

Analysis of Physical Fitness Components Between Rural and Urban School Boys of Paschim Medinipur District

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Abstract

The purpose of the present study was to analysis the physical fitness components between rural and urban school boys of Paschim Medinipur district in West Bengal. Total ninety (N=90) rural and urban school boys (Rural school boys: $N_1=45$ and Urban school boys: $N_2=45$) of age group 15-18 years were randomly selected from the different schools affiliated to West Bengal Board of Secondary Education and West Bengal Council of Higher Secondary Education of Paschim Medinipur district. Physical fitness components of rural and urban students were assessed by AAHPER Youth Fitness Test. For analysis of data; descriptive statistics the mean, standard deviation and mean difference were obtained through software (SPSS, Version 19). To check the difference of mean scores between the groups Independence Sample t-test was applied. The level of significance was set at 0.05. The findings of the study revealed that the rural school boys were significantly superior in arms and shoulders strength ($p<0.05$), speed ($p<0.05$), explosive legs strength ($p<0.05$), agility ($p<0.05$) and cardiovascular endurance ($p<0.05$) as compared to urban school boys. The findings also indicated that no significant difference was found in abdominal muscular strength between rural and urban groups of school boys. Further investigations are also being needed on the above study along with somatic traits, socioeconomic status and body composition to differentiate the physical fitness components between rural and urban school boys.

Keywords: *Physical fitness, rural, urban, strength, speed, agility, cardiovascular endurance.*

Introduction

Physical fitness is the key ingredient for a healthy lifestyle. This is why physical education is an important subject in most schools in the world. Only scientific physical education can improve or maintain physical fitness of every individual. When students have regular fitness activities as part of their daily regimen, they stay fit and healthy. Regular physical activities help in better absorption of nutrients in the body and also help to improves cardiovascular health, muscular strength, immunity power, bone density, brain function and memory power as well as reduce anxiety, depression, tension etc. One of the advantages of physical education is that it helps in improving the academic performance of the students. Most physical activities that students do in schools are related to higher levels of concentration which in turn help with better behaviors. Physical activities and sports activities help in boosting the knowledge learned in the classroom.

Apart from the classroom, physical education is the only time when students can meet and
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interact with their classmates and other schoolmates. It helps improve their social behavior. During the physical education class, they learn to cooperate through various group activities and get a sense of identity from each other as well as of the team. These social activities continue to play an important role in the growth of a student into a better professional. For instance, a systemic physical education is one of the best sources to instill team building, leadership, and management skills in them.

Physical fitness is a state of well-being that comprises skill and health-related components. Skill-related physical fitness refers to an individual's athletic ability in sports such as tennis and encompasses skill-related attributes like dynamic balance, power, speed and agility; the health-related aspect is a measure of cardiovascular endurance, muscle strength, endurance and flexibility and body composition (Hopkins & Walker, 1988) ^[4]. Physical fitness is the ability to function efficiently and effectively without injury, to be healthy, to resist disease, and to cope up with emergency situations. (Tanaka et al. 2004) ^[10]. Physical fitness is generally achieved through proper nutrition, exercise, and enough rest, regular physical activities prevent or limit the body weight and gain in body mass index (BMI). A higher level of physical fitness is associated with a lower risk of developing hypertension, which is related to coronary heart disease (Marti, 1991) ^[6]. Physical fitness can thus be considered as a prerequisite for good health and quality living.

Physical fitness is considered as one of the prominent components of an athlete to excel in sports arena. Physical fitness, in a very broad sense is determined by the individual's capacity for optional work and motor and sport performance (Astrand & Rodahl, 1986) ^[1]. Physical fitness is measured by functional tests that are specific and usually normative-based, rather than criterion-based, thereby leaving unanswered as to how much of a specific fitness factor (e.g. muscular endurance) is required for a good quality of life (Chia, 2007) ^[2]. The performance of a sportsman in any game or event also depends on physical fitness. The physical fitness or condition is the sum total of five motor abilities namely muscular strength, agility, power, speed and cardiovascular endurance. Therefore, the sports performance in all sports depends to a great extent on these abilities. Muscular power, often referred to as explosive power, is a combination of speed and strength which is important in vigorous performance since it determines how hard a person can hit, jump and push etc. Agility is the ability to change the direction of body or its parts rapidly which is dependent on strength, reaction time, speed of movement and

muscular coordination. Quick start and stops and quick changes in direction are fundamental for good performance in athletics. Running speed is not only an athletic event itself, but it is an important factor in almost all court and field games it can result the difference in whether a performer is able to gain an advantage over his/her opponent. Man's existence and effectiveness depends upon his physical fitness. Physical fitness affects ones life's activities not only the physical well being and mental effectiveness but also the personal and social adjustment. Singh (1986) ^[9] reported that sport is competitive in nature and every sportsman strives to better the previous records and records are broken more rapidly nowadays. "Sports" he states, "is an ideal character building school for youth". The performance of a sportsman in any game or event also depends on muscular strength, agility, power, speed and cardiovascular endurance along with skills. The aim of the present study was to analysis the physical fitness profiles between rural and urban school boys of West Bengal Board in Paschim Medinipur district.

Material and Methods

Selection of Subjects: Ninety (N=90) subjects from four (04) different schools of West Bengal Board of Secondary Education and West Bengal Council of Higher Secondary Education of Paschim Medinipur district were selected as subjects for this study. Out of four schools, two schools were located in rural and other two schools were located in urban areas. Forty five rural (N₁=45) and forty five urban (N₂=45) students were purposively chosen as subjects for this study. They were from class IX to Class XII standard and their age ranged from 15 to 18 years.

Measurements of Physical Fitness Components: The physical fitness components were measured through AAHPER Youth Fitness Test (Kansal, 2012) ^[5]. The AAHPER Youth Fitness Test items, purpose of test items and measurement units of rural and urban school boys are presented in table 1.

Table 1

Table 1 represents the AAHPER Youth Fitness test items, purpose of test items and measurement units between rural and urban school boys of Paschim Medinipur district.

Test Item	Purpose	Unit
Pull Ups	Arms and shoulders strength	Total number of Pull Ups/minute
Sit Ups	Abdominal muscular strength	Total number of Sit Ups/minute
50 Yard Dash	Speed	Second
Standing Broad Jump	Explosive legs strength	Meter
Shuttle Run	Agility	Second
600 Yard Run & Walk	Cardiovascular endurance	Minute

Statistical Analysis

For the purpose of analysis of data descriptive statistics the mean, standard deviation and mean difference were obtained through the Statistical Package for Social Studies (SPSS, Version 19, Inc., Chicago, Illinois). To check the difference of mean scores between the both groups, the Independent-Samples t-test was applied. The level of significance was set at 0.05.

Results

Mean and standard deviation of AAHPER Youth Fitness Test components of rural and urban school boys were computed. The results have been depicted in table 2. Table 2 reveals that the mean and standard deviation (\pm SD) values of AAHPER Youth Fitness Test components of rural school boys students. Physical fitness components values were recorded as follows: Arms and shoulders strength: 10.84 ± 1.62 in number, Abdominal muscular strength: 28.42 ± 4.35 in number, Speed: 8.06 ± 0.88 second, Explosive legs strength: 2.09 ± 0.13 centimeter, Agility: 11.57 ± 1.09 second and Cardiovascular endurance: 1.79 ± 0.12 minute respectively. Table 2 also depicts that the mean and standard deviation (\pm SD) values of AAHPER Youth Fitness Test components of urban school boys students. Values of components were recorded as Arms and shoulders strength: 10.04 ± 1.70 in number, Abdominal muscular strength: 29.66 ± 3.92 in number, Speed: 8.48 ± 1.07 second, Explosive legs strength: 2.02 ± 0.84 centimeter, Agility: 12.64 ± 1.11 second and Cardiovascular endurance: 1.89 ± 0.22 minute respectively.

Table 2

Mean, Standard deviation (\pm SD), Mean difference and comparative statement of AAHPER Youth Fitness components of rural and urban school boys of Paschim Medinipur district.

Physical Fitness Components	Rural Boys (N ₁ =45)		Urban Boys (N ₂ =45)		M.D	t-value	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Pull Ups	10.84	\pm 1.62	10.04	\pm 1.70	0.80	2.20	0.02*
Sit Ups	28.42	\pm 4.35	29.66	\pm 3.92	-1.24	-1.42	0.15
50 Yard Dash	8.06	\pm 0.88	8.48	\pm 1.07	-0.42	-2.02	0.04*
Standing Broad Jump	2.09	\pm 0.13	2.02	\pm 0.08	0.07	2.69	0.00*
Shuttle Run	11.57	\pm 1.09	12.64	\pm 1.11	-1.07	-4.58	0.00*
600 Yd. Run & Walk	1.79	\pm 0.12	1.89	\pm 0.22	-0.10	2.73	0.00*

*Significant at 0.05 level.

Tabulated $t_{.05}(88) = 1.99$

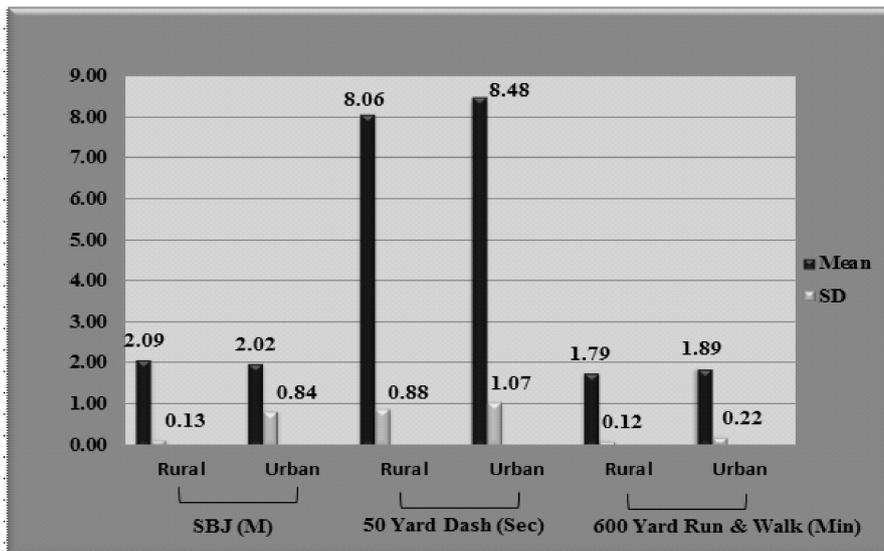


Figure 1: Graphical representation of SBJ, 50 Yard Dash and 600 Yard Run & Walk of Rural and Urban School Boys of Paschim Medinipur district.

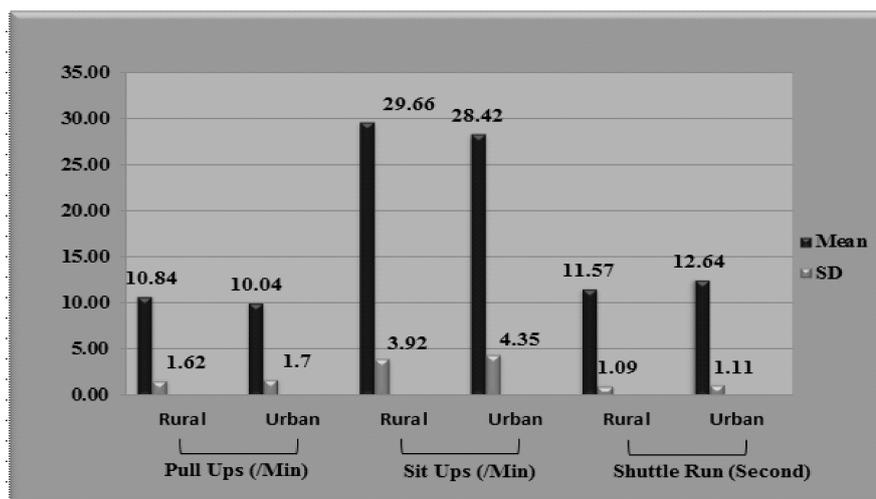


Figure 2: Graphical representation of Pull Ups, Sit Ups and Shuttle Run of Rural and Urban School Boys of Paschim Medinipur district.

The perusal of table 2 indicates that there was a significant difference between the mean scores of rural and urban school boys in arms and shoulders strength, since the calculated t-value 2.20 was higher than the tabulated t-value 1.99 which was required to be significant at 88 degree of freedom with 0.05 level of confidence. It shows that rural students have performed significantly better in arms and shoulders strength than their urban counterparts. Analysis of table 2 depicts that the mean and standard deviation scores on the abdominal muscular strength for rural and urban school boys were recorded as 28.42 ± 4.35 and 29.66 ± 3.92 respectively. The mean difference was -1.24. Therefore, the urban school boys have performed slightly better in abdominal muscular strength than that of rural school boys. The perusal of table 2 indicates that there was a significant difference between the mean scores of rural and urban school boys in speed, since the calculated t-value -2.02 was higher than the tabulated t-value 1.99 which was required to be significant at 88 degree of freedom with 0.05 level of confidence. It shows that rural students have performed significantly better speed than their urban counterparts.

Table 2 reveals that there was a significant difference between the mean scores of rural and urban school boys in explosive legs strength, since the calculated t-value 2.69 was higher than the tabulated t-value 1.99 which was required to be significant at 88 degree of freedom

with 0.05 level of confidence. It shows that rural students have performed significantly superior in explosive legs strength than that of urban school boys. The analysis of table 2 depicts that the mean and standard deviation scores on the agility for rural and urban school boys were recorded as 11.57 ± 1.09 and 12.64 ± 1.11 respectively. The mean difference was -1.07. Therefore, the rural school boys have performed significantly better in agility than their urban counterparts. Table 2 reveals that there was a significant difference between the mean scores of rural and urban school boys in cardiovascular endurance, since the calculated t-value 2.73 was higher than the tabulated t-value 1.99 which was required to be significant at 88 degree of freedom with 0.05 level of confidence. It shows that rural students have performed significantly better in cardiovascular endurance than their urban school boys.

Discussion of Findings

Students get a lot of benefits from physical education classes. Physical education classes can help students to become more aware of the importance of a healthy lifestyle. The students can also retain a higher level of knowledge as a result of the overall health. This knowledge can help them to make wise decisions concerning their safety, health, and wellbeing. "The requirements of our present society for every individual are sound health, fitness and wellness". Achievement of sound health, fitness and wellness is active and long term process. A person can remain healthy as far as he/she is active. Fitness is the state of being physically active on a regular basis to maintain good physical condition and wellness is generally used to mean a healthy balance of the mind, body and spirit that result in an overall selling of wellbeing. In the fast pace of world of globalization to cope up with the demand and supply of the hour, the individual is working more harder than earlier for daily earning and the students also has more and more workload on them due to competition around them. Now with this changing world the concept of health, fitness and wellness is also changing. People now a day are much more conscious about their health and fitness because they don't want to miss a single chance of achieving their goals. It is true fact that if you are keeping fit yourself then you can achieve to your goals one by one very smoothly. Participation of systematic regular physical activity and games and sports is the only way by which a person can keep fit himself. In this regard physical education and sports is very essential for all. This has an influence on the risks of morbidity and mortality, and therefore can reduce the different risk factors of our life. Disease prevention and health promotion programme should be implemented as early as possible through physical education and sports of both in childhood and adolescence.

The results of the study indicated that there were significant differences in arms and shoulders strength, speed, explosive legs strength, agility and cardiovascular endurance between rural and urban school boys, where rural school boys were found superior than their counterparts. With reference to arms and shoulders strength component rural boys students are much stronger than urban school boys. Sandhu (1983) ^[8] conducted a study on Physical fitness of rural and urban middle school students of Amritsar district in Punjab and the finding was similar with this result in relation to arms and shoulders strength. The result indicated that in abdominal muscular strength that no significant difference was found between rural and urban school boys may be due to the fact that both categories school students did not practiced specific abdominal exercises. With reference to speed component rural male students are much faster than urban school boys and this finding is consonance with the study of Mehtap and Nihal (2005) ^[7]. Table 2 reflected that in explosive legs strength and agility rural male' students are much better than urban students. This may be due to the fact that the rural students are more engage with their house related works, cultivation, more distance of educational institution and tutorial places from resident than that of their urban counterparts. These findings supported with the study of Gill et al., (2010) ^[3]. The result of this study exhibited that in cardiovascular endurance component rural boys are well performed than urban school students. This finding is also with the consonance of the study with Gill et al., (2010) ^[3]. They found that regular energetic activity improved physical fitness of rural school boys and village life style is more active in nature than the life in urban areas which produced high level of physical and physiological functioning in rural school boys. On the other hand mechanization, automation, computerization and engagement in smart phone have minimized the opportunities for regular physical activity to cause physical exertion in urban students. The fit citizen is nation's best assets and weak ones are its liabilities.

Conclusion

In conclusion the results of the present study confirm that rural school boys are comparatively better than urban population of Paschim Medinipur district in West Bengal. Rural school boys are better than urban school boys in arms and shoulders strength, speed, explosive legs strength, agility and cardiovascular endurance whereas urban school boys students are better in abdominal muscular strength in physical fitness component.

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