RELATIONSHIP BETWEEN SENSORY MOTOR PERCEPTION AND BACKHAND SHORT SERVE IN BADMINTON PLAYERS JNTUK ANDHRA PRADESH .

Dr. G P Raju.
Associate Professor,
Department of Physical Education.
JNTUK University College of Engineering. Narasaraopet, Andhra Pradesh, India-.522601.

ABSTRACT

The aim of this study was to find out the relationship between sensory motor perception and backhand short serve in badminton Players JNTUK Andhra Pradesh .To achieve the purpose of the study, the investigator randomly selected 30 badminton players who participated at intercollegiate level badminton competitions in the age group of 18 to 22 years from different colleges in JNTUK Andhra Pradesh. The selected subjects were assembled in a hall while they were in the coaching camp. Measurements on back hand short serve were determined by three experts while the subjects were at competition. The experts evaluated each subject's backhand short serve ability for a maximum of 40 marks taking into consideration of grip and racket position, posture and foot position, holding the shuttlecock, hitting action and effect. To measure the sensory motor perception of the badminton players, the subjects were administered distance perception jump test, pedestrian Kinesthetic test (12" side step), pedestrian kinesthetic test of variable linear space, horizontal linear space test, and vertical linear space test and scores obtained. The results of this study proved that backhand short service in badminton was significantly related with the selected sensory motor perception variables, namely, distance perception test (r:-0.534), pedestrian kinesthetic test (r:-0.642), pedestrian kinesthetic variables of linear space (r:-.0.475), horizontal linear space test (r:-0.317) and vertical linear space test (r:-0.575). It was concluded that sensory motor perception variables were significantly related to backhand short service skill of badminton players.

Key words: - Sensory motor perception Backhand Short Serve. Badminton Players.

Introduction

"The application of sport science to coaching has become the single most important factor behind the rapid advances made in international sport performances during the past 20 years . Biomechanics is the physics of human motion, and the factors that cause this movement. It explains how sport technique may be analysed and the resulting information used to improve athletic performance. More importantly, biomechanics explains the inter-relationships between the athlete's structure, physical capacity and his/her unique technique. Incorporating the latest principles and practices of biomechanics will assist high-level coaches and sport scientists prepare their athletes for competition " (Ackland TR, Elliott B, Bloomfield J (2009) . Biomechanics in badminton has been studied with relation to power strokes, forehand overhead jump smash, backhand overhead strokes and forehand serves.

"Any mathematical movement requires a certain degree of muscular strength, a period of time, and extent. The interaction of these variables leads to saving effort, energy, and quality of motor performance. Therefore, the kinetic sense of strength means the athlete's ability to demonstrate the appropriate amount of muscle strength needed for specific motor performance. As for a kinesthetic, sense of time is the athlete's ability to determine the time of movement or effectiveness. Concerning a kinetic sense of distance, it is the athlete's ability to determine the distance covered during performance" (Ali, A. (1993) . "What distinguishes a badminton game, is the convergence of mental abilities with physical abilities. The game depends on elements of strength, speed as well as other fitness elements. While, badminton weight requires large strength in the forehand smash. It is performed through mental ability, big burden and participation of the muscles, balance nervous and muscular systems, which in turn leads the player to mastery of the skill" (Al-Khalaf, M. (2001) . "Perception of sensory-motor is important in the game of badminton through a sense of muscle effort, resistance, and speed of movement. For that, the player should possess a high ability to perceive numerous variables such as distance, time, strength, and direction. However, developing these variables will help identifying most of the stimuli that the player faces, and enable him/her to choose the appropriate response to the situation." ([1] Abdel. H et.al. 2015) . Because of its frequent use, the importance of this study lies in raising the performance of offensive movements (forehand smash). Moreover, "it was noticed that there is a lack of interest and focus among various of teachers on sensory-motor perception within the curricula of skills education. So, a training program containing exercises with a characteristic repetition and continuity was suggested, where it enables the added strength to be utilized during the transition process between body parts. Adding to that, the possibility of employing it on demand and the ability to benefit from it in reducing excessive tensile movements help to involve large torso muscles, arms, and forearm. Which in turn provides the appropriate speed and strength for performing forehand smash." (Mahmoud Al-Haliq, 2020)

Hardan & Hudhayfah, (2013) conducted a study aimed at identifying the relationship between agility and the explosive ability of the two arms precisely, by the skill of the stroke smash of the badminton. found that the agility and explosive power of the arms affect the accuracy of the smash with the feather .

Muhammad et al., (2012) identified the relationship between the sensory-motor perception with the accuracy of the performance of some offensive movements in the fencing sport, for students of physical education and revealed that there is a correlation between sensory abilities and offensive skills. Abdel-Hussein et al, (2015) carried a study on the effect of The Diversity of Variable and Fixed Practice in Developing Sensory-Motor Perception Response Speed and Accuracy of The Forehand and Backhand Drop in Badminton Skills of Players and found the sensory-motor perception exercises and rapid response helped in developing the accuracy of the forehand and the backhand drop-in badminton skills.

Having documented the importance of learning application of sport science to coaching, application of human motion, and the factors that cause this movement need to be scientifically studied. In detailing the human motion, researches found sensory motor perception plays vital role. In this study, the investigator was interested to find out whether selected sensory motor perception tests has any relationship with the badminton backhand shot serve skill

METHODOLOGY

To achieve the purpose of the study, the investigator randomly selected 30 badminton players who participated at intercollegiate level badminton competitions in the age group of 18 to 22 years from different colleges in JNTUK Andhra Pradesh. The selected subjects were assembled in a hall while they were in the coaching camp. Measurements on back hand short serve were determined by three experts while the subjects were at competition. The experts evaluated each subject's backhand short serve ability for a maximum of 40 marks taking into consideration of grip and racket position, posture and foot position, holding the shuttlecock, hitting action and effect. To measure the sensory motor perception of the badminton players, the subjects were administered distance perception jump test, pedestrian Kinesthetic test (12" side step), pedestrian kinesthetic test of variable linear space, horizontal linear space test, and vertical linear space test and scores obtained.

Data collection and Statistical Analysis

1. Distance Perception jump Test

Two parallel lines of twenty four inches apart were drawn on the floor. The subject was instructed to sense the distance without a practical trial. After blind folding the subject was asked to jump from behind one line towards the other line and try to land on the heels as close as possible to the line. The scores were in inches that was measured to the nearest inch between the heels and the target line.

2. Pedestrian Kinesthetic Test (12" Side steps)

The subject was asked to stand erect heels touching the ground. After blind folding or closing the eyes, the subject was asked to separate the heels so that the medial side of the heels were twelve inches apart. The deviation from the preferred distance was the score measured to the nearest inch.

3. Pedestrian Kinesthetic Test of Variable Linear Space

A line was drawn on a wall fourteen inches above the floor. After blind folding, the subject was instructed to place the bottom edge of his leg on top and parallel to the line.The deviation from the line on the wall was measured with a yard stick to the nearest inches.

4. Horizontal Linear Space Test

The yardstick was fixed horizontally on the wall in front of the seated subject at an approximate height of the eye level of the subject. The subject was helped to touch 18 inches mark and sense its position without a practice trial. After blind folding the subject was instructed to point the mark indicated. The deviation from the desired mark was recorded to the nearest inches.

5. Vertical Linear Space Test

The yard stick was fixed vertically on a wall in front of the seated subject at a height when the 16 inch mark was made above the eye level of the average tall subject. The subject was instructed to look at the 16 inch mark and sense its position without a practical trial. The subject was then blind folded and instructed to point to the mark indicated. The deviation from the desired mark is recorded to the nearest inch.

Three trials were given and total of three trials was the score of the subject for each perception test. The obtained scores on sensory motor perception were related with the scores of backhand short serve scores related using statistical application Pearson Correlation Coefficient.

RESULTS

Tab I: Descriptive Statistics Showing Backhand Short Serve and Senory Motor Perception Variables

S.No	Variables	N	Mean	SD	Range	
					Min	Max
1	Backhand Short Serve	30	29.57	3.09	24.00	34.00
2	Distance Perception Jump test	30	13.16	1.87	8.50	16.50
3	Pedestrian Kinesthetic Test (12" Side Steps)	30	9.18	2.16	5.50	14.00
4	Pedestrian Kinesthetic of Variable Linear Space	30	7.07	2.00	2.00	10.50
5	Horizontal Linear Space Test	30	5.73	1.37	3.50	9.00
6	Vertical Linear Space Test	30	4.48	0.97	3.00	6.50

Tab II: Showing the Relationship between Backhand short serve and selected Sensory Motor Perceptions

S.No	Variables	N	Mean	Obtained 't'
	Backhand Short Serve Vs	**30**	**29.57**	
1	Distance Perception Jump test	30	13.16	-0.534*
2	Pedestrian Kinesthetic Test (12" Side Steps)	30	9.18	-0.642*
3	Pedestrian Kinesthetic of Variable Linear Space	30	7.07	-0.475*
4	Horizontal Linear Space Test	30	5.73	-0.317*
5	Vertical Linear Space Test	30	4.48	-0.565*

***** Significant at 0.05 level. Required 'r' value df (1,29) : 0.301

DISCUSSIONS

The relationship between agility and the explosive ability of the two arms precisely, by the skill of the stroke smash of the badminton was done by Hardan & Hudhayfah, (2013) The researchers FOUND that there was a statistically significant correlation between agility and the explosive ability of the arms, with the precision of the stroke smash of the badminton. The relationship between the sensory-motor perception with the accuracy of the performance of some offensive movements in the fencing sport, for students of physical education was studied by Muhammad et al., (2012) The researchers assumed a significant relationship between the study variables.

The findings of this study proved that backhand short service in badminton was significantly related with the selected sensory motor perception variables, namely, distance perception test (r:-0.534), pedestrian kinesthetic test (r:-0.642), pedestrian kinesthetic variables of linear space (r:-.0.475), horizontal linear space test (r:-0.317) and vertical linear space test (r:-0.575). Thus, the findings of this study were in agreement with the researches done by Hardan & Hudhayfah, (2013) and Muhammad et al., (2012).

CONCLUSIONS

It was concluded that sensory motor perception variables were significantly related to backhand short service skill of badminton players.

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