

Selected Temporal Characteristics of Male and Female Volleyball Players at International Level

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ABSTRACT

The purpose of the study was to analyse and compare selected temporal characteristics of senior male and female Volleyball players at international level. In male category, four matches Brazil v/s Russia (Olympic final, 2012), India v/s Iran (AVC, 2012), USA v/s Italy (Olympic, 2012) and India v/s Australia (AVC, 2012) were analysed. In female category, four matches Brazil v/s USA (Olympic final, 2012), USA v/s Korea (Olympic, 2012), USA v/s China (Olympic, 2012) and Great Britain v/s Japan (Olympic, 2012) were analysed. Video analysis was used for the collection of data. t-test was applied to determine the difference between male and female players. The level of significance was set at 0.05. The results of the study divulge that duration of rally is significantly longer in female category and the interval between jumps in male group middle blockers is significantly more. The difference between male and female groups in other selected temporal variables is statistically non-significant.

INTRODUCTION

Volleyball is a major international sport with approximately 220 affiliated national federations and 200 million people participating worldwide. It is an ideal sport which provides great entertainment for all age groups in both male and female categories with its various formats (FIVB, 2011). Volleyball is physically demanding and requires high level of physical fitness to perform repeated high intensity actions (spiking, blocking, jumping, diving and sprinting etc.) separated by low intensity activities (passing, shuffling, guarding and setting etc.) and rest periods. To achieve high performance,

therefore, it is necessary to master various motor abilities such as speed, explosive power, agility, reaction time, co-ordination and muscular endurance (Raj, 2015).

Volleyball enjoyed tremendous success during the Athens (2004) and Beijing (2008) Olympic Games, in both of its formats (Volleyball and Beach Volleyball), as one of the most successful sport (FIVB, 2011) and it is also growing in other areas like number of affiliated athletes, sponsorships, number and level of championships, spectators and prize money and many more. Federation Internationale de

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Volleyball (FIVB) simplified the interpretation of the rules like change in the scoring system from side-out to the rally point system, introduction of libero and many more. Reason behind these changes is to make it more entertaining, spectacular and make its duration more predictable and a sport with more media coverage (Pereira, Mesquita, and Graça 2010; Turpin et al, 2009). These changes has resulted in a decrease in total match duration and the rule changes have also changed the way of execution of various tactical actions (Giatsis, 2003).

The information about the temporal characteristics of match is important as a first step to design training programme. Temporal variables have an effect on the physical characteristics like of number of jumps, actions, contacts with ball and hits (Giatsis & Papadopoulou, 2003). At international level players perform on average 100 jumps per set, and six jumps per rally (Turpin et al, 2008).

Investigation, therefore, on temporal characteristics like duration of match, duration of rallies and many more is essential to understand the nature of game.

Very few studies are available on temporal characteristics of male and female Volleyball players. Therefore, the purpose of the study was to gain more information on the temporal characteristics of the game. The present study is an effort to compare various temporal characteristics of male and female Volleyball players at International level.

METHODOLOGY

Selection of Subjects

Total sixteen teams, eight in each category (male and female) were selected for the study. Purposive sampling was used for the selection of subjects as per the availability of match videos. Four matches in each category were selected for the analysis. In male category, four matches Brazil v/s Russia (Olympic final, 2012), India v/s Iran (AVC, 2012), USA v/s Italy (Olympic, 2012) and India v/s Australia (AVC, 2012) were selected for analysis. In female category Brazil v/s USA (Olympic final, 2012), USA v/s Korea (Olympic, 2012), USA v/s China (Olympic, 2012) and Great Britain v/s Japan (Olympic, 2012) were selected for analysis.

Selection of Variables

After critical analysis of the related literature with joint consideration of the feasibility and availability of video recordings, five temporal variables i.e. Duration of rally, interval between rallies, duration of set, duration of match and interval between jumps were selected for the study. Data of variable interval between jumps was collected according to the playing positions i.e. outside hitter, middle blocker, opposite player and setter.

Collection of Data

Video analysis was used for the collection of data of selected variables. Recording of the data were performed with the help of slow motion analysis. All the selected videos were analysed and recorded in a recording format formulated for this purpose.

Statistical Design

Descriptive statistics Mean and Standard deviation were used to express the data and independent t-test was employed to compare the selected temporal variables

between male and female players. For analysis purpose, the level of significance was set at 0.05.

RESULTS & DISCUSSION

Table 1 reveals the Mean, Standard deviation and calculated 't' value of the temporal variables i.e. Duration of rally,

interval between rallies, duration of set, and duration of match of male and female Volleyball players. The calculated 't' value of selected temporal variables are 5.70, .581, .257, and .328, respectively.

Table-1: Mean, SD and calculated 't' value of selected temporal variables of male and female Volleyball players.

Temporal Variable	Male		Female		Cal. 't'
	Mean	SD	Mean	SD	
Duration of Rally (Sec.)	6.86	.07	7.99	.39	5.70*
Interval Between Rallies (Sec.)	21.21	2.81	22.09	1.16	.581
Duration of Set (Min: Sec.)	26.25	2.75	26.75	2.75	.257
Duration of Match (Min: Sec.)	107.25	26.34	102	18.20	.328

* Significant at 0.05 level, Tab. 't'=1.98 (df =6)

The interpretation of the obtained results faces number of difficulties due to the lack of supporting data from other studies, on temporal variables. Publications concerned with the analysis of temporal variables during competition lack any data on indoor

Volleyball. Most of the studies conducted on temporal variables are in Beach Volleyball. No studies have been published comparing temporal characteristics of male and female Volleyball players.

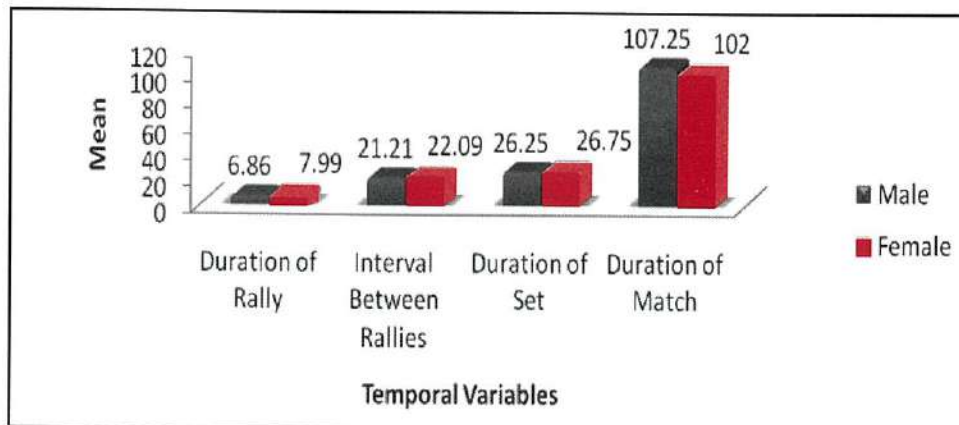


Fig.-1: Comparison of temporal variables Duration of Rally, Interval between Rallies, Duration of Set and Duration of Match in male and female players

The significant difference found only in variable duration of rally that indicates that the duration of the rally in female category is longer as compared with male category. In female category, offence (spike and service) is less powerful as compared to male and this may be a reason for above outcomes. Additionally, the number of digs, set, spikes, and blocks is much higher in the female category than in the male category. This is most likely due to the slower pace and tempo in female category which makes it easier to control over ball after an attack from the opponent and ultimately adds to extend the duration of rally (Haaren et al, 2016). Unlike female category, in male category, offence is powerful and tempo of the game is high which makes it

difficult to keep the ball in play for longer duration (Haaren et al, 2016). Rest of the temporal variables interval between rallies, duration of set and duration of match shows no significant difference indicates that except duration of rally, male and female Volleyball players exhibit similar temporal characteristics.

In Table 2 Mean, Standard Deviation and calculated 't' value of temporal variable interval between jumps of male and female Volleyball players are presented according to the playing position i.e. setter, middle blocker, outside hitter and opposite player. The 't' values of setter, middle blocker, outside hitter and opposite player were found to be .974, 2.661, 1.012 and .374, respectively.

Table-2: Mean, SD and calculated 't' value of temporal variable interval between jump, according to the playing position between male and female players.

Temporal Variable	Specialized player	Male		Female		Cal. 't'
		Mean	SD	Mean	SD	
Interval Between Jump (Sec.)	Setter	52.75	4.50	56.50	6.25	.974
	Middle Blocker	80	5.72	68.25	6.98	2.661*
	Outside Player	81.75	6.18	77.75	4.92	1.012
	Opposite Player	70.75	10.75	68	7.93	.374

* Significant at 0.05 level, Tab. 't' = 1.98 (df=6)

The results presented in Table 2 show a significant difference between male and female middle blockers. In Volleyball, middle blockers are the players who have

to jump for block on every attack from opponent side along with attack by their own teams. Results presented in Table 1 shows that duration of the rally is longer

and number of jumps is comparatively higher in female category, which reduces the time interval between jumps. Difference among rest of the playing positions i.e. setter, outside hitter and

opposite player were found not to be significant indicating similar temporal characteristics in rest of playing positions between both categories.

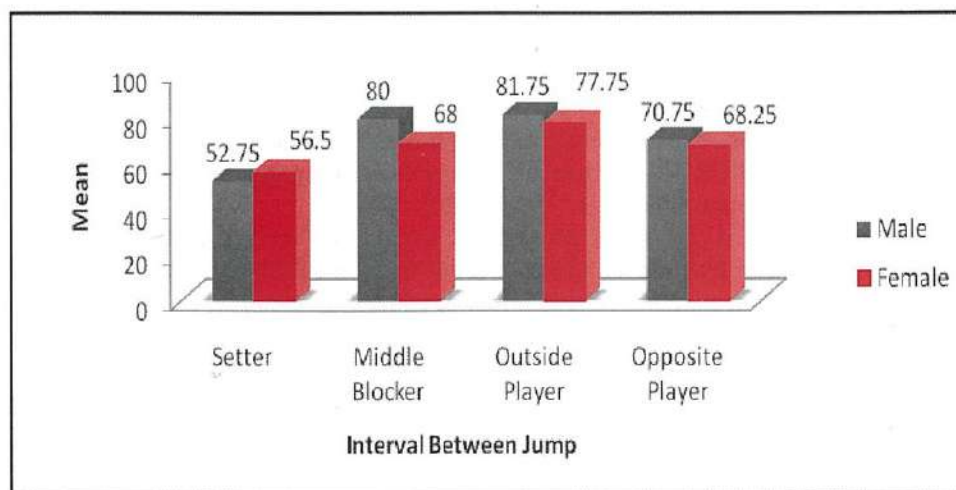


Fig. 2: Comparison of variable Interval between Jump between male and female Volleyball players according to their playing positions.

CONCLUSION

- Duration of rally is significantly longer in female category
- There is no significant difference between male and female category in interval between rallies, duration of set, and duration of match.
- Interval between jumps in male middle blockers is significantly longer in comparison to female group.
- There is no significant difference in Interval between jumps in setters, outside players and opposite players of male and female group.

Training of elite athletes must be

according to the demands they may encounter during competition. Results of this study provide reference values, which the coaches and trainers can use to design training programme taking into account the temporal characteristics of players. The age, training age and techno-tactical experience of the team members and opponents may have an effect on the results of the study. Therefore, more studies are needed in this area to explore information on temporal characteristics of male and female Volleyball players according to age, level of competition, sex and game style.

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