



ORIGINAL RESEARCH PAPER

Physical Education

ANALYSIS OF PHYSICAL CHARACTERISTICS OF FEMALE INTERNATIONAL VOLLEYBALL PLAYERS

KEY WORDS:

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ABSTRACT

In the present study four international matches in female category were selected for analysis of physical variables according to playing positions i.e. setter, middle blocker, outside hitter and opposite player. Video analysis was used for collection of data and all selected videos were analyzed and recorded in adopted recording format. Data was analyzed using one way analysis of variance and Post Hoc test was employed to compare the significance of mean. The level of significance was set at 0.05. The present study depicted that there were significant differences on selected physical variables of hitting, block and spike where as no significant difference on jump and serve among the playing position of international female volleyball players.

INTRODUCTION

Volleyball is a sport played by two teams on a playing court divided by a net. There are different versions available for different circumstances in order to offer the versatility of the game to everyone. The objective in the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent. The team has three hits (except block contact) for returning the ball. The ball is put in play with a service hit by the server over the net to the opponents. The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly. In Volleyball, the team winning a rally scores a point (Rally Point System). When the receiving team wins a rally, it gains a point and the right to serve, and its players rotate one position clockwise. (FIVB, 2016)

The sport of volleyball offers opportunities for athletic success to a wide verity of personalities, body types and natural athletic talent. With its opportunities for individual skill as well team competition, few other sports provide so much for so many. There are opportunities to develop physically, emotionally and socially. Research focused on performance analysis in volleyball has been increasing in recent years with the purpose to provide relevant information on features, patterns, and specificities of teams' behaviors within competitive contexts, providing valuable data for guiding practice and research alike. As like other sports, volleyball is a team sport characterized by its intermittent nature, fluctuating randomly from brief periods of maximal or near maximal activity to longer periods of moderate and low intensity activity for this reason, the knowledge of the physical characteristics is vital to guide the training process with emphasis on science-based programs.

The studies on volleyball involving the physical characteristics have been performed only in senior and high performance competitions. Nevertheless, it has been suggested that due to the innate differences in performance capabilities between players according to the playing positions and category it would be inappropriate to apply physical demands on every specialized players without understanding the difference among them. Therefore, the present study was designed to analyze the selected physical characteristics of female international volleyball players during competition.

METHODOLOGY

On the basis of expert guidance and related literature with joint consideration of the feasibility and availability of video recording, the following physical variables were selected:- 1. Total number of spikes by each specialized players 2. Total number of blocks by each specialized players 3. Total number of serves by each specialized players 4. Total number of hitting by each specialized players 5. Total numbers of jumps by each specialized players Video analysis was used under the guidance of expert for better assessment and collection of data of the physical characteristic of selected players. Data were collected according to the position of play (i.e. outside hitter, middle blocker, opposite player and setter). Only four matches Volleyball Olympic, 2012 were analyze i.e. Brazil v/s USA, USA v/s Korea, USA v/s China and Great Britain v/s Japan. Recording of the data were performed by the help of laptop on slow motion mode. Analysis of variance was applied to find out the difference among different playing positions on selected variables and Post-hoc test was employed to compare significance of mean difference for the variable on which significance variance was observed. And the level of significance was set at 0.05. The statistical technique was calculated by using SPSS version 17.

RESULTS AND DISCUSSION

Table 1: One Way Analysis Of Variance of Selected Variables

Variables		Sum of Squares	df	Mean Square	F	Sig.
Jump	Between Group	1335.188	3	445.063	1.391	.293
	Within Group	3838.250	12	319.854		
	Total	5173.438	15			
Hitting	Between Group	2664.750	3	888.250	13.754*	.000
	Within Group	775.000	12	64.583		
	Total	3439.750	15			
Serve	Between Group	39.688	3	13.229	1.608	.239
	Within Group	98.750	12	8.229		
	Total	138.438	15			
Block	Between Group	1976.188	3	658.729	10.780*	.001
	Within Group	733.250	12	61.104		
	Total	2709.438	15			
Spike	Between Group	1098.000	2	549.000	11.681*	.003
	Within Group	423.000	9	47.000		
	Total	1521.000	11			

*level of significance at 0.05

Table 2: Post-hoc comparison according to playing position of selected variables

Variables	Specialized Playing Position				Mean Difference	Sig.
	Setter	Middle Blocker	Outside Hitter	Opposite player		
Hitting	15.25	22.75			7.50	.212
	15.25		43.75		28.50	.00*
	15.25			44.75	29.50	.00*
		22.75	43.75		21	.003*
		22.75		44.75	22	.002*
			43.75	44.75	1	.86
Block	22.25	51.25			29	.00*
	22.25		26.25		4	.48
	22.25			33.50	11.25	.06
		51.25	26.25		25	.001*
		51.25		33.50	17.75	.007*
			26.25	33.50	7.25	.214
Spike		12	31.50		19.50	.003*
		12		33	21	.002*
			31.50	33	1.50	.76

*level of significance at 0.05

Table 1 reveals that there is no significant difference in jump and serve variables among the selected playing position. The obtained "F" value 1.391 and 1.608 is lower than tabulated F-value (3.49) required to be significant.

It may be because in female category, setter is not always tries for jump set and in complex I & II play middle blocker is not much involved as like men category whereas universal and outside hitter both are utilized equally and further in relation to no significant difference of serve may be because every player has to perform serve according to their rotation order throughout the game.

It is also evident from the table that there is a significant difference in hitting variable where the obtained 'F' value 13.754 is greater than table vale (3.49) and from Post-Hoc table 2 it is reveals that there is a significant difference between setter and outside hitter, setter and opposite player, middle blocker and outside hitter as well as middle blocker and opposite player and rest of the comparisons showed no significant difference. In female, more number of hitting is performed by opposite player and outside hitter in comparison to middle blocker & setter. Due to longer rallies in female category these two players are maximally utilized for attack instead of middle blocker. However, no involvement of setter in attack is the reason of very less number of hitting.

Table 1 shows that there is a significant difference in block variable where the obtained 'F' value 10.780 is greater than table vale (3.49) and Post Hoc table 2 reveals that there is a significant difference of block between middle blocker and setter, middle blocker and outside hitter as well as middle blocker and opposite player and rest of the comparisons showed no significant difference. The finding indicates that only middle blocker shows significant difference when compared to other playing position because female middle blockers are involve in every rally for block to intercept the attacker with individual or collective block where as other specialized player's involvement in block is determine by the opponent attacking zone.

Table 1 reveals that there is a significant difference in spike variable where the obtained 'F' value 11.681 is greater than table vale (3.49) and Post Hoc table 2 reveals that there is a significant difference of spike between middle blocker and outside hitter as well as middle blocker and opposite player. The rest of the comparisons showed no significant difference. Such finding reveals that outside hitter and opposite player shows the significant difference with middle blocker. It may be because maximum numbers of spike are performed by opposite player followed by outside player and middle blocker. Now days the opponent's main aim is to stop the quick attack by any means so they always do commit block on

middle blocker and due to this reason setter set less number of ball to the middle blocker. Poor 1st pass cause by aggressive serve is one of the reasons due to which setter set more ball to the opposite player and outside hitter in comparison to middle blocker.

CONCLUSION

In present scenario, we must quantify the jump, serve, spike, block etc. of each player per set, per match and for this purpose the study was conducted and the finding shows the status of each selected physical variables according to playing position of players.

The statistical findings conclude that there were significant differences of hitting, block and spike among the playing position of female volleyball players and no significant difference on jump and serve variables in relation to playing positions.

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