



# The Effect of Different Geographical Conditions on Selected Anthropometric Characteristics of Badminton Players

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## **Abstract**

**Introduction:** *The objective of this study was to investigate the effect of different geographical conditions on selected anthropometric characteristics of badminton players. Another purpose of the study was to find out the relationship of different geographical conditions between anthropometric characteristics of badminton players.*

**Methods:** *The subjects for the study were selected from the ninety badminton players who have participated in national level badminton tournament. Thirty subjects were selected from Karla, Tamilnadu and Andhra Pradesh (Coastal area). Thirty subjects were selected from Uttar Pradesh, Haryana and Punjab (Non-coastal area) and thirty were selected from Uttarakhand, Himachal Pradesh and Jammu Kashmir (hill area). The age level of subjects ranged from 15 to 18 years. All the subjects were residing at different geographical conditions. A stand and progressive matrices organizational selected anthropometric characteristic is (Standing height, Weight, Leg length, Thigh girth and Calf girth). To find out significant effect of different geographical conditions on selected anthropometric characteristics of badminton players, the one-way analysis of variance was used. To find out the relationship between anthropometric variables, the Pearson's Product moment correlation was computed. The level of significance was set at .05 levels.*

**Results and Discussion:** *The result reveals the one-way analysis of variance that there was insignificant ( $p > .05$ ) the effect of different geographical conditions on selected anthropometric characteristics (Standing height, Weight, Thigh girth and Calf girth) of badminton players and significant ( $p < .05$ ) deference of anthropometric characteristic (Leg length) of badminton players. The result reveals the Pearson's Product moment correlation that there was insignificant ( $p > .05$ ) the effect of different geographical conditions on selected anthropometric characteristics (Standing height, Weight and Thigh girth) of badminton players and significant ( $p < .05$ ) deference of anthropometric characteristics (Leg length and Calf girth) of badminton players.*

**Keywords:** Geographical Conditions, Anthropometric, Badminton, Players

## INTRODUCTION

Anthropometry comprises techniques that readily contribute to a more in-depth understanding of body composition & nutritional status, allowing the quantification of observations & the observation of changes with time. Championship performances no longer occur at random or as a result of chance alone. International sports performance in various sports & games are influenced by many factors such as level of physical, physiological & psychological abilities. Body measurements help talk about nutritional status & highlight the changes due to sports activities.

The poor performance of Indian athlete and sportsmen at the international competition has been of great concern, especially to the coaches, physical educationist sports scientist. An effort has been made to improve the standard of our sports men since long, however, little successes have so far been achieved in this respect. There are numerous factors which are responsible for the performance of a sports man. The physique and body composition including seize, shape and form are known to play a significant role in this regard. But one aspect of scientific approach which is receiving greater attention is that of structural measures, i.e. the length and girth of the body and body composition. More specifically the measurement of athlete's body composition to achieve optimal playing .In the analysis of various physical performances many factors are involved with importance of each being specific to particular activity. Factor important in one type of performance may be of lesser value or even irrelevant than other.

## METHODS

The subjects for the study were selected from the ninety badminton players who have participated in national level badminton tournament. Thirty subjects were selected from Karla, Tamilnadu and Andhra Pradesh (Coastal area). Thirty subjects were selected from Uttar Pradesh, Haryana and Punjab (Non-coastal area) and thirty were selected from Uttarakhand, Himachal Pradesh and Jammu and Kashmir (hill area). The age level of subjects ranged from 15 to 18 years. All the subjects were residing at different geographical conditions. Stand and progressive matrices organizational selected anthropometric characteristics are (Standing height, Weight, Leg length, Thigh girth and Calf girth). To find out significant effect of different geographical conditions on selected anthropometric characteristics of badminton players, the one-way analysis of variance was used. To find out the relationship between anthropometric variables, the Pearson's Product moment correlation was computed. The level of significance was set at .05 levels.

## RESULTS OF THE STUDY

TABLE-1

Analysis of variance standard height among hill area, coastal and non-coastal players

Source of Variance	D.F.	S.S.	MSS	F-ratio
Between Group	2	34.40	17.20	.924*
Within Group	87	1619.70	18.617	

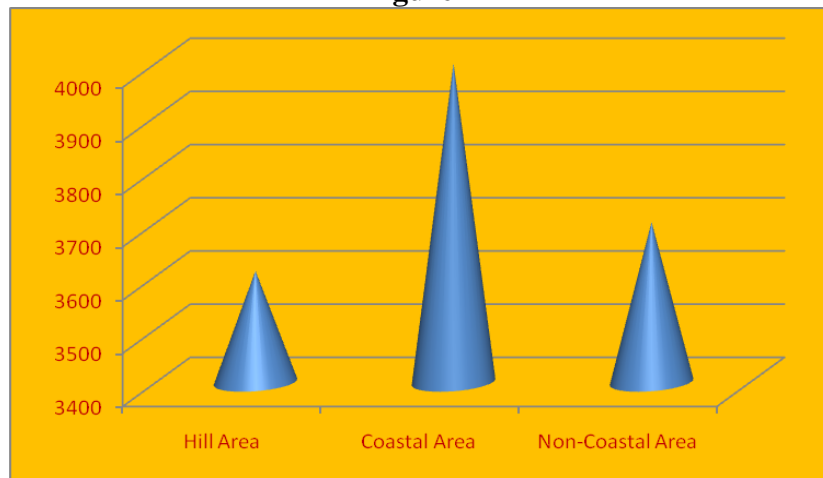
\*Insignificant at .05 level

F-Value required to be significant at .05 (2, 87) = 4.92

The value shown in table-1 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of hill area, coastal and non-coastal players.

The scores are also illustrated in the figure-I

**Figure-I**



To find out weight among the means of hill area, coastal area and non-coastal area players analysis of variance statistics was used and presented in table-2.

**TABLE-2**

**Analysis of variance weight among hill area, coastal and non-coastal players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	2	25.756	12.878	.707*
Within Group	87	1584.200	18.209	

\*Insignificant at .05 level

F-Value required to be significant at  $.05(2, 87) = 4.92$

The value shown in table-2 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of hill area, coastal and non-coastal players.

The scores are also illustrated in the figure-II

**Figure-II**



To find out leg length among the means of hill area, coastal area and non-coastal area players analysis of variance statistics was used and presented in table-3.

TABLE-3

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	2	627.222	313.611	13.009*
Within Group	87	2097.400	24.108	

\*Significant at .05 level

F-Value required to be significant at  $.05(2, 87) = 4.92$

The value shown in table-20 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Further the mean difference among coastal, non-coastal and hill area players through post hoc test was computed which are presented in the following tables and also are represented by figure III.

TABLE-4

**Comparison of leg length among hill area, coastal and non-coastal players**

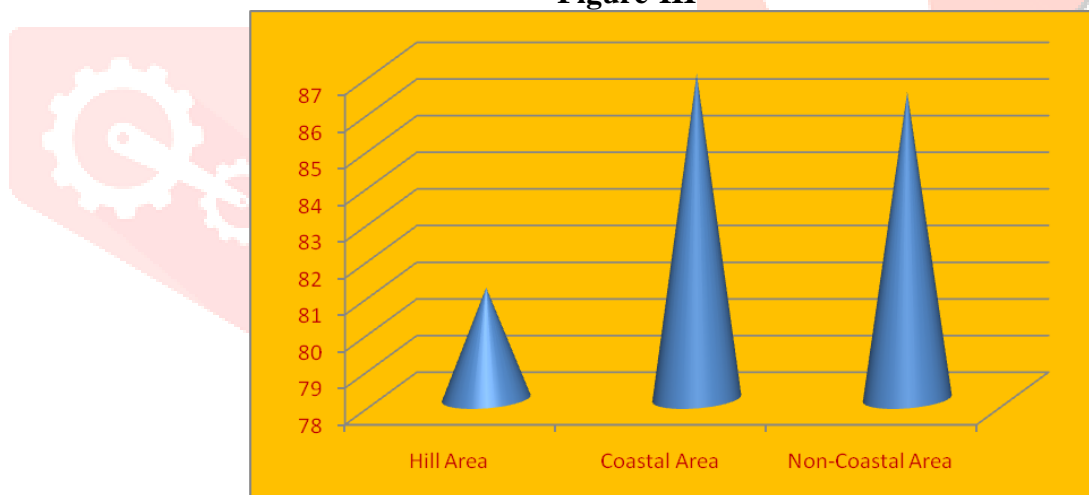
Hill Area	Coastal Area	Non-Coastal Area	M.D	C.D
81.03	86.87		5.84	3.55
81.03		86.37	5.34	
	86.87	86.37	.50	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(2, 87) = 4.92$

The post hoc test to compare the leg length between hill area, coastal area and non-coastal area players has clearly revealed the significant difference between the badminton players of hill area and coastal area where the calculated mean difference found (5.84) and hill area and non-coastal area where the calculated mean difference found (5.34). Whereas the score did not reveal any significant difference between the badminton players of coastal area and non-coastal area. The calculated value also did not reveal any significant difference between the players of hill area to that of non-coastal area as the required value was much higher than the calculated value at .05 level of significant.

Figure-III



To find out thigh girth among the means of hill area, coastal area and non-coastal area players analysis of variance statistics was used and presented in table-5.

TABLE-5

**Analysis of variance thigh girth among hill area, coastal and non-coastal players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	2	16.200	8.100	.823*
Within Group	87	855.900	9.838	

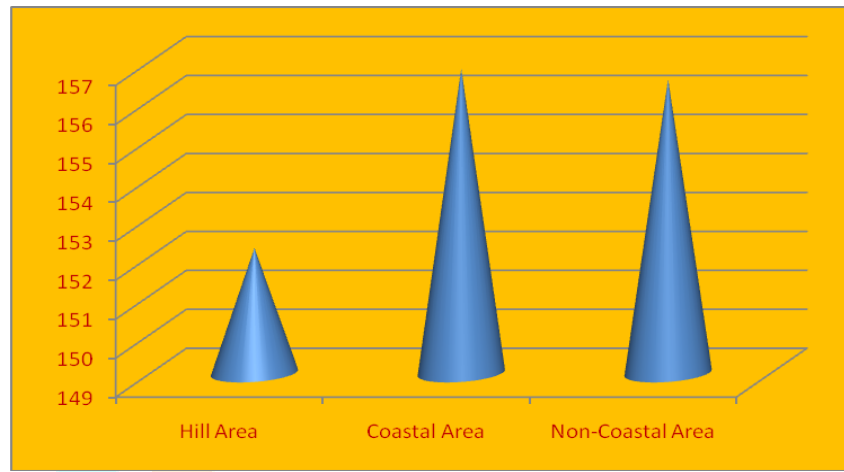
\*Insignificant at .05 level

F-Value required to be significant at  $.05(2, 87) = 4.92$

The value shown in table-5 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of hill area, coastal and non-coastal players.

The scores are also illustrated in the figure-IV

**Figure-IV**



To find out calf girth among the means of hill area, coastal area and non-coastal area players analysis of variance statistics was used and presented in table-6.

**TABLE-6**  
**Analysis of variance calf girth among hill area, coastal and non-coastal players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	2	48.089	24.044	3.144*
Within Group	87	665.300	7.647	

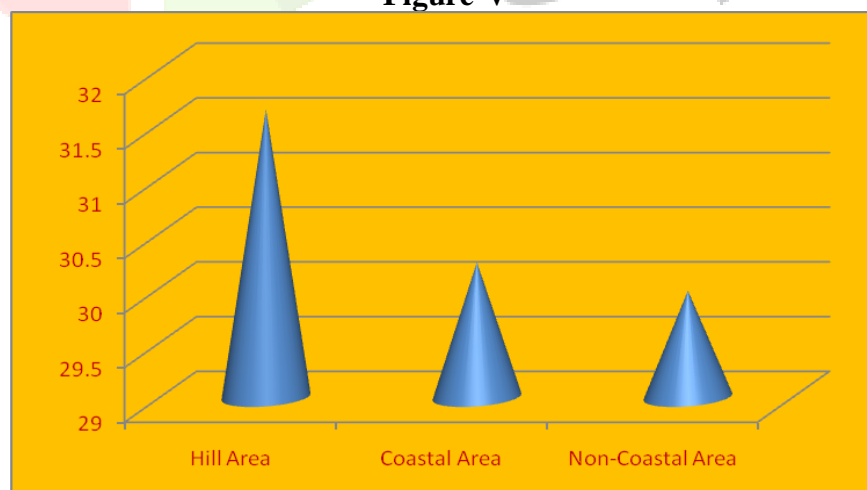
\*Insignificant at .05 level

F-Value required to be significant at  $.05(2, 87) = 4.92$

The value shown in table-6 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of hill area, coastal and non-coastal players.

The scores are also illustrated in the figure-V

**Figure-V**



## DISCUSSION OF THE RESULTS

The result of the study was to compare the anthropometric variables (standing height, weight, leg length, thigh girth & calf girth) among coastal area, non-coastal area and hill area national level badminton players. Though there exist significant difference among the coastal area, non-coastal area and hill area national level badminton players in relation to leg length and insignificant difference among the coastal area, non-coastal area and hill area national level badminton players in relation to standing height, weight, thigh girth & calf girth.

The result is in the direction of P. Nande, V. Mudafale & S. Vali (2009) studies, consistently indicated that Irrespective of sex & sport disciplines, all players were found to be shorter than their respective leg length. Less than 50 % groups of male players were found meeting the desirable standard heights, weight, thigh girth & calf girth.

## CONCLUSIONS

- I. No significant relationship exist between the means of difference geographical conditions (coastal, non-coastal and hill area) in relation to their standard height level. The F-Value (4.92) calculated is much lower than the required value to be significant.
- II. No significant relationship exist between the means of difference geographical conditions (coastal, non-coastal and hill area) in relation to their weight level. The F-Value (4.92) calculated is much lower than the required value to be significant.
- III. Significant relationship exist between the means of difference geographical conditions (coastal, non-coastal and hill area) in relation to their leg length level. The F-Value (4.92) calculated is much higher than the required value to be significant.
- IV. The post hock test to compare the leg length between hill area, coastal area and non-coastal area players has clearly revealed the in significant difference between the badminton players of hill area and coastal area where the calculated mean difference found (5.84) and hill area and non-coastal area where the calculated mean difference found (5.34). Whereas the score did not reveal any significant difference between the badminton players of coastal area and non-coastal area. The calculated value also did not reveal any significant difference between the players of hill area to that of non-coastal area as the required value was much higher than the calculated value at .05 level of significant.
- V. No significant relationship exist between the means of difference geographical conditions (coastal, non-coastal and hill area) in relation to their thigh girth level. The F-Value (4.92) calculated is much lower than the required value to be significant.
- VI. No significant relationship exist between the means of difference geographical conditions (coastal, non-coastal and hill area) in relation to their calf girth level. The F-Value (4.92) calculated is much lower than the required value to be significant.

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