Research Paper | **Physical Education**

Comparison of Basic Fitness Status Between The Children Belongs to Hill Area and Coastal Area of West Bengal

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ABSTRACT

The purpose of conducting the present study was to investigate the differences in physical fitness between the children belongs to hill area and costal area of west Bengal. The sample for this study consisted of 54 boys' students from hill are and 60 boys' students from coastal area of west Bengal in India. A total of 114 school boys' were chosen to participate as subjects in the present study. The age group of the subjects was ranged from 12 – 14 years. In the present study standing height, body weight and body mass index (BMI) were used as anthropometric measures. Five components of physical fitness (four performance related and one health-related) were tested. These included 20-meter dash (as a measure of movement speed), standing long jump (as a measure of explosive power), sit and reach (as a measure of lower back/upper thigh flexibility), bent knee sit-ups completed in 60 seconds (as a measure of abdominal strength and endurance) and 600m distance run (as a measure of cardio respiratory-endurance). Mean and standard deviation of each variable were calculated. The means of respective variables between two groups were compared by using t-test. Statistical significance was tested at 0.05 level of confidence. For statistical calculations Excel Spread Sheet of windows version 7 was used. The results of the study showed that the Weight and BMI of the coastal area school students were significantly higher than the hill area school students. It also found that the SLJ (standing long jump), SAR (sit and reach) and Sit-up, 600m run time of the hill area school students were significantly better than the coastal area school students. On the other hand, coastal area school students taking significantly less time to complete the 20m.-dash than the hill area school students. This may happen due to the difference of life style, geographical hindrances in daily living, socioeconomic status and scope of physical activity between the children of two separate geographical areas.

KEYWORDS : Health-related physical fitness, hill area, costal area, BMI, Dash (20-meter run), SLJ (standing long jump), SAR (sit and reach), and Sit-up.

INTRODUCTION

Physical Fitness is a level of health in which you have muscular endurance, muscular strength, flexibility, cardiovascular endurance, and lean body composition. Physical fitness is achieved by the regular movement of muscles through a variety of exercises. Maintaining physical fitness is a life-long process and should always be part of your lifestyle. According to the Nixon, "Physical fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserves of strength and energy available to meet satisfactory and emergency demands suddenly placed upon him." Three concepts comprise physical fitness: I) specific fitness- Which is based on the ability to perform specific aspects of recreation or occupations. II) Basic fitness- A state of health and wellbeing. III) Emergency preparation- The physical capability to avoid, adapt and overcome emergency situations. Physical fitness is commonly defined as the capacity to carry out the day's activities, pursue recreational activities, and have the physical capability to handle emergency situations.

It is frequently assumed that physical activity is an integral part of growing up, but many studies show that children and adolescents are often physically inactive. Recent studies also show evidence of greater inactivity among children in both vigorous and medial activities. It is also a question that cans geographical condition effect performance? To answer the question the present study was planed. Thus, the purpose of this study was to determine the level of basic fitness of the school children of hill and coastal area of west Bengal and to compare the basic fitness between the children belongs to hill area and costal area of west Bengal.

METHODS & MATERIALS

The sample for this study consisted of 54 boys' students from hill are and 60 boys' students from costal area of west Bengal in India. A total of 114 school boys' were chosen to participate as subjects in the present study. The age group of the subjects was ranged from 12 – 14 years. The schools were selected from two geographical areas of West Bengal. For the children belongs to coastal area two schools of east medinipore district were chosen, that was situated in Contai sub-division. For collecting data of the children from hill area one school of Kalimpong sub-division was chosen. All participants were healthy and participated regularly in physical education class in school. The data were collected from June end to July first. For the present study random group design was adopted.

INSTRUMENTS AND PROCEDURE

Methods for evaluating fitness may vary according to the structure of the study. The AAHPERD (AAHPERD, 1984) test battery designed for the assessment of physical fitness in children was used as guidance in determining our test battery with slight modifications in consolidation with the Eurofit test battery (Adam et al., 1988). Standing height, body weight and body mass index (BMI) were measured as anthropometric variables. Five components of physical fitness were tested (four performance related and one health-related). These included 20-meter dash (as a measure of movement speed), standing long jump (as a measure of explosive power), sit and reach (as a measure of lower back/upper thigh flexibility), bent knee sit-ups completed in 60 seconds (as a measure of abdominal strength and endurance) and distance run (as a measure of cardio respiratory-endurance).

ANTHROPOMETRIC ASSESSMENT

Standing height was measured to the nearest 0.5 cm with the Martin-type anthropometer for the standing posture. Weight was measured to the nearest 0.1 kg using portable digital scales (Tanita BC 554, Body composition monitor). The measurements were made while the children were wearing light clothes and no shoes. BMI was calculated as weight in kilograms divided by the square of height in meters (BMI = kg/m²).

PHYSICAL FITNESS

The *20-meter dash* was performed from the standing start position. The test measured the time elapsed to the nearest 0.1 second from the starting signal to crossing the finish line. Three trials were administrated alternating with the resting pause. The mean value was calculated and included in the analysis.

The *standing long jump* (SLJ), as a measurement of explosive power, was measured to the nearest cm as the distance from the standing start to the point of landing heels. Three trials were administered and the mean value was included in the analysis.

The *sit and reach* (SAR) measured the distance of the performed stretch to the nearest cm.

Before the test, the shoes were removed and the subjects were instructed to slowly reach forward with their knees fully extended as far as possible with palms facing downward. This test represents flexibility in the lower back and upper thighs. Three trials were administrated and the mean value was taken in the analysis. The maximum number of *sit-ups* achieved in 60 seconds was recorded. The subjects were instructed to keep their arms across the chest while curling up to a sitting position until their elbows touched their thighs. This test gave us insight into abdominal strength and endurance. One trial was given. A *distance run* (600 meters) was measured as the time elapsed to the nearest second from the starting signal to crossing the finish line. This test presents an example of cardiorespiratory endurance. The time necessary to cover the proposed distance was recorded in minutes and seconds. One trial was administrated.

DATA ANALYSIS
Mean and standard deviation were the descriptive statistics and the differences between the students Health related physical fitness profiles between Government and Private Schools were determined using t-test. The level of significant difference was set at $p<0.05$ level of confidence. For statistical calculation Excel Spread Sheet of windows version 7 was used.

RESULTS AND DISCUSSION
In Table-1 the mean and standard deviation of all the variables (anthropometric and fitness) of both government and Private school students has been presented.

Table 1
Mean SD and t-ratio of different variables for Hill and Coastal Students

Variable	Hill Area Boys Mean ± SD	Coastal Area Boys Mean ± SD	t-ratio
Height (cm)	148.92 ± 6.53	149.55 ± 5.84	1.02
Weight (Kg)	46.71 ± 7.78	48.12 ± 9.10	2.04*
BMI Kg/m²)	18.73 ± 3.13	20.28± 3.51	2.12*
20m Dash (Sec)	4.56 ± 0.75	4.10± 0.68	6.43 *
SLJ (cm)	158.37 ± 18.60	154.41 ± 19.62	2.08 *
SAR (cm)	45.70 ± 7.09	42.71 ± 8.23	3.89*
Sit-Ups in 60 Seconds	38.71 ± 7.44	35.41 ± 7.87	4.31*
600m Run (Sec)	203.38 ± 58.39	213.77 ± 39.48	2.42*

* SLJ - standing long jump, SAR - sit and reach, Table value of 't' for df (112) at 0.05 level of confidence = 1.98

The results of the study showed that the Weight and BMI of the coastal area school students were significantly higher than the hill area school students. It also found that the SLJ (standing long jump), SAR (sit and reach) and Sit-up, 600m run time of the hill area school students were significantly better than the coastal area school students. On the other hand, coastal area school students taking significantly less time to complete the 20m.-dash than the hill area school students. The mean value of the fitness components of the two groups was presented in figure-1.

Figure-1
Comparison of mean of physical fitness variables between Hill area and Coastal area children
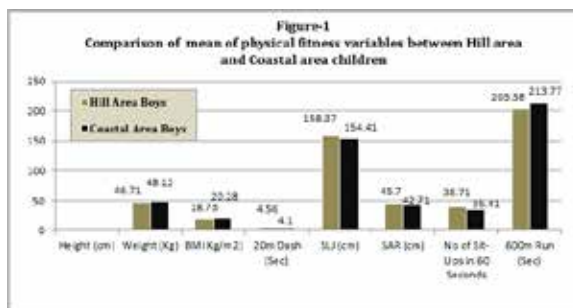
The result may be explained by the fact that the difference of socioeconomic status and scope of physical activity between the children of two separate geographical location. The difference of life style, food, nature of activity, difference of altitude, nature of sports participation differs from the children in these two geographical areas that may cause significant difference in the fitness status of the children of the two areas.

CONCLUSION
It can be concluded that in basic fitness there are significant difference existed in different variables between the children belongs to hill region and coastal region of West Bengal. From the result of the study following conclusions can be drawn:-

- The Weight and BMI of the coastal area school students were significantly higher than the hill area school students.
- It also found that the SLJ (standing long jump), SAR (sit and reach) and Sit-up, 600m run time of the hill area school students were significantly better than the coastal area school students.
- On the other hand, coastal area school students taking significantly less time to complete the 20m.-dash than the hill area school students.

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