International Journal of Yoga, Physiotherapy and Physical Education
ISSN: 2456-5067
Impact Factor: RJIF 5.24
www.sportsjournal.in
Volume 2; Issue 5; September 2017; Page No. 162-164

Physical Fitness among the 14 years old rural and urban boys from Punjab

Dr. Kanwar Mandeep Singh
Assistant Director, Department of Physical Education (AT), Guru Nanak Dev University, Amritsar, Punjab, India

Abstract
The aim of the present study was to compare the physical fitness parameters of the rural and urban boys from Punjab. For the purpose of this study, 60 children (30 rural and 30 urban) of 14 years age group were selected to participate in the study. All the children were measured for various physical fitness parameters. Explosive strength was assessed with the help of standing broad jump and standing vertical jump. The speed ability was measured with the help of 30 meter sprint (Flying Start). The endurance of the rural and urban children was assessed with the help of 800 meter run. Sit and reach test was used to assess the flexibility of the children. The grip strength was measured with the help of hand dynamometer. The medicine ball put was used to measure the strength of arms. The independent samples t-test revealed that the rural boys were found to have significantly better performance on speed ($p<0.05$), medicine ball put ($p<0.05$), standing broad jump ($p<0.05$), and grip strength of both right ($p<0.05$) and left ($p<0.05$) hands as compared to the urban boys. It can be concluded that the rural boys had better scores on physical fitness parameters as compared to urban boys.

Keywords: physical fitness, rural area, urban area, speed, medicine ball put, grip strength

1. Introduction

World Health Organization [1] defines physical fitness as "a condition of absolute physical, mental and social well being not only the nonexistence of disease". Traditionally, physical fitness has three constituents such as muscular strength and endurance, cardio-respiratory endurance and motor ability [2]. The idea of physical fitness has changed from performance related physical fitness to greater stress on health related physical fitness since the 1970. The health related physical fitness includes the components such as cardio-respiratory endurance, musculoskeletal function of the lower trunk and body composition [3].

Differences in physical fitness levels of children from different socio-economic groups and rural and urban areas reported in developed and developing countries. Contradictory studies have been published on physical fitness components of urban and rural children [4, 5, 6, 7]. In some cases, there were no significant differences in physical fitness between urban and rural children [8]. While some studies reported that the urban children have superior physical fitness compared to children from rural areas, other studies reported contradictory findings. Reports suggested that the physical fitness of children across rural and urban environments should be studied in different climatic, economic and cultural perspectives [9]. Matsui and Tamura [10] demonstrated that the children from rural areas had better endurance ability than the children in urban areas from Japan, while Henneberg and Louw [11] reported that the children from rural areas in South Africa were found to have significantly lower grip strength than urban children, but no significant differences were reported among rural and urban children in neuromuscular reaction time and pulse rate. Eiben *et al.,* [12], investigated a large number of 3 to 18 years old children in Hungary and observed that urban environment had beneficial effects on the physical fitness and children from urban areas were performed better in fitness tests. The children from rural areas in Tswana had superior endurance performance but lower grip strength than the children from urban areas [13, 14]. The rural children in Mexico were found to have superior handgrip strength whereas explosive power, muscle endurance and strength were superior in children from urban areas when adjustments for age and body size were made [15]. The children from urban areas in Greece had significantly higher performance in basketball throw and vertical jump compared to their rural counterparts, whereas the rural children had significantly greater handgrip strength compared to urban children [16]. McNaughton *et al.,* [17] reported that the Tasmanian boys and girls had greater aerobic fitness than their rural counterparts, whereas motor skills were similar among urban and rural children in New South Wales, Australia [18]. The rural children in Turkey were found to have significantly superior flexibility and muscular endurance than their urban counterparts [19]. The height and weight are positively correlated with distance in girls and it advocated that the rural girls having proportionately greater body dimensions had superior physical performance [20]. Chillon *et al.,* [21] found that the rural Spanish children had superior cardio-respiratory fitness and upper and lower-limb muscular fitness but inferior speed and flexibility. Hian *et al.,* [22] reported that the rural Malaysian children were performed better in fitness tests compared to urban children. The rural children in Taiwan performed better in bent-leg curl-ups and standing long jump than the urban boys [23]. Investigation of the physical fitness of children living in hastily developing urban areas and in rural areas in various countries is potentially of importance [9]. The present study, therefore, aims to study the physical fitness level between rural and

urban boys.

2. Methodology

The subjects of the present study were purposively selected from the various camps conducted under "Catch Them Young Programme" organized by Department of Physical Education (AT), Guru Nanak Dev University, Amritsar under the aegis of Centre of excellence in sports sciences. A total sixty boys of age 14 years from the rural and urban areas were selected as subjects. Out of sixty children, 30 children were 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. The various parameters of physical fitness were measured using the following tests

Table 1: Tools and measurement units of physiological 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 pertaining to physical fitness variables was reported as mean and standard deviation. An independent sample t-test was used to compare the mean values of physical fitness parameters between the 14 years old rural and urban boys. Significance levels were set at $p<0.05$.

3. 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)	4.76	0.43	5.06	0.49	2.45*
Medicine Ball Put (m)	3.01	0.78	2.60	0.57	2.28*
Flexibility (cm)	9.23	5.76	8.51	4.59	0.53
Endurance (min)	3.54	0.48	3.59	0.49	0.39
Standing Vertical Jump (cm)	30.60	7.23	28.40	5.37	1.33
Standing Broad Jump (cm)	173.30	23.21	146.20	32.22	3.73*
Grip Strength Left (kg)	26.96	8.33	20.46	4.49	3.76*
Grip Strength Right (kg)	28.36	9.60	21.46	4.96	3.49*

* Indicates $p<0.05$

The Physical fitness parameters of the rural and urban boys are shown in table 2. The rural boys demonstrated significantly better score on speed ($t=2.45$, $p<0.05$) as compared to urban boys. Rural boys were also found to have significantly better performance in medicine ball put ($t = 2.28$, $p < 0.05$) when compared to urban boys. However, there were no significant differences on the variables flexibility, standing vertical jump and endurance between the rural and urban boys. Whereas, the boys residing in rural areas were reported to have significantly better standing broad jump ($t = 2.73$, $p < 0.05$) as compared to boys residing in urban areas. The rural boys were also reported significantly higher grip strength for both right ($t=3.49$, $p<0.05$) and left ($t=3.76$, $p<0.05$) hands than the urban boys.

4. Discussion

While comparing the physical fitness variables between the rural and urban boys in 14 years old age group, it was observed that the rural boys had significantly better speed as compared to urban boys. The rural boys also performed significantly better in medicine ball put, standing broad jump and grip strength than their urban counterparts. It indicated that the shoulder strength, explosive strength and grip strength among the rural students were better than the urban school students. The result of the study was in line with study conducted by Gahlawat [24] who suggested that rural students were superior to urban students in speed and shoulder strength. Gill *et al.*, [25] suggested that the rural were better than urban students in explosive strength and speed. Whereas study conducted by Tinazci *et al.*, [26] on the rural and urban students of north Cyprus and found that urban were better than rural students in explosive strength and speed. Further rural were superior to urban students in hand grip strength. This may be attributed to fact that the urban children led more inactive life as compare to rural children therefore the physical fitness of the urban students were reported to be poorer. Further the children in the rural areas provide helping hand to their parents in daily agricultural chores. Therefore superior physical fitness was observed in the rural children. The data for boys in the present study showed greater values for grip strength than the 14 years old Saudi Arabia boys studied by Al-Hazzaa [27]. On the other hand, no significant differences were reported in performance of endurance, standing vertical jump and flexibility between the two groups.

5. Conclusions

On the basis of the result of the study, conclusions were drawn 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 considered while reframing remedial physical fitness programme of the urban children.

6. References

1. World Health Organization. Constitution of the world health organization. In: Chronicle of the world health organization (P.I.). Geneva, 1947.
2. Clarke HH. Basic understanding of physical fitness. Phys Fitness Res Digest, Series 1, number 1, 1971.

3. American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD). Health related physical fitness test manual. Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance, 1980.
4. Ewing BG. The physical fitness and anthropometry of Scottish schoolboys - part 3. Scottish Journal of Physical Education. 1982; 10(1):14-20.
5. Wilczewski A, Sklad M, Krawczyk B. Physical development and fitness of children from urban and rural areas as determined by EUROFIT test battery. Biology of Sport Warsaw, 1996; 13:113-26.
6. McMurray RG, Harrell JS, Bangdiwala SI, Gangsky SA. Biologic and environmental factors influencing the aerobic power of children. Medicine Exercise Nutrition and Health, 1995; 4:243-250.
7. Sunnegardt J, Bratteby LE, Sjodin S. Physical activity and sports involvement in 8 and 13-year-old children in Sweden. Acta Paediatrica Scandinavica, 1985; 74:904-912.
8. Krombholz H. Physical performance in relation to age, sex, social class, and sports activities in kindergarten and elementary school. Perceptual and Motor Skills, 1997; 84:1168-1170.
9. Dollman J, Norton K, Tucker G. Anthropometry, fitness and physical activity of urban and rural south Australian children. Pediatric Exercise Science, 2002; 14:297-312.
10. Matsui H, Tamura Y. Characteristics in physical fitness of urban and rural people. In: Asahina, K, Shigiya, R. Editors, Human Adaptability: Physiological Adaptability and Nutritional Status of the Japanese. Tokyo University Press, Tokyo, 1975; 3:41-68.
11. Henneberg M, Louw GJ. Cross-sectional survey of growth of urban and rural 'Cape Coloured' schoolchildren: Anthropometry and functional tests. American Journal of Human Biology. 1998; 10:73-85.
12. Eiben OG, Barabas A, Nemeth A. Comparison of growth, maturation, and physical fitness of Hungarian urban and rural boys and girls. Journal of Human Ecology. 2005; 17(2):93-100.
13. Corlett JT, Mokgwathi MM. Running performance of Tswana children. Physical Education Review, 1987; 10:110-113.
14. Corlett JT. Strength development of Tswana children. Human Biology, 1988; 60:569-577.
15. Pena Reyes ME, Tan SK, Malina RM. Urban–rural contrasts in the physical fitness of school children in Oaxaca, Mexico. American Journal of Human Biology. 2003; 15:800-813.
16. Tsimeas PD, Tsiokanos AL, Koutedakis Y, Tsigilis N, Kellis S. Does living in urban or rural settings affect aspects of physical fitness in children? An allometric approach. British Journal of Sports Medicine. 2005; 39(9):671-674.
17. McNaughton L, Morgan R, Smith P, Hannan G. An investigation into the fitness levels of Tasmanian primary schoolchildren. The ACHPER Healthy Lifestyles Journal. 1996; 43(1):4-10.
18. Booth ML, Macaskill P, Lazarus R, Baur LA. Socio demographic distribution of measures of body fatness among children and adolescents in New South Wales, Australia. International Journal of Obesity. 1999; 23:456-472.
19. Ozdirenc M, Ozcan A, Akin F, Gelecek N. Physical fitness in rural children compared with urban children in Turkey. Pediatrics International, 2005; 47(1):26-31.
20. Bakhetia P, Jain R. Anthropometric profile and physical performance of rural school girls. Anthropologist, 2007; 9(2):139-141.
21. Chillon P, Ortega FB, Ferrando JA, Casajus JA. Physical fitness in rural and urban children and adolescents from Spain. Journal of Science and Medicine in Sport. 2011; 4(5):417-23.
22. Hian TC, Mahmud ZF, Choong YC. Physical fitness level between urban and rural students-case study. Procedia-Social and Behavioral Sciences, 2013; 90:847-852.
23. Wang JH, Wu MC, Chang HH. Urban–rural disparity in physical fitness of elementary schoolchildren in Taiwan. Pediatrics International, 2013; 55(3):346-354.
24. Gahlawat P. Comparison of Physical Fitness status of Rural and Urban Male Collegiate students in Kurukshetra. Journal of Exercise Science and Physiotherapy. 2007; 3(2):157-159.
25. Gill M, Deol NS, Kaur R. Comparative Study of Physical Fitness Components of Rural and Urban Female Students of Punjabi University, Patiala. Anthropologist, 2010; 12(1):17-21.
26. Tinazci C, Emiroglu O. Physical Fitness of Rural Children Compared With Urban Children in North Cyprus: A Normative Study. Journal of physical Activity and Health. 2009; 6(1):88-92.
27. Al-Hazzaa HM. Anthropometric measurements of Saudi boys aged 6-14 years. Annals of Homan Biology, 1990; 17(1):33-40.