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Comparative analysis of selected physiological characteristics of cricket players

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Abstract

The purpose of the study was to determine the Physiological characteristics of cricket players involved in batting and bowling. For this purpose 20 batsmen and 20 bowlers were selected. The following Physiological variables were considered- Resting heart rate, Vital capacity, Systolic blood pressure and Diastolic blood pressure. For the comparison of these variables 't' test was applied. The result of the study revealed that there is significant difference between vital capacity and systolic blood pressure of batsmen and bowlers.

Keywords: Comparative analysis, physiological characteristics, cricket players

Introduction

Sport is generally considered as a physical endeavor, involve the marshaling of bodily resources to complete a variety of specialized, demanding physical tasks. Undeniably, physical attributes such as speed, strength, stamina, coordination, agility, flexibility, and resilience are richly rewarded in competitive sports.

Cricket is a field-based sport, with each team consisting of 11 players. Although, all are required to field and bat during a match, each player generally possesses a set of specific skills that defines their role and contributes to the overall performance of the team. Cricket is often thought of as a sport in which the main competitions are more individual-to-individual than in any other team sport. Today cricket game demands greater physiological, biomechanical, fitness and strong psychological capability to sustain and shine in elite level of competition. The format of the game and advancement of technology and sporting gears have drastically advanced and improved the level of game as compared to earlier.

Recognizing the elements that enhances sport performance is vital, which scientists have investigated in view of biomechanical, physiological, nutritional, metabolic, epidemiological, biochemical, pharmacological and medical aspects of sport. Applied practitioners in exercise physiology, physiotherapy, sport biomechanics, sports medicine, sports nutrition, strength and conditioning, and other disciplines have translated research findings into interventions designed to enhance the physical performance capabilities of the athletes.

The purpose of this investigation was to compare the physiological characteristics namely Resting heart rate, Vital capacity, Systolic blood pressure and Diastolic blood pressure of batsmen and bowlers.

Methodology

The Cricket players those who participated in the Under 22 Kerala State level championship were selected as subjects to accomplish the purpose of this study. An aggregate of 196 players from all the 14 district teams in Kerala were participated in the tournament, of which there were pace bowlers, spinners, wicket keepers, batmen and all-rounder's. However, players categorized as selected for the purpose of this study were batsmen and bowlers. Stratified random group design was used to select the subjects for this study and the number of batsmen and bowlers restricted to 20 each.

The investigator referred various relevant literatures, consulted with experienced experts in physical education and sports, more specifically cricketers to identify ideal variables. In addition to this by using the investigator's personal knowledge and professional experience the

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following most appropriate physiological variables were selected in the present investigation were presented in Table 1.

Table 1: Variables

Variables	
Physiological	Resting heart rate
	Vital capacity
	Systolic blood pressure
	Diastolic blood pressure

Criterion Measures

In the current exploration, the ultimate and consistent tests were used to assess the physiological and psychological variables are presented in Table 2.

Table 2: Tests used for criterion variables

S. No	Variables	Equipment
1	Resting heart rate	Omron Heart rate monitor
2	Vital capacity	Spirometer
3	Systolic blood pressure	Omron blood pressure monitor
4	Diastolic blood pressure	

Statistical Procedure

The data collected from the batsmen and bowlers were analyzed using Mean and Standard Deviation. Comparison was made on the selected variables namely resting heart rate, vital capacity, systolic blood pressure and diastolic blood pressure using 't' test.

Analysis and Discussion of Results

The data pertaining to the analysis of lipid profile variables of resting heart rate, vital capacity, systolic blood pressure and diastolic blood pressure among cricket players have been presented in the Table 3-6

Table 3: Test of Significance of difference between mean of Resting Heart Rate of Batsmen and Bowlers

Variable	Group	N	M	S.D.	't' Ratio	Level of Significance
Resting Heart Rate	Batsmen	20	69.9	1.20	1.38	P<0.05
	Bowler	20	70.55	1.73		

The above table shows that mean value of Resting Heart Rate scores of batsmen and bowlers are 69.9 and 70.55 respectively. The obtained t value of 1.38 is less than the table value 1.69 even at 0.05 level. Thus the mean difference in the Resting Heart Rate scores is statistically insignificant. That is, there is no significant difference in Resting Heart Rate of batsmen and bowlers.

Table 4: Test of Significance of difference between mean of Vital Capacity of Batsmen and Bowlers

Variable	Group	N	M	S.D.	't' Ratio	Level of Significance
Vital Capacity	Batsmen	20	3.63	0.69	4.21	P>0.05
	Bowler	20	2.79	0.57		

The above table shows that mean value of Vital Capacity scores of batsmen and bowlers are 3.63 and 2.79 respectively. The obtained t value of 4.21 is greater than the table value 1.69 even at 0.05 level. Thus the mean difference in the Vital Capacity scores is statistically significant. That is, there is significant difference in Vital Capacity of batsmen and bowlers.

Table 5: Test of Significance of difference between mean of Systolic Blood Pressure of Batsmen and Bowlers

Variable	Group	N	M	S.D.	't' Ratio	Level of Significance
Systolic Blood Pressure	Batsmen	20	116.3	1.87	2.30	P>0.05
	Bowler	20	117.7	1.98		

The above table shows that mean value of Systolic Blood Pressure of batsmen and bowlers are 116.3 and 117.7 respectively. The obtained t value of 2.30 is greater than the table value 1.69 even at 0.05 level. Thus the mean difference in the Systolic Blood Pressure is statistically significant. That is, there is significant difference in Systolic Blood Pressure of batsmen and bowlers.

Table 6: Test of Significance of difference between mean of Diastolic Blood Pressure of Batsmen and Bowlers

Variable	Group	N	M	S.D.	't' Ratio	Level of Significance
Diastolic Blood Pressure	Batsmen	20	79.7	2.27	1.05	P<0.05
	Bowler	20	80.4	1.90		

The above table shows that mean value of Diastolic Blood Pressure of batsmen and bowlers are 79.7 and 80.4 respectively. The obtained t value of 1.05 is less than the table value 1.69 even at 0.05 level. Thus the mean difference in the Diastolic Blood Pressure is statistically insignificant. That is, there is no significant difference in Diastolic Blood Pressure of batsmen and bowlers.

Conclusion

Significant difference was found between the means of selected physiological variable vital capacity and systolic blood pressure of batsmen and bowlers. Mean value indicates that the bowlers has better vital capacity and systolic blood pressure level than the bowlers. No significant difference found between the means of selected physiological variables resting heart rate and diastolic blood pressure of batsmen and bowlers.

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