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The Purpose of the Study Was To Compare the Physical Growth of Urban and Rural Children

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Abstract – Several studies evaluated physical fitness profiles of people in different categories, including college students in India. However, relatively little information is available about physical fitness profiles of the Indian school students, whatever little information that is available on physical fitness in on the Indian school students documented outside Karnataka.

Keywords: The term physical growth refers to the increase caused by the biological processes in which a child becomes bigger in size, in volume and heavier in weight.

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INTRODUCTION

Human being grows most rapidly at two stages during their lives. These are during the pre-natal period and the first six months of post-natal period and then during adolescent period. Adolescence is considered as a critical period of development at least in part, because of maturational changes in the body. The growth spurt begins before the sexual development that signals the onset of puberty.

DE-LIMITATIONS

The study was de-limited to 1000 school boys of Karnataka state.

1. The study was de-limited to 500 Urban and 500 Rural school boys of 10-14 years from Karnataka State.
2. The study was de-limited to 100 boys in each age group.
3. The study was de-limited to height and weight to assess the physical growth of the subjects.

LIMITATIONS

1. Certain factors like diet, socio-economic status, exercise might have influenced the physical growth of the subjects. This was considered as one of the limitations.
2. For the assessment of physical development, only height and weight were taken.

Increments in limb length, circumferences… etc. was not considered. This is also considered as another limitation.

HYPOTHESES

Based on the scholar's knowledge, expert's opinions and available research findings, the following hypotheses were formulated.

1. It was hypothesized that there would not be significant differences in physical growth (height and weight) among the Rural and Urban of school boys of different age groups in Karnataka.
2. It was hypothesized that there would not be significant differences in the range of motion at trunk, hip, shoulder, trunk and neck, ankle and dynamic flexibility among Rural and Urban school boys of different age groups.

SIGNIFICANCE OF THE STUDY

1. The results of the study may help coaches and physical education teachers to identify talented children for flexibility dominant sports events.
2. This study may reveal the pattern of physical growth of Rural and Urban boys of 10 to 14 years belonging to Karnataka state.

METHODOLOGY

For the selections of subject, random sampling technique was adopted. A total of 1000 subjects, 100 subjects in each age group of 10-14 years among the

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Urban and Rural school going boys were selected for this study. The age of the subjects was ascertained from the school records and accordingly the age groups were classified.

Table -1

Age-wise distribution of Subjects

S. No.	Age range (Years)	Measure	Rural	Urban
1	9.5 – 10.5	10	100	100
2	10.5 – 11.5	11	100	100
3	11.5 – 12.5	12	100	100
4	12.5 – 13.5	13	100	100
5	13.5 -14.5	14	100	100
Total No. of Subjects			1000	

Table -2

Physical Growth test variables

Variables		Tests
Physical Growth :	• Height	Anthropometric
	• Weight	Anthropometric

Criterion Measures

For the purpose of testing the hypothesis, the following criterion measures were chosen**:**

1.	**Height**	:	'Height' was recorded in centimeter with the help of stadiometer.
2.	**Weight**	:	'Weight' was recorded in Kilogram with the help of portable weighing machine.

ANALYSIS OF DATA AND RESULT

This chapter deals with the analysis of the data collected and the conclusions drawn. The analysis of the data on the physical growth The findings pertaining to physical growth variables such as height, weight, shoulder flexibility, Trunk and hamstring of Rural and Urban boys of 10-14 years' age group are as shown in the tables given below.

TABLE – 3

2x5 FACTORIAL ANALYSIS OF VARIANCE FOR HEIGHT BETWEEN RURAL AND URBAN BOYS OF 10-14 YEARS OF AGE

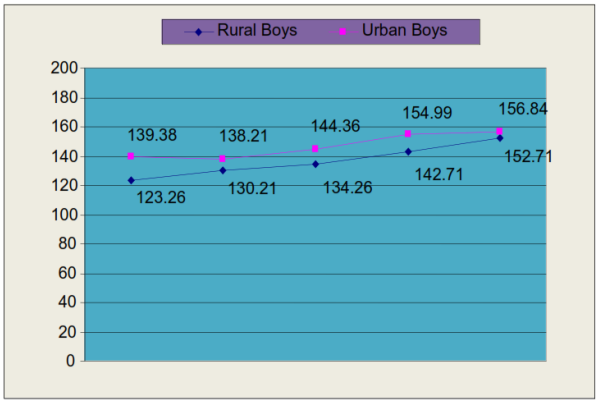
Source	Sum of Squares	Degree of Freedom	Mean Squares	'F' Ratio	Table value
Rows (age)	78536.49	4	19634.12	**355.01***	2.42
Column (group)	25553.03	1	25553.03	**462.03***	3.86
Interaction (age and group)	4100.20	4	1025.05	**18.53***	2.38
Error	54751.87	990	55.30	--	
Total	162941.60	999	--	--	

*p<.05
$F_{.05}(4,198)=2.42$
$F_{.05}(1,490)=3.86$
$F_{.05}(4,990)=2.38$

According to the table – 3, statistically significant factors are rows (ages), column (Rural and Urban) and Interaction (age and groups). As the obtained 'F' ratios 355.01, 462.03 and 18.53 respectively for rows, column and interaction for height are greater than their corresponding table values (2.42), (3.86) and (2.38).

Since interaction is statistically the most significant factor, simple effects test was carried out for boys and among the boys of different age groups (10-14 years) instead of separate post-hoc test for rows and column.

The average height between Rural and Urban boys of 10-14 years age groups and their interaction are presented in figure – 1.



Age Groups

Figure-1: Interaction Effect of Height Among 10-14 years Rural and Urban Boys of Karnataka

TABLE – 4

SIMPLE EFFECTS TEST FOR HEIGHT AMONG RURAL AND URBAN BOYS OF 10-14 YEARS OF AGE GROUP

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F - Ratio	Table value
Rural	52370.09	4	13092.52	**236.75***	2.39
Urban	67078.4	4	16769.60	**303.25***	
10 years	12992.72	1	12992.72	**234.95***	3.89
11 years	3200.00	1	3200.00	**57.87***	
12 years	5100.50	1	5100.50	**92.23***	
13 years	33230.42	1	33230.42	**600.91***	
14 years	820.12	1	820.12	0.148	
Error	54751.87	990	55.30	--	--

*p<.05
$F_{.05}(4,495)=2.39$
$F_{.05}(1,198)=3.89$

From table - 4 above, it is evident that the obtained 'F' ratio 236.75 and 303.25 for the height of Rural and Urban boys respectively are found to be statistically significant, as obtained 'F' ratio of Rural and Urban are more than the table value (2.89). This result shows that the height differs among 10-14 years age groups of the said groups. Due to this, simple effects, the post-hoc test was applied to compare the paired means of Rural and Urban boys and also between different age groups (10-14 years) which are presented in table -5.

TABLE – 5

SCHEFFE'S POST-HOC ANALYSIS FOR HEIGHT AMONG 10-14 YEARS AGE OF RURAL BOYS

Group	Means of Different age groups					Mean difference
	10 years	11 years	12 years	13 years	14 years	
Rural	123.26	130.21				6.95*
	123.26		134.26			11.00*
	123.26			142.71		19.45*
	123.26				152.79	29.53*
		130.21	134.26			4.05*
		130.21		142.71		12.50*
		130.21			152.79	22.58*
			134.26	142.71		8.45*
			134.26		152.79	18.53*
				142.71	152.79	10.08*

*significant at 0.05 level.

Critical interval: 3.59

The table-5 reveals that, there are significant differences in height between all the age groups of 10-14 years of Rural boys. The mean difference values (6.95, 11.00, 19.45, 29.53, 4.05, 12.50, 22.58, 8.45, 18.53, 10.08) of all the age groups is found to be greater than the critical interval value.

The averages mean difference of height variables of 10-14 years Rural boys are graphically presented in figure – 2.

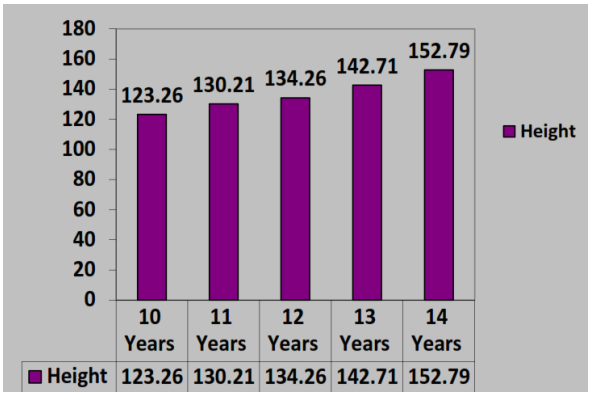


Figure-2: Average Height among 10-14 years Rural Boys of Karnataka

CONCLUSIONS:

Based on the findings of the study, the following conclusions have been drawn.

1. In physical growth Urban boys were found superior in height compared to their Rural counterpart in all the age groups.

2. Urban boys were found heavier in 12, 13, and 14 years. However, Rural boys were found heavier than their Urban counterparts in 10 and 12 years.

3. Constant improvement in height and body weight was observed among the Rural and Urban boys of 10-14 years.

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