

# A Comparative Study on Effect of Local Environment on Anthropometric, Physiological and Psychological Variables of Cricket Players

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**Abstract:** *The purpose of the study was to assess selected anthropometric, physiological and psychological variables of rural and urban cricket players. For the purpose of study 140 male cricket players were selected randomly with 70 subjects in each group and their age ranged from 16-18 years. For this study upper arm, chest, hip and thigh circumference were selected as anthropometric variables while, vital capacity, peak flow rate & resting heart rate were selected as physiological and anxiety, self-concept & locus of control were selected as psychological variables. To find out the on the selected anthropometric, physiological and psychological characteristics of male urban and rural cricket players, t-test was used at .05 level of significance. Insignificant difference is found between the mean scores of urban & rural cricket players in relation to upper arm circumference, peak flow rate, anxiety and locus of control. On the other hand significant difference is found between the rural & urban cricket players in relation to chest circumference, hip circumference, thigh circumference, calf circumference, vital capacity, resting heart rate and self-concept.*

**Keywords:** Peak flow rate, anthropometric, anxiety and locus of control

## 1. Introduction

Cricket is a bat-and-ball game. It is played between two teams, each team consisting of 11 players. One team bats at a time while the other fields and bowls at the same time. At the center of the field there is a rectangular 22-yard long pitch. Batting team tries to score as many runs as possible while at the same time, the other team bowls and fields, trying to dismiss the batsmen and hence minimize the runs scored by the batting team. Runs are scored by the batsman on strike hitting the ball with bat and running to the opposite end of the pitch, touching the crease there and completing the run successfully. The batting team after the end of their innings starts to bowl and field while the bowling and fielding team starts to bat. The decisions on the field are made by the Umpires. There are two Umpires on the field and one Umpire, also known as third Umpire, off the field. The Laws of Cricket are governed and maintained by the International Cricket Council (ICC) with different Standard Playing Conditions for Test matches and One Day Internationals.

According to nature cricket is entirely different from many team games. Cricket is a game of grace and beauty which is based on technical skill, which require years of practice for being mastered in particular skill, which requires more and more concentration and patience with higher degree of fitness. Along with fitness and year of practice another factor which affects the performance is physique of players because it is well known fact that physique plays a dominating role in performance of players.

India is predominantly a country of villages which comprises eighty percent of her population. It is the second most populated country of the world. The tradition of India is rooted in villages. It is the transformation of the social life at village level that really contributes to change in Indian society. In the post-independence era, deliberate attempts on national plan have been and are being made to bring the hidden talent of rural lands in the field of games and sports through community development programmes. The process

of urbanization which has so far influenced the Indian urban life also influenced the village in a significant way. Many villages in India which are thus exposed to the external forces of chance and thereby subject to the impact of these forces vary in pace and extent change.

Man's current relationship to the urban area has become as vital to him as life itself. His reliance on the city for a livelihood, social interaction, food shelter and services that has made the urban area the focus of life but it does not mean that urban life is always good. People now believe that they can meet their major needs and achieve objects of their desire and ambitions in the urban area only. Family, life, employment, education, religion, standard of conduct, social control and leisure activities all appear to take place now in urban setting. This is not to say that urbanization detrimental to man for the greatest advance.

## Objectives of the Study

- 1) To find out the significant difference between urban and rural cricket players in selected anthropometric variables.
- 2) To find out the significant difference between urban and rural cricket players in selected physiological variables.
- 3) To find out the significant difference between urban and rural cricket players in selected psychological variables.

## 2. Methodology

For the present study 140 male cricket players were selected 70 from each group i.e. urban and rural. Subjects were selected randomly from urban and rural areas of Arunachal Pradesh. The age of the subjects ranged from 16-18 years. For the present study anthropometric, psychological and physiological variables were selected to compare the status of urban and rural cricket players. To measure the selected variables standard and reliable test and equipment's were used.

Sl. No.	Variables	Test/Equipment Used	Unit
<b>Anthropometric Variables</b>			
1.	Upper arm Circumference	Steel tape	Inches
2.	Chest circumference	Steel tape	Inches
3.	Hip Circumference	Steel tape	Inches
4.	Thigh circumference	Steel tape	Inches
<b>Physiological Variables</b>			
1.	Vital Capacity	Dry Spiro meter	Liters
2.	Resting Heart Rate	Manual Method	Numbers
3.	Peak Flow Rate	Peak Flow Meter	Liters
<b>Psychological Variables</b>			
1.	Self-Concept	Questionnaire	Raj Kumar Saraswat
2.	Locus of Control	Questionnaire	Rotter's
3.	Anxiety	Questionnaire	D. Sinha

**Collection of Data**

Data was collected from urban and rural areas of Naharlagun, Itanagar, Pashighat, Subansiri and Tezu areas of Arunachal Pradesh with prior permission of in charges/coaches. Purpose of test was well explained and demonstrated to the subjects and required trials were provided before final effort/attempt. Questionnaires were also explained clearly and necessary instructions were given to respondents. To get honest response subjects, it was clearly explained to subjects that all personal information will be kept confidential and will be used only for study purpose.

**Statistical Technique for Analysis of Data:** Descriptive Statistics was used to determine the characteristics of Volleyball players. To test the hypothesis of the present study following independent t-test was used at 0.05 level of significance.

**3. Findings**

The findings of the selected Anthropometric, Physiological and Psychological variables are as follows:

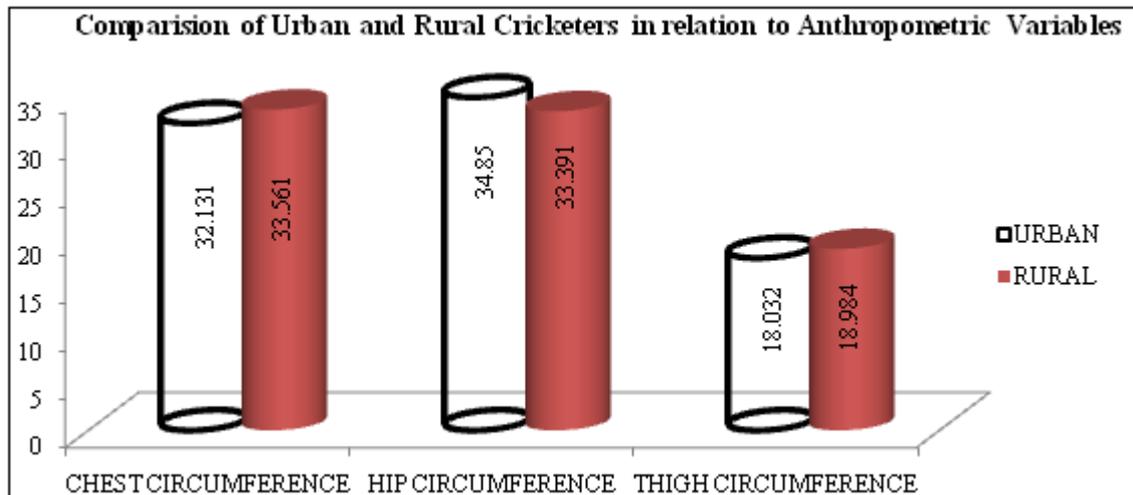
**Table I:** Comparison of Anthropometric Variables between Rural & Urban Cricket Players

Variable	Group	Mean	SD	MD	t - ratio
Upper Arm Circumference	Urban	9.400	.957	.177	1.004
	Rural	9.222	1.124		
Chest Circumference	Urban	32.131	2.496	1.43	<b>2.597*</b>
	Rural	33.561	3.872		
Hip Circumference	Urban	34.850	2.587	1.458	<b>3.715*</b>
	Rural	33.391	2.023		
Thigh Circumference	Urban	18.032	1.536	.951	<b>3.839*</b>
	Rural	18.984	1.392		

*\*significant at .05 level*

*t value .05 level of significance for 138 df = 1.97*

It is evident from table -I that there is significant difference in relation to chest circumference, hip circumference and thigh circumference of urban and rural cricket players. Calculated t-values for chest circumference, hip circumference and thigh circumference i. e. 2.597, 3.715 and 3.839 respectively is found greater than tabulated t (1.97) at 0.05 and 138df. While there is no significant difference between the mean scores of urban & rural cricket players in respect to upper arm circumference since obtained t-value 1.004 is found to less than the required table value 1.97 at .05 level of significance.



**Figure I**

**Table II:** Comparison of Physiological Variables between Rural & Urban Cricket Players

Variable	Group	Mean	SD	MD	t - ratio
Vital Capacity	Urban	2197.714	445.044	498.428	<b>6.320*</b>
	Rural	2687.142	470.867		
Resting Heart Rate	Urban	70.557	5.977	3.6428	<b>4.182*</b>
	Rural	66.914	4.333		
Peak Flow Rate	Urban	325.428	67.880	3.2857	<b>.284</b>
	Rural	328.714	69.238		

*\*significant at .05 level*

*t value .05 level of significance for 138 df = 1.97*

It is evident from table -II that there is significant difference in relation to vital capacity and resting heart rate of urban and rural cricket players. Calculated t-values for vital capacity and resting heart rate i. e. 6.320 and 4.82 respectively are found greater than tabulated t (1.97) at 0.05 and 138df. While there is no significant difference between

the mean scores of urban & rural cricket a player in respect to peak flow rate since obtained t-value .284 is found less than the required table value 1.97 at .05 level of significance.

**Table III:** Comparison of Psychological Variables between Rural & Urban Cricket Players

Variable	Group	Mean	SD	MD	t - ratio
Anxiety	Urban	28.300	19.17452	5.428	<b>1.807</b>
	Rural	33.728	16.25871		
Self Concept	Urban	175.685	10.70763	5.871	<b>3.244*</b>
	Rural	169.814	10.705		
Locus of Control	Urban	9.471	4.049	1.229	<b>1.807</b>
	Rural	8.242	3.499		

*\*significant at .05 level*

*t value .05 level of significance for 138 df = 1.97*

It is evident from table -III that there is significant difference in relation to self concept of urban and rural cricket players. Calculated t-value for self concept i. e. 3.24 is found greater than tabulated t (1.97) at 0.05 and 138df. While there is no significant difference between the mean scores of urban & rural cricket a player in respect to anxiety and locus of control since obtained t-values 1.807 and 1.807 respectively are found less than the required table value 1.97 at .05 level of significance.

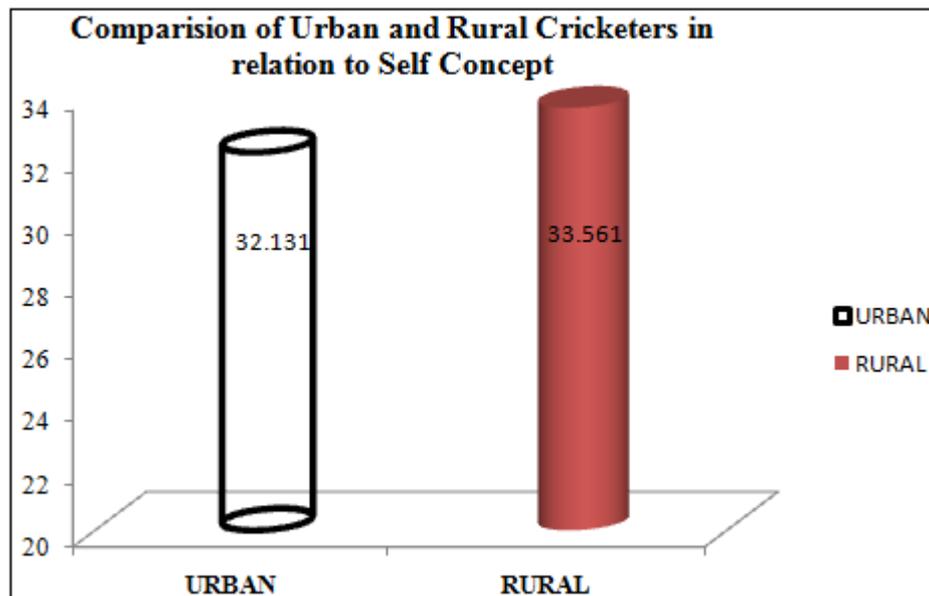


Figure 2

#### 4. Discussion of Findings

Rural players are found superior to urban players in respect to chest circumference, thigh circumference and calf circumference, vital capacity and peak flow rate. This may be due to the traditional work of farming in rural areas. The rural players of mainly depend on farming and they interact with day to day problems in. To survive and fulfill their daily needs the rural area players has to perform very hard physical activity. That's why the rural players are physically superior to urban players without any specific physical training. On the other hand urban player is better in self concept when compared to rural players, whereas anxiety and locus of control is found to be insignificant between the rural and urban cricket players.

The nutritional aspect of rural player are quite better than urban players, this may also be a reason that made rural players superior than the urban players in relation to anthropometric and physiological variables. In rural areas the pure and fresh food grains, vegetables, fruits and other natural products are more available in comparison to urban areas where stored and delayed food items are available which may also be a reason behind the result.

#### 5. Conclusions

Rural players are found superior to urban players in respect to chest circumference, thigh circumference and calf circumference, vital capacity and peak flow rate. On the other hand urban player is better in self concept when compared to rural players, whereas anxiety and locus of control is found to be insignificant between the rural and urban cricket players.

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