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## A comparative study of selected physical fitness characteristics among rural and urban area secondary school sportsmen of Tamil Nadu

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### Abstract

The objective of the study was to compare the selected physical fitness variables namely arm and shoulder strength, abdominal strength and coordinative ability among rural and urban area female senior secondary school sportsmen. To conduct the study a sample of 240 sportsmen comprising of 120 females sportsmen each studying in senior secondary schools of rural and urban areas of district Kanyakumari was taken. It was hypothesized that there would be no significant difference between the sportsmen of rural and urban areas on the selected traits. Data was collected using the following equipments: a parallel bar, a mat for each subject, two wooden blocks of size 2"x 2"x4", measuring tape, marking powder, wooden clapper and electronic stopwatch. Mean, standard deviation and t-test were used as statistical tools used to analyse the data statistically. The level of significance was set at 0.05 level. The results of the study exhibited that the urban area sportsmen exhibited better abdominal strength whereas on arm and shoulder strength and coordinative ability both the rural and urban area sportsmen revealed similar fitness physical fitness status. Thus, the null hypothesis was partially rejected and partially accepted.

**Keywords:** arm and shoulder strength, abdominal strength, coordinative ability, rural area and urban area

### Introduction

The concept of fitness has a long and involved history. According to the literature on the subject it can be traced to the work done by Charles Darwin on the survival of the fittest. Always the word fitness suggests the ability of an animal or a human to work and play with a maximum degree of physical efficiency to meet unforeseen danger or destruction. "Physical Fitness is the capacity to do prolonged hard work and recover to same stage of health in short duration of time".

Physical fitness plays a very important role in a normal individual as well as in an individual who is participating in some kind of sports events. There are a variety of sports and games which are played all over the world. Some are related to each other but some are entirely different. So to perform their different kind of sports events physical fitness is an essential component which should be possessed by a player. (Kohli, *et al.*, 2014) [4].

The characteristic of a sportsman mainly depend upon physical fitness, having components like muscular strength, endurance, cardio-respiratory endurance, flexibility, speed, power, agility, balance etc. But these components may vary in sportspersons involved in different sports activities. The average value of maximum oxygen uptake (VO<sub>2</sub> Max) for a top level soccer players tend to be high, supporting the belief that there is a large contribution from aerobic power for playing the game. On the other hand, in 400 m and 300 m running, a high anaerobic power is coupled with good running technique that may allow an athlete to be more relaxed at race pace. So regular game, specific training and practice helps to achieve their ultimate goal. Keeping in view, the importance of physical fitness and after going through the previous studies related to human performance and physical fitness investigator undertook the present investigation. The objective of the study was to assess and compare the rural and urban area students w.r.t. the variables arm and shoulder strength, abdominal strength and coordinative ability and it was hypothesised that there would be no significant difference between rural and urban area students w.r.t. the variables arm and shoulder strength, abdominal strength and coordinative ability.

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### Procedure and Methodology

A survey type of study had been designed to investigate the physical fitness variables i.e. arm and shoulder strength, abdominal strength, coordinative ability, explosive leg strength, endurance, speed of 120 female students each from rural and urban area students studying in senior secondary schools of rural area and urban area of Kanyakumari district respectively.

Random sampling technique was employed to select 6 schools each located in rural area and urban areas of Kanyakumari district respectively. Further, 20 girls each studying in selected senior secondary schools and were selected randomly for the present study. Moreover, the study was delimited to the students of 10+1 and 10+2 class and 15–18-year age group.

Before collecting the data the investigator made sure that the

subjects were physical fit for the type of test to be administered. For collecting the data, the subjects were assembled in their school playground/field and the investigator explained before them the purpose of the present investigation. He satisfied the queries rose by the students about the test and further divided the group of twenty subjects into two groups of the ten subjects in each group; to facilitate the measurement physical fitness of the subject was being measured.

### Results and Discussion

The mean, standard deviation and 't' values of the investigated physical fitness variables are presented in the tables 1-3 below and their analysis and interpretation follow them. Moreover, the level of significance was set at 0.05 level.

**Table 1:** Comparison of Physical Fitness Trait "Arm and Shoulder Strength" among Rural and Urban Area female Sportsmen of Senior Secondary Schools of District Kanyakumari

Sr. No.	Group	Variable	N	Mean	M. D.	S. D.	S.E.M.	df	"t" Value
1	Rural	Arm and Shoulder Strength	120	8.678	.0323	2.227	.232	238	.115
2	Urban		120	8.376		1.944	.176		

Not Significant at 0.05 Level ( $t' < 1.962$ )

It is evident from table no.1 that the mean value of physical fitness trait i.e. arm and shoulder strength of rural area subjects is 8.6783 where as that of urban area subjects is 8.376 and the mean difference came out to .0323. The

calculated 't' value is .115 at 238 df which is lesser than the 't' table value (1.962) at 0.05 level of significance. Hence, it is interpreted that the two groups have no significant difference. Thus, the formulated hypothesis is accepted.

**Table 2:** Comparison of Physical Fitness Trait "Abdominal Strength" among Rural and Urban Area Female Sportsmen of Senior Secondary Schools of District Kanyakumari

Sr. No.	Group	Variable	N	Mean	M. D.	S. D.	S.E.M.	df	"t" Value
1	Rural	Abdominal Strength	120	20.726	.8343	2.263	.2055	238	2.306
2	Urban		120	21.34		2.842	.2589		

Significant at 0.05 Level ( $t' > 1.962$ )

It is evident from table no. 2 that the mean value of physical fitness trait i.e. abdominal strength of rural area subjects is 20.726 where as that of urban area subjects is 21.65 and the mean difference came out to be .8343. The calculated 't'

value is 2.306 at 238 df which is greater than the 't' table value (1.962) at 0.05 level of significance. Hence, it is interpreted that the two groups have significant difference. Thus, the formulated hypothesis is rejected.

**Table 3:** Comparison of Physical Fitness Trait "Coordinative Ability" among Rural and Urban Area Female Sportsmen of Senior Secondary Schools of District Kanyakumari

Sr. No.	Group	Variable	N	Mean	M. D.	S. D.	S.E.M.	df	"t" Value
1	Rural	Coordinative Ability	120	10.390	.0307	.814	.0736	238	.223
2	Urban		120	10.499		1.179	.1074		

Not Significant at 0.05 Level ( $t' < 1.962$ )

It is evident from table no. 3 that the mean value of physical fitness trait i.e. coordinative ability of rural area subjects is 10.390 where as that of urban area subjects is 10.499 and the mean difference came out to be .0307. The calculated 't' value is .223 at 238 df which is lesser than the 't' table value (1.962) at 0.05 level of significance. Hence, it is interpreted that the two groups have no significant difference. Hence, the formulated hypothesis is accepted.

### Conclusion

Rural and urban area sportsmen exhibited significant difference w.r.t. physical fitness variable abdominal strength whereas no significant difference was found between them on the variables arm and shoulder strength and coordinative ability.

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