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## Comparison of Selected Anthropometric Measurements and Physical Fitness of Haryana School Boys in Relation to their Social Status

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### Abstract

**Background:** The purpose of the present study was to find out anthropometric measurement and physical fitness components of Haryana school boys in relation to their social status.

**Methods:** 300 basketball players within the age group of 14 – 16 years, studying in the different schools of Haryana were selected; the school boys were categorized according to their social status i.e. rural or urban. To test the anthropometric variations Twenty Nine anthropometric measurements were taken on each subject. For Physical fitness AAHPER Youth Fitness Test was used and to find out the significance t – test was also used.

**Results:** There was a significant difference found between anthropometric variables and physical fitness components.

While there was no significant difference exist between anthropometric variables and physical fitness components.

**Conclusion:** it concluded that significant difference between anthropometric variables (height, trunk length, leg length, abdominal, shoulder circumferences, bitrochantric diameter, triceps, subscapular, thigh & calf skinfold) and physical fitness components (endurance, speed, strength & flexibility) were there.

**Key Words:** Cardio respiratory endurance, Muscular power, flexibility, Agility & Speed.

### INTRODUCTION

Physical fitness is more than cardio-vascular fitness. Most of the experts agree that fitness has many different components of which cardio-vascular fitness is only one. From a public health perspective, strength, muscular endurance, speed, flexibility, agility and body composition form the components of physical fitness.

The element of specific basis of selection is being inducted in the procedure of selection of athletes at various levels in some advanced countries. To excel in a physically competitive sport, the player must possess such dimensions of body characteristics are known to be of fundamental importance for individual development to achieve Olympic level performance in a sport. The physique which includes the evaluation of size, shape and form of an individual is of prime importance as to know how far an individual can succeed in becoming a top athlete. Studies have also shown that champions of different sports require different qualities with respect to their events.

### METHODS

For the purpose of the study 300 urban and rural basketball players, studying in the different schools of Haryana, were selected. Their age ranged between 14 to 16 years. All 300 students were selected randomly, for anthropometric measurements; twenty nine different measurements were taken from each subject. For Physical fitness AAHPER Youth Fitness Test (1976) was utilized. The components and test items chosen to represent in the original battery were as follows:

1. Cardio-respiratory endurance - 600 yard run-walk
2. Muscular power - Standing broad jump
3. Speed - 50 Yard dash
4. Flexibility - Reach and sit test
5. Agility - Zig Zag Run

### Statistical Design

To compare the physical fitness of Haryana school boys in relation to their anthropometric and socio-economic status, 't' test was used to find out the significant difference between different groups, the level of significance was set at .01 and .05

## RESULTS AND DISCUSSIONS

### Comparison of Anthropometric Measurements and Physical Fitness of Haryana Urban & Rural Basketball Players. (N = 112, Df = 222) Each Group

**Table 1 Linear Measurements**

Variables	Urban	Urban	Rural	Rural	Sed	T-Test
	Mean	S.D.	Mean	S.D.		
Height	166.54	1.69	167.36	1.11	0.37	2.22*
Sitting Height	85.41	2.66	85.40	2.17	0.626	0.015
Trunk Length	63.2	2.53	64.74	2.07	0.60	2.60*
Leg Length	98.95	1.97	100.79	1.25	0.426	4.32**
Total Arm Length	74.06	1.07	74.51	1.78	0.37	1.18
Upper Arm Length	33.3	2.19	33.44	2.05	0.548	.255
Fore Arm Length	41.8	1.87	41.06	1.83	.477	1.535
Lower Leg Length	48.68	1.82	49.87	2.37	.545	2.18
Thigh Length	50.27	1.11	50.92	1.17	.293	2.21
Foot Length	18.14	1.02	18.4	1.69	.36	.721

\*Significant at 5% level = 2.00 \*\* Significant at 1% level = 2.65

Table 1 shows that means and standard deviation of Haryana urban & rural basketball players. The differences in mean score of height, trunk length, leg length, lower leg length & thigh length of rural basketball players are found more than those of urban basketball players as the 'T' value of these variables are significant at 5% level. It is clearly shows that rural basketball players are taller than those of urban basketball players.

**Table 2: Circumference Measurements**

Variables	Urban	Rural	Sed	T-Test

	Mean	SD	Mean	SD		
Neck	32.96	1.97	32.3	2.21	.54	1.17
Shoulder	101.51	2.37	103.09	2.02	0.57	2.78**
Chest	82.86	2.11	81.56	2.71	.63	2.07
Abdominal	68.5	2.71	66.74	3.54	0.81	2.16*
Hip	85.74	1.11	85.97	2.3	0.47	0.49
Knee	34.56	2.34	33.96	2.18	0.58	1.025
Thigh	45.12	5.07	44.49	3.70	1.15	0.55
Calf	31.99	2.92	31.81	2.77	0.73	0.25

\*Significant at 5% level = 2.00 \*\* Significant at 1% level = 2.65

It is evident from the table 2 that the differences in mean scores of abdominal & chest circumferences of urban basketball players are larger than those of rural basketball players as the 'T' values are significant at 5% level. The differences in mean scores of shoulder circumferences are found more in rural basketball players. Other circumferences have no significant differences.

**Tables 3: Diameter Measurements**

Variables	Urban		Rural		Sed	T-Test
	Mean	SD	Mean	SD		
Biacromial	37.68	1.08	37.41	1.23	.298	.903
Bitrochantric	28.13	.94	27.42	1.36	.301	2.35*
Femur bycondylar	8.81	0.97	8.97	1.31	.297	0.537
Ankle Diameter	6.68	0.74	6.75	0.81	0.200	0.35

\*Significant at 5% level = 2.00 \*\* Significant at 1% level = 2.65

Further table 3 shows the significant differences in the mean scores of bitrochantric diameter between urban and rural basketball players as the 'T' values is significant at 5% level in favors of urban basketball players. Other diameters have no statistically significant differences. It suggests that bitrochantric diameter is found more in urban basketball players than that of rural basketball players.

**Table 4: Skinfold Measurements**

Variables	Urban	Urban	Rural	Rural	Sed	T-Test
	Mean	SD	Mean	SD		
Triceps	3.08	0.11	3.01	0.01	0.03	2.58*
Biceps	2.79	0.14	2.87	0.17	0.04	1.99
Sub-scapular	5.48	0.21	5.35	0.16	0.05	2.70**
Calf	5.3	0.29	5.06	0.27	0.07	3.32**
Thigh	6.18	0.48	5.92	0.38	0.11	2.33*
Suprailiac	5.62	0.37	5.41	0.31	0.09	2.38
Mid axillary line	4.73	0.32	4.51	0.29	.078	2.79

\*Significant at 5% level = 2.00 \*\*Significant at 1% level = 2.65

Table 4 shows the differences in mean scores of skinfold measurements of Haryana urban and rural basketball players. The differences in mean scores of triceps, subscapular, suprailiac, mid-axillary line, thigh & calf skinfold of urban basketball players are found thicker as compared to rural basketball players. The 'T' values of these variables are significant at 1% & 5% level except biceps biceps skinfold. It means that the urban basketball players possess more subcutaneous tissue thickness than those of rural basketball players.

**Tables 5: Physical Components Measurements**

Variables	Urban	Urban	Rural	Rural	Sed	T-Test
	Mean	SD	Mean	SD		
Endurance	2.24	0.12	2.16	0.11	0.029	2.680**
Speed	7.76	0.17	7.65	0.22	0.05	2.19*
Strength	1.68	0.08	1.74	0.05	0.017	3.43**
Flexibility	27.13	0.97	27.90	1.3	0.297	2.59*
Agility	8.90	1.02	8.51	1.12	0.289	1.35

Further from the table 5, It is clearly obvious that the differences in mean scores of endurance, speed, strength & flexibility components of physical fitness of rural basketball players are found significant at 1% & 5% level except agility. It shows that the rural basketball players possess more endurance capacity, speed, strength and flexibility as compared to urban basketball players. Agility has been found statistically equal in both groups of Haryana basketball players.

## CONCLUSIONS

There was a significant difference between anthropometric variables (height, trunk length, leg length, abdominal, shoulder circumferences, bitrochantric diameter, triceps, subscapular, thigh & calf skinfold) and physical fitness components (endurance, speed, strength & flexibility).

There was no significant difference between anthropometric variables (Sitting height, Fore-leg-length, Total arm length, Upper arm length, Fore arm length, Foot length, Foot breadth, Neck, Chest, Hip, Knee, Thigh, Calf circumference, Biacromial, Femur bicondylar, Ankle diameter, Biceps, Suprailiac, Mid-axillary skinfold) and physical fitness components (Agility).

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