

A Comparative Study of Depth Perception and Speed of Movement of Table-Tennis and Badminton Players

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Abstract

The main purpose of the study was to compare the Depth perception and speed of movement among the Table-Tennis and Badminton Players. To fulfill the purpose of the study 15 male Table-Tennis and 15 male Badminton players were selected from the S.G.B. Amravati University inter-collegiate tournament and the age were ranging from 18-25 years. The data were collected on the entire selected subject by applying Depth Perception test for measurement of Depth Perception and Nelson speed of movement test for measurement of Eye-hand and Eye-foot speed of movement respectively. T-test was employed to find out the mean difference in Depth perception and Speed of movement of Table-Tennis and Badminton Players. The t ratio of Depth perception of Table-Tennis and Badminton players was significant i.e. $t = 5.427$ against the tabulated value $t_{0.005(28)} = 2.048$ and the t ratio of Speed of movement(eye-hand) of Table-Tennis and Badminton Players was also significant i.e. $t = 4.27$ against the tabulated value $t_{0.005(28)} = 2.048$ and the t ratio of speed of movement (eye-foot) was insignificant i.e. $t = 1.308$ against the tabulated value $t_{0.005(28)} = 2.048$.

KEYWORDS: Depth perception, Speed of movement, Eye-hand, Eye-foot.

INTRODUCTION

Depth perception is the visual ability to perceive the world in three dimensions (3D) and the distance of an object. Depth sensation is the corresponding term for animals, since although it is known that animals can sense the distance of an object it is not known whether they "perceive" it in the same subjective way that humans do.

Depth from motion and speed of Movement in Badminton and Table-Tennis

When an object moves toward the observer, the retinal projection of an object expands over a period of time, which leads to the perception of movement in a line toward the observer. Another name for this phenomenon is depth from optical expansion. The dynamic stimulus change enables the observer not only to see the object as moving, but to perceive the distance of the moving object. Thus, in this context, the changing size serves as a distance cue. A related phenomenon is the visual system's capacity to calculate time-to-contact (TTC) of an approaching object from the rate of optical expansion – an ability that is useful in contexts ranging from driving a car to playing Badminton or Table-Tennis. However, calculation of TTC is, strictly speaking, perception of velocity rather than depth.

It is obvious that visual accuracy has dominant role in all games and sports. But correct perception and quick response to the stimulation objects is very important for skill

performance. Certainly, there are some hereditary factors of person can hope to achieve but their limits are nearly if ever, reached.

Now- a- day a sport has become a part and essential of life. Millions of fan follow different sports event all over the world with an enthusiasm bordering on devotion. Many people participate in sports and games for fun, happiness, pleasure for health and fitness. Increased participation in sports has resulted in competition, which has become an important element of modern life. Competition provides the means by which one can show worth by competing successfully.

Statement of the Problem

The main purpose of the study was to compare the Depth perception and Speed of Movement among the Table-Tennis and Badminton Players

HYPOTHESIS

1. It was hypothesized that there might be significant difference in selected variables between the players of Table-Tennis and Badminton.
2. It was further Hypothesized that the Table-Tennis players might be superior in depth perception and speed of movement compared to Badminton players.

METHODOLOGY

Selection of Subject: Fifteen male Table-Tennis and fifteen male Badminton players were selected of different colleges who has participated in the intercollegiate tournament organized by S.G.B. Amravati University. The age of the subjects were ranging from 18-25 years as registered from their age certificate card.

Selection of Test and Criterion measures

- i) Depth perception was measured by using Depth perception test and the score was recorded in centimeters.
- ii) The speed of movement was measured by using Nelson's speed of movement test (eye-hand and eye-foot) and the scores were recorded in centimeters.

STATISTICAL PROCEDURE

The data pertaining to this study were collected on fifteen Table-Tennis players and fifteen Badminton players who were represented their respective colleges have been analyzed statistically to find out the difference between independent and dependent between the selected variables. T-test method was employed. To test the hypothesis, the level of significance was chosen at 0 .05 level of confidence, which was considered adequate and reliable for the purpose of this study.

FINDING

The data collected from fifteen subjects each of Table-Tennis and Badminton players on the Depth perception and Speed of Movement was computed using t-test statistical technique. The result pertaining to these have been presented in the table below—

Table-1

Comparison of Means of Depth Perception Between the
Table-Tennis and Badminton Players

Group	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Table Tennis	18.33	3.806	7.87	1.45	5.427*
Badminton	26.2	4.118			

*Significant at 0.005 level of confidence

Tabulated $t_{0.005(28)} = 2.048$

The finding of Table-1 reveals that the calculated t-value of 5.427 is greater than that of required t-value of 2.048 to be significant at 0.005 level of confidence, hence there is a significant difference among the means of two selected group in Depth perception.

Table-2

Comparison of Means Speed of Movement (Eye-hand)
Between the Table-Tennis and Badminton Players

Group	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Table Tennis	17.35	1.273	1.61	0.377	4.27*
Badminton	18.96	0.720			

*Significant at 0.005 level of confidence

Tabulated $t_{0.005(28)} = 2.048$

An observation of Table-2 reveals that the calculated t-value of 4.27 is greater than that of required t-value of 2.048 to be significant at 0.005 level of confidence, hence there is a

significant difference among the means of two selected group in Speed of Movement (eye-hand).

Table-3

Comparison of Means of Speed of Movement (Eye-foot)

Between the Table-Tennis and Badminton Players

Group	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Table Tennis	18.64	1.325	0.62	0.474	1.308@
Badminton	19.26	1.276			

@ Not Significant at 0.005 level of confidence

Tabulated $t_{0.005(28)} = 2.048$

It is learnt from Table-3 that the calculated t-value of 1.308 is less than that of tabulated t-value of 2.048 to be significant at 0.005 level of confidence, hence there is no significant difference among the means of two selected group in Speed of Movement (Eye-foot).

DISSCUSSION ON FINDINGS

The findings of the Table-1 and Table-2 show that the Table-Tennis players are superior in Depth Perception and Speed of Movement (Eye-hand) as compare to Badminton players. It may be attributed to the nature of the game. As the game of Table-Tennis is played on a Table which is of 2.74mts.× 1.525mts. length and breadth. Within this small area a player is forced to put the small size of ball every time on the table which requires sophisticated and precision movement of the body. It is also very important aspect of the players that they have to anticipate the approaching ball till it bounced on the table, according to the bounce and spin players have to take position to the approaching ball to defend or to attack to the opponent. Therefore, a player has to have a good Depth Perception as well as eye-hand Speed of Movement by the Table – Tennis players. As compare to Table-Tennis the game Badminton requires larger space to cover in essence to play in effective way but the speed of shuttle is quite slower than the Table-Tennis ball as size and shape of object and playing area of ground are major factors. Therefore the result shows inferior performance by the badminton players in the eye hand speed of movement than the Table-Tennis players. The result of the study further shows that there is no significant difference in eye-foot speed of movement, it may be because of the nature of movements in both games are almost same.

DISCUSSION ON HYPOTHESIS

In the beginning of the study it was hypothesized that there may be significant difference among the means of selected two groups i.e. Table-Tennis and Badminton

players in the selected variables i.e. Depth Perception and Speed of Movement. The result of the study revealed that almost all the selected variables i.e. Depth Perception, Speed of Movement (Eye-Hand) shows significant difference in between Table-Tennis and Badminton players but it is also experienced that Table-Tennis and Badminton have no significant difference in the Eye-foot Speed of Movement . Hence the hypothesis stated earlier is accepted for the Depth Perception and Eye-hand Speed of Movement whereas Hypothesis is rejected in case of Eye-foot Speed of Movement.

CONCLUSION

Recognizing the limitations of the study and on the basis of statistical findings the following conclusions are drawn.

1. Depth Perception contributed for the purpose of showing significant difference in Table-Tennis and Badminton Players.
2. Speed of Movement (Eye-hand) contributed for the purpose of showing significant difference in Table-Tennis and Badminton Players.
3. There was insignificance in Speed of Movement (Eye-foot) of Table-Tennis and Badminton players.

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