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Coordinative abilities between Badminton and Tennis Players: A comparative study

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Abstract
The aim of this study is to find out the significant differences of coordinative abilities between male Badminton players and Tennis players. A group of thirty (N=30) male subjects aged between 18-28 years, who participated in intercollege competitions organized by the Department of Sports, Guru Nanak Dev University, volunteered to participate in this study were selected for this study. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. They were further divided into two groups of 15 each (i.e., N1=15; tennis players and N2=15; badminton players). To compare the mean differences between the two groups, mean, S.D and t-tests were computed by means of Statistical Software. To test the hypotheses, the level of significance was set at 0.05. The results revealed significant differences between tennis players and badminton players on the sub-variables i.e. Reaction Ability, Orientation Ability and Differentiation Ability. However, insignificant differences were noticed with regard to the sub-variables i.e. Rhythmic Ability.

Keywords: tennis players, badminton players, rhythmic ability, reaction ability, orientation ability and differentiation ability

Introduction

Tennis and badminton are the best-known members of a family of related racket games. Despite their similarities, the two sports also have many differences in play and in strategy. Tennis and badminton are two racket sports that are favorite pastimes in many countries. Badminton is very popular in south East Asia and Indonesia. Which have produced many top players. Fitness has become increasing important part of Badminton both physical and mental fitness are required in Badminton players required arm and shoulder strength of maintain the smash and overhead clears 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 Tennis was part of the first Olympic Games of the modern era, in 1896; it was withdrawn from the Olympic after 1924 and reinstated in 1988 These two are popular games and can be found in almost every country. Though these games are similar in nature, they have various differences among them including rules, regulations, etc. While the basic principle is the same, the two games differ in their rules, terminology, playing equipment, number of players, field size etc. In sports today best performance can only be achieved through inaccurately planned, executed and controlled training system loosed on the scientific knowledge, theoretical and methodical fundamentals of sport training. A sportsman cancompete effectively only by a certain coordinative mastery of the technique. Coordination ability means an ability to quickly and purposefully perform difficult spatio-temporal movement structures. Within this context, coordination abilities are understood as an externally visible manifestation of the control and regulation processes of the motor activity of the central nervous system. Coordinative abilities enable the sports man to doa group of movements with better quality and effect.

Coordinative abilities are also needed for maximum utilization of conditional abilities, technical skills and tactical skills. Without the adequately developed coordinative abilities, a sportsman cannot make maximum use of his psycho-biological capacities and reserves. The coordinative abilities, a great extent, determine the maximum limits to which sports performance can be improved in several sports especially the sports which depends largely on technical and tactical factors. Because of this reason assessment of coordinative and the possibilities of their further development from an important parts of the process of talent identification in sports.

The speed of learning of skill and its stability is directly dependent on the level of various coordinative abilities. Coordinative abilities are needed for maximal utilization of conditional abilities, technical skills and tactical skills. In different sports requirement of coordinative abilities are different and these abilities ensures highermovement efficiency and movement economy, whereasis some sports events they helps in higher movement frequency with high explosiveness and force application. In strength sports they help in puttingmaximum effort in a short time and at the right time. But, where the technique dominates the event the sea bilities helps in better learning, stabilization, variability and autoimmunization. In sports seven coordinative abilities are of key importance. In different sports the relative importance of these abilities is however different. Differentiation ability

enables the sportsmanto perceive micro-differences regarding the temporal, dynamic, spatialaspect of movement execution and the differentiation can be in regards to an implement or movement Orientation permits the sportsman to determine the position and movement of his own body and/or of a moving object(opponent, partner) with regard to space. Coupling or combination movement allows the sportsman to coordinate partial movement of his body with regard to space, time, and dynamics. Reaction ability permits the sportsman to effective action quickly and purposefully according to a signaland for a sudden change in situation. Balance abilityhelps in keeping the total body in a certain position ortore-establish it. Rhythmic abilityenables the sportsman to perceive the externally given rhythm and to reproduce it in a motor action.

Material and Methods

Subjects

Thirty (N=30) male subjects aged between 18-28 years were selected from Guru Nanak Dev University who participated in intercollege competitions organized by the Department of Sports, Guru Nanak Dev University Amritsar for this study. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. They were further divided into two groups of 15 each (i.e., N_1=15; tennis players and N_2=15; badminton players).

Selected Coordinative Abilities

1. **Reaction Ability:** Reaction ability was the distance measured in centimeters from the top of the planks to the point where the subjects stopped the ball. Only two trials were given and the best one was recorded as the score.
2. **Orientation Ability:** Orientation ability was noted in seconds. Two trials were given to each subject and the best one was recorded as the score.
3. **Differentiation Ability:** Differentiation ability judged through 1Kg Medicine ball touching the mat – 1 point,1Kg Medicine ball touching the circle line – 2 points,1Kg Medicine ball touching inside the circle – 3 points,1Kg Medicine ball touching the 2 kg. Medicine ball – 4 points.
4. **Rhythmic Ability:** Rhythmic ability was scored as the difference between the timing of the first and second attempts was taken as the score.

Data Analysis

Student's t-test for independent data was used to assess the between-group differences. The level of $p \leq 0.05$ was considered significant.

Results

The results pertaining to significant difference, if any, between tennis players and badminton players were assessed using the Student's t test and the results are presented in tables-1

Table 1: Mean, Standard Deviation, t-value and p-value of tennis players and badminton players

Variables	Mean		SD		t-value	p-value
	Tennis players	Badminton players	Tennis players	Badminton players		
Reaction Ability	20.97	18.6	3.52	2.43	2.29	0.01875
Orientation Ability	7.45	8.06	0.875	0.722	2.40	0.02135
Differentiation Ability	11.20	10.00	1.95	2.33	2.33	0.0252
Rhythmic Ability	1.712	1.78	0.19	0.211	1.09	0.28462

*Significant at t.05

It is evident from the table -1 that significant differences was found in Reaction Ability between the inter collegiate level tennis players and badminton players of Guru Nanak Dev University, since the calculated 't' value 2.29 was greater than tabulated 't' value 1.701at 0.05 level of significance.

Table-1 presents the results of inter collegiate level tennis players and badminton players of Guru Nanak Dev University with regard to the Orientation Ability. The descriptive statistics shows the calculated' value 2.40 was greater than tabulated' value 1.701at 0.05 level of significance found statistically significant. Observed that tennis players have demonstrated significantly better on Orientation Ability than the Badminton players.

The results of inter collegiate level tennis players and badminton players of Guru Nanak Dev University with regard to the Differentiation Ability. The descriptive statistics shows the calculated' value 2.33 was greater than tabulated' value 1.701at 0.05 level of significance found statistically significant. Observed that tennis players have demonstrated significantly better on Differentiation Ability than the Badminton players.

Table-1 presents the results of inter collegiate level tennis players and badminton players of Guru Nanak Dev University with regard to the Rhythmic Ability. The descriptive statistics shows the calculated' value 1.09 was smaller than tabulated' value 1.701at 0.05 level of significance. Found statistically insignificant. Observed that tennis players have demonstrated significantly better on Orientation Ability than the Badminton players it has been observed that Badminton players have shown better Rhythmic Ability than the tennis players.

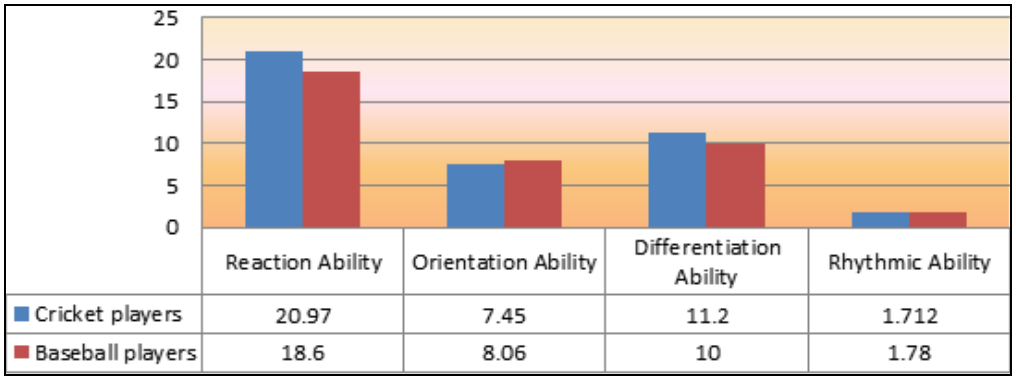

Fig 1: Graphical representation of reaction ability, orientation ability, differentiation ability, and rhythmic ability between tennis players and badminton players.

Discussion & Conclusion

The findings reveal that significant difference was found statistically for the both groups. Tennis players shown better mean value in coordinative abilities like reaction ability(ball reaction exercise test), orientation ability(numbered medicine ball run test) and differentiation ability(backward medicine ball throw test) in comparison to badminton players. These differences may be attributed in the fact that the different aspects of game tennis require better coordinative abilities for better performance than badminton players. Tennis players have better conditioned body than to their counterpart players of badminton players due to their more participation more conditioning more practice. Their body becomes more conditioned and able to bear and have more stress and hard work due to their better playing environment and participation in game. The tennis players require better reaction ability, orientation ability and differentiation ability in comparison to the badminton group. The insignificant difference was found in the rhythmic ability (sprint at the given rhythm test badminton group had better rhythmic ability in comparison to the tennis group. The Badminton group had better speed in comparison to the tennis group. Because batter don't have the luxury of standing in one spot to score run like batsmen in tennis. Further, suggested that the comparison can also be made between the non-players and players of other game in coordinative abilities.

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