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Original Article

Typical phases of beach volleyball male sex. Reference values at the initiation

Fases típicas del voleibol de playa en el sexo masculino. Valores de referencia en la iniciación

Fases típicas do vôlei de praia masculino. Valores de referência na iniciação

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ABSTRACT

Currently, the study of competitive activity is becoming increasingly important in the sport preparation process. Since the initiation categories in the beach volleyball, coaches should focus their preparation on the performance of own and decisive aspects to obtain the maximum competitive result. For this, it is important to model the training in a context as close as possible to the reality of the game in each category. However, hardly they known the reference values of the initiation category in Cuba. Studies primarily



aimed at the highest level of competition. In this sense, the knowledge of the performance values related to the typical phases of the game and the special situations in this modality are vital for a precise training since the initiation phase. This research aimed to determine the behavior of the Game Typical Phases (FTJ in Spanish) in the beach volleyball, category 11-12 years old, male sex in the Provincial championship of Villa Clara in 2019, as reference values in the initiation stage. There were used methods such as structured observation, documentary review, the statistical mathematical, and methodological workshops as research technique. It was determined the frequency of appearance of these phases, their incidence and effectiveness in the game, important elements that constitute referential values for the coaches in their planning and modeling process of the training of the players at this competition level.

Keywords: Training; Typical phases; Sports initiation; Beach volleyball.

RESUMEN

Actualmente, es cada vez más importante estudiar la actividad competitiva en los procesos de preparación deportiva. En voleibol de playa, desde las categorías de iniciación, los entrenadores deben centrar la preparación en aspectos de rendimiento propios y determinantes para obtener el máximo resultado competitivo. Para ello, es importante modelar el entrenamiento en un contexto lo más cercano posible a la realidad del juego en cada categoría. Sin embargo, apenas se conocen los valores de referencia de la categoría de iniciación de base en Cuba. Los estudios actuales se dirigen fundamentalmente al más alto nivel de competición. En tal sentido, el conocimiento de los valores de rendimiento relativos a las fases típicas del juego y las situaciones especiales en esta modalidad, resultan vitales para un entrenamiento preciso desde la etapa de iniciación. La presente investigación tuvo como objetivo determinar el comportamiento de las Fases Típicas del Juego (FTJ) del voleibol de playa, categoría 11-12 años, sexo masculino, en el campeonato provincial de Villa Clara en 2019, como valores de referencia de la etapa de iniciación. Se utilizaron métodos como la observación estructurada, revisión documental, estadístico-matemático y talleres metodológicos como técnicas de investigación. Se determinó la frecuencia de aparición de dichas fases, su incidencia y efectividad en el juego, importantes elementos que constituyen valores referenciales para los entrenadores en su proceso de planificación y modelación del entrenamiento en este nivel de competición.

Palabras clave: Entrenamiento; Fases típicas; Iniciación deportiva; voleibol de playa.

RESUMO

Hoje em dia, é cada vez mais importante estudar a atividade competitiva nos processos de preparação esportiva. No vôlei de praia, a partir das categorias de iniciação, os treinadores devem concentrar a preparação nos aspectos de desempenho que são determinantes para obter o máximo resultado competitivo. Para isso, é importante modelar o treinamento em um contexto o mais próximo possível da realidade do jogo em cada categoria. No entanto, os valores de referência para a categoria de iniciação básica em Cuba são pouco conhecidos. Os estudos atuais são destinados principalmente ao mais alto nível de competição. Neste sentido, o conhecimento dos valores de desempenho relacionados com as fases típicas do jogo e as situações especiais nesta modalidade são vitais para um treinamento preciso desde a fase de iniciação. O objetivo desta pesquisa foi determinar o comportamento das Fases Típicas do Jogo (FTJ) do vôlei de praia, 11-12 anos, categoria masculina, no campeonato provincial de Villa Clara em 2019, como valores de referência da fase de iniciação. Métodos como observação



estruturada, revisão documental, oficinas de matemática estatística e metodológica foram utilizados como técnicas de pesquisa. A frequência da ocorrência dessas fases, sua incidência e eficácia no jogo foram determinadas, elementos importantes que constituem valores de referência para os treinadores em seu processo de planejamento e modelagem de treinamentos neste nível de competição.

Palavras-chave: Treinamento; Fases típicas; Iniciação esportiva; Voleibol de praia.

INTRODUCTION

The aspiration of most of the children and adolescents, who start playing beach volleyball in Cuba, is to become elite players in the country or the world. Consolidate this great aspiration will depend largely on the methodology used by their coaches during the initial training process. Beach volleyball is a collective sport with the presence of a net, played on sand, a surface characterized by being unstable and deformable. The presence of the net and the size of the field makes the game actions diverse, explosive and with great physical and technical-tactical demands (Giatsis, López, & Gea, 2015; López *et al.*, 2018). That is why the preparation of players requires establishing a rigorous and precise process, according to current trends in sports training.

It is impossible to talk about a successful preparation process for players in the initiation stage that is not adjusted to this reality. For this reason, the study of competitive activity plays a fundamental role in order to obtain the values and parameters that characterize each level of competition (López, 2012; Griego, 2016). According to Palao and López (2012), the study of the analysis of the game in sports such as beach volleyball allows establishing reference values that guide the training process and competition strategies.

Sports performance is the result of the interaction of the elements of the game in the competition, together with other factors that influence and vary depending on the age of the participants (Echeverría, 2015; Sebastia *et al.*, 2020). Hence, the information from these analyses is usually obtained on most occasions in competitions, as this is the best time to evaluate the performance in real match situation, both the team itself and the opponent (Palao, 2004; Anguera & Hernández, 2013).

All the information obtained from the performance of technical-tactical skills is useful information for the work of coaches in the training process of their players. The basic initiation category (11-12 years) of beach volleyball in Cuba began to compete officially at the national level in April 2019. However, at this time there is still no Comprehensive Athlete Preparation Program (Pipd in Spanish) for this modality. This situation has generated that the reference values of volleyball have been assumed and taken to beach volleyball, without taking into account the differences between one modality and the other one. This scenario has caused the existence of technical-tactical limitations of the players who compete in the basic categories.

Analyses conducted by the *Cuban Volleyball Federation* recognize as a characteristic, which identifies most of the players of our national teams, a high level of physical preparation (Castillo, 2015). However, there are limitations in their technical-tactical performance, that is, in the intelligent solution to the various game situations where a quick and accepted motor response is necessary (Griego, 2019; Jiménez, Wambrug and García, 2020).



These limitations have their origins in the deficiencies of the preparation process in the initial training stage. A factor of incidence is that coaches do not have the parameters and reference values appropriate to the characteristics of the stage and scientific research in this direction have been very scarce. This is a highly negative factor for the formation of players with great technical-tactical richness, the aspiration of every coach and the ideal for developing a highly competitive game (Mamani *et al.*, 2018; Griego, 2019; Collet *et al.*, 2018; Porath *et al.*, 2016).

It is necessary to search for the referential values and determining parameters in the initiation stage of sports, which allow coaches to develop an adequate preparation process of their players (Arronte and Ferro, 2020). In the province, and at the country level, very few studies have been conducted on the characteristics of beach volleyball that is worked at the base, therefore, its characteristics corresponding to the initiation stage are being little explored.

Research on beach volleyball has been directed primarily at the highest level of competition, focused on the component of physical preparation or directed to certain aspects on the final result of the technical-tactical actions, whose parameters are not adjusted to the stage of sport initiation (Palao, Manzanares & Ortega, 2015a; Palao, López, Valadés & Ortega, 2015b). Due to the scarce studies that this competitive level has, it is of vital importance the knowledge of the performance of its Typical Phases of the Game (FTJ) and the Special Situations of the Game (SEJ in Spanish), as transcendental reference values in the preparation of players at this level (Griego, 2016).

This information is important to develop an adequate preparation and model the training in such a way that the team's tactics can be consolidated (Gea, 2011; Griego 2018; Gea and Molina, 2013). From all of the above it is inferred, that it is not possible to establish work objectives for technical-tactical training, if it is not known what are the values or performance parameters at this level of competition and of the athletes who are being trained (García 2000; López, 2012; Griego 2016).

For the aforementioned reasons, the objective of this research was to determine the behavior of the FTJs of beach volleyball category 11-12 years, male sex, in the Provincial championship of Villa Clara in 2019, as reference values of the initiation stage. Given the importance of the study of competitive activity for this sport, this study is fundamental in the aspirations of perfecting the process of technical-tactical preparation from the sport initiation.

MATERIALS AND METHODS

For the development of the research, it was worked with three populations. The first one conformed by the 14 players who participated in the Provincial championship of beach volleyball, category 11-12 years old, male sex of Villa Clara province in 2019. This group of players had as essential characteristics that seven (7) were 11 years old and the same amount were 12 years old. The second population was constituted by the 16 games developed in the provincial championship of the category, in a game system adapted to three days of competition.

It was also worked with a third population made up of eight students belonging to the Student Scientific Work Group (GTCE in Spanish) of beach volleyball of the Physical Culture Faculty, belonging to the Central University "Marta Abreu" of Las Villas. All of



them had the characteristics of being beach volleyball players at national level, they were in their last year of the Physical Culture career and had research experience in the subject.

For the development of the research, different methods were used. In the first phase of the research, a documentary review and analysis of general theories about the current trends of sports training in beach volleyball and sports games were developed. In addition, articles and doctoral theses on the technical-tactical preparation in volleyball and beach volleyball were analyzed to assess and support the study of competitive activity.

From there, the structure of three game complexes for beach volleyball, proposed by the researcher Palao, was assumed in the research. As shown in Figure 1, the author recognizes the following game complexes (Figure 1).

- Complex - 1 (K-I).
- Complex - 2 (K-II).
- Complex - 3 (K-III).

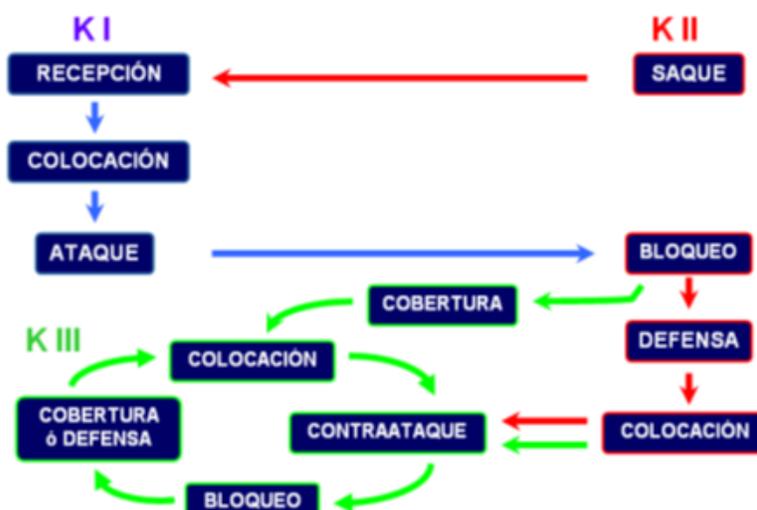


Fig. 1. - Structure or phases of the beach volleyball game in complexes

In the research, the concept of FTJ offered by the Greek author was assumed, who defines them as a sequence of interconnected technical-tactical actions, with the exception of the serve, when the ball comes from the opposite field and that, with a tactical purpose, are executed with repetition in the development of the complexes of the game.

The concept of SEJ is also assumed, defined by this author as non-offensive technical tactical actions, which presuppose the interconnection with another or others for the sequential continuity of these in the development of a complex, where the independent action of the player, from a given tactical situation and considering the context of the game, seeks an offensive tactical goal.



From there, the following essential elements determined for each of the complexes, the Game Complexes, are studied.

For Complex - 1 (6 FTJ):

1. Receiving - parallel pass - securing - auction on parallel pass.
2. Receiving - diagonal pass - securing - auction on diagonal pass.
3. Receipt/diagonal pass - auction.
4. Receipt/parallel pass - auction.
5. Receipt - sending/attack.
6. Receiving - pass/attack.

For Complexes - 2. (6 FTJ):

1. Defending - parallel pass - securing - auction on parallel pass.
2. Defending - diagonal pass - securing - auction on diagonal pass.
3. Defence pass - auction over parallel pass.
4. Defence pass - auction on diagonal pass.
5. Defence - attack delivery.
6. Defence - pass attack.

It is necessary to clarify that although all the FTJ of the present study in this complex start with the defence action, this is due to the fact that in this category the players are not yet able to execute the blocking action during the game.

For Complexes - 3 (5 FTJ):

1. Sending - parallel pass - securing - auction on parallel pass.
2. Sending - diagonal pass - securing - auction on diagonal pass.
3. Sending - pass attack.
4. Send pass - auction on parallel pass.
5. Send pass - auction on diagonal pass.

It was taken into consideration that, according to the structure of beach volleyball in complexes of play, Complex III is the extension of the passages of play beyond Complex II, the same phases of Complex II can occur within Complex III. However, in the present study only those phases that started with deliveries from an easy ball delivery by the opponent were counted as Complex III phases.



The following SEJ were also studied.

Special game situations for Complexes 2 and 3:

1. Attack defence.
2. Pass attack.
3. Send attack.
4. Ball sold.

No SEJ were presented for Complex I, as the special rules for the competition of the category prevent direct actions in the first contact of the ball during the execution of the same.

In a second phase of the research, the Methodological Workshop was used as a technique, which was materialized in the process of preparing the observers for the collection of information. For this, two Methodological Workshop sessions were held with the eight students of the GTCE of beach volleyball, directed by the main author of the research. In the development of the first workshop, updated topics were discussed in relation to the research topic, in addition to familiarizing the students with the research procedure and the observation instrument that they should use. In the second workshop, it was proceeded to practice the collection of information through the projection of beach volleyball games. In the development of this action, doubts were clarified and they achieved the ability to collect information; in this way, they were trained and prepared for their subsequent work.

During the development of the games in the competition, it was proceeded to collect information regarding the development of the FTJ and the SEJ. For this, the observation and data collection protocol was used.

The information was taken during the realization of each game developed by the male teams. In the protocol, an enumerated record was taken of the sequences of technical tactical actions that occurred in each passage of the game per set, leaving a definition of whether they concluded with a positive result (the point was won) or ended with the loss of the point (negative result). Each of the sequences taken contained the FTJ and SEJ, which were later counted by game complexes, summarizing their totals. The intermediate FTJ and SEJ within the sequences of actions were considered neutral, since there was continuity of the game; the rest were defined as positive or negative.

Table 1 shows the protocol used for the collection of information during the realization of each game. After having the aforementioned information, the statistical-mathematical method was used to process the information related to the FTJ and SEJ, using the EXEL statistical package (Table 1).



Table 1. - Observation protocol for the registration of FTJs and SEJs in competences

Sec	1st. Set	R	Sec	2nd. Set	R	Sec	3rd. Set	R
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
9			9			9		
10			10			10		
....				

Symbology: **Sec** (sequences of technical-tactical actions) **R** (Final result of the sequence)

In a third phase of the research, after having the results of the competition, according to the game complexes, the FTJ and SEJ, the statistical analysis was carried out.

RESULTS AND DISCUSSION

The bibliographic review allowed to verify the limitations of the coaches in terms of data and information on the categories of initiation. With the information collected in the competition and after the processing of the data and its subsequent analysis, it was possible to obtain the results that characterize the general behavior of the frequency of appearance and effectiveness of the FTJ and SEJ in the male teams, which participated in the provincial beach volleyball competition, category 11-12 years, in the year 2019 and that constitute reference values for the category.

Of the total FTJ and SEJ developed in the competition, their behavior was evaluated in relation to their effectiveness, assessing their results according to whether the actions ended in positive, negative or neutral. Similarly, the effectiveness within each game complex was evaluated (Table 2) and (Table 3).



Table 2. - General description of the FTJ and SEJ in the category 11-12 years, according to their results

Indicators	Positive	Negative	Neutral	Total de FTJ y SEJ
FTJ	322	273	594	1189
according to their results	27.2%	22.9%	49.9%	(100%)
SEJ	77	126	132	335
according to their results	22.9%	37.6%	39.5%	(100%)

Table 3. - General description of the FTJ and SEJ in the 11-12 years category according to the *Game Complexes*

Indicators	Positive	Negative	Neutral	Total de FTJ y SEJ
FTJ	Complex - 1	Complex - 2	Complex - 3	
By complexes	451	357	381	
	37.9%	30.0%	32.1%	1189
				(100%)
SEJ	0	143	174	335
By complexes	0%	45.1%	54.9%	(100%)

In these, it can be seen that in relation to the effectiveness of the FTJ, more than 70 % of them ended in negative or neutral results and the latter were the most representative. In general, it is observed that the results of this sex and category are unfavorable; this situation shows that there are technical-tactical limitations in the actions of the players of this category, at this level of competition. In this aspect, the technical-tactical training should be focused on by the coaches. The teams should work in order to reduce the neutral results, so as to increase the positive results.

In the determination of the frequency of occurrence and the results of greater predominance of these FTJ, according to the complexes of game, it can be seen that of the total FTJ performed, the majority corresponds to Complex -1. Even so, an interesting fact cannot be ignored, more than 50 % of the actions occur in Complex -2 and Complex -3. As the technical-tactical dominance is lower than in the higher categories, the ball lasts longer in play, developing a higher number of passages of game.

However, there are issues related to this information obtained, which it was considered necessary to highlight. According to Griego (2016), coaches put more emphasis on the training of Complex -1, however, most of the actions during the game are manifested in complexes 2 and 3. Complex -1 was the least developed, an important aspect to be taken into consideration by coaches for the planning of technical-tactical training at this level. Regarding the SEJ, it is important to clarify that in Complex-1 its manifestation is not possible, since the special bases of the competition prevent the direct sending of the ball to the opponent's court, at the moment of the receiving action. The importance of



assessing how the SEJ are manifested lies in the fact that they allow us to identify the technical tactical thinking skills of the players.

In relation to the effectiveness of the SEJ, it was found that more than 70 % of the SEJ culminated in negative or neutral results, the latter being the most representative. An important and evident fact is that the highest number of SEJ is produced in the Complex -3. This is due to the characteristics of the game itself, since, as the ball returns become longer, the players become tired and try to send the ball to the opponent's field in any way they can.

In a detailed analysis by game complexes in terms of the frequency of occurrence of FTJs and the results of greater predominance of these, in Complex -1, as shown in table 4, the phase that occurred in the greatest number of times was #2. The result expressed in this way indicates that this category is characterized by the difficulties to bring the ball close to the net and to be able to perform actions in second contact. This forced the teams to attack mostly on diagonal passes (Table 4).

Table 4.- Descriptive values of the behavior of the FTJs belonging to Complex 1

FTJs belonging to Complex - 1 (K - 1)						
# FTJ	Positive	Negative	Neutral	Total	%	
Phase # 1	32	34	65	131	29.0	
Phase # 2	34	37	87	158	35.1	
Phase # 3	9	14	15	38	8.4	37.9% of the total of FTJ
Phase # 4	4	5	8	17	3.8	
Phase # 5	27	18	50	95	21.0	
Phase # 6	1	5	6	12	2.7	
Total	107	113	231	451	100	
%	23.7%	25.1%	51.2%	100%		

The phase that occurred the least number of times was # 6. This explains the characteristic of the game in this category where the players do not have a high mastery of the receiving and passing/attacking action in second contact actions.

In another order of analysis, it can be seen that most of the actions ended with negative or neutral results, being contemplated in them more than 50 % of the actions. This circumstance shows that there are difficulties from the technical-tactical point of view in this sex and category.

Complex -2 is the one that allows to mark the difference points to win a *set* or game. The characterizing results of this category, and that constitute reference values, are shown in table 5, these evidenced the difficulties of the teams to win counterattack actions to make the difference that guarantees the victory (Table 5).



Table 5. - Descriptive values of the behavior of the FTJ and SEJ belonging to Complex - 2

FTJ and SEJ belonging to Complex - 2 (K - 2)					
# FTJ	Positive	Negative	Neutral	Total	%
Phase # 1	27	24	38	89	24.9
Phase # 2	16	23	38	77	21.6
Phase # 3	3	3	3	9	2.5
Phase # 4	8	4	9	21	5.9
Phase # 5	15	35	60	110	30.8
Phase # 6	11	20	20	51	14.3
Total	80	109	168	357	100
%	22.4%	30.5%	47.1%	100%	
# SEJ	Positive	Negative	Neutral	Total	%
1	14	28	16	58	40.6
2	7	12	8	27	18.9
3	15	17	16	48	33.6
4	3	3	4	10	6.9
Total	39	60	44	143	100
%	27.2%	42.0%	30.8%	100%	

In Complex -2, the phase that occurred the most number of times was #5, this confirms that in this category the tendency of the game is to return the ball as fast as possible, trying to get the point and that the opponent is the one who fails the action. The phase with the least number of opportunities was #3, this explains the characteristic of this category, where the main goal is to get the fundamental point in actions at the back of the court. However, as for the performance of the actions, we can appreciate, as in Complex -1, the highest percentages of the results between negative and neutral. It is evident the difficulties in converting counterattack actions into points.

Within the Complex -2, the SEJ that occurred the most number of times was #1 and the one with the least occurrence was #4. The result indicates that in this category there are many direct defensive actions, although, likewise, more than 50 % of the actions ended with negative or neutral results, thus demonstrating the technical-tactical limitations of the players in this category of initiation.

Table 6 shows the results obtained in Complex -3. Within the complex, the FTJ that occurred the most number of times was # 1, this result expresses the tendency in this category to a more conservative and less aggressive game in terms of actions that are prolonged in the development of the game. The phase that occurred the least number



of times was #4. This corresponds to the tendency of the teams to perform the offensive actions mainly at the end of the court, so the actions near the net are less used. This, perhaps, responds to the fact that in this category the tendency of the players is to get closer to the net due to the fact that many of them come from volleyball (Table 6).

Table 6.- Descriptive values of the behaviour of the FTJ and SEJ belonging to Complex

- 3

FTJ and SEJ belonging to Complex – 3 (K - 3)						
# FTJ	Positive	Negative	Neutral	Total	%	
Phase # 1	38	28	51	117	30.7	
Phase # 2	27	29	48	104	27.3	32.1%
Phase # 3	14	20	25	59	15.5	dela
Phase # 4	9	13	14	36	9.4	totalidad
Phase # 5	18	22	25	65	17.1	de
Total	106	112	163	381	100	FTJ
%	27.8%	29.4%	42.8%	100%		
# SEJ	Positive	Negative	Neutral	Total	%	
1	11	18	21	50	28.8	
2	4	9	12	25	14.3	54.9%
3	18	38	43	99	56.9	dela
4	0	0	0	0	00.0	totalidad
Total	33	65	76	174	100	de
%	18.9%	37.3%	43.8%	100%		SEJ

As for the performance of the FTJ, it can also be seen how the neutral and negative results predominate much more than the positive ones. This is evidence that in the development of this complex the technical-tactical difficulties of the players at this level emerge. It happens frequently that when the passages of the game are lengthened, in general, the teams have difficulties to win the point.

Within the Complex-3, the SEJ that occurred the most number of times was # 3, this game action has the characteristic that it allows to surprise the opponent, by making a direct play, with a surprising purpose. It is evident that it is the most used by the players, as there is continuity of actions, however, the one with the least number of occurrences in the complex was # 4, which never occurred in this complex.



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Conflict of interests:

The authors declare not to have any interest conflicts.

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The authors have participated in the writing of the work and analysis of the documents.



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