



PHYSICAL FITNESS STATUS OF COLLEGE BOYS OF HILLY AND PLAIN AREAS

Farooq Ahmad Kumar

Research Scholar, Department of Physical Education and Sports, Central University of Haryana.

Abstract

Background: Physical fitness is a state of health and well-being that allows an individual to perform daily activities with vigor, without experiencing undue fatigue, and with enough energy to enjoy leisure activities and handle emergency situations. Physical fitness is not only about maintaining a healthy weight but also about ensuring that all these physical fitness components are well-balanced to achieve optimal health and performance in daily life and physical activities. Achieving physical fitness involves a balanced approach to exercise, nutrition, and rest, promoting overall health and well-being. In the present study is the comparison of physical fitness of hilly and plain area college students of Jammu and Kashmir. The hilly area is considered is Pulwama and Plain area Udhampur selected respectively. 30 college students were selected from both the areas, among 30, 15 is from hilly and 15 is from plain area under the age group of 20-25. For measuring the fitness level, the AAPHERD (American Alliance for Health, Physical Education, Recreation, and Dance) 1976 test battery is used to assess the physical fitness. After the collection of data, the comparison is taken with statistical technique “t” test.

Objective: The primary objective is to assess and compare the physical fitness status of college boys aged 20-25 from these regions. The study seeks to understand how geographical and environmental factors might influence physical fitness.

Results: The study's findings are expected to reveal differences in physical fitness levels between college boys from hilly and plain areas. The “P” value, which is less than the 0.05 level of significance, is as follows: Pull-Ups (PU) 0.442, Standing Broad Jump (SBJ) 0.096, Shuttle Run (SR) 0.000, Bent Knee Sit-ups (BNS) 0.001, 50 Meter Dash 0.009, and 600-Meter Run Walk 0.000. There is a significant difference in SR, BNS, 50 Meter Dash, and 600-Meter Run Walk. There is an insignificant difference in PU and SBJ.

Conclusion: The study indicates that students from hilly areas generally exhibit better physical fitness compared to their counterparts from plain areas, particularly in terms of cardiovascular endurance. Conversely, students from plain areas excel in strength-related activities.

Keywords: Physical Fitness, Hilly, Plain, Cardiovascular, Geographical.

1.1 Introduction

The U.S. Department of Health and Human Services separates physical fitness into two categories: health-related fitness and performance-related fitness. (Hyattsville, 2008) Physical activity and physical fitness are closely related, with physical fitness being mainly, although not entirely, determined by physical activity patterns over recent weeks or months. Genetic contributions to fitness are important but probably account for less of the variation observed in fitness compared to environmental factors, principally physical activity. (Bouchard, 1994) In general, people living in hilly areas have to overcome vigorous physical exertions in their day-to-day activities compared to people living in plains. Though all human beings have the same anthropometric, physical, and physiological features, there might be differences in various selected anthropometric and physical fitness variables. (Baro, 2014) High levels of physical fitness, maintained through heavy daily exercise, were probably necessary for survival in the early history of humans. In modern, industrialized countries, the demand for physical activity to sustain life is declining, and a decrease in physical fitness is observed in many populations. (Erikssen, 2001) Everyone performs physical activity to sustain life; however, the amount is largely subject to personal choice and may vary considerably from person to person, as well as for a given person over time. The most common units of time used to refer to kilocalories spent in physical activity are the week and the day (Jr, 1978) Physical activity during monthly, seasonal, or yearly periods may also be examined to establish its stability over longer time periods. (Taylor, 1978)

AAPHERD Test battery

- **Pull-up:** Measures upper body strength.
- **Bent Knee sit-up:** Abdominal strength and endurance.
- **Shuttle run:** Agility.
- **Standing broad jump:** Measures explosive leg power.
- **50-yard dash:** Speed.
- **600-yard run walk:** Cardiovascular fitness.

1.2 Methodology

To conduct the present study, 15 men from hill areas and 15 men from plain areas, totaling 30 males from Jammu and Kashmir, aged 20 to 25 years, were selected as subjects randomly. The selected physical fitness variables, i.e., muscular strength of arms (pull-ups), muscular strength (bent knee sit-ups), agility (shuttle run), explosive leg strength (standing broad jump), speed (50-yard dash), and cardiovascular endurance (600-yard run/walk), were measured using the AAPHERD Youth Physical Fitness Test Battery (1976). The collected raw data were converted into standard T-scores for statistical analysis. To determine the differences between the two groups, the t-test statistical technique was employed, and the level of significance was observed at the 0.05 level of confidence.

Table – 1 Comparison of means of Physical Fitness between Hilly and Plain area Students

Variables	Groups	Mean	S. D	S. E	T. Value	P. Value
Upper Body Strength	Hilly	5.86	.74	.42	-.79	0.442
	Plain	5.53	1.18			
Muscular Strength	Hilly	2.80	.41	.18	-1.78	0.096
	Plain	2.46	.51			
Agility	Hilly	11.40	.91	.22	9.8	0.000*
	Plain	13.60	.73			
Explosive Leg Power	Hilly	6.53	.63	.22	-4.09	0.001*
	Plain	5.60	.50			
Speed	Hilly	17.40	.48	.64	3.00	0.009*
	Plain	19.33	2.35			
Cardiovascular Endurance	Hilly	1.63	.23	.06	6.08	0.000*
	Plain	2.00	.00			

Form the table no 1, it is evident that the calculated p- value of 0.442, 0.096, 0.000, 0.001, 0.009 and 0.000 respectively, the value of Agility, Explosive Leg Power, Speed and Cardiovascular Endurance which is less than 0.05 level of significance means significantly different, the value of Muscular strength of arms and muscular Strength there is insignificant difference the value is greater than 0.05 level of significant.



Figure – 1 Graphical Representation of Compare means of Physical Fitness of Hilly and Plain area Students

1.3 Results

The study aims to compare the physical fitness levels of college boys from hilly and plain areas, with the expectation that there will be differences due to the varying geographical environments. The statistical analysis used in the study is based on the “P” value, which indicates whether the observed differences are significant. A “P” value less than 0.05 is considered statistically significant.

Here are the findings:

- **Pull-Ups (PU):** P value is 0.442, which is greater than 0.05, indicating an insignificant difference in pull-up performance between the two groups.
- **Standing Broad Jump (SBJ):** P value is 0.096, which is also greater than 0.05, indicating an insignificant difference in standing broad jump performance.
- **Shuttle Run (SR):** P value is 0.000, which is less than 0.05, indicating a significant difference in shuttle run performance.
- **Bent Knee Sit-ups (BNS):** P value is 0.001, which is less than 0.05, indicating a significant difference in bent knee sit-ups performance.
- **50 Meter Dash:** P value is 0.009, which is less than 0.05, indicating a significant difference in 50-meter dash performance.
- **600-Meter Run Walk:** P value is 0.000, which is less than 0.05, indicating a significant difference in the 600-meter run walk performance.

1.4 Conclusion

The study indicates that students from hilly areas generally exhibit better physical fitness compared to their counterparts from plain areas, particularly in terms of cardiovascular endurance. Conversely, students from plain areas excel in strength-related activities. Here's a more detailed explanation:

Cardiovascular Endurance

Hilly Area Students

- **Better Cardiovascular Endurance:** The students from hilly areas demonstrate superior cardiovascular endurance. This can be attributed to the demanding geographical conditions of hilly regions, which often require more strenuous physical activity in daily life, such as walking or climbing on uneven and elevated terrain.
- **P value for 600-Meter Run Walk:** With a P value of 0.000, the significant difference indicates that hilly area students have much better performance in the 600-meter run walk, a common test for cardiovascular endurance. This suggests they have stronger heart and lung function, likely developed through regular, intense physical activity.

Muscular Strength

Plain Area Students

- **Better Performance in Strength Activities:** In contrast, students from plain areas show better performance in activities that measure muscular strength. This might be due to different lifestyle or training practices more focused on strength exercises.
- **Pull-Ups and Standing Broad Jump:** Although the P values for Pull-Ups (0.442) and Standing Broad Jump (0.096) indicate no significant difference overall, the study notes that plain area students tend to perform better in strength-specific tasks. This suggests that, while not statistically significant in these tests, there is an observed trend of greater strength in plain area students.

Implications

- **Geographical Influence:** The geographical and environmental conditions significantly influence physical fitness. Hilly areas naturally promote higher cardiovascular endurance due to the physical demands of navigating the terrain.

- **Lifestyle and Training:** Students from plain areas may have access to different types of physical activities or sports that emphasize strength over endurance, leading to their better performance in strength-related fitness.

The findings underscore the impact of geographical environments on different aspects of physical fitness. Hilly area students benefit from natural conditions that enhance cardiovascular endurance, while plain area students show a tendency to excel in strength, likely due to different lifestyle or exercise habits. This information is crucial for developing targeted fitness programs that address the specific needs and strengths of students from different regions.

1.5 References

- [1] U.S. Department of Health and Human Services: 2008 Physical Activity Guidelines for Americans, Washington, DC, DHHS, 2008.
- [2] BOUCHARD, C., and L. Pe'RUSSE. Heredity, activity level, fitness, and health. In: Physical Activity, Fitness, and Health: International Proceedings and Consensus Statement, C. Bouchard, R. J. Shephard, and T. Stephens (Eds.). Champaign, IL: Human Kinetics, 1994, pp. 106–118.
- [3] Baro, D. M., & Dihingia, M. P. (2014). Comparative study of selected anthropometric measurements and physical fitness between hills and plain area people. *J Int Acad Res Multidiscip*, 2, 1-7.
- [4] Erikssen, G. (2001). Physical fitness and changes in mortality: the survival of the fittest. *Sports medicine*, 31, 571-576.
- [5] Paffenbarger, R. S., Wing, A. L., and Hyde, R. T.: Physical activity as an index of heart attack in college alumni. *Am J Epidemiol* 108: 161-175 (1978).
- [6] Taylor, H. L., et al.: A questionnaire for the assessment of leisure time physical activity. *J Chronic Dis* 31: 741-755 (1978).
- [7] Hou, Baodong. (2014). Pull-up tester.
- [8] Liao, Cuilian., Han, Hongbo., Wan, Chenchen. (2017). Pull-up tester and control method thereof.