleiul de performanță*, Editura Plumb, Bacău, ISBN 973-9150-25-X;
- GHENADI, V. (COORD.), GĂRLEANU, D., CIUHUREANU, I., GRAPĂ, F., ENE, GH., STERIMBAUM, P., MĂRZA, D., 1995, *Volei - obiectivizarea instruirii*, Editura Plumb, Bacău, ISBN 972-9150-47-2;
- MĂRZA-DĂNILĂ, D.N., 2006, *Determinarea eficienței atacului din zona 4, la echipele de volei feminin*, Buletinul științific - Seria Educație fizică și sport, nr. 10 (1/2006), vol. I, pag. 180-185, Pitești, ISSN 1453-1194;
- MĂRZA, D., 2006, *Optimizarea și dirijarea pe baze informatice a pregătirii și competiției în jocurile sportive (Aspecte teoretice)* - Editura PIM, Iași, ISBN (10) 973-716-425-3, ISBN (13) 973-973-716-425-4.