



Relationship Between Eye-Hand Coordination & Reaction Time of Table Tennis and Badminton State Level Players

Shalini V. Ambatkar¹, Dr. Pravin C. Dabare²,

Research Scholar¹, Supervisor²,

¹ PG Department of physical Education,

Sant Gadge Baba Amravati University, Amravati (MS), India

Abstract : The purpose of this research was to determine relationship between eye-hand coordination & reaction time of table tennis and badminton players at least participating in Maharashtra state level tournaments. Total forty (40) subjects were selected for this study. subjects were selected from Inter University level twenty (20) Table Tennis players & twenty (20) were selected from Badminton Players in S. G. B. Amravati University, Amravati (MS). The objective of this study to find out eye-hand coordination & hand-foot reaction time Physical Fitness Component. The subjects were carefully chosen by using random sampling. In the beginning it was hypothesized that there will be a significant difference of eye-hand coordination & reaction time in the selected physical fitness components of Table Tennis and Badminton game player. The study shows remarkable relationship in physical and physiological traits among eye-hand coordination & hand reaction time among players. However, there's no significant relationship in leg (foot) reaction time between Table Tennis and Badminton players. Eye-Hand Coordination and Hand Reaction Time exhibit significant relationship, confirming the researcher's hypothesis partially accepted.

IndexTerms: Coordination, reaction time, Badminton, table tennis, relationship.

I. INTRODUCTION:-

The ability to performance daily task vigorously and clearly, with energy remaining for enjoying leisure time activities in addition to meeting emergency demands. It was the capability to tolerate, to endure up, to with stand pressure, to carry on in situation where an unhealthy individual could not carry on and was a major basic for good wellbeing and happiness. Agility was the capability to change track swiftly and accurately and to control body movements. The range of possible movement at the joint was called as flexibility. The ability of muscle to overcome resistance. A healthy individual is one who is free from constraining and debilitating illnesses, who has the stamina and skill to do a day's work, and who has sufficient energy not only to meet emergencies, but also to take part in leisure activities. Sports physiology is derived from exercise physiology. It uses the notion of exercise physiology to train the badminton and improve its athletic performance. Since competitions are organised on a greater scale than ever before, the sum sets at a place at a certain time this may rise at another place, additionally due to physiological factors and time differences the Badminton the same time at another site. It is well known that the individual performance in any sports events follows circadian physiological constraints. The amount of air that can be expired from the lung after maximum inspiration was called as exhale capacity of lungs. (Raut, 2011) conducted the study on "Comparative Study of Biorhythms with Various Physical Fitness Components". The aim of the study was to find out which physical fitness components dominant in a specific time of a day. To achieve this purpose, twenty students from S. G. B. Amravati University, Amravati were randomly selected.

Eye-hand coordination and reaction time are crucial skills for athletes in sports like table tennis and badminton. Both of these sports require swift reactions, accurate timing, and the ability to track fast-moving objects. Let's discuss how eye-hand coordination and reaction time play a role in these sports:

Table Tennis: Table tennis, also known as ping pong, is a fast-paced sport that demands high levels of hand-eye coordination and quick reactions. Players need to track the movement of the small ball, judge its trajectory, and respond with accurate shots. Table tennis players must maintain constant focus on the ball, predicting its path and spin as it bounces between the two players. They need to adjust their racket angle, speed, and position in real-time to return the ball effectively. This requires exceptional eye-hand coordination. The speed of the game in table tennis requires rapid decision-making and lightning-fast reactions. Players have simply a fraction of a second to read the opponent's shot, anticipate its direction, and respond with an appropriate counter-shot.

Badminton: Badminton is another sport that demands excellent eye-hand coordination and quick reactions. The

shuttlecock travels at high speeds, and players need to be agile and responsive to succeed. Badminton players must track the shuttlecock's trajectory as it moves across the court. The shuttlecock's flight path can be affected by factors like wind, spin, and the opponent's shot angle. Players need to position themselves correctly and time their racket swings accurately to return shots. Similar to table tennis, badminton requires rapid reactions. Players must anticipate their opponent's shots and adjust their positioning and strokes accordingly. Quick reflexes are essential for reaching and returning shots in time.

The relationship between eye-hand coordination and reaction time in table tennis and badminton players is tightly intertwined. Both skills are fundamental for success in these sports, and their synergy greatly impacts an athlete's performance. The connection between these skills is symbiotic: improved eye-hand coordination aids in better anticipation of the ball's movement, leading to quicker reactions, while enhanced reaction time allows players to capitalize on their refined eye-hand coordination by executing well-timed strokes. Dedicated training in both aspects, along with physical fitness and mental focus, is essential for achieving peak performance in table tennis and badminton. Finally, both table tennis and badminton require excellent eye-hand coordination and rapid response speeds. Regular practise, visual training, and physical conditioning are all important aspects of improving these talents for success in these sports.

II. PURPOSE OF THE STUDY

In table tennis and badminton, superior eye-hand coordination and rapid reaction time are critical attributes. Players must closely track the ball or shuttlecock's movement, predict its trajectory, and instantly adjust their positioning and strokes to deliver accurate returns. Vigorous practice, visual exercises, precise footwork, and refining racket control are essential components for enhancing these skills. Additionally, maintaining physical fitness aids in quicker reactions and better performance on the court.

The main purpose of the present study was to determine The Relationship between Physical Fitness Component Performance of Female Table Tennis and Badminton Players Participating in minimum State level.

III. HYPOTHESIS

It was hypothesized that, there would be significant relationship between Selected Physical Fitness Component with Performance of State level Table tennis & Badminton Players.

IV. METHODOLOGY

For the purpose of this study, total 40 Female State level player were selected 20 from Table tennis and 20 from Badminton Players of Chandrapur.

The age of the subjects was ranging from 20-25 years. All subjects were selected by adopting Purposive Sampling method.

V. Criterion Measures

The criterion measures chosen for testing the hypothesis will be as follows:

1. **Eye-Hand Co-ordination**
2. **Reaction time**
 - a. Nelson Hand Reaction Time Test
 - b. Nelson Foot Reaction Time Test

VI. ANALYSIS OF DATA

Pearson's product moment correlation was used as the statistical technique to find out the relationship of selected Physical Fitness components with Badminton performance. All the data analyzed by Ms-Excel 2010. To test hypothesis, the level of significance was set at 0.05

VII. RESULTS

The relationship of selected Physical Fitness Component with performance in Badminton is presented in tables -1, 2 & 3.

Table No. 1: Coefficient of Correlation between Table Tennis and Badminton Performance of Eye-Hand Coordination

Eye-Hand Coordination	Coefficient of Correlation (r)
Correlation Table tennis and Badminton Performance	0.729

*Significant at 0.05 Level. Tabulated $r_{0.05}(38) = 0.3245$

The above table reveals that the obtained coefficient of correlation value for the Eye-Hand Coordination Table tennis and Badminton Performance is 0.729 which is greater than the tabulated r-value of 0.3245 at 0.05 level of confidence for the 38 degree of freedom.

Hence, it is evident that, there is significant correlation between the Eye-Hand Coordination of between Table Tennis & Badminton Players.

Table No. 2: Coefficient of Correlation between Table Tennis and Badminton Performance of Hand Reaction Time.

Hand Reaction Time	Coefficient of Correlation (r)
Correlation Table tennis and Badminton Performance	0.566

* Significant at 0.05 Level. Tabulated $r_{0.05}(38) = 0.3245$

The above table reveals that the obtained, coefficient of correlation value for the explosive leg Table tennis and Badminton Performance is 0.566 which is greater than the tabulated r-value of 0.3245 at 0.05 level of confidence for the degree of freedom.

Hence, it is evident that, there is significant correlation between the Hand reaction of between Table Tennis & Badminton Players.

Table No. 3: Coefficient of Correlation between Table Tennis and Badminton Performance of Foot Reaction Time

Foot Reaction Time	Coefficient of Correlation (r)
Correlation Table tennis and Badminton Performance	0.286

*Significant at 0.05 Level. Tabulated $r_{0.05}(38) = 0.3245$

The above table reveals that the obtained, coefficient of correlation value for the explosive leg Table tennis and Badminton Performance is 0.286 which is lesser than the tabulated r-value of 0.3245 at 0.05 level of confidence for the degree of freedom.

Hence, it is evident that, there is no significant correlation between the leg reaction of between Table Tennis & Badminton Players.

VIII. DISCUSSION ON FINDINGS

The result of the present study showed the correlation between Table Tennis & Badminton Players was significant correlated with Eye-Hand Coordination and Hand Reaction Time. But it is not significant in leg (foot) reaction of between Table Tennis & Badminton Players. It may be attributed to the fact that the maximum Eye-Hand Coordination and Hand Reaction Time helps in arm shoot; but due to difference in the ground/court dimension it is evident that, there is no significant correlation between the leg reaction of between Table Tennis & Badminton Players. It leads to increase faster spike jump and assist to take a good dive. Hence such result might have occurred in this study.

IX. DISCUSSION ON HYPOTHESIS

In the beginning it was hypothesized that, there would be significant relationship of selected Physical Fitness Component performance of Table tennis with Badminton Players. Basis on statistical findings, hypothesis stated earlier is partially accepted i.e. in the case of, Eye-Hand Coordination and Hand Reaction Time. whereas in the case of leg (foot) reaction time hypothesis is rejected.

X. CONCLUSION

Considering the limitations of the study and on the basis of statistical findings it is concluded that Eye-Hand Coordination and Hand Reaction Time were significantly contributed to Table tennis and Badminton performance. Foot Reaction Time did not show significant relationship with performance of Badminton Players.

REFERENCES

1. Bucher, Charles A., Foundation of Physical Education. St. Louis : The C.V. Mosby Company, 1983, P. No. 7
2. Brooks Middle, "The Effect of Warm up upon Badminton Performance", Completed Research in Health Physical Education and Recreation, 1967. P.No. 72.
3. Clarke H. Harrison, Ed, "Physical Fitness News Letters", (March, 1977), P. 2
4. Clarke H.H., Application of Measurement to Health and Physical Education. New Jersey : Prentice Hall INC, 1986, P. No. 82.
5. Clarke, H. Harrison, Physical Fitness. Research Digest (Washington D.C.: President's Council on Physical Fitness and Sports, Oct. 1972).
6. Counsilman, James E., The Science of Badminton , (New Delhi : S. Chand & Co. Ltd., 1989).
7. De Veries Herbert A, "The Effect of Various Warm up Procedure on 100 Yard Times of Competitive Badminton Players", Research Quarterly, March 1959, P. No.
8. De veries, "Pertinent facts of warm up" the jounnal of sports medicine and physical fitness ,14 October 1978 p.no-65
9. Diez Elizabeth D., "Relationship of Anthropometric Measures to Body Fitness in College-age Women". Completed Research in Health, Physical Education and Recreation, 21 (1979): 234
10. Jain Deepak, 'Teaching and Coaching Badminton , (Delhi: Khel Sanity a Kendra 2000), P. 1

11. Esendchade, Anna S., “Restudy of Relationship between Physical Performance of School Children’s Age, Height and Weight”, Research Quarterly Vol. 34, PP. 144-153.
12. Internet: <http://en.wikipedia.org/wiki/Badminton>

