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## Topographical conditions and physical fitness: An analytical study

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### Abstract

The researchers conducted the study with the intension of comparing selected physical fitness variables in active tribal school going female students residing at different terrains. The variables selected were endurance, speed, agility, flexibility, abdominal strength and explosive strength. 46 tribal female subjects aging 14 year to 16 year who were actively involved in physical activities were selected. Among these 23 belonged to hilly areas of Manipur and rest 23 were from plain areas of Manipur. Descriptive Statistics and Independent 't' test were employed using IBM SPSS-17 Software. Findings suggest that the female students residing in hilly area were in upper side of fitness than the female students residing in plain area in respect to endurance, speed, agility, abdominal strength and explosive strength. However in flexibility no difference was observed between the groups.

**Keywords:** Endurance, speed, agility, flexibility, strength, female, tribe, hilly area, plain area

### 1. Introduction

Human body is a gift by nature. Life in the computer age is not less than the blessing of God. Technologies have changed the entire face of our planet. It has changed the ever challenging life into the bed of roses. Good health provides sound and solid foundation on which fitness rests and at the same time fitness provides one of the most important key to health and living one's life to fullest. The negative effects of degraded physical fitness on both the individual and society are serious and multi-dimensional. It can cause many risk factors to health including coronary heart disease, certain forms of cancer, hypertension, respiratory problems, and each associated with increases in all cause mortality (Cataldo 1999) [2]. Low levels of physical activity and cardio-respiratory fitness are both associated with higher risk of all cause and disease specific mortality (Thune *et al.* 1998) [13].

Study places have the potential to improve the health of young kids by providing lessons in physical education that promotes enjoyable lifelong physical activity. Diseases and health problem originating from inactive lifestyle have their roots early in life. This is thus the right time when an active life style should be practiced. Fitness begins at birth and should continue throughout a person's life. Fitness improves general health and it is essential for full and vigorous living. The physically fit child feels more alert and eager to do things. A weak child is a feeble brick in the wall of the nation. The prosperity of a nation depends entirely upon the health of every citizen of the country.

The complex nature of physical fitness can be best understood in terms of its components such as cardiovascular endurance, strength, flexibility, speed, agility and muscular endurance. In addition to these components of physical fitness there are many other factor which contribute to physical fitness including heredity, living standard, nutrition, hygienic conditions, environmental and climate factors etc. (Sallis. *et al.* 1992) [11].

In villages which formed the first habitation of civilized man rural sports grew out of sheer necessity. Joint defense against on slaughters of a common foe and dangerous animals must have given birth to sports like wrestling, running, jumping, weight lifting and such performing arts as measuring strength by holding wrists, twisting hands etc. Same is the case with games and sports in hilly area and plain area settings. We notice that there is a lot of difference in the interest of children. Like we observe that in hilly areas children are indulging in minor, indigenous activities and small area field games like football, kabaddi, kho-kho, wrestling, athletics etc. whereas, in plain areas we find children playing cricket, basketball, swimming, badminton, tennis, squash, golf etc. The main cause of difference is the availability of facilities, space and financial support of parents.

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The purpose of this study was to compare the fitness of tribal school going active female students residing in two different terrains so as to find out which of these two categories is more physically fit in response to tests administered.

**Methodology**

**Subjects:** For this study total of 46 tribal female subjects aging 14 year to 16 year who were actively involved in physical activities were selected. Among these 23 belonged to hilly areas of Manipur and rest 23 were from plain areas of Manipur.

**Variables selected and criterion measures**

- 600 yard run/walk (548.64 mts.) for cardio-vascular endurance (seconds).
- 50 yard (45.72 mts.) dash for speed (seconds).

- Shuttle runs 10 yard (9.14 mts.) X 6 for agility (seconds).
- Sit & reach test for flexibility (centimeter)
- Bent knee sit up for abdominal strength and endurance (score/60 seconds).
- Standing Broad Jump for explosive strength (centimeters).

**Statistical Technique:** Descriptive statistics and Independent ‘t’ test was employed to each variables for comparing them. The level of significance chosen was 0.05. IBM SPSS 17 was used to execute the statistical functions.

**Results**

After converting the raw data into group data, statistical test were employed to find out necessary information. The results and findings of the same are given in the tables and illustrations below.

**Table 1:** Descriptive Test Scores of Various Fitness Test in Active Tribal School Going Female Students of Hilly Area and Plain Area

	Groups	No. of Subjects	Mean	Std. Deviation	Std. Error of Mean
Endurance	Hilly Area	23	138.09	13.81	2.88
	Plain Area	23	148.00	14.98	3.12
Speed	Hilly Area	23	8.12	0.73	0.15
	Plain Area	23	8.81	0.83	0.17
Agility	Hilly Area	23	11.55	0.60	0.12
	Plain Area	23	12.20	0.74	0.15
Flexibility	Hilly Area	23	33.61	4.65	0.97
	Plain Area	23	33.26	4.67	0.97
Abdominal Strength	Hilly Area	23	31.35	4.73	0.99
	Plain Area	23	28.00	4.82	1.01
Explosive Strength	Hilly Area	23	14.96	1.23	0.26
	Plain Area	23	14.03	1.06	0.22

Table: 1 shows the nature and characteristics of fitness score in active tribal school going female students of hilly area and plain area (i.e. number of subjects in each group, mean, standard deviation and standard error of mean.

Lower the scores of timing in the variables like endurance, speed, and agility denotes better status of fitness as these are in respect to distance traveled in shortest possible time. In variables like flexibility, abdominal strength, and explosive strength higher the score, better is the fitness status.

**Table 2:** Comparative Analysis of Various Fitness Test Scores in Active Tribal School Going Female Students of Hilly Area and Plain Area

Test Items	t-value	P-Value	Mean Difference (Hilly- Plain)	Std. Error Difference
Endurance	-2.33*	0.02	-9.91	4.25
Speed	-2.99*	0.00	-0.69	0.23
Agility	-3.29*	0.00	-0.65	0.20
Flexibility	0.25	0.80	0.35	1.37
Abdominal Strength	2.38*	0.02	3.35	1.41
Explosive Strength	2.74*	0.01	0.93	0.34

\*significant, ‘t’ .05 (44) =2.01

The perusal of table 2 reveals that there lies a statistically significant difference between tribal school going active female students belonging to hilly area and tribal school going active female students belonging to plain area in endurance (t-value = -2.33, p= 0.02), speed (t-value = -2.99, p= 0.00), agility (t-value = -3.29, p= 0.00), abdominal strength (t-value = 2.38, p= 0.02) and explosive strength (t-value = 2.74, p= 0.01). Whereas no statistically significant difference lies between tribal school going active female students belonging to hilly area and tribal school going active female students belonging to plain area in flexibility (t-value = 0.25, p= 0.80).

**Discussion**

The findings that the tribal school going active female students belonging to hilly area were better in endurance,

agility, abdominal strength and explosive strength compared to tribal school going active female students belonging to plain area may be due to the fact that the students belonging to hilly area performs various extra activities like climbing hills during their walk to school, market, nearby villages in addition to regular physical activities in school which are similar to counterparts of the plains. Again their living conditions, diet and racial genotype might have been the contributing factor for the present result. The fact that the easy livelihood conditions in the plain area (i.e. transportation, agricultural facilities, earning etc) due to nearness of urban cities also can’t be denied for the facts of the findings. The findings are in line with the studies of Yadav *et al.*, (2013) [16] and Mondal *et al.*, (2014) [10].

### Conclusion

The conclusion which can be drawn on the basis of the present study is the tribal school going active female students belonging to hilly area is superior in endurance, speed, agility, abdominal strength, explosive strength compared to tribal school going active female students belonging to plain area however both the masses were found to be same in flexibility.

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