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THE IMPORTANCE AND UTILITY OF THE "DATA VOLLEY" SOFTWARE IN THE PROCESS OF TECHNICAL - TACTICAL TRAINING OF SENIOR VOLLEYBALL PLAYERS

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Abstract

Lately sports have become all the more technologized, which is why success is no longer mentioned without the use of the computer and the new modern means.

In volleyball, like in other sporting games, the analysis of the competition is considered to be an important means of performance diagnosis in view of determining some parameters for directing the training process of the concepts and competitional strategies.

"Data Volley" is the most complete and complex software created for the tactical and technical analysis of a match or volleyball training session. Being modified and completed after the suggestions and indications of several specialists in the last few years, the programme answers to every demand and necessity of any trainer who wants to develop tactically and technically his team. The programme includes a quick system of recording the data through the use of the keyboard, therefore each technical process used in the volleyball game is represented by a code defined by a letter on the keyboard. Once the codes introduced, the programme will take care of the rest of the calculations. A wide number of pre-set functions will help in decoding the tactical schemes or the individual actions during a game, underlining the strong and the weak features of the opponents.

Analysing all the basic codes, one can obtain a series of details concerning the abilities of a certain player, of the entire team, in a particular moment of the game, on a certain position in the field, in a single set, or for all the sets throughout an entire season.

In conclusion, the "Data Volley" software can be used both before or during the games, to improve the game tactics depending on the opponent, or during the training sessions to optimize and correct the technical-tactical actions of one's own team, as well as for each game position in part.

Keywords: volleyball, data volley, software, tactical, technical.

Introduction

Lately, sport has become all the more technologized, which is why we cannot talk about success without the use of the computer and of the new modern means of assessment.

In volleyball, like in many other sporting games, the statistical analysis of the competition is considered as an important diagnosis means of performance in view of determining some parameters for directing the training process, the competitional concepts and strategies.

In the last years, particularly at the level of seniors, the volleyball game has become very dynamic, with a very high speed of execution of the technical elements and game procedures [1, 4, 5]. In this case, there are several methodologies of statistical recording of the elements and procedures in the volleyball game [2, 3], whereas one of the best programmes of statistical analysis is the *Data Volley* software. This software allows the simple and complete recording of several game parameters with the help of the computer, which allows us to intervene urgently with actual suggestions for the qualitative improvement during official games or even practice.

The content of the work

This programme was applied successfully also in the National Championship of Romania for volleyball at senior level, where it proved to be a real support for the recording of technical-tactical game actions, both individually, as well as for the entire team. Each coach or statistician can use this software of statistical analysis depending on necessities, as follows:

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- during the official games, it offers a real help in taking a quick decision or so as to check the used game plan (by one's own team, by the opponent, the opponent's strong and weak points, the distribution of the opponent's opposite, the attack directions etc.)
- for preparing the friendly or official games (the analysis of each player in part, but also of the entire team's game, the opposite's distribution for each rotation, attack and service directions, etc.)
- during training sessions, as an aid to improve certain individual technical elements or from a tactical point of view at the team's level.

The programme has one of the fastest systems of data registration through the use of the computer and offers us numerous opportunities. It is a programme for the registration, assessment and analysis of game actions.

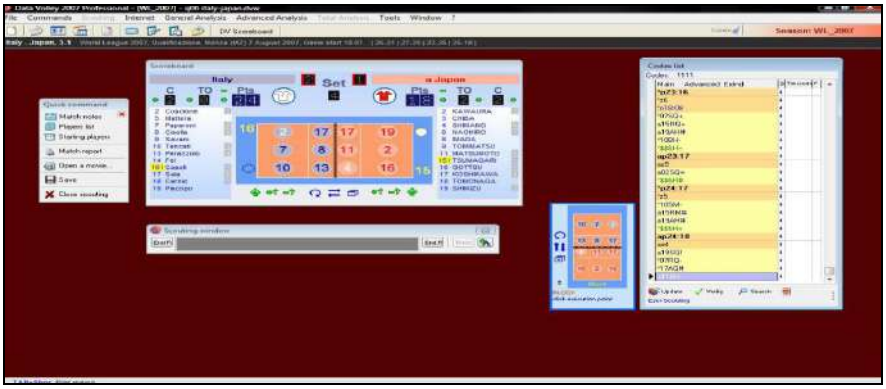

Fig. 1. Registration actions in volleyball

The data offered by the programme allow us to transform what we see (each game action) into standard codes, which are later on analysed by the computer and give us details related to the abilities of a single player, of the entire team, at a certain moment of the game, on a certain position in the field, throughout a single set or for all the sets during an entire season. Thus, each technical procedure used in the volleyball game is represented by a code, defined by a letter on the keyboard. For example: S – service, R – takeover, A – attack etc.

In turn, the technical procedures have a certain efficiency (quality), which is why the software makes available a series of codes represented by various characters: e.g. "#" indicates an ace service, a successful attack, an excellent takeover etc, whereas "=" represents a wrong action (e.g. fig.2, attack assessment). One can analyse a number of 7 technical procedures which can be described by minutely-detailed analysis of each element from a tactical point of view in the volleyball game.

ATTACK	
=	Error (out, net ball, invasion)
/	Blocked attack (point goes to the opponent)
-	Poor (easily dug by the opponent who can try and play the ball again)
!	Blocked but recovered by the home team
+	Positive (opponent defended with difficulty and the home team can try and play the ball again
#	Winning (direct point)

Fig. 2. The attack assessment by the *Data Volley* software

Data Volley is the statistical programme in the volleyball world which helps you analyse each situation that might occur in a game and thus give you the possibility to take the winning decision for your team.

With the help of Data Volley, the programme of statistical analysis of game actions, we made an assessment of each game position, as well as to the average score of all the participating teams in the National Championship. Besides this, we were interested in the results of the national team, and in this sense, we used

them as the game model for the other teams in the championship. Namely, all the performances recorded by the teams in the National Championship were compared to the results of the national team, individually and team wise, the latter being taken as model.

Game position	Technical elements	Efficiency%	Total	Errors	%	-	%	+	%	Direct points	%
Middle Blocker	Service	43%	123	11	9%	86	70%	21	17%	5	4%
	Attack	45%	85	14	17%	12	14%	7	8%	52	61%
	Block	24%	103	51	50%	8	7%	16	16%	28	27%
Outside Hitter	Service	50%	143	37	27%	60	42%	38	26%	8	5%
	Reception	45%	209	28	13%	84	41%	71	34%	26	12%
	Attack	36%	180	24	13%	34	19%	17	9%	105	59%
	Block	30%	35	10	29%	2	5%	10	29%	13	37%
Opposite	Service	44%	64	14	22%	34	53%	13	20%	3	5%
	Attack	23%	135	12	9%	54	40%	10	8%	59	43%
	Block	41%	22	2	9%	5	23%	6	27%	9	41%
Setter	Service	59%	75	14	19%	39	52%	17	22%	5	7%
	Pass	44%	273	13	5%			260	95%		
	Block	-63%	24	12	50%	5	21%	5	21%	2	8%
Libero	Reception	43%	101	7	7%	26	26%	53	52%	15	15%
	Defence	69%	41	16	39%	1	2%	24	59%		
Team total	**Service**	**49%**	**405**	**76**	**19%**	**219**	**54%**	**89**	**22%**	**21**	**5%**
	Reception	**49%**	**323**	**21**	**7%**	**88**	**27%**	**172**	**53%**	**42**	**13%**
	Attack	**37%**	**409**	**32**	**8%**	**121**	**30%**	**36**	**9%**	**220**	**54%**
	Block	**5%**	**184**	**14**	**8%**	**65**	**35%**	**37**	**20%**	**52**	**28%**

Fig.3. Statistical analysis of game actions

If we were to analyse the previous table, we can see that the players were selected for 5 game positions, such as: Middle Blocker, Outside Hitter, Opposite , Setter, Libero, and further on, there were listed the game elements which they are about to perform, here being indicated their number, the percentage of success and failures, as well as the yield of each game position.

Next we are to analyse the actions of players depending on each and everyone's game position and will start with the Middle Blocker (fig.4), one of the key positions in a volleyball team.

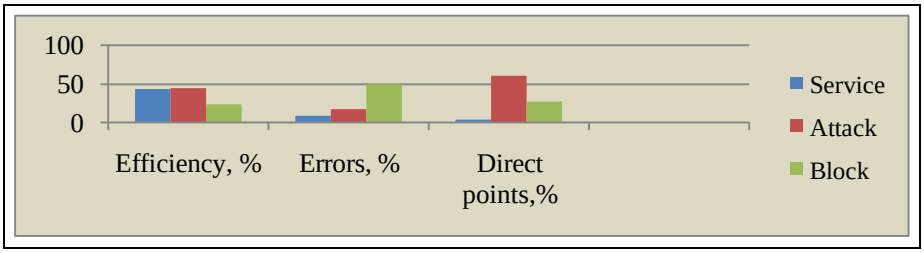

Fig. 4. Game actions of the Middle Hitter

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From figure 2, we can see clearly that for the Middle Blocker there are characteristic three basic actions, such as: the service, attack and block. All these were analysed by means of the game efficiency, the errors made during the performance, and the percentage of direct points won through their performance. Talking about services, their percentage for the Middle Blocker was of 43%, of the attack was of 45%, and the block of 24%. Therefore, the yield of players on the Middle Blocker position is not at an average level nationally, or of the teams of great performance, for this game position.

Another aspect analysed with the help of the Data Volley programme was the number of errors made during the performance of the above-mentioned technical elements. According to the previous table, the number of errors for the Middle Blocker was relatively big, they failed in a ratio of 9% during the performance of services, the errors during the attack were in a ratio of 17%, whereas for the block there was a percentage of 50%. According to the practice of performance volleyball at senior level, the first two elements, such as the service and attack, range within national average scores related at this level. For the block we have a percentage of around 50%, to be exact, according to the recorded data, every second block puts the other team in difficulty, and knowing that at this level, the number of blocks is not that big, we can say that here we also have a relatively good percentage.

The third researched aspect was the analysis of the directly won points from the execution of the examined technical elements, meaning services, attacks and blocks. From the responsibilities of the Middle Blocker, it turns out that the most points (61%) were directly won from the attack, the results in the case of the block were pretty good too, being successful in a ratio of 28% and only 4% were direct points.

Therefore, the Middle Blocker players fulfil their role at an average level as compared to the results of the performance teams at senior level, including the average scores of the national team, where the best players were selected for each game position.

Another game position examined by the use of the experimental programme mentioned before was that of Outside Hitter. According to its characteristics, the Outside Hitter has the ability to perform almost all the technical details, which recommends it as one of the most important piece within the mechanism of the team. (fig.5).

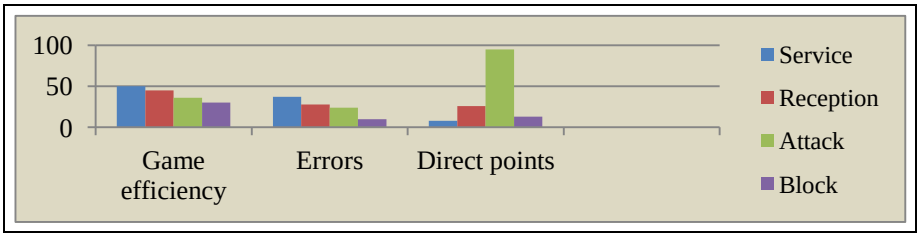

Fig. 5. Game actions of Outside Hitter

Like in the previous case, we are to analyse the actions of the players on the position of Outside Hitter by means of three actions, such as: game efficiency, made errors and points directly-won from the respective actions. If we were to analyse the efficiency of performance of the game elements listed above, we notice that the services and takeovers are approximately in the same proportion, which is around 45-50%, in attack 30% and 30% in block. These results are below our expectations, where the level of game efficiency of the Outside Hitter should be higher for all the analysed game elements.

The next indicator researched by us was the percentage of errors during the performance of basic elements in the volleyball game in an official game. The biggest numbers of errors were recorded at service (27%), the reason being that the players usually serve forcefully from a jump, the execution per se having a high risk to make errors, but also a similar difficulty. Identical was the percentage concerning the number of errors in takeover (13%) and in attack (13%) of the Outside Hitters, this being a pretty low average for senior volleyball players.

Eventually we were interested in the weight of the directly-won points from the technical performances of the players on the Outside Hitter position. Directly-won points from service 5%, the most directly-won points

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made being from attack (59%), the perfect takeovers had a percentage of 12%, whereas for the block, the percentage reached values of 37%. Analysing the Outside Hitter from these data, we can say that these range within normal parameters, taking into account that it is not easy to make direct points with the help of the block, just as it is not easy to make a perfect takeover from the opponent's service.

Another position that was analysed within our research was that of the Opposite player, which according to the characteristic of the position, has to fulfil the following technical game elements, such as the service, attack and block (fig.6).

Analysing the efficiency of the service of players on the Opposite position, we notice that their percentage is rather high (44%), but the efficiency in attack on this position was rather low (23%), taking into account that the attack is the main characteristic of the universal players, and in block it reached values of 41%. Analysing the number of errors for the players on the position of Opposite, we see that their percentage is rather low, being of only 22% in the case of services, of 9% in the case of the attack and the same percentage in the case of the block. As one can see, the number of errors on this game position is rather small, hence we can say that the Opposite player was quite constant in performing technical elements.

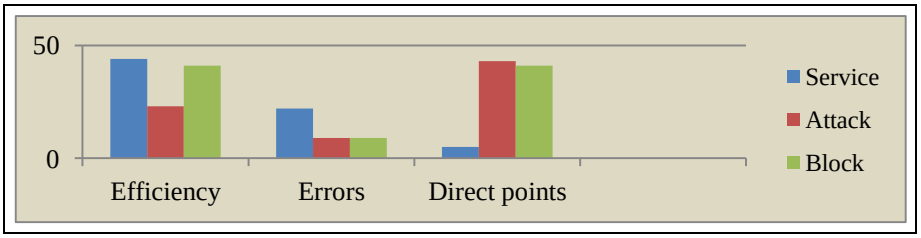

Fig. 6. Game actions of the Opossite player

The third parameter analysed at players on the position of Opposite was the number of directly-won points by them from the action. Obviously, the percentage of directly-won points from the service is rather low, this being of only 5%, whereas the number of directly-won points from the attack and block is quite imposing. Thus, we have 43% directly-won points from the attack, whereas 41% from the block. Actually, these actions are characteristic for the Opposite player, which was emphasized at the end of our research.

Another important game position, maybe the most decisive player in a volleyball team, is the Setter. (fig.7).

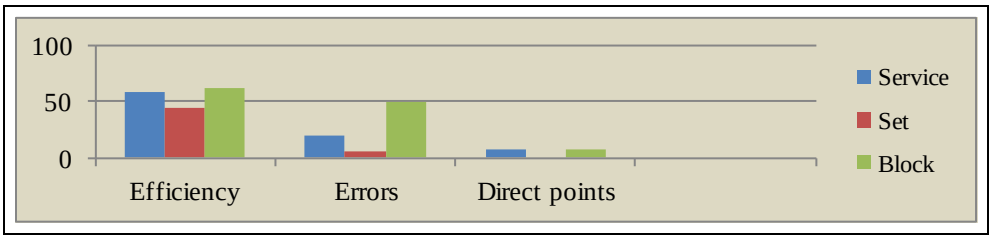

Fig. 7. Game actions of the Setter player

The main quality of this player beside service and block is that of passing the ball and of putting its own team players in ideal attack situations. If we were to examine the evolution of efficiency of performing the services by the Setter players, we notice that their percentage is quite high and equals 59%. The percentage of passes is of 44%, whereas that of the blocks is of 63%. One can clearly see that the efficiency of passes is relatively small, but this thing depends not only on the Setter, but also on the quality of takeover by the players on a different game position.

Talking about errors, the percentage of Setter is rather low, this being clarified by the fact that the players on this position must have a good technical training in this sense, which does not lead to an exaggerate number of errors. Thus, on performing the service, the Setter players made 19% errors on average, in passes only

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5% which is absolutely natural and only in the case of performing the block the percentage of errors was much higher (50%) because these actions are not characteristic for the given position.

Analysing the number of directly-won points by the Setter player, we can notice that in this case, the players on this position fulfil only two elements – the service and the block, from which there can result direct points. In the given case, the points directly-won in service by the Setter have a percentage of 7%, whereas the points directly made from the block is of 8%, these results being easily accounted for.

The last game position subjected to analysis by means of the experimental programme was that of the players on the position of Libero, its functions being rather limited and specific only for this position – reception and defence.

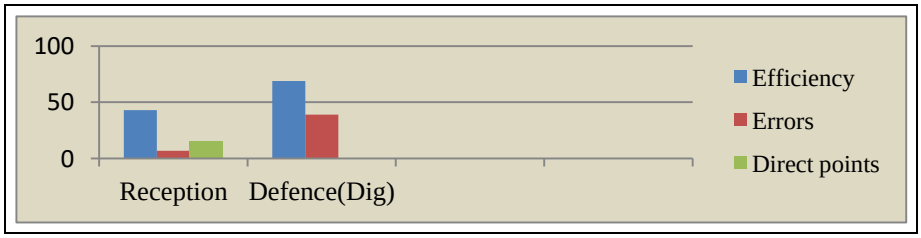

Fig. 8. Game actions of the Libero player

Same as in the previous cases, we are to analyse the game actions of this position, but this time we will analyse them only from the perspective of game efficiency and made errors, due to the fact that the Libero's actions unfold only on the second line, clearly one cannot talk about directly-won points from this game position. Talking about the efficiency of game actions of this player, according to the above-mentioned table, this was of 43% in the case of receptions and 69% in the case of the defence, these not being the most indicated results for the respective game position.

If we were to talk about errors, their percentage is rather low and in the case of receptions it is of only 7%, whereas in the case of defence, being specific for the given position 39%.

Working out an average of all the game positions within the National Championship of volleyball at senior level, we calculated what might be the weight of the game efficiency, of errors and of the points directly-won from action by the entire team. (fig.9)

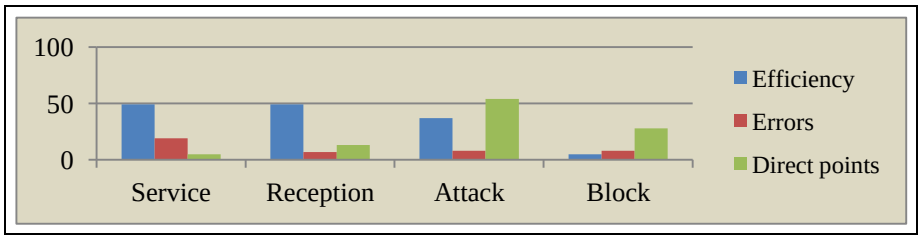

Fig. 9. Average of game actions of the team

Analysing the game efficiency by means of the technical elements performed by the players, one notices a pretty good tendency in the case of services and reception, where the game efficiency is good in both cases. The game efficiency within the attack is rather low (37%) and lower (5%) in the case of the blocks. This indicates the fact that the game efficiency of the entire team is rather low in fulfilling all the technical game elements.

Generally, at the level of the team, the number of errors is not that high, for example, only at services there were of 19% on average, whereas in takeovers, attack and block of 7-8% on average, which represents a relatively good result.

Analysing the directly-won points, we notice that the least in number were won from the service (5%), which is a natural thing, whereas the most directly-won points in number come obviously from the attack (54%)

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and from the block (28%), because actually this is the essence of the modern game, to have a good attack and a great defence.

Conclusions

1. Making a general analysis of the recorded results, we can confirm the fact that the teams within the National Championship of Male Volleyball have an average level of sports training.

2. The use of the experimental Data Volley programme allows us to analyse operatively enough all the game actions, for each game position, as well as for the entire team.

3. The application of this programme has several priorities, such as:

- to promptly obtain the necessary information;
- offers the possibility to intervene with some changes in the unfolding of the game;
- to promptly identify the technical-tactical problems in the unfolding of the game;
- offering operatively information as concerns the game efficiency of each player and of the entire team at any moment of the game;
- to promptly identify the errors during the game;
- ensures the operative game statistics and more.

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