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## Abdominal muscular strength and endurance among Rural School boys of Rajasthan

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### Abstract

**Background:** The purpose of the present study was to find out the abdominal muscular strength and endurance among different age groups of rural school boys of Rajasthan.

**Methods:** modified sit-ups test was conducted on 1050 boys ranging between 14 to 16 years. Random sampling technique was used to select the subjects. To find out the significance differences among the different three age groups of school boys, Analysis of Variance (ANOVA) was applied. Further Scheffe's post-hoc test was used to see the direction and significance of differences where 'F' ratio was found significant. The level of significance chosen was .05.

**Results:** There were significant differences obtained on abdominal muscular strength and endurance (Modified sit-ups), among different three age groups of rural school boys. The finding reveals that 16 year age group of rural school boys demonstrated significantly better than their counterparts.

**Keywords:** Abdominal muscular strength and endurance, Rural, School boys, Rajasthan

### Introduction

Strength is the sum of power a muscle can apply. One requires strength to increase the capacity to perform work, disease changes of injury, prevent low back pain, improve posture, and curb the one set of diseases that result from a secondary life style. Endurance is the capacity of the muscles to work for extended periods of time with-out too much tiredness.

From a health standpoint, increasing strength helps to increase or maintain muscle and a higher resting metabolic rate, encourages weight loss and maintenance, lessens the risk for injury, prevents, reduces chronic low-back pain, and also may help to lower the risk of high blood pressure and diabetes.

With time, the heart rate and blood pressure response to lifting a heavy resistance decreases. This adaptation reduces the demands on the cardiovascular system when performing activities such as carrying a child, the groceries, or a suitcase.

Lack of adequate physical fitness is a fact of modern life that most people can avoid no longer. To enjoy modern-day conveniences and still expect to live life to its fullest, however, one has to make a personalized lifetime exercise program a part of daily living. (Hoeger, 2007)

### Methods and Procedures

In this study, a sample of 1050 rural school boys ranging between 14 to 16 years studying in different schools from rural area of Rajasthan was taken as subjects. Random sampling technique was used to select the subjects. The modified sit-ups were used to measure muscular strength and endurance. To determine the significance differences among the different three age groups of school boys, Analysis of Variance (ANOVA) was applied. Scheffe's post-hoc test was applied to see the direction and significance of differences where 'F' ratio was found significant. The level of significance chosen was .05.

### Results

Descriptive analysis of abdominal muscular strength and endurance among different three age groups is presented in table-1.

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**Table 1:** Descriptive Analysis of abdominal muscular strength and endurance of Rajasthan Rural School boys

Vvariables	14 Years (N=350)		15 Years (N=350)		16 Years (N=350)	
	Mean	SD	Mean	SD	Mean	SD
Muscular strength and endurance ( <i>modified sit-ups</i> )	27.67	6.95	27.88	7.28	29.46	6.34

The Analysis of Variance (ANOVA) among different three age groups of rural school boys on muscular strength and

endurance is presented in Table 2.

**Table 2:** Analysis of Variance of Rural School boys on abdominal muscular strength and endurance

Variable	Source of Variance	Sum of Squares	Df	Mean Square	F-value
Muscular strength and endurance ( <i>modified sit-ups</i> )	Between Group	668.62	2	334.31	7.08*
	Within Group	49441.31	1047	47.22	
	Total	33534.03	1049		

\*Significant at .05 level

F.05 (2, 1047) = 2.99

The result presented in table 2 reveals that there was a significant difference between 14 to 16 year age groups of rural school boys. The obtained F-value in modified sit-ups

variable was 7.08. F value was greater than the table value of 2.99, which is required to be significant at .05 level.

**Table 3:** Significant Differences between the Paired Means of abdominal muscular strength and endurance among Different Three Age Groups

Variable	Groups			Mean Difference	Sig.
	14 Year	15 Year	16 Year		
Muscular Strength and Endurance ( <i>Modified Sit ups</i> )	27.67	27.88		0.21	.921
	27.67		29.46	1.79*	.003
		27.88	29.46	1.58*	.010

Table 3 clearly indicates that the significant differences existed between 14 years and 16 years & 15 years and 16 years on muscular strength and endurance since the value obtained were 1.79, and 1.58 respectively, but no significant differences was obtained between 14 years and 15 years since the value obtained was 0.21.

### Discussion

There was significant difference obtained on muscular strength and endurance among different age groups of rural school boys of Rajasthan. Further significant differences were obtained between 14 years and 16 years & 15 years and 16 years. Above mentioned findings in the case of rural school boys all the three age groups differs significantly. It may be attributed to the facts that the subjects of this study were during growth period and their muscular strength and endurance differed because of their age differences though they were living under the same tropical as well as environmental conditions. Hence, the three different age groups of rural school boys of Rajasthan were differed significantly.

### Conclusions

In the light of the findings and limitations of the present study the following conclusions were drawn:

- There were significant differences obtained on muscular strength and endurance among different three age groups of Rajasthan rural school boys.
- 16year group rural school boys performed significantly better in muscular strength and endurance than their counterparts.

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