



# COMPARATIVE STUDY OF SELECTED ANTHROPOMETRIC MEASUREMENT AND PHYSICAL FITNESS OF TRIBAL AND URBAN GIRLS

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## **Abstract:**

*The purpose of the study was to compare the Selected Anthropometric Measurement and Physical Fitness between Tribal and Urban girls. To achieve the purpose of the study, 60 girls were selected from Ashram Shala and Ram Krishna Vidyalaya, Amravati, M.S (30 from each school). Ashram Shala represent the Tribal girls and Ram Krishna Vidyalaya represent the Urban girls. The subjects were selected at first purposively whose age 13 to 14 and then selected randomly.*

*The Anthropometric Measurements were restricted to Standing Height, Body Weight, Sitting Height, Arm Length, Foot Length, Leg Length, Hip Girth, Calf Girth and Thigh Girth as well as Physical fitness components were restricted to Muscular strength, Muscular endurance, Power, Agility, Speed and Cardio-vascular endurance.*

*The Anthropometric Measurement of the subjects were done by Anthropometric Kits and Physical Fitness measured by AAHPERD Youth Physical Fitness test for girls.*

*The selected variables were analysed by using independent 't' test and result reveals that except Bent Knee Sit Up (Muscular Endurance) there were no significant differences of Anthropometric Measurement and Physical Fitness between Tribal and Urban girls.*

**Key Word:** Anthropometry Measurement, Physical Fitness, Tribal and Urban Girls.

## **Introduction**

Physical education and sport is the birth right of every child. Physical fitness is one of the objectives of physical education alone. Further this objective is basis to functioning of man in every walk of life let alone sports performance. Physical fitness has been acclaimed as one of the essential for men and women of all sphere of life. A preparing for international competition and an office going person both require physical fitness (UNESCO).

In the modern society, the term physical fitness is more popular and it is very essential for the healthy survival of an individual to their society. Happy and healthy child is the nation's pride. Children are world's greatest resources. Physical education contributed a lot in preparing young boys and girls to achieve their personal fulfillment with respect to physical and mental qualities.

Time to time research has shown that a physically fit person is able to withstand fatigue for longer period than the unfit, that the physically fit person has strong and more efficient heart and that there is a good relationship between good mental alertness, absence of nervous tension and physical fitness.

Measurement helps the man to determine his success and failure in his life. Measurement and evaluation provide more scientific and objective base for the development of physical education. Beside this it helps to evaluate player's performance in the same field. In the field of physical education, the testing and measuring is to place a proper person into a proper activity and thus to avoid misfit as far as possible.

**Garary, Levine and Carter (1974)** after an intensive study on anthropometric measurement of Olympic athletes concluded that top level performance in particular event demands particular type of body size and shape, other aspect being similar. They established strong relationship between the structure of an athlete and the specific task (event) in which he excelled.

To produce good sportsmen selected individuals are given training according to their growth, development and body type. Now-a-days, every nation wants to produce good sportsmen to participate in international competition. To discover the talented player in early age, one of the examinations that have been followed by many universities is the anthropometric measurement and fitness of young boys and girls. So research scholar was interested to undertake the study stated as **“Comparative Study of Selected Anthropometric Measurement and Physical Fitness of Tribal and Urban Girls”**.

### **Significance of the Study**

- i. The finding of the study would be helpful to the Physical Education Teachers and Coaches to know the Anthropometric measurement and Physical Fitness differences between Tribal and Urban girls.
- ii. The finding of the study might be give certain guidance based on Anthropometric Measurement and Physical Fitness.
- iii. The finding of the study would help Coaches to select appropriate players for different games.
- iv. The result of the study would help for diagnostic purpose.

## Hypothesis

On the basis of literature, discussion with expert and scholar's own understanding it was hypothesized that there will significance differences of Selected Anthropometric Measurement and Physical Fitness between Tribal and Urban girls.

## Material and Method

60 girls of Ashram Shala and Ram Krishna Vidyalaya, Amravati (M.S) 30 from each school were selected randomly as subjects for the purpose of the study. Ashram Shala represent the Tribal girls and Ram Krishna Vidyalaya represent the Urban girls. The age of the subjects was ranging from 13 to 14 years (At first the subjects were selected purposively as the age was restricted to 13 to 14 years and then Simple Random method adopted).

The Anthropometric Measurements were restricted to Standing Height, Sitting Height, Body Weight, Arm Length, Foot Length, Leg Length, Hip Girth, Calf Girth and Thigh Girth as well as Physical fitness components were restricted to Muscular strength, Muscular endurance, Power, Agility, Speed and Cardio-vascular endurance.

Standing height was measured by stadiometer and score was recorded in centimeter, Sitting height was measured by anthropometric rod and score was recorded in centimeter, Body weight measured by weighing machine and score was recorded in kilogram. Arm length, Foot length, Leg length, Chest girth and Thigh girth were measured by flexible steel tape and score was recorded in centimeter, Hip width was measured by modified calipers and score was recorded in centimeter and Shoulder width was measured by modified sliding calipers and score was recorded in centimeter. For Physical Fitness AAHPERD Youth Physical Fitness test for girls was applied.

Data of the pertaining study was collected by above mention test and help of women researcher.

## Result and Discussion

To determine the differences of Selected Anthropometric Measurement and Physical Fitness between the Tribal and Urban girls independent 't' test statistical technique was employed. Level of significance was set at 0.05. The results pertaining to these have been presented in the following tables.

**Table – 1**  
**Comparison of Selected Anthropometric Measurement between**  
**Tribal and Urban Girls**

Test item	Tribal		Urban		Mean difference	Standard Error	t-value
	Mean	S.D	Mean	S.D			
Standing height	147.26	4.86	147.40	4.16	0.14	0.22	1.16 <sup>@</sup>
Sitting height	73.76	2.36	66.66	3.61	7.16	9.17	0.78 <sup>@</sup>
Body weight	37.20	4.78	40.50	5.42	3.3	2.51	1.42 <sup>@</sup>
Arm length	26.10	1.37	25.34	0.63	0.76	2.81	0.27 <sup>@</sup>
Foot length	22.23	0.96	22.86	1.00	0.63	2.52	0.25 <sup>@</sup>
Leg length	29.80	3.13	33.01	1.31	3.21	8.38	0.38 <sup>@</sup>
Hip girth	33.83	2.13	31.29	2.26	2.54	4.53	0.56 <sup>@</sup>
Calf girth	11.40	0.78	11.21	0.74	0.19	1.00	0.19 <sup>@</sup>
Thigh girth	15.76	1.20	15.95	1.18	0.19	0.63	0.30 <sup>@</sup>

<sup>@</sup> Not Significant at 0.05 level

Tab  $t_{0.05(58)} = 2.0016$

Table -1 reveals that there are no significance differences of selected Anthropometric measurements that are Standing height, Sitting height, Body weight, Arm length, Foot length, Leg length, Hip girth, Calf girth, Thigh girth between Tribal and Urban girls because calculated 't' value of 1.16, 0.78, 1.42, 0.27, 0.25, 0.38, 0.56, 0.19, 0.30 respectively are less than the Tabulated 't' value of 2.0016 at 0.05 level of confidence for 58 degree of freedom. The mean differences have been shown graphically in Fig.1.

**Table – 2**  
**Comparison of Selected Physical Fitness Performance between**  
**Tribal and Urban Girls**

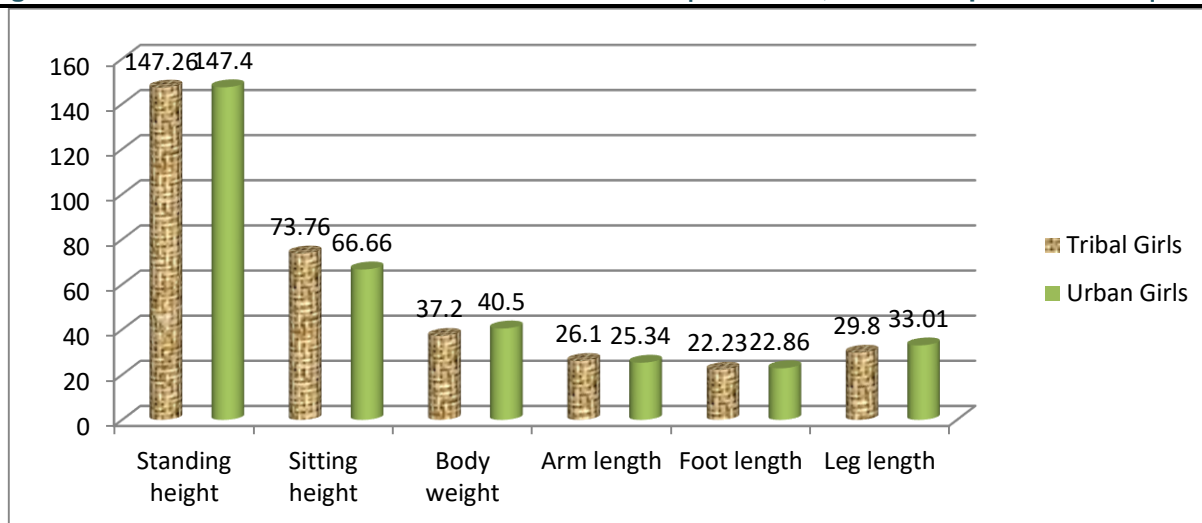
Test item	Tribal		Urban		Mean difference	Standard Error	t-value
	Mean	S.D	Mean	S.D			
Flex Arm Hang	8.30	3.60	9.31	2.94	1.01	1.20	0.84 <sup>@</sup>
Bent Knee Sit Ups	17.60	8.13	21.80	5.65	4.2	1.28	3.28*
4×10 yards Shuttle Run	12.75	0.82	14.02	3.86	1.27	1.76	0.71 <sup>@</sup>
Standing Board Jump	1.28	0.11	1.36	0.13	0.8	25.80	0.03 <sup>@</sup>
50 yards Dash	9.63	0.59	10.50	0.81	0.87	4.8	0.18 <sup>@</sup>
1.5 mile Run / Walk	19.01	1.55	20.14	1.57	1.13	2.82	0.40 <sup>@</sup>
Total Physical Fitness	301.89	20.08	299.89	15.10	1.98	4.59	0.43 <sup>@</sup>

<sup>@</sup> Not Significant at 0.05 level

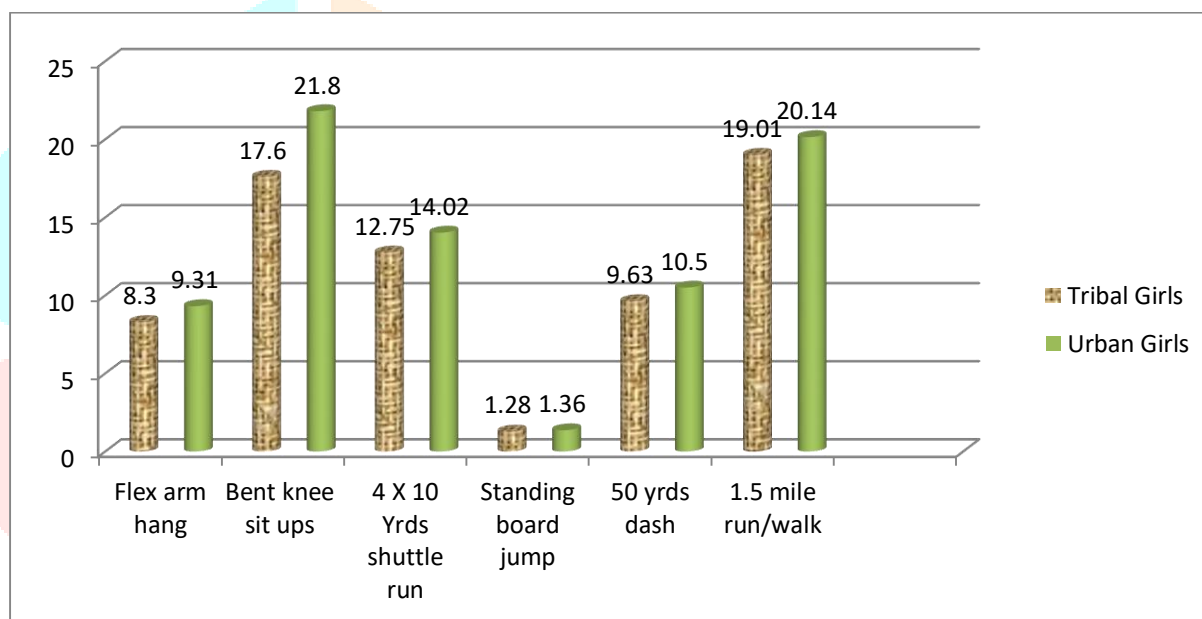
Tab  $t_{0.05(58)} = 2.0016$

\* Significant at 0.05 level

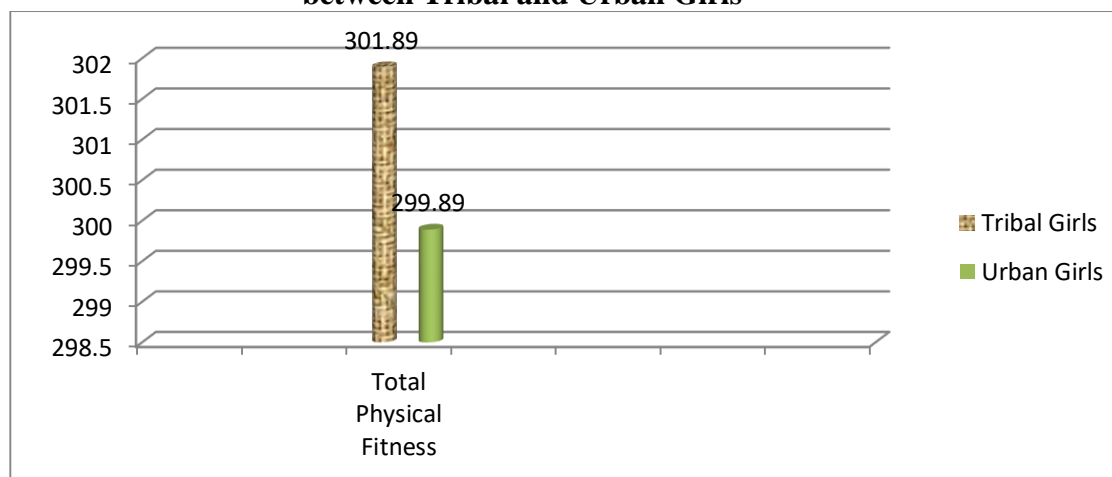
An analysis of Table -2 shows that the Bent Knee Sit Ups is significantly differ in between Tribal and Urban girls as the calculated 't' value of 3.28 is greater than the tabulated 't' value of 2.0016 at 0.05 level of confidence for 58 degree of freedom. It also revealed that there are not significance differences of other Physical Fitness components that are Flex arm Hang, 4×10 yard Shuttle Run, Standing Board Jump, 50 yard Dash, 1.5 mile Run / Walk and Total Physical Fitness as the calculated 't' values of 0.84, 0.71, 0.03, 0.18, 0.40 and 0.43 respectively are less than the tabulated 't' value of 2.0016 at 0.05 level of confidence for 58 degree of freedom. The mean differences have been shown graphically in Fig.2 & 3.



**Fig.1: Comparison of Means of Selected Anthropometric Measurement between Tribal and Urban Girls**



**Fig.2: Comparison of Means of Physical Fitness Performance between Tribal and Urban Girls**



**Fig.3: Comparison of Means of Total Physical Fitness between Tribal and Urban Girls**



## Discussion

It is learnt from the findings of Table-1 and Table-2 that there were no significant differences in Anthropometric Measurement and Physical Fitness except Bent Knee Sit-ups (Muscular Endurance) of Tribal and Urban girls of Amravati. This result may be attributed to the fact that all the subjects were selected from Ashram Shala and Ram Krishna Vidyalaya of Amravati.

Though it is well known fact that an individual's growth and development solely depend upon so many factors and out of them proper diet, geographical condition and living style play upper hand role. Actually tribal girls were brought from the interior villages hence it was expected that they should shown superior performance in physical fitness, but since last five to six years they had been residing in the hostel where they were bound to follow the programmes of the school, and in the school curriculum no such programs of physical fitness we kept, hence insignificant differences in Anthropometric measurement and physical fitness might have occurred in this study. In muscular endurance tribal girls were shown superior performance in may be because of geographical condition and nature of living style of the tribal girls.

## Conclusions

- i. There was no significant mean difference on Anthropometric measurement between Tribal girls and Urban girls.
- ii. There was no significant mean difference on Physical Fitness between Tribal and Urban girls.
- iii. There was significant mean difference in Bent knee Sit-Ups between Tribal and Urban girls when separately analysed each test items of AAHPERD youth physical fitness test.
- iv. There were no significant mean differences in Flex arm Hang, 4×10 yard Shuttle Run, Standing Board Jump, 50 yard Dash, 1.5 mile Run / Walk when separately analysed each test items of AAHPERD youth physical fitness test.

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