



ISSN: 2456-0057
IJPNPE 2019; 4(1): 1061-1063
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www.journalofsports.com
Received: 15-11-2018
Accepted: 19-12-2018

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A comparative study of abdominal muscular endurance among school boys

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Abstract

In the present study it was planned to scrutinize the difference between abdominal muscular endurance among school boys of Uttarakhand. The subjects for this study were from the state of Uttarakhand. The simple random sampling was used in the study. A total number of two thousand (2000) subjects were selected from the rural and urban part of Uttarakhand. Moreover, subjects were also selected from different private and government schools of Uttarakhand. The all subjects were between age group of 13-17 years. To check the abdominal muscular endurance of subjects Sit up test was used by the researcher. After the collection of relevant data; to investigate the significance difference between abdominal muscular endurance among school children of Uttarakhand, Analysis of variance (ANOVA) was applied. The level of significance was set at 0.05 percent ($p < 0.05$). After the analysis the results shows that the government rural school boys had better abdominal muscular endurance as compare to the private rural school boys. The result shows that the government rural school boys had better abdominal muscular endurance as compare to the government urban school boys. Further the results shows that the government rural school boys had better abdominal muscular endurance as compare to the private urban school boys.

Keywords: Abdominal, school children, muscular endurance, urban school, rural school

Introduction

Muscular strength is the ability of a muscle group to execute repeated contractions over a period of time sufficient to cause muscular fatigue, or to maintain a specific percentage of the maximum voluntary contraction for a prolonged period of time (Dwyer and Davis, 2005) [1]. Physical activities of muscular strength and endurance have been recommended in addition to aerobic activities for children and adolescents (WHO, 2010) [8].

Conversely, the absence of adequate levels of musculoskeletal fitness has been common in this population and is associated with low back pain and high body adiposity. In this regard, monitoring of muscular endurance is important to verify if levels are adequate or inadequate to health (Jeffries *et al.* 2007, Janz *et al.* 2002) [3, 2].

Methodology and Procedure

In the present study it was planned to scrutinize the difference between abdominal muscular endurance among school children of Uttarakhand. The subjects for this study were from the state of Uttarakhand. The simple random sampling was used in the study. A total number of two thousand (2000) subjects were selected from the rural and urban part of Uttarakhand. Moreover, subjects were also selected from different private and government schools of Uttarakhand. The all subjects were between age group of 13-17 years. To check the abdominal muscular endurance of subjects sit-up test was used by the researcher. After the collection of relevant data; to investigate the significance difference between abdominal muscular endurance among school children of Uttarakhand, Analysis of variance (ANOVA) was applied. The level of significance was set at 0.05 percent ($p < 0.05$).

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Results of the Study

Table 1: Mean and Standard Deviation Results With Regard To Abdominal Muscular Endurance among Four Different Types of School Boys

Group	N	Mean	Std. Deviation
Government Rural School boys	500	36.57	5.96
Private Rural School boys	500	35.71	4.73
Government Urban School boys	500	33.76	5.82
Private Urban School boys	500	31.56	5.97
Total	2000	34.40	5.96

Table-1 shows the Mean and SD values of Government Rural School boys for their abdominal muscular endurance of different types of school (government rural, private rural, government urban and private urban school) boys were

36.57±5.97, 35.71±4.73, 33.76 ±5.82 and 31.56±5.97 correspondingly. The illustrated presentations of responses are displayed in figure 1.

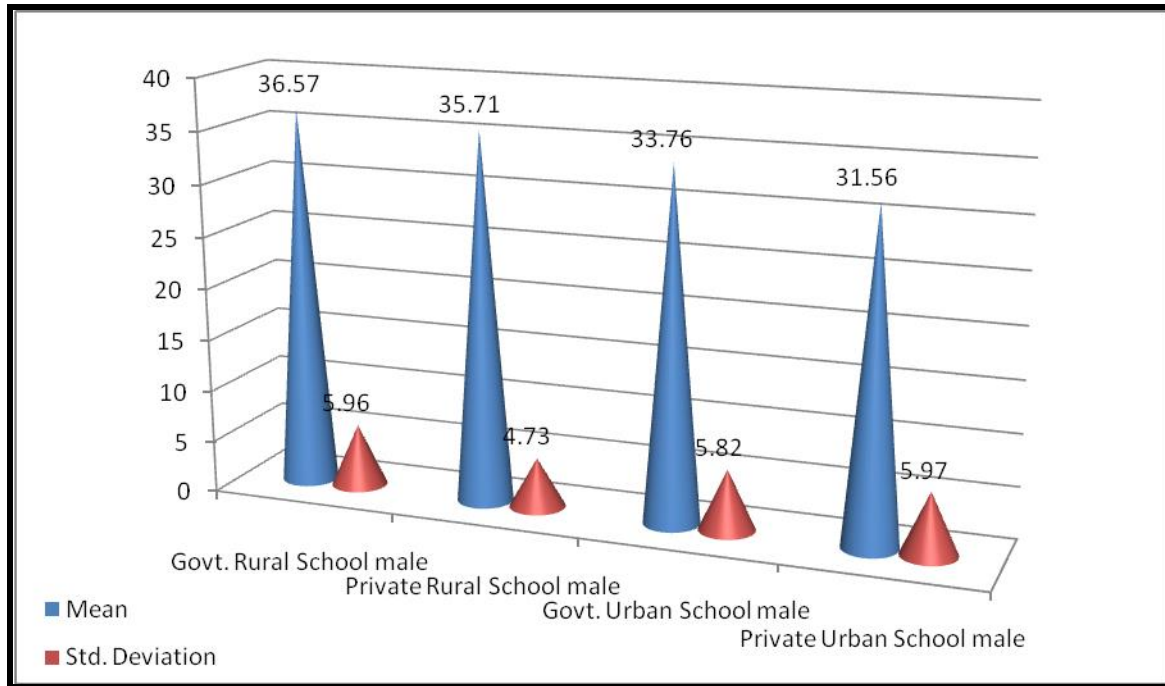


Fig 1: Shows The Mean And Std. Deviation With Regards To Abdominal Muscular Endurance Among Four Different Types Of School Boys

Table 2: Analysis Of Variance Results With Regard To Abdominal Muscular Strength Among Four Different Types Of School Boys

	Sum of Squares	Df	Mean Squares	F	Sig.
Between groups	7454.838	3	2484.946	77.856*	.000
Within groups	63706.538	1996	31.917		
Total	71161.376	1999			

*Significant at $F_{0.05} = 2.61$

It is evident from table 2 that the result of analysis of variance (ANOVA) among four different types of School boys with regard to the abdominal muscular endurance was statistically

significant ($P < 0.05$). Since the obtained “F” ratio 77.856 (.000) was found statistically significant.

Table 3: Analysis of Lsd Post Hoc Test With Regard To Abdominal Muscular Endurance among Four Different Types of School Boys

Group-1 (I)	Group-2 (J)	Mean Difference (I-J)	Sig.
Government Rural School boys Mean=36.57	Private Rural School boys	.86800*	.015
	Government Urban School boys	2.81600*	.000
	Private Urban School boys	5.01400*	.000
Private Rural School boys Mean=35.71	Government Rural School boys	.86800*	.015
	Government Urban School boys	1.94800*	.000
	Private Urban School boys	4.14600*	.000
Government Urban School boys Mean=33.76	Government Rural School boys	2.81600*	.000
	Private Rural School boys	1.94800*	.000
	Private Urban School boys	2.19800*	.000
Private Urban School boys Mean=31.56	Government Rural School boys	5.01400*	.000
	Private Rural School boys	4.14600*	.000
	Government Urban School boys	2.19800*	.000

A glimpse at Table 3 shows that mean value of government rural school boys was 36.57 whereas private rural school boys had the mean value as 35.71 and the mean diversity between both the groups was found .86800. The p-value sig 0.015 shows that the government rural school boys subjects had demonstrated better on abdominal muscular endurance as compare the private rural school boys significantly.

The mean of government rural school boys was 36.57 whereas government urban school boys had the mean 33.76 and the mean difference between both the groups was found 2.81600. The p-value sig 0.000 shows that the government rural school boys had demonstrated better on abdominal muscular endurance as compare the government urban school boys significantly.

The mean value of government rural school boys was 36.57 whereas private urban school boys had the mean 31.56 and the mean difference between both the groups was found 5.01400. The p-value sig .000 shows that the government rural school boys subjects had demonstrated better on abdominal muscular endurance as compare the private urban school boys significantly. The mean difference between private rural school boys and government urban school boys was found 1.94800. The p-value sig .000 is significant difference. The mean difference between private rural school boys and private urban school boys was found 4.14600. The p-value sig .000 is significant difference. The mean difference between government urban school boys and private urban school boys was found 2.19800. The p-value sig .000 is significant difference.

Conclusions

After the analysis the results shows that the government rural school boys had better abdominal muscular endurance as compare to the private rural school boys. The result shows that the government rural school boys had better abdominal muscular endurance as compare to the government urban school boys. Further the results shows that the government rural school boys had better abdominal muscular endurance as compare to the private urban school boys.

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