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Comparison of physical fitness among the 17 years old rural and urban boys from Punjab

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Abstract

The purpose of the present study was to study the physical fitness of the rural and urban boys from Punjab. A total, of 60 young boys (30 rural and 30 urban) of 17 years age group were selected to participate in the study. All the boys were assessed for various physical fitness components. The explosive strength of the boys was assessed with the help of the standing broad jump and standing vertical jump. The speed ability was measured with the help of 30 m sprint (Flying Start). The endurance of the rural and urban boys was assessed with the help of an 800-meter run. The sit and reach test was used to assess the flexibility of the boys. The grip strength was measured with the help of a hand dynamometer. The medicine ball was used to measure the strength of arms among the young boys. The results reported that the rural boys had significantly better performance on speed ($p < 0.05$), medicine ball put ($p < 0.05$), endurance ($p < 0.05$), standing broad jump ($p < 0.05$) and grip strength of right hand ($p < 0.05$) as compared to the urban boys. It can be concluded that the rural boys had better scores on physical fitness components as compared to urban boys.

Keywords: Physical fitness, rural, urban, speed, endurance, standing broad jump, grip strength

Introduction

Physical fitness is the ability to meet the human body's needs and unusual demands of daily life safely and effectively without being fatigued. The human body can function effectively and efficiently to contribute to the total quality of life. Simply, physical fitness is an important aspect of the normal growth and development of a child. It is divided further into two parts: health-related and skill-related physical fitness [1]. Previous studies have concluded that rural boys and girls are significantly better in distance running than urban boys and girls, but urban boys and girls are significantly more flexible than rural boys and girls [2]. Sylejmani, *et al.* [3] conducted study on a sample of 5076 school children and adolescents from urban and rural areas from the region of Strumica (Macedonia). In this study the rural children and adolescents have lower height, body mass BMI and body fat % and had higher muscular mass% cardio-respiratory fitness and speed-agility than urban children. Chillon, *et al.* [4] concluded that Spanish children and adolescents seem to have a healthier profile than their urban peers in terms of cardio-respiratory fitness, upper and lower muscular fitness and adiposity, while they performed worse in speed-agility and flexibility. Castillo, *et al.* [5] conducted a cross-sectional study in western Kenya and examined that there were few differences in physical fitness between rural and urban children, but rural children had stronger back muscles than urban children. Another study concluded that the rural students were better in health-related fitness compared to the urban students [6]. Branch *et al.* [7] concluded that boys were better than girls in height, weight, standing long jump, and sit-up items. The girls, also, had higher scores than boys in percentage of body fat. The urban children were better than rural in weight, standing long jump and sit-up. Joens-Matre, *et al.* [8] suggested that there are rural and urban differences in children's prevalence of overweight and physical activity even within a fairly homogeneous Midwestern state. Tinazci *et al.* [9] concluded that urban children have significantly lower flexibility, muscle endurance and strength might indicate a lower habitual physical activity level. A comparative study was conducted in Haryana suggested that the urban boys significantly better than rural boys in endurance and speed, and rural boys significantly better than urban boys in strength and flexibility [10].

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Physical fitness plays a crucial role in overall well-being, encompassing aspects of physical, mental, and social health. This study delves into the comparison of physical fitness among 17-year-old boys residing in rural and urban areas of Punjab, specifically exploring various components such as speed, endurance, strength, and flexibility. With and increasing emphasis on health-related physical fitness, this research aims to contribute valuable insights into the potential disparities between rural and urban adolescents. As socioeconomic and environmental factors influence physical fitness levels, this study aims to bridge existing gaps in the literature and shed light on the unique characteristics of physical fitness in these distinct settings. The World Health Organization's definition of physical fitness serves as the foundation, emphasizing the holistic nature of well-being beyond the mere absence of disease. The ensuing sections detail the methodology, results, and discussion, providing a comprehensive understanding of the physical fitness landscape among 17-year-old boys in rural and urban Punjab.

Methodology

The subjects of the present study were sixty boys of age 17 years from the rural and urban areas of the Majha region of Punjab. Out of sixty children, 30 children belonged to rural areas and 30 children were from the urban areas. In different studies and countries, the meaning and definition of rural and urban residence may differ according to their country norms. For the present study, an area with a minimum population of 15,000, with 75 percent of the male population is engaged in non-agricultural works is considered as urban area.

Physical Fitness Parameters

All the subjects were assessed for various physical fitness parameters such as speed, endurance, shoulder strength, explosive strength, flexibility and grip strength. The various parameters of physical fitness were measured using the following tests.

Table 1: Tools and measurement units of physical fitness variables

Sr. No	Component	Tests	Unit of Measurement
1	Speed	30m sprint (flying start)	Seconds
2	Endurance	800m run/walk test	Minutes
3	Shoulder Strength	Medicine ball put	Meters
4	Explosive Strength	Standing vertical jump, Standing broad jump	Centimeters
5	Flexibility	Sit and reach test	Centimeters
6	Grip Strength	Hand dynamometer	Kilograms

Statistical Analysis

Statistical analysis was performed using SPSS version 16.0 for Windows (SPSS Inc, Chicago, IL, USA). All descriptive data was presented as mean and standard deviation. An independent sample t-test was used to compare the mean

values of physical fitness parameters between the 17-year-old rural and urban boys. Significance levels were set at $p < 0.05$.

Results

Table 2: Comparison of physical fitness components of the rural and urban boys

Variables	Rural (N=30)		Urban (N=30)		t-Value
	Mean	SD	Mean	SD	
Speed (sec)	4.26	0.40	4.56	0.46	2.68*
Medicine Ball Put (m)	4.21	0.89	3.76	0.64	2.25*
Flexibility (cm)	10.61	6.77	9.21	6.34	0.82
Endurance (min)	3.06	0.60	3.46	0.50	2.80*
Standing Vertical Jump (cm)	36.70	6.36	35.36	5.29	0.88
Standing Broad Jump (cm)	206.30	22.85	183.60	23.88	3.76*
Grip Strength Left (kg)	39.30	7.36	36.80	6.27	1.41
Grip Strength Right (kg)	40.03	7.64	35.53	6.57	2.44*

* Indicates $p < 0.05$

The Physical fitness parameters of the rural and urban boys are shown in Table 2. The rural boys were reported to have significantly better scores on speed ($t=2.68$, $p < 0.05$) as compared to urban boys. Rural boys demonstrated significantly better performance in medicine ball put when compared to urban boys. Endurance ability ($t = 2.80$, $p < 0.05$) was significantly better in the boys from rural areas as compared to urban boys. However, there were no significant differences in the variable flexibility, standing vertical jump, and grip strength of the left hand between the rural and urban boys. Whereas the boys residing in rural areas were reported to have significantly better standing broad jump ($t = 3.76$, $p < 0.05$) as compared to boys residing in urban areas. The grip strength for the right hand ($t=3.49$, $p < 0.05$)

was significantly greater among rural boys as compared to their urban counterparts.

Discussion

While comparing the physical fitness variables between the rural and urban boys in 17 years 17-year-old age group, it was observed that the rural boys had significantly better speed and endurance as compared to urban boys. The rural boys also performed significantly better in medicine ball put, standing broad jump, and grip strength in their right hand than their urban counterparts.

The result of the study was in line with a study conducted by Gahlawat ^[11] who suggested that rural students were superior to urban students in speed and shoulder strength.

Gill *et al* ^[12] suggested that rural were better than urban students in explosive strength and speed. Whereas a study conducted by Tinazci *et al* ^[13] on the rural and urban students of north Cyprus found that urban was better than rural students in explosive strength and speed. Further rural were superior to urban students in the grip strength of their right hand. This may be attributed to the fact that the urban children led more inactive lives as compared to rural children therefore the physical fitness of the urban students was reported to be poorer. Further, the children in the rural areas provide a helping hand to their parents in daily agricultural chores. Therefore, superior physical fitness was observed in the rural children. On the other hand, no significant differences were reported in performance of standing vertical jump, flexibility, and grip strength in the left hand between the two groups.

Conclusion

It is concluded that rural children were superior to urban children in the variables of physical fitness such as shoulder strength, speed, explosive strength and hand grip strength. The results of the study could be kept in mind while preparing the physical fitness program of the urban children.

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