



## ANALYSIS OF THE PHYSICAL FITNESS OF PRE-ADOLESCENT SCHOOL BOYS WITH DIFFERENT GEOGRAPHICAL REGIONS OF KARNATAKA

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### ABSTRACT :

**T**he present study is to compare the selected physical fitness variables among the adolescent school boys under different geographical regions of Karnataka. To achieve this purpose, three hundred adolescent boys of the private schools of different regions (plain, coastal and hills) of Karnataka studying with age ranging 10-12 years were selected. The physical fitness variables selected for the study were the Muscular Endurance (Push Ups in Nos.); Muscular Strength (Sit Ups in No.s); Cardio Respiratory Endurance (800 Meters Run/Walk), Body Composition (Skinfold Tests Triceps & Subscapular in body fat %) and flexibility (Sit & Reach Test in cms) One-way Analysis of Variance (ANOVA) was used to find out the significant difference among the different disciplines. Further, the Scheffe's Post-hoc test was used to find the significant difference in paired mean scores. It is concluded that there was significant difference in the Muscular Strength, Muscular Endurance, Cardio Respiratory Endurance and Body Composition of pre-adolescent boys with different geographical regions.

**KEYWORDS :** Physical fitness, Pre-adolescent, Geographical area, Regions.

### INTRODUCTION:

Regular physical activity is important for life's quality even if it has no relationship to disease or longevity. Physical activity is a significant ingredient in the quality of life, because it increases energy and promotes physical, mental, sociological and psychological well being in addition to conferring health benefits (Shepherd, 1996). The study on the analysis of physical fitness concepts of children is the most important criteria for recognizing health of children at preadolescent age. Now-a-days specific training is playing a predominant role with emergence of different methods having sustained scientific knowledge for outstanding achievements in various levels of competition. The sports man is able to achieve high level of performance by concentrating on major areas like physical strength, physiological efficiencies, psychological development, application of biomechanics and environmental adjustments.

Physical fitness is the capacity to carry out reasonably well in various forms of physical activities without being unduly tired and includes the important qualities to the individuals' health and well being. Physical fitness is the basic requirement for most of the tasks to be under taken by an individual in his daily life. Physiological fitness is the capability of the heart, blood vessels, lungs and muscles to function at optimal efficiency, which means the level of health needed for an enthusiastic and pleasurable participation in daily task and recreation activities. Optimal physical fitness makes a possible lifestyle. In order to develop and maintain physical fitness, vigorous effort to be done by the total body.

Physical fitness is the basic fitness of all other fitness. Physical fitness is not only the most important ways

to a healthy body but it is also the basis of dynamic and creative activity. Physical fitness is the combination of strength, speed, flexibility, agility and endurance. It is the ability to enjoy life and to achieve the goals without undue fatigue or stress. Physical fitness varies from person to person and different types of fitness are needed according to types of profession. Studies of the physical and performance variables of the school students of the hill, plain and coastal area are one of the new approaches to identify and improve the inherent physical fitness of an individual.

The human fitness may influence from the born and it can be changed by their heredity, living environment, life style and so on. Hence, the fitness level of different geographical regions also change the people who live in the hills when comparing the people live in coastal and plain (Fleishman, 1963).

The studies interested on physical fitness in India is comparatively recent source. The importance of researchers has remained mainly on physical growth and development outline among different populations inhabiting the country, it is evident from the publications in the last few decades. Physical fitness of an individual depends on body composition, age, sex, training, nutritional status and environmental factors. (Hasalkar, Shivalli and Biradar, 2005). Ghosh and Goswami (2015) investigated the differences in physical fitness between the children belongs to hill area and costal area of West Bengal and they showed that the BMI of the coastal area school students were significantly higher than the hill area school students. Baro and Dihingia (2014) compared physical fitness between hills and plain area people, they found hilly people had better physical fitness than the plain area people.

Karnataka is a rich and beautiful state with different geographical environment and natural resources. Karnataka is the eight largest state in India, having different geographical region such as coastal, plain and altitude. In that, different area people are survived and this lifestyle also changes according to their environment. Population explosion and employment dynamics in the modern times have lead to large scale mobility of population from one type of habitual place to another type of habitual place. Thus, it is not uncommon to find men of the hill area (altitude), plain and coastal.

Hills area the areas where the narrow piece of land on the eastern border, close to the Western Ghats, which encompasses precipitous hills, deep valleys and gorges are covered with thick woods and all the rivers of the state are originated in the place. The Plain areas which lie along central Karnataka are located in the west of the hills and mountains. The coastal areas, where the narrow belt of coastal land along the Arabian Sea is characterized by broad paddy fields, rows of swaying coconut trees and serene, backwaters internally linked by rivers and inland waterways. This coastal belt has valleys and hills in the northern and southern parts. According to the National Education Policy Norms of physical fitness may give common to all the students in India. But the students in the state on different geographical regions (coastal, plain and hill) have different environment and the lifestyle. Hence the researcher should know the status of physical fitness of pre-adolescent school boys among the different geographical regions.

## 2. PURPOSE AND OBJECTIVE

The purpose of the study is to know the physical fitness and the objective of the study is to compare the physical fitness of the pre-adolescent school boys under different regions of Karnataka.

## 3. HYPOTHESIS:

It is hypothesized that there was no significant difference in the selected Physical fitness variables of the pre adolescent boys of different regions of Karnataka.

## 4. METHODOLOGY

### 4.1 Selection of Subjects :

To achieve the purpose of the study, three hundred pre-adolescent school boys studying in secondary schools of plain, coastal and hills of different regions of Karnataka with the age ranging 10-12 were randomly selected.

#### 4.2 Selection of Variables and Criterion Measures:

The following variables are selected for the purpose of the study :

1. Muscular Endurance : Pull Ups (In nos.)
2. Muscular Strength : Sit Ups (In nos.)
3. Cardiorespiratory Endurance : 800 Meters Run/Walk (In Secs)
4. Body Composition : Skinfolde Tests (Triceps & Subscapular in BF%)
5. Flexibility : Sit & Reach Test (In Cms.)

#### 4.3 Statistical Technique :

The One-way Analysis of Variance (ANOVA) was used to find the significant difference among the three groups. The Scheffe's Post-Hoc test was used to find the significant difference in the paired means.

### 5. RESULTS OF THE STUDY

The One-way ANOVA (F test) results on the selected Physical Fitness scores of the Pre-adolescent school boys with different regions of Karnataka.

Table-1

Table-1 shows One-Way ANOVA Analysis on the selected Physical Fitness scores of the Pre-adolescent school boys of different regions of Karnataka.

Physical Fitness Variables	Groups	Sum of Squares	df	Mean Squares	F Value	Level of Sig.
Muscular Endurance	Between Groups	1222.340	2	611.170	11.38	Significant at 0.01
	Within Groups	15953.540	297	53.716		
	Total	17175.880	299			
Muscular Strength	Between Groups	682.407	2	341.203	32.37	Significant at 0.01
	Within Groups	3130.740	297	10.541		
	Total	3813.147	299			
Cardio-respiratory Endurance	Between Groups	10.267	2	5.133	16.99	Significant at 0.01
	Within Groups	89.726	297	0.302		
	Total	99.993	299			
Body Composition	Between Groups	166.913	2	83.456	6.15	Significant at 0.01
	Within Groups	4027.612	297	13.561		
	Total	4194.525	299			
Flexibility	Between Groups	95.927	2	47.963	1.600	Not Significant
	Within Groups	8904.510	297	29.982		
	Total	9000.437	299			

Groups: Plain, Coastal and Hills (Each N=100)

Table value at 0.05(df-2, 297); 3.03; Table value at 0.01(df-2, 297) =4.68

The table-1 shows the obtained 'F' values of 11.38, 32.37, 16.99 and 6.15 for muscular endurance, muscular strength, cardio-respiratory endurance and body composition are greater than the table value of 3.03 for df '2 and 297' required for significance at 0.05 level of confidence. The results of the study indicate that there is significant difference in the muscular endurance, muscular strength, cardio respiratory endurance and body composition among the pre-adolescent school boys with different regions of Karnataka. To determine the significant difference in the said criterion variables among these paired means, the Scheffe's test was applied as the Post-Hoc analysis and the results are presented in Table-2.

**Table-2**  
**Scheffe's Post-Hoc Analysis on the Physical Fitness scores of the Pre-adolescent school boys of different regions of Karnataka.**

Physical Fitness Variables	Regions			Mean Difference	Critical Difference
	Plain area	Coastal area	Hills area		
Muscular Endurance	20.150	16.140		3.010*	2.551
		16.140	20.650	0.350	
	20.150		20.650	3.360*	
Muscular Strength	13.510	10.500		4.010*	1.130
		10.500	10.150	4.510*	
	13.510		10.150	0.500	
Cardio-respiratory Endurance	3.282	3.649		0.321*	0.191
		3.649	3.212	0.437*	
	3.282		3.212	0.115	
Body Composition	24.179	24.368		0.189	1.282
		24.368	25.847	1.479*	
	24.179		25.847	1.668*	

\*Significant at 0.05 level of confidence.

The table also shows significant paired mean differences on the muscular endurance between plain & coastal area and plain and hills areas and the values are 3.010 and 3.360 respectively which are greater than the critical difference value 2.551 at 0.05 level of confidence except coastal and hills area. It is concluded that there is a significant difference in the muscular endurance between plain & coastal area and plain and hilly areas and no difference exists in muscular endurance between coastal & hilly areas. The adolescent boys of hills area have more muscular endurance when comparing with plain and coastal area.

The table also shows significant paired mean differences on the muscular strength between plain & coastal area and coastal and hilly areas and the values are 4.010 and 4.510 respectively which are greater than the critical difference value 1.130 at 0.05 level of confidence except plain and hilly area. It is concluded that there is a significant difference in the muscular strength between plain & coastal area and coastal and hilly areas and no difference exists in muscular strength between plain & hilly areas. The adolescent boys of plain area have more muscular strength when comparing with coastal and hills area.

The table also shows significant paired mean differences on the cardio-respiratory endurance between plain & coastal area and coastal and hilly areas and the values are 0.321 and 0.437 respectively which are greater than the critical difference value 0.191 at 0.05 level of confidence except plain and hilly area. It is concluded that there is a significant difference in the cardio respiratory endurance between plain & coastal area and coastal and hills areas and no difference exists in cardio respiratory endurance between plain & hills areas. The adolescent boys of hills area have more cardio-respiratory endurance when comparing with plain and coastal area.

The table also shows significant paired mean differences on the body composition between coastal & hilly areas and plain & coastal areas and the values are 1.479 and 1.668 respectively which are greater than the critical difference value 1.282 at 0.05 level of confidence except plain and coastal area. It is concluded that there is a significant difference in the cardio-respiratory endurance between coastal & hills area and plain & hills areas and no difference exists in cardio respiratory endurance between plain & coastal areas. The adolescent boys of plain area have better body fat percentage when comparing with coastal and hills area.

## 6. FINDINGS OF THE STUDY

### The major findings of the study:

1. There is a significant difference in the muscular endurance among the pre-adolescent school boys of different regions in Karnataka. The pre-adolescent boys of hills area have more muscular endurance when comparing with plain and coastal area.
2. There is a significant difference in the muscular strength among the pre-adolescent school boys with different regions of Karnataka. The pre-adolescent boys of plain area have more muscular strength when comparing with coastal and hills area.
3. There is a significant difference in the cardio respiratory endurance among the pre-adolescent school boys of different regions in Karnataka. The pre-adolescent boys of hills area have more cardio respiratory endurance when comparing with plain and coastal area.
4. There is a significant difference in the body composition among the pre-adolescent school boys of different regions in Karnataka. The pre-adolescent boys of plain area have better body fat percentage when comparing with coastal and hills area.
5. There was no significant difference in the flexibility among the pre-adolescent school boys with different regions of Karnataka

## 7. CONCLUSION

The result shows that there was a significant difference in the selected physical fitness variables except flexibility of pre-adolescent school boys with different geographical regions of Karnataka. The pre-adolescent school boys of hilly area had more muscular endurance and cardio-respiratory endurance and plain area adolescent boys had strength and body composition. Muscular strength or endurance are considered to be crucial for everyone's physical well-being and therefore it is considered an important component of health related physical fitness. The study need to be taken seriously in view of the fact that poor development of muscular strength and endurance is known to be associated with a number of health related problems, the most important of which is low back pain and the another related to the postural problems in hills area and the observation needs to be taken seriously because increased body fat is known to be associated with a wide variety of health problems. The study suggests that even though increased health fitness awareness among the people of hills and coastal area, the health fitness scenario among the growing population is discouraging, may be due to the extra emphasis laid by the parents on the study of their children leading to neglect of physical activity.

## 8. REFERENCES

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