

SPECIFICITY OF TECHNICAL AND TACTICAL TRAINING. A CASE STUDY IN VOLLEYBALL

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ABSTRACT

The aim of this study was to analyse the degree of specificity between a period of training and competition through the analysis of the game elements and their efficacy. A high level men's volleyball team was analysed by utilising an observational methodology. The dependent variables were the type of technique utilised and the efficacy of each action. These variables were grouped according to the content of the practice: part practice, whole practice, or match. A recording of two weeks of training and competition process was done for its subsequent analysis. Significant differences between the volume of techniques utilised was found when comparing the situations of part practice and matches. There were differences regarding efficacy between the whole and part practices and matches. This study seeks to serve as a reference for the optimisation of the training process through the use of a tool to establish objectives and monitor them during training and competition periods.

Key Words: performance, team sport, training, coaching, monitoring

RESUMEN

El objetivo de este estudio fue analizar el grado de especificidad entre el periodo de entrenamiento y competición a través del análisis de los elementos de juego y su eficacia. Un equipo de rendimiento de voleibol masculino fue analizado utilizando la metodología observacional. Las variables dependientes fueron el tipo de técnica utilizada y la eficacia de cada acción. Estas variables fueron agrupadas de acuerdo al tipo de tarea: trabajo analítico, global, y partido. Se grabaron todos los entrenamientos y competiciones durante dos semanas para su posterior análisis. Se encontraron diferencias en el volumen de las técnicas utilizadas entre el entrenamiento global y partido, y en la eficacia entre el entrenamiento analítico y global con los partidos. El estudio trata de servir como referencia para la optimalización del entrenamiento a través del uso de una herramienta para el establecimiento de objetivos y su control durante el entrenamiento y la competición.

Palabras clave: rendimiento, deportes de equipo, entrenamiento, dirección del entrenamiento, control

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INTRODUCTION

For sport performance, the highest proportion of specific preparation is found in the competitive phase of training (Weineck, 2005). To achieve this specificity in the training, the physical, technical, tactical, and psychological demands required for tasks should be as similar as possible to those required for competition (Weineck, 2005). For individual sports with a lower number of competitions, these specific phases are carried out in periods that are relatively close to competition, while for the rest of the season, more general content is found in practices (Bompa & Haff, 2009). For team sports with long competitive phases (league and play-offs), the work done in the practices is specific, with the goal of improving performance in each competition (Bompa & Haff, 2009). The specificity between the content that needs to be worked on in practices and the needs required for competition will increase the quality of the training process and, consequently, the competitive performance (Weineck, 2005).

For team sports, such as volleyball, there are many manuals in the literature that provide the content that is necessary to work on in training (e.g. Shondell & Reynaud, 2002; FIVB, 2012). There are also studies that describe the demands of competition and present reference values (of quantity and/or quality) for the technical and tactical game elements (e.g. Marcelino, Mesquita, & Sampaio, 2011; Palao, Santos, & Ureña, 2004) as well as physical elements (e.g. Bahr, & Bahr, 2014; Mroczek, Januszkiewicz, Kawczynski, Borysiuk, & Chmura, 2014; Vescosi, 2002). Starting with the performance level of a team, and utilising the theoretical and practical knowledge that a coach has, each coach determines the objective that he or she wants to attain with the training process. To assess the performance of a team, as well as the objectives to be established, the coach should analyse the performance of his or her team in competitive situations. Then, the coaching staff should plan some work objectives to strengthen the weaker aspects. The work objectives that were set for this case study are focused on technical and tactical content, specifically the volume (quantity) and efficacy (quality) of the different game elements utilised in volleyball training and competition (i.e. matches). Regarding the volume of use of the various game elements in practice, although no studies have been found in the scientific bibliography, there are manuals that outline the planning process. For competition, in the scientific literature there are studies that present information about the technique, manner of execution, and zone of execution (e.g. Marcelino, Mesquita, & Afonso, 2008; Palao, Manzanares, & Ortega, 2009; Palao, Santos, & Ureña, 2007). Regarding efficacy, the majority of the studies that were found assess the values found in competition for the different game elements (e.g. Silva, Lacerda, & João, 2014; Patsiaouras, Moustakidis, Charitonidis, & Kokaridas, 2010). Concerning efficacy in practice situations, few references are found, with the exception of Lidor, Arnon,

Hershko, Maayan, and Falk (2007), where the level of physical exhaustion was negatively related to the degree of the serve's success. No studies in the bibliography were found that analysed the work done on the game elements and their possible relationship to future competitions. This lack of knowledge about the specificity of training is found both in regard to establishing protocols to monitor this specificity as well as for obtaining reference values which performance teams from team sports use both generally and specifically. The aim of this study consisted in analysing the game elements (serve, reception, set, attack, block, and defence) in volleyball with regard to their use and the efficacy they achieve.

METHOD

A volleyball team from the 2006-2007 season of the Spanish Super-league was analysed. For the previous five seasons, the team was ranked among the top six. The team had a coaching staff composed of two coaches with the highest national certification and a physical therapist. The team was composed of 13 players (mean age, 23.3 years; mean height, 1.94 m; and mean standing reach, 2.50 m). Regarding the specific players, there were two setters, two opposites, four centres, four outside hitters, and a libero. The period of time that was studied included two full weeks of training (eight weeks apart) from the competitive phase of the season and the two corresponding matches. The researchers did not intervene directly with the players or team. Training sessions and matches were recorded by the coaching staff. The first week included seven training sessions with technical and tactical content, and the second week involved six sessions. The team played an official league match at the end of each of the two weeks, and it played as the home team both times. Matches were played against teams of similar ranking to the team that was studied. The exercises that were analysed from the training sessions had technical and tactical content (71 exercises), while the exercises that had a predominantly physical objective were excluded from the study (21 exercises) (table 1).

TABLE 1
 Technical or tactical objective, number of exercises, actions analysed, duration, and mean duration of the analysed exercises.

Objective	Exercises	Actions	Duration	Mean duration
Serve-reception	20	1534	3:25:01	0:10:47
Set	6	801	1:18:52	0:13:09
Attack	8	983	4:24:22	0:24:13
Block	9	635	2:52:35	0:24:39
Defence	15	1531	3:13:39	0:12:55
Game-like situation	13	8736	7:48:05	0:39:00
Total	71	14017	23:02:34	0:19:26
Matches	8 sets	3355	2:41:50	0:20:15

The study that was carried out was descriptive and observational. The following variables were analysed:

- Practice aim: Three game situations were differentiated: exercises with analytical content (predominantly focused on the serve, reception, setting, attack, block, and/or defence); exercises with general or global content (exercises with a similar structure to 6-on-6 competition); and competition (i.e. match).
- Duration of each sequence of play. Duration went from the moment the ball was put in motion until the sequence was finished, whether due to an infraction or at the request of the coaching staff. The periods of inactivity were also timed.
- Type of technique employed to make contact with the ball. The classification of the technique was done following the TEVOL manual (Palao & Manzanares, 2009). The serve was divided into power jump, floater, standing, and other (from higher surfaces or within the court). The reception was differentiated according to the type of serve from which the ball was received. The set was classified according to the ball's trajectory, either parabolic or high (i.e. set for a slow attack) or rectilinear or flat (i.e. set for a quick attack). The attack, block, and defence were classified in function of the type of set carried out in the analysed play (e.g. block and/or defence before a quick attack). The special situation in which the ball arrived to the attacker was classified as "other" (e.g. second-contact attack or direct attack from ball coming from the opponent court). The block was analysed further in function of the number of players that attempted to interfere in the attack's trajectory (one, two, or three players).

- Degree of efficacy of the technical actions (Palao & Manzanares, 2009). This variable refers to the effect that each action had on the following action. The assessment scale utilised was the one proposed by Coleman, Neville, and Gordon (1969). The actions that can achieve a direct point (i.e. serve, attack, and block) were evaluated on a five-point scale (error, did not limit the attack options, limited the attack options, did not allow opponent attack, and point). The actions of reception, set, and defence, which cannot achieve a point, were evaluated on a four-point scale (error, did not allow attack, limited the attack options, and did not limit the following action).

The practices and matches that composed the sample were recorded with a digital video camera. The camera was always placed in the same space beyond the playing court, at the same distance, and with the same view. For practices, recordings started a few moments before the practice began and continued until the coach indicated that it was finished. For competitions, recordings started a few moments before the warm-up began and continued until the last point was scored.

The video recordings of practices and competitions were stored and viewed later following the principles of observational methodology (Anguera, 2003). The observers for the study were two volleyball coaches with the highest national coaching certificate. The training had an initial phase where theoretical and practical learning was carried out. For the training process, a theoretical classification of the different techniques and their respective subcategories was carried out (Palao and Manzanares, 2009). The second phase consisted of a practical training session ranging from adapted observations to real situations of observation. During this phase, the inter- and intra-class reliability indexes were monitored for both observers through a Kappa test. When values >0.80 for inter-class and >0.99 for intra-class were achieved for each of the variables, the observers began viewing and registering the data from the recordings.

The data were collected in Microsoft Excel, version 1997-2003. The information was organised by using one row for each game complex and one column for each variable. The analysed variables were placed in 43 columns, and there were a total of 13764 game complexes analysed in practice sessions and 1890 in matches. Once the data were organised, they were exported to SPSS v.15.0. Mean values for occurrence and efficacy were obtained. The efficacy for each technique of every exercise was calculated from the coefficients utilised by the international volleyball federation: (number of actions with the value of 0 * 0 + number of actions with the value of 1 * 1 + number of actions with the value of 2 * 2 + number of actions with the value of

$3 * 3 +$ number of actions with the value of $4 * 4 /$ total number of actions. For each technique, the various sub-categories that were established were analysed.

The statistical analysis of a specific action was carried out by comparing the values obtained in exercises of part practice with the values obtained for the same action in exercises of whole practice and also with the values for the same action in competition. For the statistical analysis, a chi-square test was utilised for occurrence, and Phi and Cramer's V were utilised. To test efficacy, an independent samples t-test was carried out. Significance was set at $p < 0.05$.

RESULTS

Regarding the serve (table 2), in the first week, there was a significantly different distribution for the use of the different serves between part practice and competition. The jump float serve was the serve that was most utilised in competition, while in practice, it was the least utilised. The use of power jump serves, which were used the least in competition, presented significantly higher use in training. The utilisation of "other" types of serves in part practice (21%), i.e. serves from elevated surfaces and/or from within the court, have significantly higher use in training since they are not carried out in competition. When comparing practice sessions of 6-on-6 (whole practice) with competition, there were no differences regarding distribution or efficacy. For the first week, there were no significant differences in efficacy. For the second week, the distribution of serves was similar regarding jump float serves and other types of serve for part practice, whole practice, and competition. The power jump serve was significantly more utilised in both practice situations (i.e. part and whole) than in competition. Between the whole practice situations and competition, the standing serve was utilised significantly more often in competition. Regarding the total efficacy of the serve, for the second week, there were significant differences between part practice situations and competition.

TABLE 2
Use and efficacy of the different serve techniques in practices and matches according to the type of exercise.

Week 1	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Power	171	21.4 ^a	1.63	54	12.3	1.2	16	9.1 ^a	1.38
Floater	155	19.4 ^a	1.56	184	41.9	1.43	88	50 ^a	1.55
Standing	305	38.1	1.47	201	45.8	1.5	72	40.9	1.49
Other	169	21.1 ^a	1.42	0	0	0	0	0 ^a	0
Total	800	100	1.51	439	100	1.41	176	100	1.51
Week 2									
Power	73	8.5 ^a	1.62	32	8.9 ^b	1.83	1	0.7 ^{a,b}	2
Floater	352	41.1	1.34	181	50.6	1.52	64	43.2	1.47
Standing	431	50.3	1.57	145	40.5 ^b	1.57	83	56.1 ^b	1.67
Other	1	0.1	1	0	0	0	0	0	0
Total	857	100	1.48 [*]	358	100	1.50	148	100	1.59 [*]

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; ^{*}= $p < .05$ differences between part practice and matches; [†]= $p < .05$ differences between whole practice and matches.

When analysing the reception, for the first week, there were significant differences in the distribution between part practice and matches (table 3). The highest number of receptions in matches was executed to receive float serves, while in practices, the lowest number of receptions were executed to receive float serves. The types of serve that were most utilised in practices were the power jump serves and other types of serves (e.g. serve from an elevated surface); however, this last type of serve could not be utilised in matches. The receptions of standing serves were utilised in matches and practices in equal proportions but they were more efficacious in competition. When comparing 6-on-6 practice sessions (whole practice) with matches, no differences were observed regarding distribution or efficacy. For the second week, the reception distribution was similar regarding jump float and standing serves for part practice, whole practice, and matches. The receptions of power jump serves occurred significantly more in training situations. When comparing situations of 6-on-6 and matches, receptions of standing serves were more frequent in matches than in whole practice situations.

TABLE 3
Use and efficacy of the reception regarding the different serve techniques, according to the type of exercise.

Week	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Jump	153	23.7 ^a	2.23	44	12.7	2.52	14	8.9 ^a	2.43
Floater	119	18.4 ^a	2.12	143	41.2	2.15	78	49.4 ^a	2.26
Standing	230	35.7	2.05*	160	46.1	2.12	66	41.8	2.36*
Other	143	22.2 ^a	2.32	0	0	0	0	0 ^a	0
Total	645	100	2.16	215	100	2.18	87	100	2.32
Week 2									
Jump	66	10.2 ^a	2.21	28	9.4 ^b	2.82*	1	0.7 ^{a,b}	2.00*
Floater	252	38.8	2.17	143	48.1	2.29	55	40.4	2.29
Standing	330	50.8	1.95	126	42.4 ^b	2.29	80	58.8 ^b	2.29
Other	1	0.2	3.00	0	0	0	0	0	0
Total	649	100	2.06	297	100	2.20	136	100	2.29

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; *= $p < .05$ differences between part practice and matches; †= $p < .05$ differences between whole practice and matches.

Concerning setting (table 4), for both weeks, only slow attack situations (i.e. high set) were worked on in the part practice situations. For matches and whole practice situations, there was a similar distribution of sets according to the attack tempo. For both training weeks, the efficacy in matches was significantly higher than in the whole and part practice exercises.

TABLE 4
Use and efficacy of the set according to the attack tempo and the type of exercise.

Week	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Quick	0	0 ^a	0	162	18.3	2.77 [†]	40	19.0 ^a	2.95 [†]
Slow	399	100 ^a	2.29 [*]	724	81.7	2.44	171	81.0 ^a	2.50 [*]
Total	399	100	2.29 [*]	886	100	2.50 [†]	211	100	2.59 ^{*†}
Week 2									
Quick	1	0.3 ^a	0	167	19.9	2.78	40	21.7 ^a	2.83
Slow	311	99.7 ^a	2.41 [*]	671	80.1	2.51 [†]	144	78.3 ^a	2.64 ^{*†}
Total	312	100	2.41 [*]	838	100	2.57 [†]	184	100	2.68 ^{*†}

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; *= $p < .05$ differences between part practice and matches; †= $p < .05$ differences between whole practice and matches.

Regarding attacks (table 5), the quick attack was significantly more used in part practice situations than in matches during the first week. Between whole practice situations and matches, there were no significant differences. There

were no significant differences regarding the efficacy of the attack between practice and competition either of the weeks.

TABLE 5
Use and efficacy of the attack according to the attack tempo and the type of exercise.

Week 1	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Quick	138	27.2 ^a	2.78	162	17.4	2.80	40	18.0 ^a	3.03
Slow	358	70.6	2.67	724	77.9	2.56	171	77.0	2.56
Other	11	2.2 ^a	3.20	43	4.6	2.63	11	5.0 ^a	3.27
Total	507	100	2.71	929	100	2.60	222	222	2.68
Week 2									
Quick	151	27.3	3.00	167	19.2	2.76	40	20.6	3.10
Slow	396	71.6	2.73	671	77.2	2.51	144	74.2	2.57
Other	6	1.1 ^a	3.00	31	3.6	2.74	10	5.2 ^a	2.00
Total	553	100	2.80	869	100	2.56	194	100	2.65

*Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; *= $p < .05$ differences between part practice and matches; †= $p < .05$ differences between whole practice and matches.*

Concerning the use of the block according to the attack tempo (table 6), there was a significantly greater use of the block for quick attacks in matches both weeks, and there was significantly less use of slow attacks in part practice situations for the first week. The efficacy of the blocks used for quick attacks for part practice situations was significantly greater than their efficacy in matches. The use and efficacy of whole practice and matches were not significantly different either of the weeks.

TABLE 6
Use and efficacy of the block according to the attack tempo and the type of exercise.

Week 1	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Quick	66	11.3 ^a	2.23 [*]	160	17.4	1.54	40	18.1 ^a	1.25 [*]
Slow	505	86.6 ^a	1.78	720	78.1	1.46	170	76.9 ^a	1.42
Other	12	2.1 ^a	2.00	42	4.6	2.42	11	5.0 ^a	1.00
Total	583	100	1.84	922	100	1.51	221	100	1.39
Week 2									
Quick	198	31.1 ^a	2.09 [*]	167	19.3	1.83	40	20.6 ^a	1.29 [*]
Slow	434	68.1	1.76	667	77.1	1.62	144	74.2	1.51
Other	5	0.8	2.00	31	3.6	2.11	10	5.2	2.00
Total	637	100	1.86 [*]	865	100	1.67	194	100	1.50 [*]

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; ^{*}= $p < .05$ differences between part practice and matches; [†]= $p < .05$ differences between whole practice and matches.

Regarding the use of collective blocks and their efficacy (table 7), there was a greater use of the triple block in matches than in part practice in the first week. The efficacy of the individual block was significantly lower in part and whole practice than in matches. Double blocks were used significantly more in competition and individual blocks were use significantly more in part practice situations in the second week. The efficacy of the double blocks carried out in part practice situations was significantly greater than those executed in matches. No differences between the efficacy or the number of players executing the blocks were found between situations of whole practice and matches.

TABLE 7
Use and efficacy of the block with regard to the number of blockers, according to the type of exercise.

Week 1	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	N	%	Efficacy
Individual	201	22.9	2.28 *	89	14.5	1.86 †	37	17.2	1.00 *,†
Double	669	76.4	1.80	514	83.6	1.42	171	79.5	1.45
Triple	6	0.7 ^a	1.67	12	2.0	2.50	7	3.3 ^a	1.00
Total	876	100	1.84	615	100	1.51	215	100	1.39
Week 2									
Individual	317	37.6 ^a	1.85	175	21.3	1.97	39	20.5 ^a	1.75
Double	506	60.0 ^a	1.85 *	641	78.0	1.61	147	77.4 ^a	1.48 *
Triple	20	2.4	2.40	6	0.7	0.67	4	2.1	0.67
Total	843	100	1.86 *	822	100	1.67	190	100	1.50 *

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; *= $p < .05$ differences between part practice and matches; †= $p < .05$ differences between whole practice and matches.

Regarding the use of the different types of court defence (table 8), there were significant differences between the part practice and whole practice situations and matches both weeks. In practice, there was a significantly higher volume of court defence and attacks carried out from the standing position (i.e. without a jump) and a significantly smaller volume of court defence for slow attacks than in matches. There were no differences in use of the different types of court defence when comparing the situations of whole practice and competition. The efficacy of the court defence carried out in matches was significantly lower than that carried out in training situations. For part practice situations, the efficacy values were lower than in competition for quick and slow attacks. Differences in defence efficacy were found in the total values between the different whole practice situations in the first week.

TABLE 8
Use and efficacy of the court defence regarding the attack tempo,
according to the type of exercise.

Week 1	Part practice			Whole practice			Matches		
	n	%	Efficacy	n	%	Efficacy	n	%	Efficacy
Without jump	513	48.8 ^a	0.91	28	2.9	1.56	0	0 ^a	0
Quick	199	18.9	0.85 [*]	160	16.8	0.79	40	18.1	0.48 [*]
Slow	329	31.3 ^a	1.39 [*]	720	75.8	1.11	170	79.6 ^a	1.01 [*]
Other	10	1.0 ^a	0.67	42	4.4	0.78	11	5.0 ^a	0.50
Total	1,051	100	1.02	950	100	1.06 [†]	221	100	0.86 [†]
Week 2									
Without jump	210	31.8 ^a	1.83	2	0.2	3.00	0	0 ^a	0
Quick	61	9.2 ^a	1.22 [*]	167	19.3	0.64	40	20.6 ^a	0.50 [*]
Slow	378	57.2 ^a	1.34	667	76.9	1.05	144	74.2 ^a	1.10
Other	12	1.8 ^a	0.89	31	3.6	0.84	10	5.2 ^a	1.20
Total	661	100	1.52 [*]	867	100	0.97	194	100	0.95 [*]

Legend: ^a= $p < .05$ relationship between part practice and matches; ^b= $p < .05$ relationship between whole practice and matches; ^{*}= $p < .05$ differences between part practice and matches; [†]= $p < .05$ differences between whole practice and matches.

DISCUSSION AND CONCLUSIONS

The objective of the study was to assess the technical and tactical training process for a team to obtain information about the degree of specificity of the training with regard to the competition. The specificity of the process was evaluated through the analysis of the volume of techniques utilised and their efficacy (degree of success). Given the nature of a case study, it is not possible to generalise the data from this study. When comparing the level of training specificity (part and practice) to the matches, there is an attempt to demonstrate the usefulness of employing protocols for training analysis. For the team that was studied, in general, there are significant differences in the use of the various techniques for the part practice and matches. Whole practice involved technical and tactical content that was similar to that of matches. With regard to the efficacy of the technical skills, the differences between training and matches were found both in part practice and whole practice exercises.

The differences with regard to the use of the various technical skills in practice sessions through part practice exercises and matches are due to the design and/or modification of the exercises that the coaches prepare. The exercises are adapted to reduce the players' work load and at the same time increase the number of repetitions that the athletes execute to correct errors or critical aspects of the movement. Examples of situations where there is no specificity of the training, with the goal of monitoring or avoiding a high work

load, and where the significant differences are found, are the reception (to receive jump serves), the court defence, and the set. These differences were produced by training situations that could not be utilised in competition. Examples of these situations are: a) for serve-reception, the execution of the serve from an elevated surface and from a static position (jump serve simulation); b) for court defence, employing a standing attack; and c) for the set, carrying out a group of first tempo sets without the participation of the spiker. This sought to decrease the volume of jumps that cause a high number of repetitions. These modifications of the skills are primarily due to the high physiological demand of the jumps carried out in volleyball (Plawinsky, Costigan, & Lynn, 2007) and the possible injuries caused by their continual repetition (Bahr, & Bahr, 2014; Ribeiro, Santos, Gonçalves, & Oliveira, 2008). These measures succeed at decreasing the jump load, though there is a loss in the training specificity (e.g. references, angles, speeds, pre-indices, coordination between players, etc.) (Reeser et al., 2006). Information regarding the impact of protocols to reduce training work load was not found in the bibliography that was reviewed.

Another variation in the specificity of the training sessions are found in the use of the techniques of attack and block in part practice in relation to the set tempo (i.e. quick or slow set) and the organization of players in the block (i.e. one, two, or three players). In this regard, it should be kept in mind that there are many factors affecting the training and competition conditions, some of which the coach can control and others of which he or she cannot. Some of the aspects that the coach can control are the strategies and tactics that each team utilises (e.g. match preparation) (Palao & Hernandez-Hernandez, 2014). Thus, for example, the volume of attacks with quick or slow tempos depends on the tactical priorities that are previously determined by the team's coaches. Likewise, the opponent will carry out the tactical planning in function of their strengths and weak points and the game plan. This affects the level of specificity of the training with regard to the competition. To solve this problem, the coaches and support staff carry out technical and tactical studies of the teams against which they are going to compete and thus be able to plan the level of specificity in the training periods. For the team that was analysed, the objectives of each week of training were divided into two types: a) at the beginning of the week, the objective was to improve and work on weak points from competition; and b) for the second part of the week, the objective was to prepare for the weekend's competition. This may be the reason for the significantly greater volume of repetitions for quick attacks in part practice as compared to competition. For the first part of the week, with part practice and under controlled situations, the practice of the quick attack had significantly higher values of usage than in matches. For the second part of the week, the

actions that were carried out depended primarily on the team's game style, the work environment, and the balance between starters and reserves, and there were very similar values to those found in matches, which demonstrates strong specificity with regard to their use.

In relation to the efficacy of the actions, the differences found with regard to specificity may be due to the players' physical and psychological fatigue, to the creation of game situations that are facilitated in the exercises (delimitation of attack directions, previously established plays, etc.), and/or by the misbalance in the confrontation between starting and reserve players. In volleyball, the efficacy does not depend only on intrinsic factors, such as the level of activation or concentration, the technical efficiency, and/or an adequate tactical decision, but rather it depends also on the opponent's response to these same aspects. The fact that holding the ball is prohibited means that executing the technical skills requires much precision, as there is a short contact time for the execution of the various techniques. To achieve this much precision with acceptable levels of efficacy, it is necessary to have a high degree of concentration and motivation. In competition, it is easier to achieve this optimal state of activation than when carrying out repetitive training exercises (Movahedi, Shiekh, Bagherzadeh, Hemayattalab, & Ashayeri, 2007). This aspect is observed in work done on reception, in which smaller efficacy values for all types of serve in practices is found through part practice when compared to whole practice and matches.

These results demonstrate that these work routines do not produce situations with similar psychological states as those of matches. Thus, although the exercises carried out are simpler than in competition, and although the efficacy of the exercise is generally monitored through work objectives, the athlete still does not get invested in the outcome. There is a paradox in that although the exercises are simpler, a lower efficacy in the exercises is found. The loss of specificity of work volume may cause physical fatigue, psychological fatigue, and/or lack of involvement. In the work done through whole practice, the differences between starting and reserve players are one possible reason for the lack of specificity regarding efficacy. This difference of level means that starting players relax and their performance decreases.

Because of these reasons, it is necessary to establish protocols to control the efficacy of the training both individually and jointly, by employing the team's reference values both in competition as well as in the various training exercises (Palao, & López-Martínez, 2012). Thus, through monitoring the efficacy during the training routine, it is possible to detect indices of physical and/or psychological fatigue, which make it more difficult to achieve the goals that were set. Therefore, when working on technique, it would be useful to establish the minimum values of efficacy with a high volume of repetitions

which would allow the coach to establish when fatigue is affecting the players and when there is the risk of the exercise not achieving its desired effects. These values should be adapted to practice situations. When the training situation is facilitated to achieve a high number of repetitions with efficacy (e.g. block and court defence), the values are higher than both those found in competition as well as the values that teams that participate in the Olympic games have (Marcelino, Mesquita, Palao, & Sampaio, 2009; Palao et al., 2004; Rodriguez-Ruiz et al., 2011). This is facilitated by the coaching staff through establishing or conditioning the previous action (e.g. standing attack or attacker seeking the blocker or defender) or establishing the zones where the opponent was going to attack. As a positive aspect, this predetermination assures the collective formation of a block at the net which increases both the number of repetitions as well as the possibility for success (efficacy). As a negative aspect, this modification decreases the need for players' attention and concentration to analyse and anticipate the opponent's zone of attack, which is a priority for success. More studies are needed to assess the level of efficacy in the training sessions of team sports teams and their effect on the training and match performance.

The present study provides a protocol which allows us to determine the existence of differences in the use and efficacy of the various technical actions from which the game of volleyball is composed. Its use allows us to establish the level of specificity with which a team practices with regard to technical and tactical means (e.g. actions and efficacy). Collecting this information allows us to improve knowledge about the training process that the team is following. With more specific and precise knowledge, a work plan can be designed and carried out that best takes advantage of the personnel, material, and temporal resources available to a high performance team.

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