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## Analysis of AAHPERD youth fitness test components between rural and urban sportsmen of Vidyasagar University in West Bengal

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### Abstract

The purpose of the study was to compare AAHPERD Youth Fitness Test Components between rural and urban sportsmen of Vidyasagar University in West Bengal. Total eighty four (N=84) rural and urban sportsmen of Vidyasagar University (Rural sportsmen: N<sub>1</sub>=40 and Urban sportsmen: N<sub>2</sub>=44) of age group 19-25 years were purposively selected from the residential coaching camps of their different games and sports for the participation in east zone inter university tournaments, 2016. Physical fitness components of rural and urban sportsmen of Vidyasagar University were assessed by AAHPERD Youth Fitness Test. For analysis of data, descriptive statistics the mean, standard deviation and mean differences were obtained through software (SPSS, Version 20). 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 Independence Sample t-test revealed that the rural sportsmen of Vidyasagar University had 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 sportsmen of Vidyasagar University. The findings also revealed that no significant difference was found in abdominal muscular strength between rural and urban groups of sportsmen of Vidyasagar University. Further investigations are also being needed on the above studied components along with body composition to differentiate between rural and urban sportsmen of Vidyasagar University in West Bengal.

**Keywords:** AAHPERD Youth Physical Fitness, rural, urban, cardiovascular endurance

### Introduction

Physical fitness plays an important role of a normal individual as well as in an individual who is there participating in some kind of sports events. There are different kinds of sports and games which are performed all over world some are related to each other but some are entirely different. Physical fitness is the ability to function efficiently and effectively without injury, to enjoy leisure, to be healthy, to resist disease, and to cope up with emergency situations. It is the state of well-being with low risk of premature health problems and energies to participate in a variety of physical activities. (Tanaka *et al.* 2004) [7].

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). Every person has a different level of physical fitness which may change with time, place of work, situation and there is also an interaction between the daily activities, and the fitness of an individual. Physical fitness characteristics of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping (Tsunawake, 2003) [8]. Physical fitness considered as one of the prominent component of an athlete to excel in sports arena. Physical fitness, in a very broad sense, determined by the individual's capacity for optional work and motor and sport performance (Astrand & Rodahl, 1986) [1]. 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 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

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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) [6] 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 determine the differences of AAHPERD

Youth Fitness test components between rural and urban sportsmen of Vidyasagar University in West Bengal.

## Materials and Methods

### Selection of Subjects

Total eighty four (N=84) rural and urban sportsmen from four different sports and games (Football, Volleyball, Kho-kho and Cricket) of Vidyasagar University of which forty (N<sub>1</sub>=40) rural sportsmen and forty four (N<sub>2</sub>=44) urban sportsmen age ranged from 19-25 years were purposively selected from residential coaching camps for the participation of east zone inter university different tournaments, 2016. Physical fitness components of rural and urban sportsmen of Vidyasagar University were assessed by AAHPERD Youth Fitness Test.

### Measurements of Physical Fitness Components

The physical fitness components were measured through AAHPERD Youth Fitness Test (Kansal, 2012) [3]. The AAHPERD Youth Fitness Test items, purpose of each test items and measurement units of rural and urban sportsmen of Vidyasagar University are presented in table 1.

**Table 1:** Represents the AAHPERD Youth Fitness test item, purpose of each test item and measurement unit of rural and urban sportsmen of Vidyasagar University in West Bengal.

Test item	Purpose of test item	Unit
Pull ups	Arms and shoulders strength	Total no. of pull ups/min.
Sit ups	Abdominal muscular strength	Total no. of sit ups/ min.
50 yard dash	Speed	Second
Standing broad jump	Explosive legs strength	Centimeter
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 20, Inc., Chicago, Illinois). To check the difference of mean scores in both groups the Independent-Samples t-test was applied. The level of significance was set at 0.05.

## Results

The mean and standard deviation of AAHPERD Youth Fitness Test components of rural and urban sportsmen of Vidyasagar University were computed. The results have been depicted in table 2. Table 2 reveals that the mean and standard deviation ( $\pm$ SD) values of AAHPERD Youth Fitness components of rural sportsmen of Vidyasagar University. The

values of rural sportsmen were recorded as variable wise i.e. Arms and shoulders strength: 15.27 $\pm$ 1.76 in number, abdominal muscular strength: 32.65 $\pm$ 3.06 in number, Speed: 7.33 $\pm$ 0.32 second, Explosive legs strength: 235.72 $\pm$ 12.87 centimeter, Agility: 10.64 $\pm$ 0.31 second and cardiovascular endurance: 1.66 $\pm$ 0.07 minute respectively. Table 2 also depicts that the mean and standard deviation ( $\pm$ SD) values of AAHPERD Youth Fitness Test components of urban sportsmen of Vidyasagar University. The values of Youth Fitness Test components were recorded as Arms and shoulders strength: 14.09 $\pm$ 1.63 in number, Abdominal muscular strength: 32.36 $\pm$ 2.94 in number, Speed: 7.57 $\pm$ 0.34 second, Explosive legs strength: 226.81 $\pm$ 13.78 centimeter, Agility: 10.78 $\pm$ 0.27 second and Cardiovascular endurance: 1.72 $\pm$ 0.07 minute respectively.

**Table 2:** Mean, Standard deviation ( $\pm$ SD), Mean difference and comparative statement of AAHPERD Youth Fitness components of rural and urban sportsmen of Vidyasagar University.

AAHPERD Youth Fitness Components	Rural Sportsmen (N=40)		Urban Sportsmen (N=44)		M.D.	t-value	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Pull Ups	15.27	$\pm$ 1.76	14.09	$\pm$ 1.63	1.18	3.184	0.002*
Sit Ups	32.65	$\pm$ 3.06	32.36	$\pm$ 2.94	0.28	0.436	0.664
50 yard dash	7.33	$\pm$ 0.32	7.57	$\pm$ 0.34	-0.24	-3.301	0.001*
Standing Broad Jump	235.72	$\pm$ 12.87	226.81	$\pm$ 13.78	8.91	3.052	0.003*
Shuttle Run	10.64	$\pm$ 0.31	10.78	$\pm$ 0.27	-0.14	-2.269	0.026*
600 Yd. Run & Walk	1.66	$\pm$ 0.07	1.72	$\pm$ 0.07	-0.06	-3.603	0.001*

\*Significant at 0.05 level. Tabulated  $t_{0.05}(82) = 1.990$

The perusal of table 2 indicates that there was a significant difference between the mean scores between rural and urban sportsmen of Vidyasagar University in arms and shoulders strength component, since the calculated t-value 3.184 was higher than the tabulated t-value 1.990 which was required to

be significant at 82 degree of freedom with 0.05 level of confidence. It shows that rural sportsmen of Vidyasagar University 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 component for rural and urban sportsmen of Vidyasagar University were recorded as  $32.65 \pm 3.06$  and  $32.36 \pm 2.94$  in number respectively. The mean difference was 0.28. Therefore, the urban sportsmen of Vidyasagar University have performed slightly better but insignificant in abdominal muscular strength than that of rural sportsmen of Vidyasagar University.

The perusal of table 2 indicates that there was a significant difference between the mean scores of rural and urban sportsmen of Vidyasagar University in speed component, since the calculated t-value 3.301 was higher than the tabulated t-value 1.990 which was required to be significant at 82 degree of freedom with 0.05 level of confidence. It shows that rural sportsmen of Vidyasagar University have performed significantly better speed component than their urban counterparts.

Table 2 reveals that there was a significant difference between the mean scores of rural and urban sportsmen of Vidyasagar University in explosive legs strength, since the calculated t-value 3.052 was higher than the tabulated t-value 1.990 which

was required to be significant at 82 degree of freedom with 0.05 level of confidence. It shows that rural sportsmen of Vidyasagar University have performed significantly better in explosive legs strength than that of urban sportsmen of Vidyasagar University.

The analysis of table 2 depicts that the mean and standard deviation scores on the agility component for rural and urban sportsmen of Vidyasagar University were recorded as  $10.64 \pm 0.31$  and  $10.78 \pm 0.27$  second respectively. The mean difference was -0.14. Therefore, the rural sportsmen of Vidyasagar University have performed significantly better in agility component than their urban counterparts.

Table 2 reveals that there was a significant difference between the mean scores of rural and urban sportsmen of Vidyasagar University in cardiovascular endurance, since the calculated t-value -3.603 was higher than the tabulated t-value 1.990 which was required to be significant at 82 degree of freedom with 0.05 level of confidence. It shows that rural sportsmen of Vidyasagar University have performed significantly better in cardiovascular endurance than their urban counterparts.

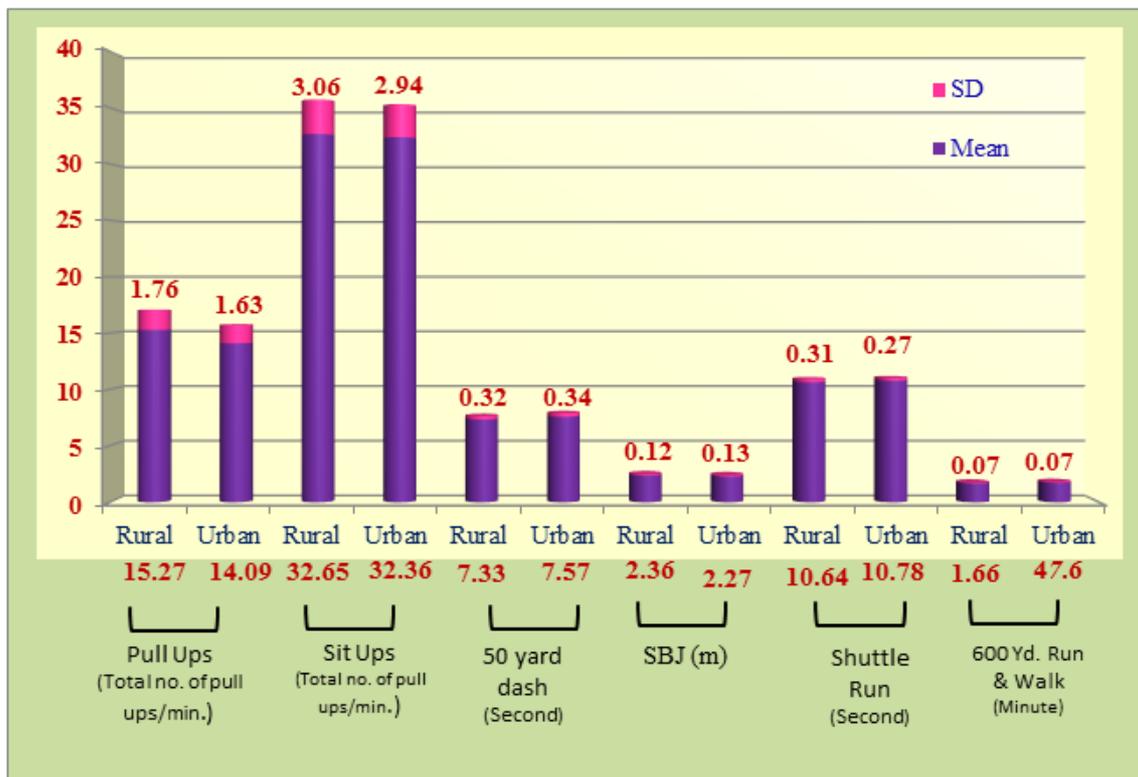


Fig 1: Graphical representation of AAHPERD Youth Fitness components of rural and urban sportsmen of Vidyasagar University.

**Discussion of Findings**

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 rural sportsmen of Vidyasagar University, where rural sportsmen were found superior than urban sportsmen. With reference to arms and shoulders strength component rural sportsmen of Vidyasagar University were much stronger than urban sportsmen. Sandhu (1983) [5] conducted a study on Physical fitness of rural and urban middle school students of Amritsar district and that result was similar with this finding in relation to arms and shoulders strength component. The result indicated that in abdominal muscular strength no significant difference was found between rural and urban sportsmen of Vidyasagar University

may be due to the fact that both categories sportsmen yet not practiced specific abdominal exercises in different games and sports. With reference to speed component rural sportsmen were much faster than urban sportsmen and this finding is consonance with the study of Mehtap & Nihal (2005) [4]. Table 2 reflected that in explosive legs strength and agility rural sportsmen of Vidyasagar University were much better than urban sportsmen. The probable reasons for that the rural students are more engage with their house related works, cultivation, more distance of educational institution and tutorial places than their urban counterparts. These findings supported with the study of Gill *et al.* (2010) [2]. The result of this study exhibited that in cardiovascular endurance component rural sportsmen of Vidyasagar University was well performed than urban sportsmen. The above results are

in agreement with the study of Gill *et al.* (2010) [2]. They found that regular energetic activity improved physical fitness of rural sportsmen 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 sportsmen. 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 sportsmen. 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 sportsmen of Vidyasagar University were comparatively better than urban sportsmen of Vidyasagar University in West Bengal. Rural sportsmen were better than urban sportsmen in arms and shoulders strength, speed, explosive legs strength, agility and cardiovascular endurance whereas urban sportsmen were better in abdominal muscular strength component than rural sportsmen of Vidyasagar University in West Bengal.

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