

COMPARISON OF PSYCHO-PHYSIOLOGICAL VARIABLES AMONG BADMINTON, TABLE-TENNIS AND TENNIS PLAYERS

Khairuzzaman Mallick*

ABSTRACT

The purpose of the present study was to investigate the significant difference in selected Psycho-Physiological variables among the players of Badminton, Table-tennis and Tennis of S.G.B. Amravati University. For the purpose of the study 10 Players from each selected game were purposively selected, the age of the subjects were ranged between 18 and 28 years. The data pertaining to this study were collected by administering Nelson's hand and foot reaction test for co-ordination, modified bass balance test for dynamic balance, and 50 yard Dash for speed of movement. To determine the significant difference among the players of three selected games one way analysis of variance and LSD post hoc test were employed. The result showed significant difference among the three groups in foot reaction time ($F=8.163$), eye-hand co-ordination ($F=11.285$) and speed of movement ($F=7.731$). The result also showed that the Badminton players' foot reaction time and eye-hand co-ordination are significantly better than the Table-Tennis and Tennis players, where as in speed of movement Tennis players exhibited better than the Badminton and Table-Tennis players.

*Assistant Professor, A.P.C. College, New Barrackpore, Kolkata, (W.B.)

INTRODUCTION

Sports are a highly specialized activity, the participation in sports warrants a fundamental desire to compete and surpass others in performance, and since any sports activity involves competition. However, winning in a competition surely depends on performance. Better the performance, greater the chance of winning. Nevertheless, the quality of performance displayed by the athletes in competitive events is determined by the several aspects.

Table tennis competitors play one of the fastest ball games in the world and their performance is the result of a complex myriad of factors. Changes in the rules, techniques and table tennis equipment have seen ball spin and speed increase substantially compared to the past, shortening point rallies, Badminton is very popular in south east Asia and Indonesia. Which have produce many top players. Fitness has become increasing important past of Badminton both physical and mental fitness are required in Badminton players required arm and shoulder strength of maintain the smash and overhead clear for Badminton. Tennis is a racket sport in which two players or teams of two players, send a ball over a net in such a way that it is difficult to return legally. Modern tennis has its roots in the old French game of pause, for which the rules were written in Paris in 1592. Tennis was part of the first Olympic Games of the modern ear, in 1896; it was withdrawn from the Olympic after 1924 and reinstated in 1988.

Reaction times is the intermission between the onset of a stimulus and the commencement of a movement response. Reaction time can be further broken down into three parts. The first part is perception time the-time for the application and perception of the stimulus and giving the essential reaction to it. The second part is decision time, which signifies the time for giving a suitable response to the stimulus. The third part is motor time, which is the time for compliance to the order received.

In the same year Johnson and Leach (1968) modified the Bass test of Dynamic balance which has been commonly used to measure one's ability to land accurately and to balance while in various unstable, less stable and other precarious positions.

Co- ordination is the ability to integrate muscles movement into efficient patterns of movement" co-ordination make the difference between good performance and poor performance. The efficiency of skill patterns depends upon the interrelation of speed, agility, balance and muscle movements to be performed and see the relationship of each movement to the total pattern. Development of kinesthetic perception usually allows movement's to become rhythmical and efficient.

The purpose of this study was to find out the differences in Psycho-Physiological variables among the Badminton, Table-Tennis and Tennis Players.

METHODOLOGY

Selection of the Subjects:

Thirty male Inter-collegiate players from Badminton, Table-Tennis and Tennis Sports of S.G.B. Amravati University were selected as the subjects for the purpose of the study. The age of the subjects was ranged between 18 to 28 years. Ten players were selected in each sport.

Sampling Procedure:

Purposive sampling technique was adopted for the selection of subjects for the present study.

Selection of Tests and Criterion Measures:

The criterion measures chosen to test the hypothesis were : 1. Reaction time was measured by using Nelson's hand reaction time test and Nelson's foot reaction time test 2. Dynamic Balance was measured by using Modified Bass Test. 3. Co- ordination was measured by using Eye-Hand Co-ordination Test (Ball Transfer) and Eye-Foot Co-ordination Test 4. Speed of movement was measured by using 50 Yard Dash.

Collection of Data:

The data pertaining to the study were collected on the selected subjects by administering the aforesaid tests. Before collection of data, the scholars explained the purpose of the study to the subjects, so as to they could put their best.

Statistical Treatment:

One way Analysis of Variance statistical technique (F-Ratio) and LSD post-hoc test were employed to determine the difference among the players of selected games for each variable independently.

RESULTS AND DISCUSSION

The data collected on 10 subjects from each of sport on reaction time, co-ordination, balance and speed of movement were computed by using one-way Analysis of Variance (F-ratio) statistical technique. The result pertaining to the data have been presented in the following Tables:

TABLE 1
ANOVA ON SELECTED PSYCHO-PHYSIOLOGICAL VARIABLES FOR
BADMINTON, TABLE-TENNIS AND TENNIS PLAYERS

Variables	Source of Variance	d. f.	Sum of Square	Mean Squares	F- ratio
Hand Reaction Time	Between .Groups Within Groups	2 27	0.0001231 0.002211	0.0000615 0.0000818	0.752
Foot Reaction Time	Between .Groups Within Groups	2 27	0.00124347 0.0020564	0.00062173 0.000076163	8.163*
Eye-hand Co-ordination	Between .Groups Within Groups	2 27	34.06001 40.74594	17.03 1.509109	11.285*
Eye foot Coordination	Between .Groups Within Groups	2 27	2.29542 35.9777	1.14771 1.332507	0.861
Balance	Between .Groups Within Groups	2 27	27.8 1290.2	13.9 47.785185	0.291
Speed of Movement	Between .Groups Within Groups	2 27	3.404007 5.94349	1.702003 0.220129	7.731*

The findings of Table 1 reveals that foot reaction time ($F = 8.163$), eye-hand co-ordination ($F = 11.285$) and speed of movement ($F = 7.731$) showed significant

difference among the Badminton, Table-Tennis and Tennis players, whereas insignificant differences were found in hand reaction time ($F = 0.752$), eye-foot coordination ($F = 0.861$) and balance ($F = 0.291$) among the above mention selected sports players.

TABLE 2

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS OF FOOT REACTION TIME AMONG BADMINTON, TABLE-TENNIS AND TENNIS PLAYERS

Mean			Mean Difference	Critical Difference
Badminton	Table-Tennis	Tennis		
0.1846	0.1904		0.0058	0.008
0.1846		0.2002	0.0156*	0.008
	0.1904	0.2002	0.0098*	0.008

*Significant at 0.05 level.

It is evident from the above table 2 that there was significant difference in Foot reaction time between Badminton - Tennis players ($MD = 0.0156 > 0.008$) and between Table-Tennis- Tennis players ($MD = 0.0098 > 0.008$). The table also revealed that the mean of Foot reaction time did not differ significantly in between Badminton - Table-Tennis players ($MD = 0.0058 < 0.008$). The mean differences have been depicted in Figure 1.

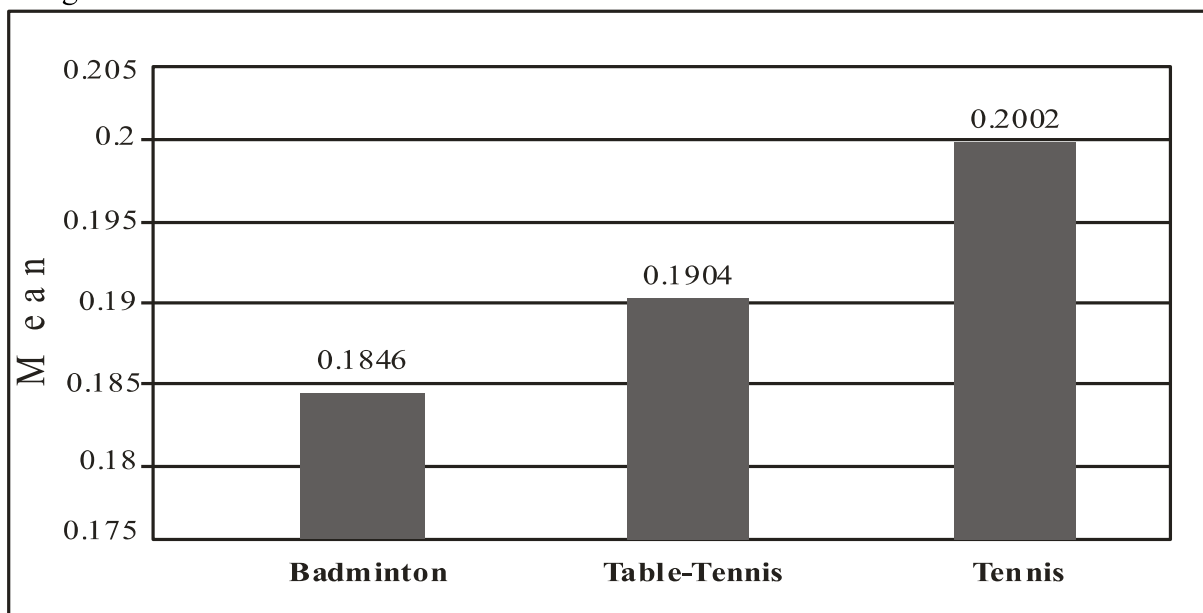


Figure 1
Difference of Means of Foot Reaction Time among the Badminton, Table-Tennis and Tennis Player.

TABLE 3

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS OF EYE-HAND CO-ORDINATION AMONG BADMINTON, TABLE-TENNIS AND TENNIS PLAYERS

Mean			Mean Difference	Critical Difference
Badminton	Table-Tennis	Tennis		
15.391	16.207		0.816	1.13
15.391		17.946	2.555*	1.13
	16.207	17.946	1.739*	1.13

*Significant at 0.05 level.

Table 3 indicates that there is significant difference in Foot reaction time between Badminton and Tennis players ($MD=2.555 > 1.13$) and Table-Tennis and Tennis players ($MD = 1.739 > 1.13$) whereas in between Badminton and Table-Tennis players ($MD=0.816 < 1.13$) does not show significant difference. The mean differences have been depicted in Figure 2.

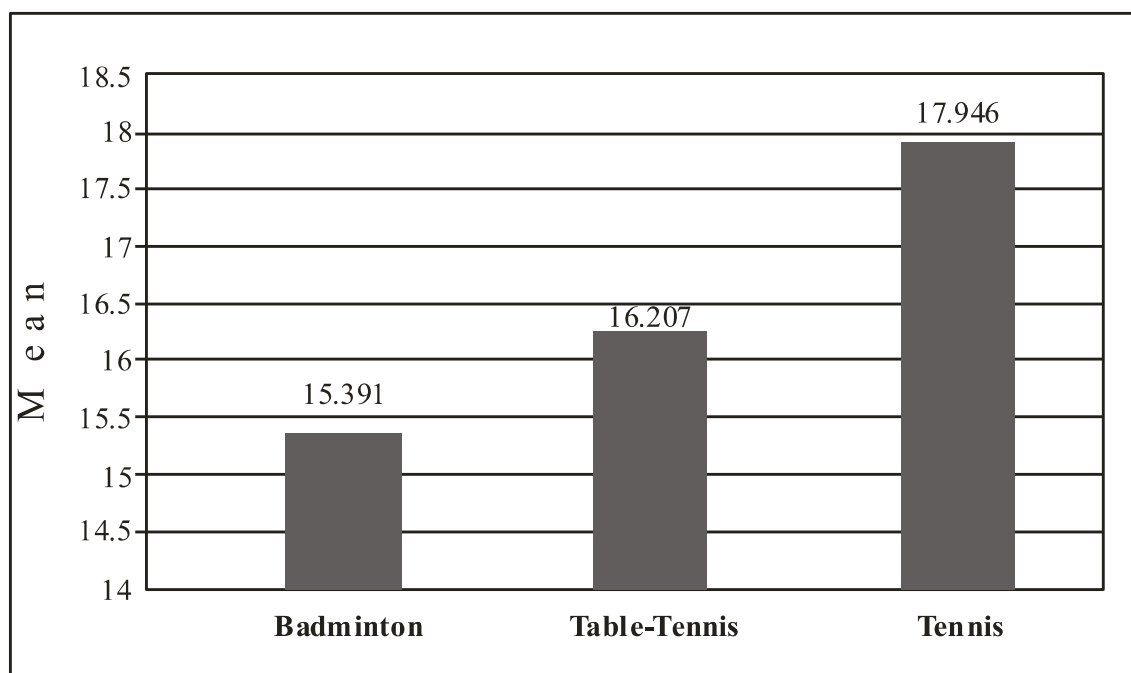


Figure 2

Mean Difference of Eye-Hand Co-ordination Among the Players of Badminton, Table-Tennis and Tennis.

TABLE 4
SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS OF
SPEED OF MOVEMENT AMONG BADMINTON,
TABLE-TENNIS AND TENNIS PLAYERS

Mean			Mean Difference	Critical Difference
Badminton	Table-Tennis	Tennis		
7.204	7.193		0.011	0.43
7.204		6.484	0.72*	0.43
	7.193	6.484	0.709*	0.43

* Significant at 0.05 level.

Table 4 shows that there is significant difference in Foot reaction time between Badminton - Tennis players ($MD=0.72>0.43$) and between Table-Tennis - Tennis players ($MD=0.70>0.43$), whereas Badminton and Table-Tennis players ($MD=0.011>0.43$) did not shown he significant difference.

DISCUSSION

The analysis of data using to determine the significant difference among the players of three selected games one way analysis of variance and LSD post hoc test were employed. The result showed significant difference among the three groups in reaction time ($F=8.163$), eye-hand co-ordination ($F=11.285$) and speed of movement ($F=7.731$). An analysis of the above mentioned Table revealed that the Badminton players' foot reaction time and eye-hand co-ordination are significantly better than the Table-Tennis and Tennis players, whereas in speed of movement Tennis players exhibited better than the Badminton and Table-Tennis players.

CONCLUSIONS

Within the limitations of the present study and on the basis of findings, the following conclusions are drawn.

1. The findings of the study revealed that there were significant differences in foot reaction time, eye-hand co-ordination and speed of movement among the Badminton, Table-Tennis and Tennis players.
2. There was no significant mean difference in hand reaction time, eye-foot coordination and dynamic balance among the Badminton, Table-Tennis and Tennis players.
3. Best performance in foot reaction time was shown by the Badminton players followed by Table-Tennis players and least performance was shown by the Tennis players.
4. Best performance in eye-hand co-ordination was shown by the Badminton players followed by Table-Tennis players and least performance was shown by the Tennis players.
5. Tennis players' speed of movement recorded best performance followed by Table-Tennis players whereas Badminton players' speed of movement performance recorded higher timing compared to Table-Tennis and Tennis players.

REFERENCES

- Annarino, A. Antomy.** Developmental conditioning for physical Education and Athletics. (Saint Louis : The C.V. Mosby company, 1972), P. 2
- Bucher, C.A** Foundation of Physical Education and Sports, (Toronto : The C.V. Mosby co., 1983), P.7
- Felshin, Jan.** More than Movement – An Introduction of Physical Education, (New Delhi : D.V.S Publication, 1996), P. 249
- Kansal, D.K.** Test and Measurement in Sports and Physical Education, (New Delhi: D.V.S. Publication, 1996), p. 249
- Singh, Hardy.** Science of Sports Training (D.V.S. Publication, New Delhi, 1993).
- Tomas, A.P.** “Comparative Study of Speed, Balance and Co-ordination of Football, Basketball, Hockey and Handball Players.” (Unpublished Master’s Dissertation, Jiwaji University).
- Tong, Sun.** “A comparative Analysis of Elite swimmer Reaction Time between the Grab and Track starts of the Beijing Olympic Games” Journal of Sports sciences Researches, 14 : 3, Sep-2010. .
- Uppal, A.K; Kumar, U; Lawrence, Gray; Pande, M.M.** Bio-Mechanics in Physical Education and Exercise, (New Delhi, Friends publication, 2004), P- 14.
- Zhi, E-L, Wang, Y. B, & Sun, D. P.** “Comparative Study on the Selective Reaction Time of Visual Sense of Student in Middle and Primary Schools in Changchun City,” C-Journal of She yang Institute of Physical Education, vol.23, Issue 3 (Jan 2004)
- http : // www.answers.com/topic/reaction time # Measurement.** wikipedia, the free encyclopedia. (Psychology and Aging, 2006), P. 21, 62-73.