



## GENDER AND POSITIONAL WISE PLAY ANALYSIS ON SELECTED PSYCHOMOTOR VARIABLES OF INTER COLLEGIATE VOLLEYBALL PLAYERS

**Dr. N. Sathishbabu**

Teaching Assistant (Physical Education), Horticultural College & Research Institute, Periyakulam, Tamil Nadu.



### ABSTRACT

**Objectives:** To identify the level of psychomotor aspects of male and female volleyball players at the intercollegiate level. **Sample:** Gender volleyball players were selected from the Coimbatore district for further study about the gender and positional play on selected psychomotor variables of intercollegiate volleyball players. For these samples the male and female studying in the college (N=551) of intercollegiate volleyball tournaments were selected, their age ranged from 18 to 24 years. **Tools:** The tools used in the study to measure the variables are standardized psychomotor tools, such as Reaction time, Depth perception, Hand eye coordination.

**KEY WORDS:** level of psychomotor , gender and positional play.

### INTRODUCTION

Volleyball is a team sport, played by both men and women at international and various levels. The game volleyball has offensive and defensive play, which differs in nature. The abilities of spiking, serving, passing and setting are fundamental skills in game volleyball. In these skills some of the players may excel either in spiking or serving or setting the ball or passing the ball. Thus, players would differ significantly by having their own interest and attitude towards the particular skills. Psychomotor is a muscular activity associated with mental processes. The psychomotor variables are primarily concerned with muscular contraction. Performance of motor skills involves neural, physiological and psychological aspects and is a continuum that runs the gamut from physical to cognitive and there is always integration between these aspects of human behavior (Harold, Barrow & McGee, 1979). The psychomotor theory is an attempt to explain the possibilities of mind/ brain unity and or the mind, brain duality in relation to the motor system in humans. Psychomotor aspects are playing very crucial role in determining the performance of sport.

### NEED AND SIGNIFICANCE OF THE STUDY

In sport, specifically in the high level intercollegiate tournament, when a player is on the edge of success, the most deterministic component to attain the success is psychomotor components. In the game of volleyball, to excel in fundamental skills of passing, serving, and spiking, physically all the players are more or less equal in possessing the physical factors of speed, strength, flexibility, explosive power and endurance. In the scenario because of competitive pressures, players have to be placed under stress and struggle to maintain the balance state of mind, which in turn, affects the coordinating abilities. Hence the status study on psychomotor among the gender and positional play helps the player to be aware of their level of psychomotor aspects. The obtained results of these components would help the players, physical educationists, coaches and trainers identify the component and its dominance over the positional play.

Besides the results would help them to select the players for the game of volleyball and rightly assigned to specific positional play.

### HYPOTHESES

1. Gender may have significant influence on psychomotor variables such as reaction time (right and left) depth perception and eye hand coordination.
2. There may be a significant mean difference among the players of varied positional play, namely Attacker, MiddleBlocker, Setter and Libero on selected psychomotor variables.
3. The interaction between gender positional play on selected psychomotor variables may be significant.

**Table 1: Descriptive Reaction Time Right**

| Position      | Gender | Mean  | SD    |
|---------------|--------|-------|-------|
| Attacker      | Male   | 0.154 | 0.072 |
|               | Female | 0.177 | 0.057 |
| MiddleBlocker | Male   | 0.156 | 0.066 |
|               | Female | 0.171 | 0.054 |
| Libero        | Male   | 0.140 | 0.085 |
|               | Female | 0.154 | 0.068 |
| Setter        | Male   | 0.141 | 0.070 |
|               | Female | 0.162 | 0.065 |

Table-1 shows that the descriptive statistics on Reaction time right of male and female volleyball players belong to different positional play. This mean and standard deviation of male players positional play based are:  $0.154 \pm 0.072$  (Attacker),  $0.156 \pm 0.066$  (Middle blocker),  $0.140 \pm 0.085$  (Libero), and  $0.141 \pm 0.070$  (Setter). Besides, in the female section, the mean and standard deviation on Reaction time right are:  $0.177 \pm 0.057$  (Attacker),  $0.171 \pm 0.054$  (Middle blocker),  $0.154 \pm 0.068$  (Libero) and  $0.162 \pm 0.065$  (Setter).

**Table 2: Two-way ANOVA on Reaction Time Right**

| Source of Variance       | Sum of Square | df     | Mean | F    | Sig. |
|--------------------------|---------------|--------|------|------|------|
| Positional play          | 0.03          | 3.00   | 0.01 | 2.55 | 0.05 |
| Gender                   | 0.04          | 1.00   | 0.04 | 9.23 | 0.00 |
| Positional play x Gender | 0.00          | 3.00   | 0.00 | 0.14 | 0.93 |
| Error                    | 2.44          | 543.00 | 0.00 |      |      |

Table-2 reveals that the observed F-ratio on Reaction time right is 2.55 for positional play, 9.23 for gender and 0.14 for interaction between positional play and gender. The observed 'F'- ratio for positional play, gender and interaction between positional play and gender one tested 0.05 level of significance of observed 'F' ratio, it was found that the obtained 'F' ratio for gender only found to be statistically significant at 0.05 level where as this 'F' ratio for positional play and interaction between positional play and gender were found to be not statistically significant. Since it failed to reach the significant level of 2.62.

**Table 3: Descriptive on Reaction Time Left**

| Position       | Gender | Mean | SD   |
|----------------|--------|------|------|
| Attacker       | Male   | 0.20 | 0.06 |
|                | Female | 0.22 | 0.06 |
| Middle Blocker | Male   | 0.21 | 0.06 |
|                | Female | 0.23 | 0.04 |
| Libero         | Male   | 0.20 | 0.05 |

|        |        |      |      |
|--------|--------|------|------|
|        | Female | 0.22 | 0.04 |
| Setter | Male   | 0.22 | 0.05 |
|        | Female | 0.23 | 0.06 |

Table-3 depicts that the descriptive statistics on Reaction time Left of male and female volleyball players belong to different positional play. This mean and standard deviation of male players positional play based are:  $0.20 \pm 0.06$  (attacker),  $0.21 \pm 0.06$  (Middle Blocker),  $0.02 \pm 0.05$  (Libero), and  $0.22 \pm 0.05$  (Setters). Besides, in the female section, the mean and standard deviation on Reaction time Left are:  $0.22 \pm 0.60$  (Attackers),  $0.21 \pm 0.04$  (Middle Blocker),  $0.22 \pm 0.04$  (Libero) and  $0.23 \pm 0.06$  (Setters).

**Table 4: Two-way ANOVA on Reaction Time Left**

| Source of Variance       | Sum of Square | df     | Mean | F    | Sig. |
|--------------------------|---------------|--------|------|------|------|
| Positional play          | 0.02          | 3.00   | 0.01 | 2.04 | 0.11 |
| Gender                   | 0.03          | 1.00   | 0.03 | 7.99 | 0.00 |
| Positional play x Gender | 0.00          | 3.00   | 0.00 | 0.25 | 0.86 |
| Error                    | 1.88          | 543.00 | 0.00 |      |      |

Table-4 shows that the observed F-ratio of Reaction time Left is 2.04 for Positional Play, 7.99 for Gender and 0.25 for interaction between Positional Play and Gender. The observed 'F'- ratio for positional play, gender and interaction between Positional Play and Gender one tested 0.05 level of significance of observed 'F' ratio, it was found that the obtained 'F' ratio for gender only found to be statistically significant at the 0.05 level where as this 'F' ratio for positional play and interaction between positional play and gender were found to be not statistically significant. Since it failed to reach the required table value of 2.62.

**Table 5: Descriptive Statistics on Depth Perception**

| Position       | Gender | Mean | SD   |
|----------------|--------|------|------|
| Attacker       | Male   | 0.49 | 0.28 |
|                | Female | 0.44 | 0.28 |
| Middle Blocker | Male   | 0.56 | 0.28 |
|                | Female | 0.52 | 0.30 |
| Libero         | Male   | 0.55 | 0.27 |
|                | Female | 0.47 | 0.25 |
| Setter         | Male   | 0.46 | 0.29 |
|                | Female | 0.35 | 0.25 |

Table-5 shows the descriptive statistics on Depth Perception of male and female volleyball players belong to different positional play. This mean and standard deviation of male players positional play based are:  $0.49 \pm 0.28$  (Attacker),  $0.56 \pm 0.28$  (Middle blocker),  $0.55 \pm 0.27$  (Libero), and  $0.46 \pm 0.29$  (Setter). Besides, in the female section, the mean and standard deviation on Depth Perception are:  $.44 \pm .28$  (Attacker),  $0.52 \pm 0.30$  (Middle blocker),  $0.46 \pm .29$  (Libero) and  $0.35 \pm 0.25$  (Setter).

**Table 6: Two-way ANOVA on Depth Perception**

| Source variance          | Sum of square | df     | Mean | Fratio | Sig. |
|--------------------------|---------------|--------|------|--------|------|
| Positional play          | 1.15          | 3.00   | 0.38 | 4.98   | 0.00 |
| Gender                   | 0.59          | 1.00   | 0.59 | 7.60   | 0.01 |
| Positional play x Gender | 0.08          | 3.00   | 0.03 | 0.35   | 0.79 |
| Error                    | 41.95         | 543.00 | 0.08 |        |      |

Table-6 reveals that the observed F- ratio on Depth Perception is: 1.69 for positional play, 14.38 for Gender and 1.73 for interaction between positional play and gender. The observed 'F'- ratio for positional play, gender and interaction between positional play and gender one tested 0.05 level of significance of observed 'F' ratio, it was found that the obtained 'F' ratio for gender only found to be statistically significant at the 0.05 level where as this 'F' ratio for positional play and interaction between positional play and gender were found to be not statistically significant. Since it failed to reach the significant level of 2.62.

**Table 7: Descriptive Statistics on Hand Eye Coordination**

| Position       | Gender | Mean  | SD    |
|----------------|--------|-------|-------|
| Attacker       | Male   | 11.92 | 8.81  |
|                | Female | 14.71 | 11.11 |
| Middle Blocker | Male   | 12.96 | 8.35  |
|                | Female | 15.14 | 13.18 |
| Libero         | Male   | 15.04 | 10.59 |
|                | Female | 15.20 | 11.07 |
| Setter         | Male   | 14.62 | 11.47 |
|                | Female | 16.57 | 12.70 |

Table-7 shows the descriptive statistics on Hand eye coordination of male and female volleyball players belong to different positional play. This mean and standard deviation of male players positional play based are: 11.92 ± 8.81 (Attacker), 12.96 ± 8.35 (Middle blocker), 15.04 ± 10.59 (Libero), and 14.62 ± 11.47 (Setter). Besides, in the female section, the mean and standard deviation on Hand eye coordination are: 14.71 ± 11.11 (Attacker), 15.14 ± 13.18 (Middle blocker), 15.20 ± 11.07 (Libero) and 16.57 ± 12.70 (Setter).

**Table 8: Two-way ANOVA on Hand Eye Coordination**

| Source variance          | Sum of square | df     | Mean   | F-ratio | Sig. |
|--------------------------|---------------|--------|--------|---------|------|
| Positional play          | 453.06        | 3.00   | 151.02 | 1.30    | 0.27 |
| Gender                   | 396.11        | 1.00   | 396.11 | 3.40    | 0.07 |
| Positional play x Gender | 117.75        | 3.00   | 39.25  | 0.34    | 0.80 |
| Error                    | 63200.26      | 543.00 | 116.39 |         |      |

Table 8 reveals that the observed F- ratio on Hand eye coordination is 1.30 for positional play, 3.40 for gender and 0.34 for interaction between positional play and gender. The observed 'F'- ratio for positional play, gender and interaction between positional play and gender one tested 0.05 level of significance of observed 'F' ratio, it was found that the obtained 'F' ratio for gender only found to be statistically significant at the 0.05 level where as this 'F' ratio for positional play and interaction between positional play and gender were found to be not statistically significant. Since it failed to reach the required table value of 2.62.

## CONCLUSION

Sport psychologists need to examine the stress process and individual differences in reactions to anxiety to provide coaches and athletes with a clearer understanding of the anxiety response (Alexander and Krane, 1996). In the present study when analyze the gender influence on psychomotor variables, it was found that gender has significant impact on most of the psychomotor aspects among the volleyball players. Lagging in freedom from worry may lead women volleyball players to motivate them to achieve more. Such anxious state naturally increases their level of arousal by an increase in pulse, decrease in oxygen level and breath holding time, which in turn affect their psychomotor activity as they perform less in reaction time and hand eye coordination in the present study. Further when testing the significant of mean deference on psychomotor variables among the positional play, it was obscene that no significant mean difference was

found on reaction time left hand depth perception and hand eye coordination other than the psychomotor variable of reaction time right hand, in which the mean difference exist researcher the significant level.

## REFERENCES

- Adam R. Nicholls & Remco C. J. Polman. (2007). Coping in sport: A systematic review. *Journal of Sports Sciences*, 25(1), 11-31.
- Anshel, M. H., Jamieson, J. & Raviv, S. (2001). Cognitive appraisals and coping strategies following acute stress among skilled, competitive male and female athletes. *Journal of Sport Behavior*, 24, 75-94.
- Belem, Isabella Caroline et al. (2014). Impact of coping strategies on resilience of elite beach volleyball athletes. *Rev. bras. cineantropomdesempenho hum.*
- Cedar Rienera & Daniel Willingham. (2010). Depth Perception on psychomotor components for sports. *Feb: 9(3): 498 506.10.1016/6j. Neropsychologia. 2010.1 1.028 Epub 2010 Nov 30. Published Online: 30 JAN 2010.*
- Chie-der, D., Chen, S., Hung-yu, C., & Li-kang, C. (2003). Gender differential in the goal setting, motivation, perceived ability, and confidence sources of basketball players. *The Sport Journal*, 6(3).
- Dariusz Mroczek Adam Kawczyński, Edward Superlak and Jan Chmura(2013). Psychomotor performance of elite volleyball players during a game. *perceptual & motor skills: motor skills & ergonomics*, 117, 3, 801-810.
- Dariusz Mroczek, Adam Kawczyński and Jan Chmura (2011). Changes of reaction time and blood lactate concentration of elite volleyball players during a game. *J Hum Kinet.* 2011 Jun; 28: 73-78.
- Washburn-Ormachea, Jill M., Hillman, Stephen B., Sawilowsky, Shlomo S. (2004). Gender and gender-role orientation differences on adolescents' coping with peer stressors. *Journal of Youth and Adolescence*, 33(1): 31-40.doi:10.1023/A: 1027330213113.
- Alexander & Krane. (1996). Impact of gender difference on performance failure appraisal among intercollegiate volleyball players. *Elixir Edu. Tech.* 52A (2012) 11277-11278.
- Hebb, D. O. (1980). *Essay on mind.* Hillsdale, NJ: Lawrence Erlbaum.
- Harold, Barrow & McGee. (1979). Analysis of psychomotor variables and agility on intercollegiate men hockey players. *International Journal of Adapted Physical Education & Yoga*, Vol. 2, No. 11.