ASSESSMENT OF PHYSIOLOGICAL FITNESS OF GOVERNMENT SCHOOL CHILDREN OF HILL AND VALLEY DISTRICT OF MANIPUR

HUIDROM KARNAJIT SINGH
Ph.D. Research Scholar, Department of Physical Education,
Annamalai University, Tamil Nadu, INDIA

DR. K. ANBARASAN (GUIDE)
Assistant Professor, Department of Physical Education,
Annamalai University, Tamil Nadu, INDIA

DR. Y. WISE BLESSED SINGH (CO-GUIDE)
Associate Professor, Department of Physical Education,
Annamalai University, Tamil Nadu, INDIA

Abstract:
The goal of this research is to examine the physiological fitness of schoolchildren in Manipur's hill and valley districts. Four physiological variables, namely cardio respiratory endurance, force ventilator capacity, VO_2Max, and mean arterial blood pressure, are tested on a total of 200 grade X males aged 14 to 18 years old, divided into two groups: hilly school (N=100) and valley school (N=100). By analyzing the data using the statistical software SPSS, it was discovered that hilly school males are older, heavier, and shorter than valley school boys. Their average age and weight were 16.6 and 16.4 years old, respectively, and 47 and 45 kg. Their average height was 157.19 and 158.57 cm, with a range of 133-167 cm and 130.00-175.00 cm. Physiological variables like cardio respiratory endurance (Tuttle pulse ratio), force ventilator capacity (using peak flow meter), VO_2Max (one mile run/walk Cooper test) and mean arterial blood (using sphygmomanometer) of Government hilly region schools findings were 74.6045±3.71, 405.3±9.36, 38.8870±3.11 and 93.93±3.34 respectively and Government valley region schools findings were 70.0802±3.25, 389.7±10.95, 34.5960±1.81 and 94.4033±2.15 respectively. The comparison of these scores by using statistical technique found that hilly school boys were more fit than the valley school boys. The disparities between highland school and valley school boys in Manipur state were statistically significant in all body metrics and physiological fitness parameters at the ($p<0.05$) level of significance. The findings show that hilly school boys outperform valley school boys in terms of physiological fitness.

Keywords: Physiological Variables, Body parameters.

Introduction

Physiological fitness differs from person to person depending on job environment, size, form, age, and sex. We need an efficient motor mechanism of movement, an efficient organic function, and an efficient mental fitness to be Physiological fit. A Physiological fit person has enough energy reserves to fulfill the demands of emergencies, in which a person is unexpectedly called upon to undertake activities that require an uncommon amount of strength, energy, and adaptability in an unfavorable environment.

Physiological fitness is very important in our day-to-day lives. It is required in order to reduce the danger of sickness. Everyone wants to maintain their physiological fitness since it allows them to accomplish routine tasks more readily. That is why physiological fitness is considered to add a year to one's life. Although physiological fitness varies depending on the tasks to be completed, a certain level of physical fitness is also required of the average person. Personal beauty is improved by physiological fitness.

According to a study in the field of physiological fitness, children who develop physiological fitness early in life are more likely to remain active in the future. A high level of fitness is required to keep our daily lives running smoothly. A fit individual certainly has a tremendous impact on his or her own daily life, family, society, and, most importantly, the nation. Children's physiological fitness is a major concern. Children who are physically fit are better at absorbing and remembering new information than children who are out of shape. Students who are physiologically healthy can focus and settle in class or at home, which has a positive impact on academic performance. Physiological fitness can aid in the stress management of youngsters. It also promotes: greater growth and development, stronger bones, muscles, and joints, and balance, as well as a stronger heart, a healthier weight range, social contact with peers, and improved focus and concentration at school. In addition, "a sound mind is found in a sound body." As a result, the goal of this study was to look into the physiological fitness levels of Manipur's hill and valley school boys.

Hypotheses

i. In government schools in the hilly and valley regions, there would be a significant difference in bodily parameters such as age, height, and weight.
ii. Physiological parameters such as cardio respiratory endurance, force ventilator capacity, VO_2Max, and men arterial blood pressure will alter significantly.

Materials and Methods

Subject:

On a random basis, 200 boys in Grade X, ages 14 to 18, from 5 Government Schools in the hilly region (100 boys) and 5 Government Schools in the valley region (100 boys) of Manipur were chosen as subjects for this study.

Selection of Tools:

The physiological fitness level of the subjects of this study was measured using four physiological variables: cardio respiratory endurance, force ventilator capacity, VO2Max, and Mean Arterial Blood.

Purpose of Tools:

Tools	Purpose
Cardio Respiratory Endurance	To assess the ratio of the resting pulse rate to the rate after exercise.
Force Ventilator Capacity	To measure the maximal ability of the lung to move gas out with speed.
VO_2Max	To assess the cardiovascular endurance of the subjects
Mean Arterial Blood pressure	The purpose of this test was to measure systolic and diastolic blood pressure at rest.

Statistical Approach

A simple "t" test was used to compare the mean differences of the variables used in the study, namely body parameters such as age, height, and weight, and physiological parameters such as cardio respiratory endurance, force ventilator capacity, VO_2Max, and Mean Arterial Blood Pressure, among boys from Government schools in the hilly and valley regions. At a significance level of 0.05, the result was statistically interpreted.

Results and Discussion

Table 1:
Body parameters of the study population

Parameters	Government schools in the hilly region (N=100)		Government schools in the valley region (N=100)		T values
	Mean	SD	Mean	SD	
Age	16.49	0.8226	16.4360	0.04824	6.633
Height	157.3663	0.11207	157.2925	0.16118	3.987
Weight	45.7900	0.67313	45.3828	0.41716	5.128

*Sig (2- tailed) *Significance at .05 probability level.*

Table 1 displays the Mean, SD, and "t" values of the body parameter for government school boys in Manipur's hilly and valley regions. With a "t" value of 6.633, the valley region school boys (mean=16.43±04) were found to be younger than the hilly region school boys (mean=16.49±82). The valley region school boys' height (mean=157.29±16) was lower than the hilly region school boys' height (mean=157.36±11) with a "t" value of 3.987, and their weight (mean=45.38±41) was lower than the hilly region school boys' weight (mean=45.79±67) with a "t" value of 5.128, both of which were statistically significant at ($P<0.05$).

Table 2:
Physiological parameters of the study population

Parameters	Government schools in the hilly region (N=100)		Government schools in the valley region (N=100)		T values
	Mean	SD	Mean	SD	
Cardio Respiratory Endurance	74.6045	3.71572	70.0802	3.25314	13.402
Force Ventilator Capacity	405.3	9.36952	389.7	10.95952	19.306
VO_2Max	38.8870	3.11198	34.5960	1.81951	13.645
Mean Arterial Blood Pressure	93.93	3.34989	94.4033	2.15416	-1.172*

*Sig (2- tailed) *Significance at .05 probability level.*

Table 2 displays the Mean, SD, and "t" values of the physiological parameters cardio respiratory endurance, force ventilator capacity, VO_2Max, and Mean Arterial Blood Pressure of Government school boys in hilly and valley areas. In comparison to Government valley School boys, the Government in the hilly School boys dominated in cardio respiratory endurance, force ventilator capacity, and VO_2Max, which was significant at (P 0.05) with "t" values= 13.402, 19.309, and 13.645 correspondingly. Furthermore, the government hilly school boys consumed less mean arterial blood pressure than the government valley school boys, which was likewise significant at the 0.05 probability level with "t"= -1.172.

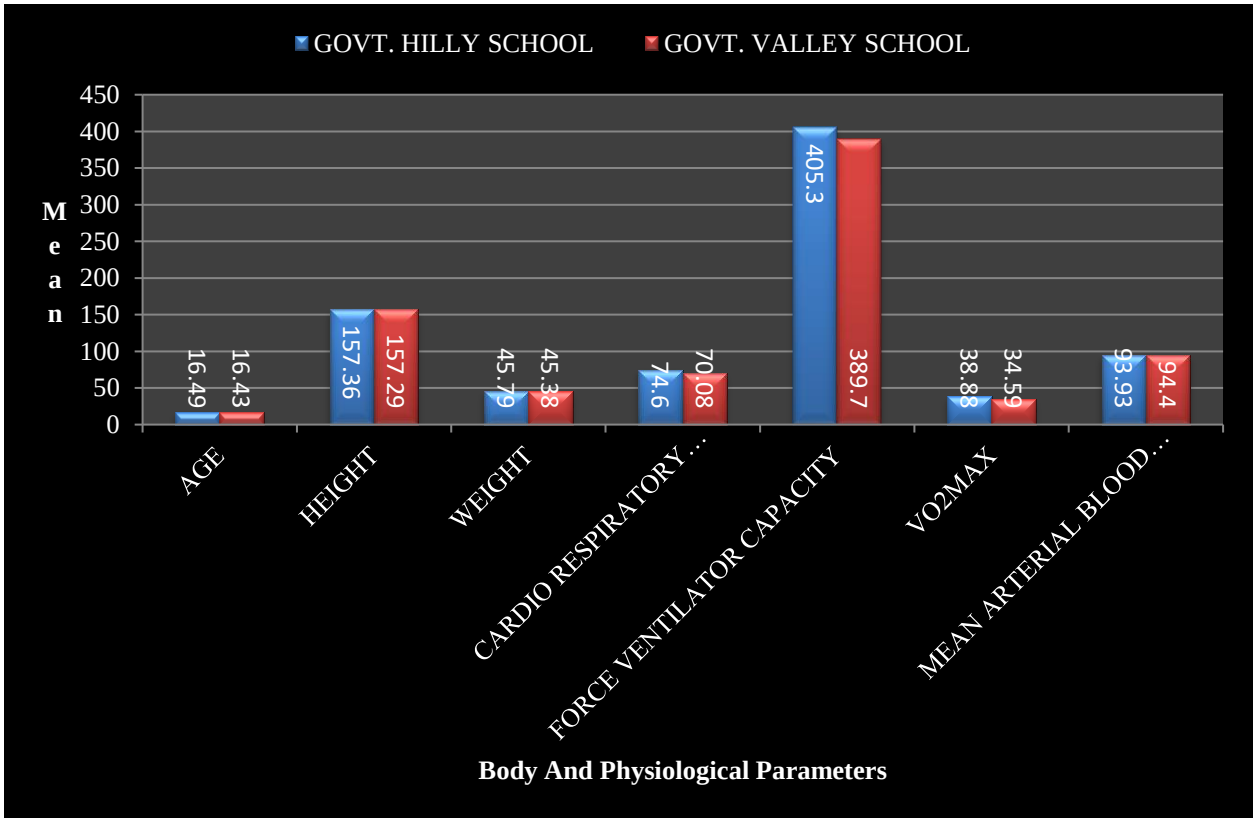

Fig. 1: The bodily parameters and physiological parameters of government schools in the mountainous region and government schools in the valley region are depicted in a diagrammatic depiction.

As a result of the aforesaid findings and results, it can be concluded that the disparities between Government hilly school and Government valley school boys of Manipur were statistically significant at the (P 0.05) level of significance in all physiological parameters. It should also be noted that the Government valley school boys' older age and greater weight could be attributable to late enrolment in school for formal education as well as inappropriate physical exercise. The variation in some physiological parameters such as cardio respiratory endurance, force ventilator capacity, VO_2Max, and Mean Arterial Blood Pressure that leads to significant differences in this study

population could be due to differences in their growth and development during these days, which could be caused by differences in food habits, standard of living, and life style.

Discussion on Hypothesis

i. According to the study's findings, the valley region school boys' height was lower than the hilly region school boys' height, and their weight was lower than the hilly region school boys' weight, as shown in table 1. The valley region school boys were also found to be younger than the hilly region school boys, and their weight was lower than the hilly region school boys' weight.

ii. The study's findings show that physiological parameters such as cardio respiratory endurance, force ventilator capacity, VO_2Max, and mean arterial blood pressure of government school boys in the hilly and valley regions are similar. When comparing government valley school boys to government hilly school boys, the government hilly school boys dominated in cardio respiratory endurance, force ventilator capacity, and VO_2Max. As indicated in table 2, there was also a significant difference in government hilly boys consuming less mean arterial blood pressure than government valley school boys.

Conclusions

The findings of this survey confirmed that in terms of age, weight, and height, Government hilly school boys dominate. In addition, in terms of physiological factors, hilly school boys dominate. As a result, the Government hilly school boys were physiologically fitter than the Government valley school boys.

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