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COMPARISION OF SELECTED SPORTS SPECIFIC PSYCHOMOTOR ABILITIES BETWEEN BATSMEN AND BOWLERS IN CRICKET

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Abstract

The purpose of the present study was to compare the selected sports specific psychomotor abilities between batsmen and bowlers in cricket. The study was conducted on 12 male cricketers (6 batsmen and 6 bowlers) purposively selected from 18-25 age group. Subjects were selected from the students of Lakshmibai National University of Physical Education, Gwalior. For the purpose of measurement Vienna test system (VTS), a leading computerized psychological assessment tool was used for measuring time movement anticipation, reaction test, senso-motor coordination, sustained attention variables. For the purpose of statistical assessment one way ANOVA was used at 0.05 level of significance. The results revealed that apart from one subvariable MMT_RT(mean motor time_reaction time) which was significant as rest all the subvariables were found to be insignificant.

Keywords: VTS, Time-movement Anticipation, Reaction Test, Sensomotor Coordination, Sustained Attention

Cricket is defined as "a bat and ball, team game played during the summer in the British Isles and in several countries influenced by the British, such as Australia, New Zealand, India, Pakistan, South Africa, and West Indian nations". Cricket is played between two teams of 11 players on a grassy field, in the center of which are two wickets. Cricket is the most popular sport in India; it is played by many people in open spaces throughout the country though it is not the nation's official national sport. Cricket requires a variety of skills that are commonly used in a number of sports. Hand-eye coordination, throwing or catching a ball, balance and intense, long-term concentration are just a few. Through consistent practice

and by applying these skills to the elements of cricket, such as a batsman watching the ball at all times, you will see a dramatic improvement in your game. (Rhodes, 2013)

In cricket many skills that can be execute the performance like bowling, batting, fielding, catching, throwing, wicket keeping All eleven players on the fielding side take the field together.

The psychomotor is defined as those pertaining to a response involving both motor and psychological components. Psychomotor skills are those skills that you have done so often that you don't think about how to do them while you are doing them. As well as tying shoelaces, riding a bike is another example. At first, you really have to concentrate on the steps, later your brain takes over.

The psychomotor domain includes physical and motor (or muscular) skills. This means much more than the gaining of skills in and physical education. Every act has a psychomotor component. For instance, writing and talking are psychomotor skills which must be acquired if the child is to function successfully in our society. In the learning situation there is again a progression from mere physical experience - seeing, touching, moving etc. - through the carrying out of complex skills under guidance, to the performance of skilled activities independently. ("Cognitive, Affective and Psychomotor Domains," n.d.).

The purpose of the present study was to compare the psychomotor variables of batsmen and bowlers in cricket. The variables selected for the study were selected as per the requirements of the sport.

MATERIALS AND METHODS:

To serve the purpose of the investigation, 12 male cricketers , of 18-25 age groups were selected. The sample so collected was further divided into 6 batsmen and 6 bowlers on the basis of the craft they practiced mainly. Subjects were selected from the students of Lakshmibai National University of Physical Education, Gwalior.

TOOLS:

The instruments and variables selected for this study were as follows: Vienna test system (VTS)(time moment anticipation, reaction time, senso-motor coordination, sustained attention),

The Vienna Test System is a leading computerized psychological assessment tool.VTS ensures the highest possible level of objectivity and precision, including aspects

that cannot be measured by traditional paper-and-pencil tests. The scoring of test results is fast and accurate. The following variables were measured using VTS and side by side are also given the names of the test forms as well.

a. Time-movement Anticipation: test form used is S4. The main sub variables for calculation are MMT, MRT

b. Reaction Test: test form used is S1. The main sub variables for calculation are MAD, MHD, MVD, TIIR

c. Sensomotor Coordination: test form used is S2. The main sub variables for calculation are SC, MTC.

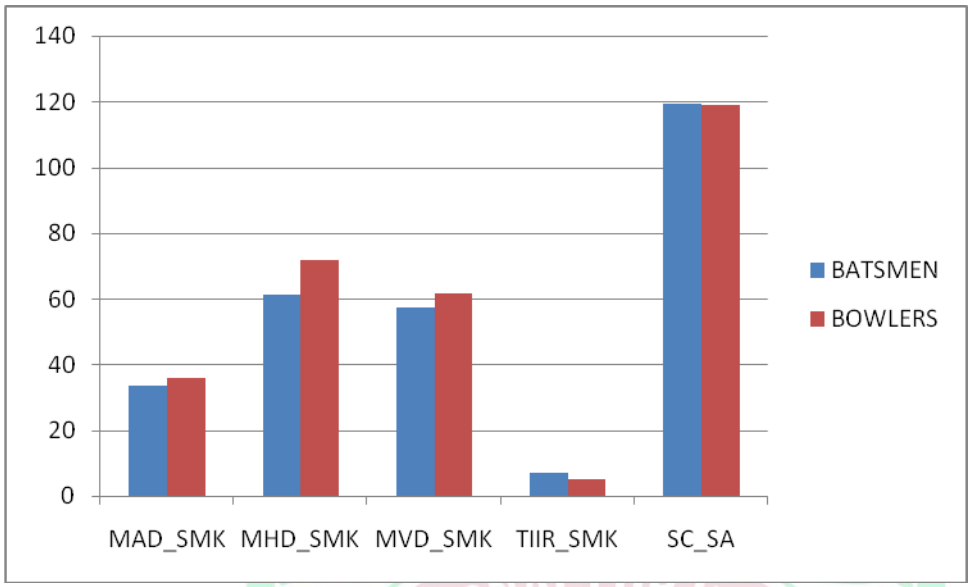
d. Sustained Attention: test form used is S5. The main sub variables for calculation are MDT(TOTAL), MDT(slow movement), MDT(medium fast), MDT(fast movement)

PROCEDURE: The data was collected from 12 cricketers out of which on the basis of the main craft they practiced, were further divided into 2 groups of Batsmen and Bowlers of 6 cricketers each.

STATISTICAL ANALYSIS: One way ANOVA was used to compare the psychological variables i.e., time movement anticipation, reaction time, sensomotor coordination and sustained attention. Post hoc test was not used as the comparision of means was done between two groups only.

RESULTS: The results of the comparision of the batsmen and bowlers and the comparision of the psychomotor variables i.e., time movement anticipation, reaction time, sustained attention and sensomotor coordination between the treatment and the control groups of the batmen. are presented in tables and interpretations are given accordingly

Graph 2- depicting the mean values of the subvariables MAD,MHD,MVD,TIIR,SC of the batsmen and bowlers in the selected psychomotor variables.



Graph 2- depicting the mean values of the subvariables MMT, MRT, MTC, MDT of the batsmen and bowlers in the selected psychomotor variables.

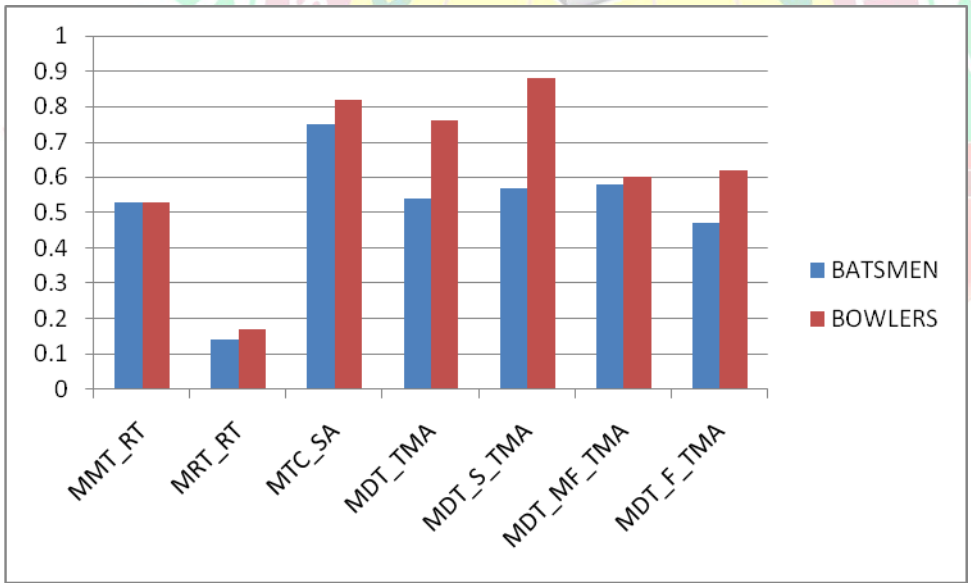


Table 1 - Anova among batsmen and bowlers with regard to Reaction ability and Sensomotor coordination.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
MMT_RT	Between Groups	.00	1.00	.00	.01	.91
	Within Groups	.03	10.00	.00		
MRT_RT	Between Groups	.00	1.00	.00	4.95	.05
	Within Groups	.01	10.00	.00		
MAD_SMK	Between Groups	17.52	1.00	17.52	.14	.71
	Within Groups	1221.95	10.00	122.19		
MHD_SMK	Between Groups	341.33	1.00	341.33	.77	.40
	Within Groups	4449.50	10.00	444.95		
MVD_SMK	Between Groups	50.84	1.00	50.84	.09	.77
	Within Groups	5767.97	10.00	576.80		
TIIR_SMK	Between Groups	10.08	1.00	10.08	.76	.40
	Within Groups	132.83	10.00	13.28		

***significant at .05 level of significance**

In table 1 the F-value for MMT_RT .012 is insignificant at 5% level because its p value (=.915) is more than .05.

In table 1 the F-value for MRT_RT 4.95 is significant at 5% level because its p value (=.050) is less than equal to .05.

In table the F-value is insignificant for MAD_SMK .143 at 5% level because its p value (=.713) is more than .05. In table the F-value is insignificant for MHD_SMK .767 at 5% level because its p value (=.402) is more than .05. In table the F-value is insignificant for MVD_SMK .088 at 5% level because its p value (=.773) is more than .05. In table the F-value is insignificant for TIIR_SMK .759 at 5% level because its p value (=.404) is more than .05.

Table 2 - Anova among batsmen and bowlers with regard to Reaction ability and Sensomotor coordination.(CONT...)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
SC_SA	Between Groups	.75	1.00	.75	.74	.41
	Within Groups	10.17	10.00	1.02		
MTC_SA	Between Groups	.02	1.00	.02	2.23	.17
	Within Groups	.08	10.00	.01		
MDT_TMA	Between Groups	.14	1.00	.14	4.31	.06
	Within Groups	.32	10.00	.03		
MDT_S_TMA	Between Groups	.29	1.00	.29	4.88	.05
	Within Groups	.59	10.00	.06		
MDT_MF_TMA	Between Groups	.00	1.00	.00	.01	.92
	Within Groups	1.13	10.00	.11		
MDT_F_TMA	Between Groups	.07	1.00	.07	3.31	.10
	Within Groups	.20	10.00	.02		

***significant at .05 level of significance**

In table the F-value is insignificant for SC_SA .738 at 5% level because its p value (=.411) is more than .05. In table the F-value is insignificant for MTC_SA 2.233 at 5% level because its p value (=.166) is more than .05. In table the F-value is insignificant for MDT_TMA 4.308 at 5% level because its p value (=.065) is more than .05. . In table the F-value is insignificant for MDT_S_TMA 4.879 at 5% level because its p value (=.052) is more than .05. . In table the F-value is insignificant for MDT_MF_TMA .010 at 5% level because its p value (=.921) is more than .05. . In table the F-value is insignificant for MDT_F_TMA 3.312 at 5% level because its p value (=.099) is more than .05.

DISCUSSION

The purpose of the research was to compare the sports specific psychomotor abilities between batsmen and bowlers in cricket.

The results revealed that apart from one subvariable MMT_RT(mean motor time_reaction time) which was significant as rest all the subvariables were found to be insignificant.

The variables selected as per the requirements of the game cricket like sustained attention which highlights the fact that the attention operations become more difficult when they need to be continuously repeated, reaction time as the cricket especially batting is a reaction sport which deals on the reactive ability of the batsmen to react to the external stimuli of the bowling variations of the bowler; sensomotor coordination as it measures two completely separate constructs i.e, anticipative coordinative ability(ability to maneuver an element to a pre-set goal) and the reactive coordinative ability(ability to react adequately to an element's spontaneous, changes of direction, size) and finally time movement anticipation as it deals with the individual's ability to imagine the effect of a movement and correctly estimate the movement of objects in space ..

Christie (2012) stated that research on all aspects of the game of cricket is needed in order to better understand the demands being placed on the players. The sport has a long way to go in terms of linking science and practice evident in other sports such as football.untill more is understood of the demands of the game, training programmes will be merely based on the trial and error and not grounded in science.

There was a significant difference in the mean reaction time of batsmen and bowlers which are justified by the results provided by Land & McLeod ,2000. From information provided by an approaching ball is a difficult problem for the batsman, because of his reaction time. It takes about 200 ms for even an expert batsman to adjust his shot on the basis of novel visual information[3]. (In some sports, such as table tennis, reaction times may be faster[4], but the inertia of the cricket bat precludes faster responses.) Therefore, his judgment must be essentially predictive, based on information available at least 200 ms before the ball reaches him. With a fast bowler, the ball takes about 600 ms to reach the batsman, so the batsman must select an appropriate trajectory for his bat based on information from the first two-thirds of the ball'sflight. (Land & McLeod ,2000)

Top batsmen emphasize the need for early information about the trajectory of the ball. "In a perfect world, you will see the ball early and play it late" (Geoffrey Boycott). "The key to playing all strokes is to see quickly the line and length of the ball and to move early into the appropriate position" (David Gower)

Noakes & Dueandt (2000) estimated that during a one-day game, a hypothetical player scoring 100 runs, made up of 50 singles, 20 twos, 10 threes and 20 fours, would cover a

distance of 3.2 km in an activity time of 8 minutes. Average running speed would be 24 km/hr with at least 110 decelerations (Noakes & Dueandt, 2000). from this , these authors deduced the physiological demands of batting in a one-day game. (Christie ,2012) which emphasize the need for great physical fitness for playing a one-day game and which justify the selection of the variable sustained attention in the study.

Research on the physiological demands of bowling stress the "stop-start" nature of both sprinting between the wickets and fast bowling ("during the run up" and delivery of the ball), contributes to early-onset fatigue indicators. (Christie et al., 2011).

Cricket is a neglected area in sports segment as there are multitude of research literature in other sports areas like Football, hence further research should be carried out on this aspect of cricket as it will further the game of cricket by advancing its scientific literature and help the coaches and players alike.

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