

EFFECT OF STEP-UP EXERCISE ON VERTICAL JUMP AMONG FOOTBALL PLAYERS

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Abstract

The purpose of the present investigation was to examine the effect of step-up exercise on vertical jump among football players. One hundred (N = 100) male football players (Experimental Group = 50, Control Group = 50) from different schools were taken as subject for the study. The ages of the subjects ranged from 15 to 18 years and were selected randomly. Subjects were tested on the selected criteria, after the pre and post-test, subjects were divided into two groups, one experimental and one group were kept as control where the experimental group were given 10 weeks of step-up exercise (three days in a week). To find out the difference among pre and post-test, Pair sample t-test was use to analyze the data. Results of the study reveals that significant differences were found in experimental and control groups on vertical jump among football players after 10 weeks of step-up Exercise.

Keywords: Football, Vertical Jump, Step-up and Exercise

INTRODUCTION

Football is one of the most popular sports in the world. Even a normal person (unprofessional player) can play football; the person will get the benefits of reducing risk like heart disease, stroke, stress etc. It increases stamina, improves cardiovascular health, reduces body fat, increase muscle strength, improves coordination etc. playing football is one of the key to improve confidence and self-esteem. There are numerous of tournaments which are held in different countries every year both in national and international levels.

Leaping upwards into the air is called a vertical jump. It is a common test used to gauge athletic performance as well as an exercise for increasing strength and endurance. Measurements of vertical jump are mostly used to assess athletic performance. A powerful vertical jump is a vital talent for many sports, including swimming, volleyball, Australian rules football, netball, basketball, high jump, and many more. However, many other sports assess their players' vertical jump abilities through physical inspections.

Step-ups improve our cardiovascular system, lower body, and core strength while testing our balance and coordination. Step-ups are a great way to test our cardiovascular system, balance, and coordination. The same can be done with stairs or a box; we can step up on a chair or bench.

METHOD

Selection of the Subjects:

For the purpose of this present investigation, One hundred (N = 100) male football players (Experimental Group = 50, Control Group = 50) from different schools of Manipur (India) were selected as subjects for the study. The age of the subjects ranged from 15 to 18 years.

Selection of Tool:

The criterion measure for the selected Vertical Jump was given below: -Leg Explosive Strength was measured by using Vertical Jump test and the score was recorded in Centimeters (Cm).

Collection of Data:

Before collecting the data, the method and procedure of performing the test was clearly explained and demonstrated to the subjects. The information pertaining to this study was collected by administer to test on the selected variable.

Data Analysis:

The data was analyzed by using Statistical Package for the Social Sciences (SPSS) 21v (v = version) computing Range (R), Mean (M) and Standard Deviation (SD). Pair sample t-test was applied to find out the significant difference among football players and the level significance was set at 0.05.

RESULTS

On the basis of statistical treatment the result of study has been explained in the following tables:-

Table-1
Descriptive analysis of pre-test and post-test on Vertical Jump of Control group

Variable	Test	N	R	Min.	Max.	Sum	Mean	SEM	SD	Var.
Vertical Jump	Pre	50	9.30	30	39.30	1709.10	34.18	0.43	3.06	9.37
	Post	50	9.30	31	40.30	1768.10	35.36	0.42	2.98	8.86

The above table-1 revealed that the Mean (M) and Standard Deviation (SD) of pre-test and post-test of the subjects on Vertical Jump of the control group was 34.18 ± 3.06 and 35.36 ± 2.98 , respectively. In addition, the Range (R), Minimum (Min.), Maximum (Max.), Sum, Standard Error Mean (SEM) and Variance (Var.) of pre-test and post-test are 9.30, 30, 39.30, 1709.10, 0.43, 9.37 & 9.30, 31, 40.30, 1768.10, 0.42, & 8.86 respectively.

Table-2
Summary of paired sample t-test of pre-test and post-test on Vertical Jump of the control group

Variables	Mean		S.D		Mean diff (md)	S.E. of Mean diff.	t-ratio	P-Value
	Pre test	Post test	Pre test	Post test				
Vertical Jump	34.18	35.36	3.06	2.98	1.18	0.08	14.89*	0.00

*Significance at 0.05 level

tabulated $t_{0.05}(49) = 2.01$

The finding shown in table-2 reveals that the values of the Mean (M) and Standard Deviation (SD) of pre-test and post-test of the subjects on Vertical Jump of the control group are 34.18 ± 3.06 and 35.36 ± 2.98 , respectively. In addition, the table shows that the Mean Difference, Standard Error mean and P-value of pre-test and post-test on Vertical Jump of the control group are 1.18, 0.08, & 0.00, respectively. Further the result indicates that, there was a significant difference found between pre-test and post-test on Vertical Jump of the control group, as the calculated t-value 14.89 is relatively higher than the tabulated t-value 2.01 ($P < 0.05$) at 0.05 level of confidence (2 tailed) in 49 degree of freedom (df).

Figure-1: Graphical presentation of mean comparison of Pre- test and Post-test on Vertical Jump for Control Group.

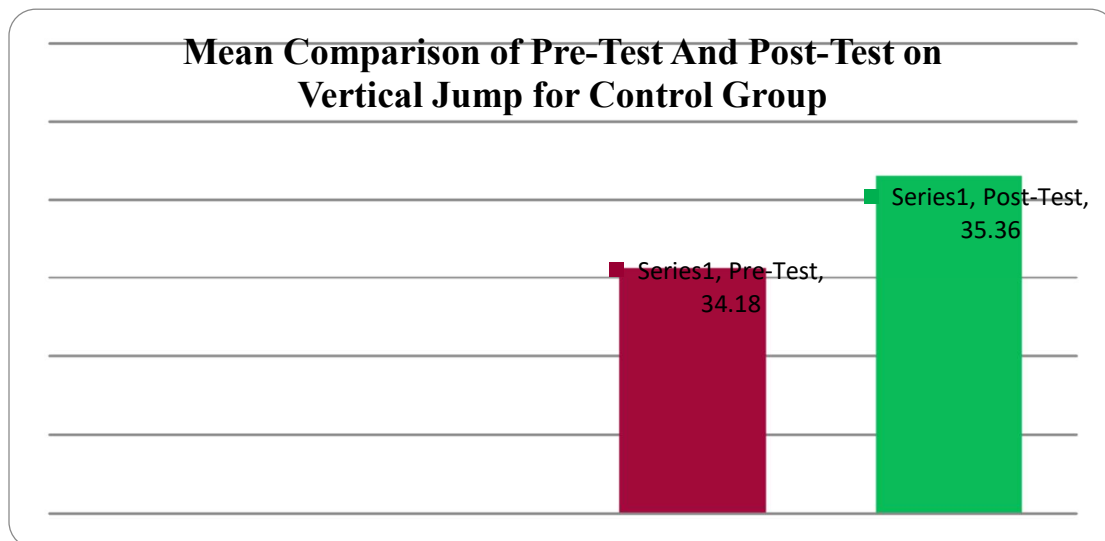


Table-3**Descriptive analysis of pre-test and post-test on vertical Jump performance of experimental group**

Variable	Test	N	R	Min.	Max.	Sum	Mean	SEM	SD	Var.
Vertical Jump	Pre	50	8.70	30.50	39.20	1728.30	34.57	0.38	2.69	7.26
	Post	50	9.10	31	40.10	1752.10	35.04	0.39	2.74	7.48

The above table - 3 reveals that the Mean (M) and Standard Deviation (SD) of pre-test and post-test of the subjects on Vertical Jump of experimental group are 34.57 ± 2.69 and 35.04 ± 2.74 , respectively. In addition, the Range (R), Minimum (Min.), Maximum (Max.), Sum, Standard Error Mean (SEM) and Variance (Var.) of pre-test and post-test are 8.70, 30.50, 39.20, 1728.30, 0.38 & 7.26, 9.10, 31, 40.10, 1752.10, 0.39 & 7.48, respectively.

Table-4**Summary of paired sample t-test of pre-test and post-test on vertical Jump of experimental group**

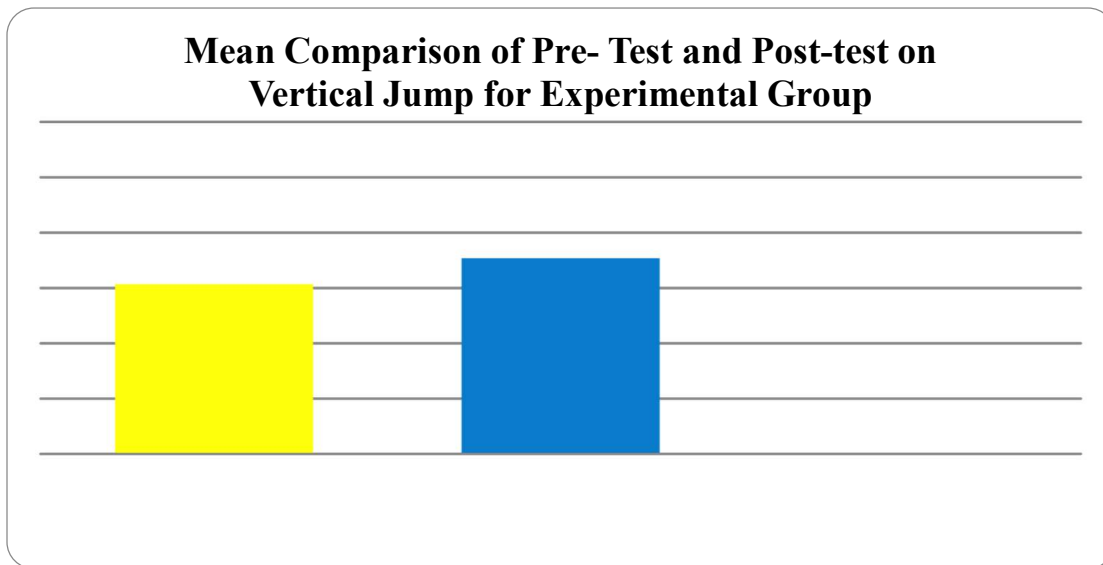
Variables	Mean		S.D		Mean diff (md)	S.E. of Mean diff.	t-ratio	P-Value
	Pre test	Post test	Pre test	Post test				
Vertical Jump	34.57	35.04	2.69	2.74	0.48	0.03	15.30*	0.00

*Significance at 0.05 level

tabulated $t_{0.05} (49) = 2.01$

The result shown in table-4 reveals that the values of the Mean (M) and Standard Deviation (SD) of pre-test and post-test of the subjects on Vertical Jump of experimental group are 34.57 ± 2.69 and 35.04 ± 2.74 , respectively. In addition, the table shows that the Mean Difference, Standard Error mean and p-value of pre-test and post-test on Vertical Jump of experimental group are 0.48, 0.03 and 0.00, respectively. Further the result indicates that, there was a significant difference found between pre-test and post-test on Vertical Jump of experimental group, as the calculated t-value 15.30 is relatively higher than the tabulated t-value 2.01 ($p < 0.05$) at 0.05 level of confidence (2 tailed) in 49 degree of freedom (df).

Figure-2: The graphical presentation of mean comparison of Pre- test and Post-test on Vertical Jump for Experimental Group.



DISCUSSIONS

The findings of statistical analysis revealed that the subjects belonged to Experimental and Control group had shown significant improvement in the variable of vertical jump while pre and post-test means were compared, it may be attributed to the fact that the age group of the selected subjects was 15 to 18 years i.e., rapid growth periods in which all the physical as well as physiological capabilities enhance, normally during this age most of the boys keep themselves most busy by participating different sport activities, therefore such result might be occurred in this study.

CONCLUSIONS

On the basis of the results, the following conclusions may be drawn:

1. Significant improvement was found in vertical jump of the control group.
2. Significant improvement was found in vertical jump of the experimental group due to step-up exercise.

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