

Effect of Selected Exercises on Explosive Leg Strength, Cardio-Vascular Endurance and Agility among the Soccer Players

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Abstract

Objective of the study was to find effect of selected exercises in explosive leg strength, cardio vascular endurance and agility among soccer players. 30 male soccer students ranging from age 18 to 25 were selected from HVSKM COLLEGE yavatmal. Mean SD t test were used for statistical analysis. Results were shown significant effect on selected component on soccer player.

KEYWORDS: Explosive strength, leg strength, cardio vascular endurance, agility, soccer

Introduction:

Physical Education is a whole phase of education that prepares a person to live usefully and an enjoyable life both for himself and the community as a whole. The human body is an instrument for movement and in order to develop that unique movement behavior to a certain level of proficiency and satisfaction, we need to keep that instrument fit, sharp and ready for use. The physical performance of a player or a person is dependent on various factors, such as speed, agility, Cardio-vascular Endurance, flexibility, explosive strength, power etc.

Physical education trends have developed recently to incorporate a greater variety of activities. Introducing students to activities like bowling, walking/hiking, or Frisbee at an early age can help students develop good activity habits that will carry over into adulthood. Some teachers have even begun to incorporate stress-reduction techniques such as yoga and deep-breathing. Teaching non-traditional sports to students may also provide the necessary motivation for students to increase their activity, and can help students learn about different cultures.

Objectives of the Study :

Following were the objectives of the study.

- i) To study the effect of selected exercise on explosive leg strength of soccer players.
- ii) Objective of the study is to find out the effect of selected exercise on cardio vascular endurance of soccer players.
- iii) To study the effect of selected exercise on agility of soccer players.

Hypothesis

It was hypothesized that there would be significant effect of selected exercises on explosive leg strength, cardio-vascular endurance and agility of soccer players.

Scope of the Study

Delimitations

The present study was delimited to the following aspects -

- i) Only 30 soccer players were selected for the study.
- ii) The age of the subjects were ranging in between 18-28 years.

- iii) College level soccer players were selected as the subjects.
- iv) The subjects selected from Hanuman VyayamShalaKridaMandal's College of Physical Education, Yavatmal.
- v) The selected test items were conducted in the aforesaid college campus only.

Limitations

- i) The physical fitness of the subjects was unknown.
- ii) Interest of the selected subjects towards the tests was not be known.
- iii) The economical and social status was unknown.
- iv) There were no control on diet of subjects.
- v) Educational and coaching background of the subject was not consideration.
- vi) The researcher had no control over the leisure time activities of the subjects.

Source of the Data

The sources of data were soccer players of Hanuman VyayamShalaKridaManda's College of Physical Education, Yavatmal.

Selection of Subjects

For the present study 30 male soccer players was selected randomly form Hanuman VyayamShalaKridaManda's College of Physical Education, Yavatmal. The age of the subjects ranging from 18 to 28 years.

Selection of Test and Criterion Measures

To collect the data following tests were administrated.

- i) Standing Broad Jump – To measure explosive leg strength.
- ii) Harvard Step Test– To measure cardio-vascular endurance.
- iii) Shuttle Run (4 x 10 yards)- To measure the agility.

Statically analysis

Table I
Table Showing the Effect of Exercises on Shuttle Run (Agility) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Pre	11.25	0.61	0.11	5.68*	2.048
Post	10.00	0.58	0.11		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run pre-test and post-test mean values are 11.25 and 10.00 respectively. Standard deviations are 0.61 and 0.58, standard errors is 0.11 and 0.11 respectively. The calculated 't' value is 5.68 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in shuttle run between pre and post test of soccer players

Figure I

Figure Showing the Mean Difference in Shuttle Run of Pre-test and Post-test Group of Soccer Players

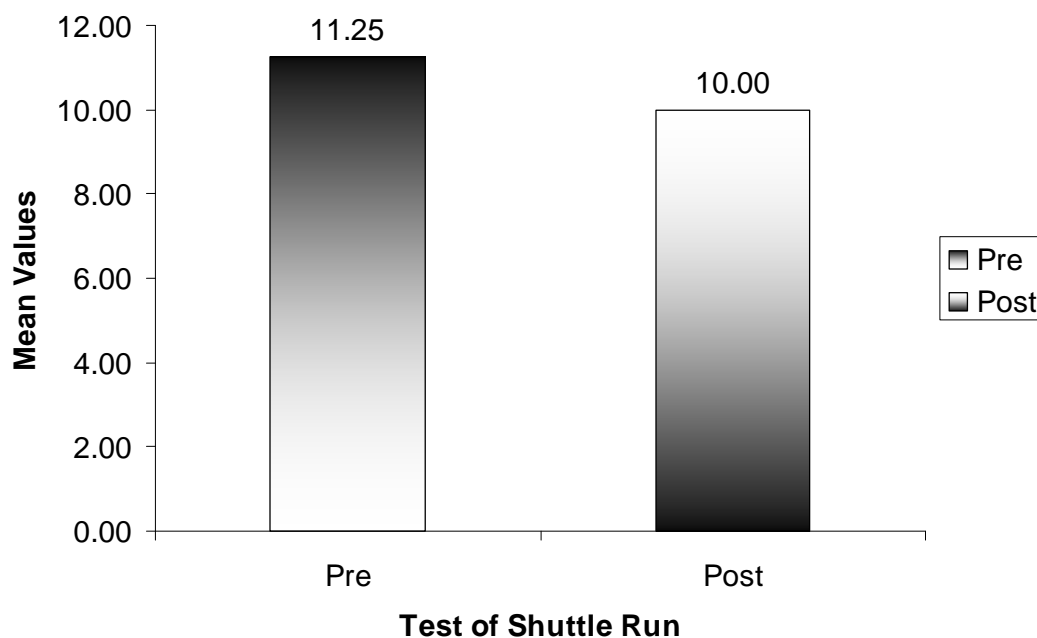


Table II

Table Showing the Effect of Exercises on Shuttle Run (Agility) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Pre	11.25	0.61	0.11	2.77*	2.048
Mid	10.64	0.60	0.11		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run pre-test and mid-test mean values are 11.25 and 10.64 respectively. Standard deviations are 0.61 and 0.60, standard errors is 0.11 and 0.11 respectively. The calculated 't' value is 2.77 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in shuttle run between pre and mid test of soccer players.

Figure II

Figure Showing the Mean Difference in Shuttle Run Pre-test and Mid-test Group of Soccer Players

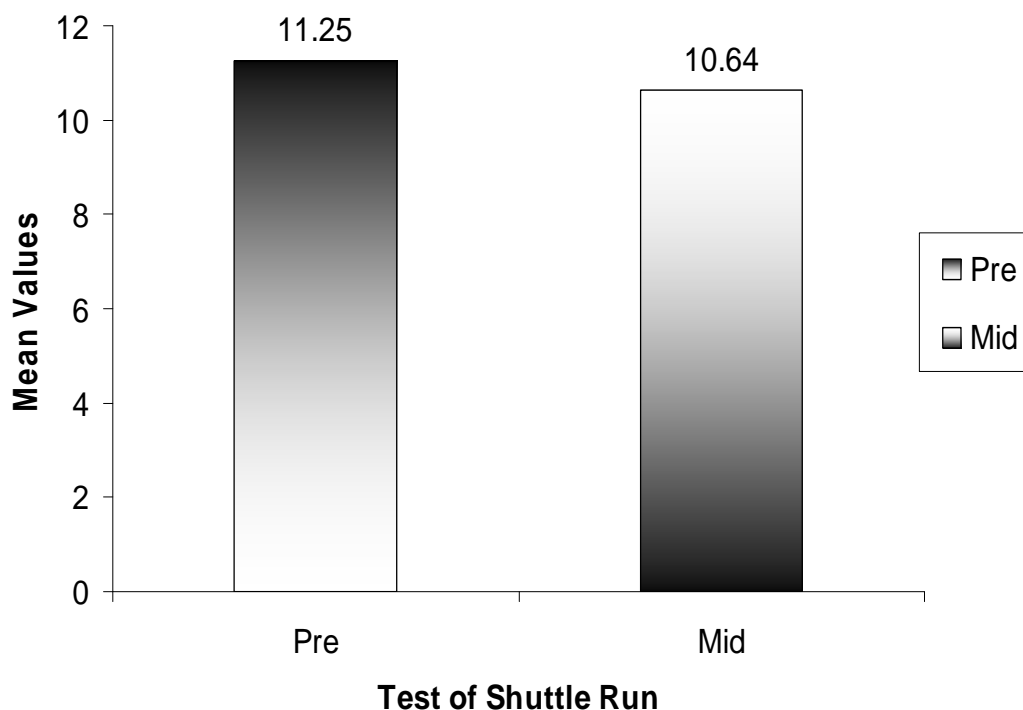


Table III

Table Showing the Effect of Exercises on Shuttle Run (Agility) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Mid	10.64	0.60	0.11	2.91*	2.048
Post	10.00	0.58	0.11		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run mid-test and post-test mean values are 10.64 and 10.00 respectively. Standard deviations are 0.60 and 0.58, standard errors is 0.11 and 0.11 respectively. The calculated 't' value is 2.91 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in shuttle run between mid and post test of soccer players.

Figure III

Figure Showing the Means Difference in Shuttle Run of Mid-test and Post-test of Soccer Players

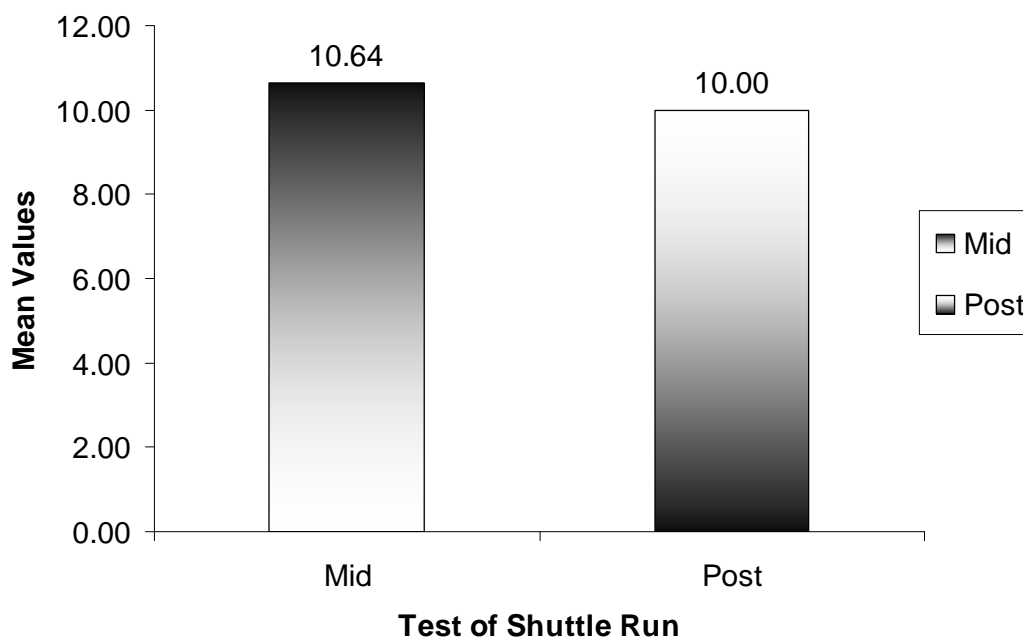


Table IV

Table Showing the Effect of Exercises on Standing Broad Jump (Explosive Leg Strength) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Pre	1.95	0.25	0.046	9.2*	2.048
Post	2.87	0.31	0.056		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run mid-test and post-test mean values are 1.95 and 2.87 respectively. Standard deviations are 0.25 and 0.31, standard errors are 0.046 and 0.056 respectively. The calculated 't' value is 9.2 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in standing broad jump between pre and post test of soccer players.

Figure IV

Figure Showing the Mean Difference in Standing Broad Jump of Pre-test and Post-test Group of Soccer Players

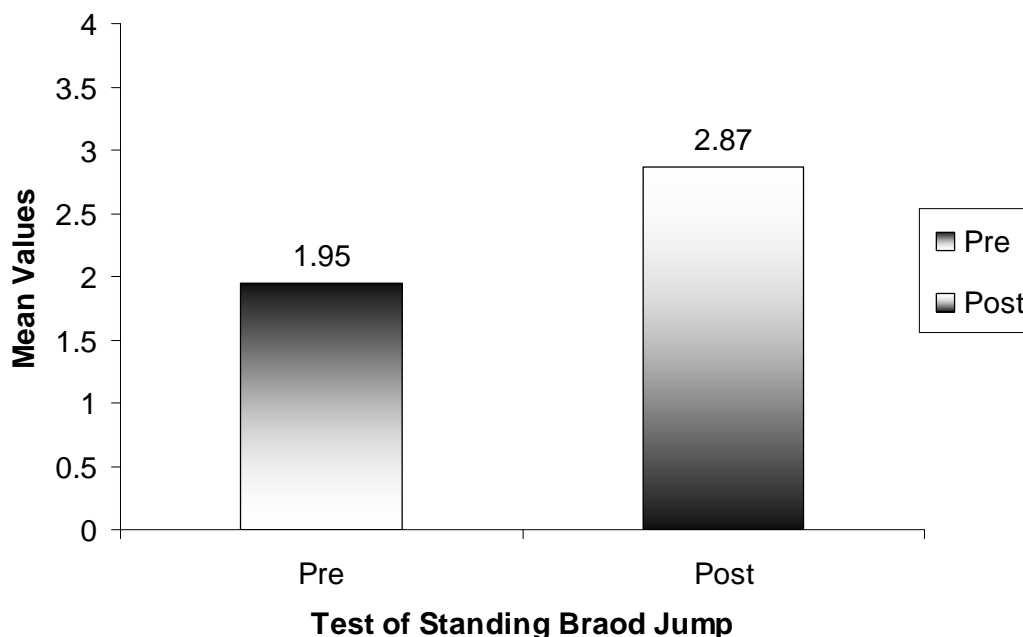


Table V

Table Showing the Effect of Exercises on Standing Broad Jump (Explosive Leg Strength) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Pre	1.95	0.25	0.046	4.54*	2.048
Mid	2.39	0.28	0.051		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run pre-test and mid-test mean values are 1.95 and 2.39 respectively. Standard deviations are 0.25 and 0.28, standard errors are 0.046 and 0.051 respectively. The calculated 't' value is 4.54 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in standing broad Jump between pre and mid test of soccer players.

Figure V

Figure Showing the Mean Difference in Standing Broad Jump of Pre-test and Mid-test Group of Soccer Players

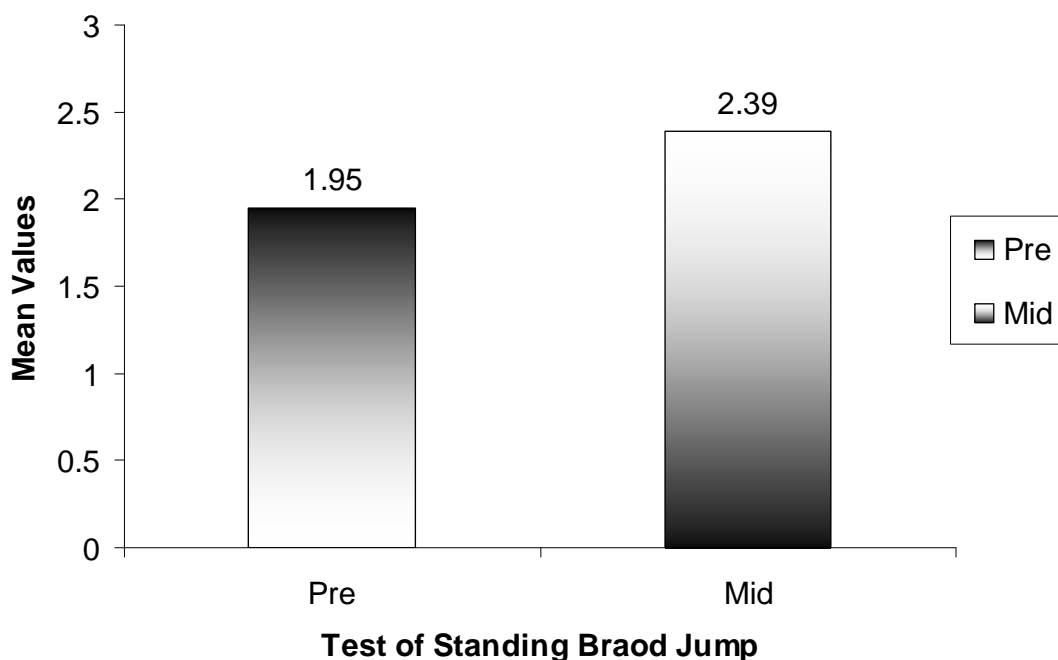


Table VI

Table Showing the Effect of Exercises on Standing Broad Jump (Explosive Leg Strength) of Soccer Players

Test	Mean	SD	Sem	t-cal	t-tab
Mid	2.39	0.28	0.051	4.49*	2.048
Post	2.87	0.31	0.056		

* Significant

* 28 df at 0.05 level of Significant

From the above table it was revealed that effect of exercise on Shuttle Run mid-test and post-test mean values are 2.39 and 2.87 respectively. Standard deviations are 0.28 and 0.31, standard errors are 0.051 and 0.056 respectively. The calculated 't' value is 4.49 which is greater than the tabulated 't' value 2.048. Hence there is significant difference in standing broad jump between mid and post test of soccer players.

Figure VI

Figure Showing the Mean Difference in Standing Broad Jump of Mid-test and Post-test Group of Soccer Players

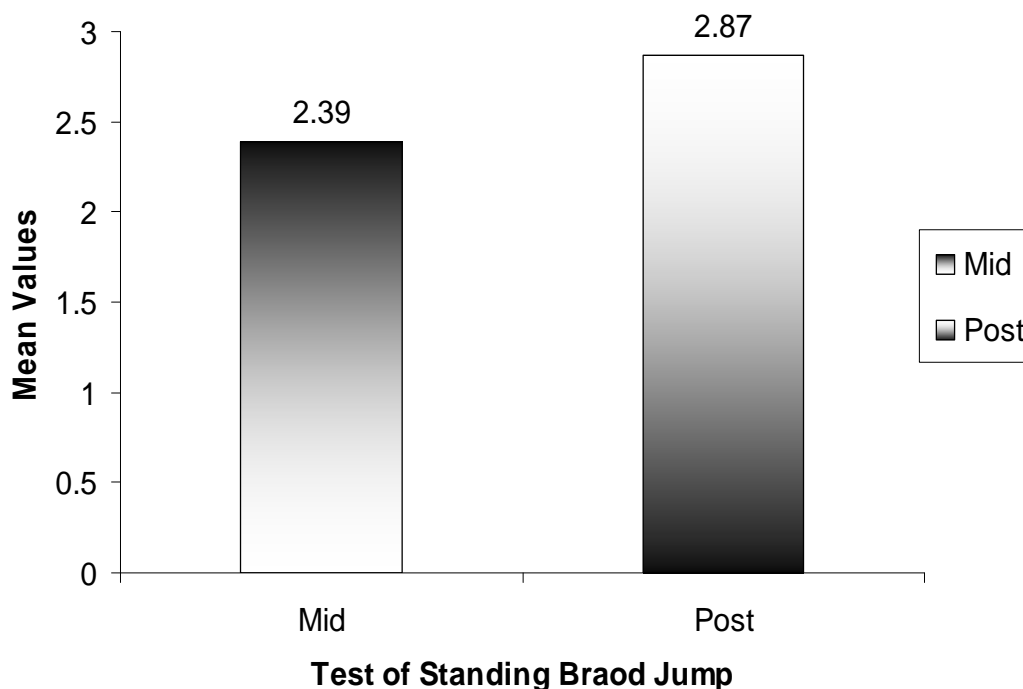


Table VII

Table Showing the Effect of Exercises on Harvard Step Test (Cardio-vascular Endurance) of Soccer Players in Pre-test

Fitness Index Score	Fitness Conditions	Total	Percentage
Upto 54	Poor Condition	01	3.33%
Between 55-64	Low Average	05	16.66%
Between 65-79	High Average	17	56.66%
Between 80-89	Good	07	23.33%
90 and Above	Excellent	0	0%
	Total	30	100%

From the above table it was revealed that 3.33% (1) soccer player found to be poor in condition because Harvard Step Test score is below 54. 16.66% (05) soccer players found to be low average condition because Harvard Step Test score is between 55-64. 56.66% (17) soccer players found to be high average condition because Harvard

Step Test score is between 65-79. 23.33% (07) soccer players found to be good in condition because Harvard Step Test score is between 80-89 and there is no player in excellent condition of Harvard step test 90 and above.

Figure VII

Figure Showing the Percentage Difference of Harvard Step Test in Pre-test Group of Soccer Players

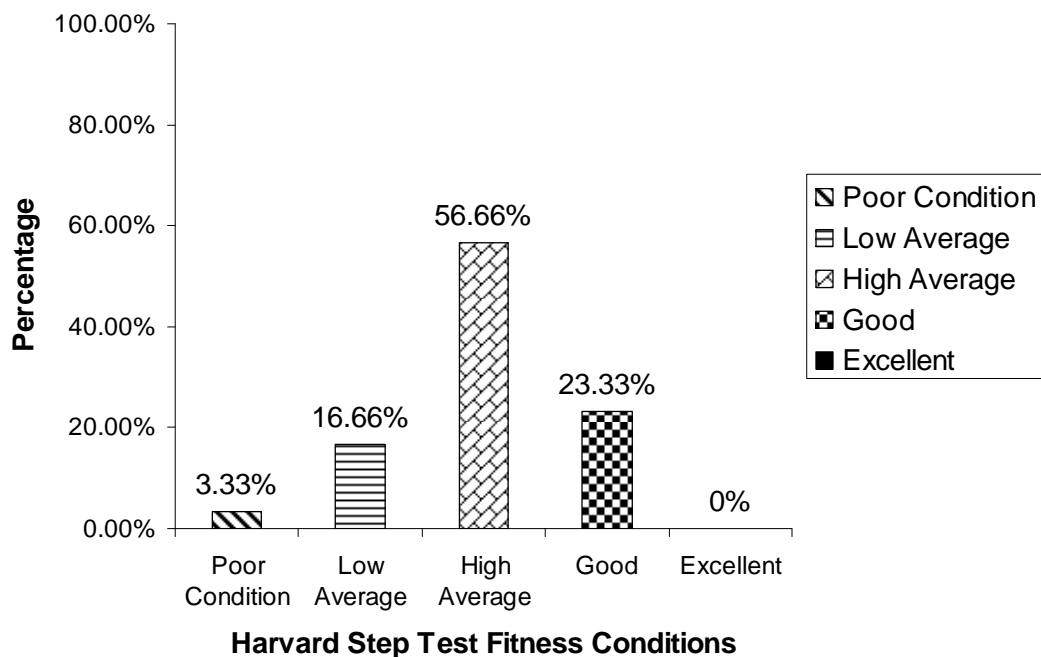


Table VIII

Table Showing the Effect of Exercises on Harvard Step Test (Cardio-vascular Endurance) of Soccer Players in Mid-Test

Fitness Index Score	Fitness Conditions	Total	Percentage
Upto 54	Poor Condition	01	3.33%
Between 55-64	Low Average	04	13.33%
Between 65-79	High Average	17	56.66%
Between 80-89	Good	08	26.66%
90 and Above	Excellent	0	0%
	Total	30	100%

From the above table it was revealed that 3.33% (1) soccer player found to be poor in condition because Harvard Step Test score is below 54. 13.33% (04) soccer players found to be low average condition because Harvard Step Test score is between 55-64. 56.66% (17) soccer players found to be high average condition because Harvard Step Test score is between 65-79. 26.66% (08) soccer players found to be good in condition because Harvard Step Test score is between 80-89 and there is no player in excellent condition of Harvard step test 90 and above.

Figure VIII

Figure Showing the Percentage Difference of Harvard Step Test in Mid-test Group of Soccer Players

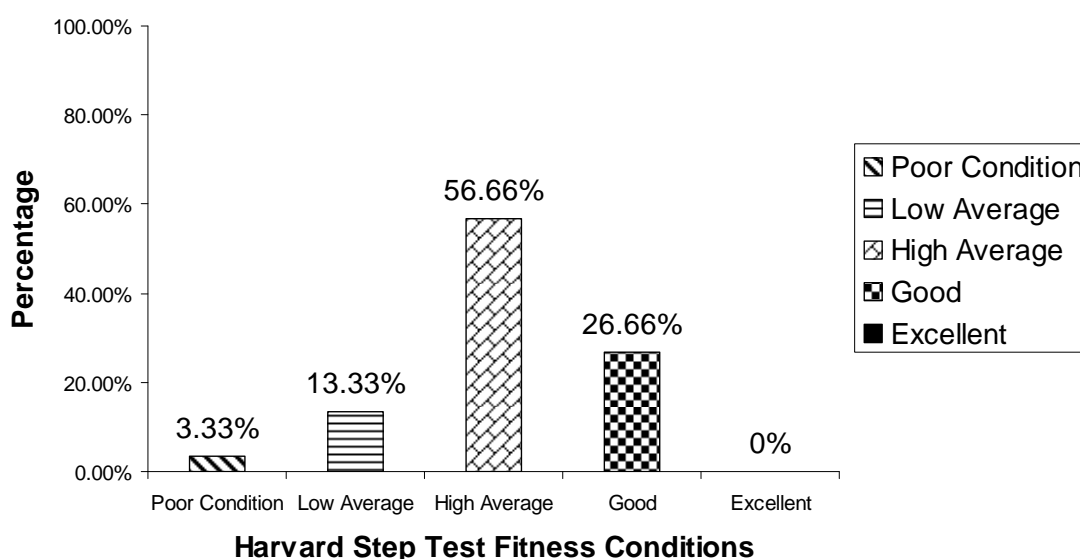


Table IX

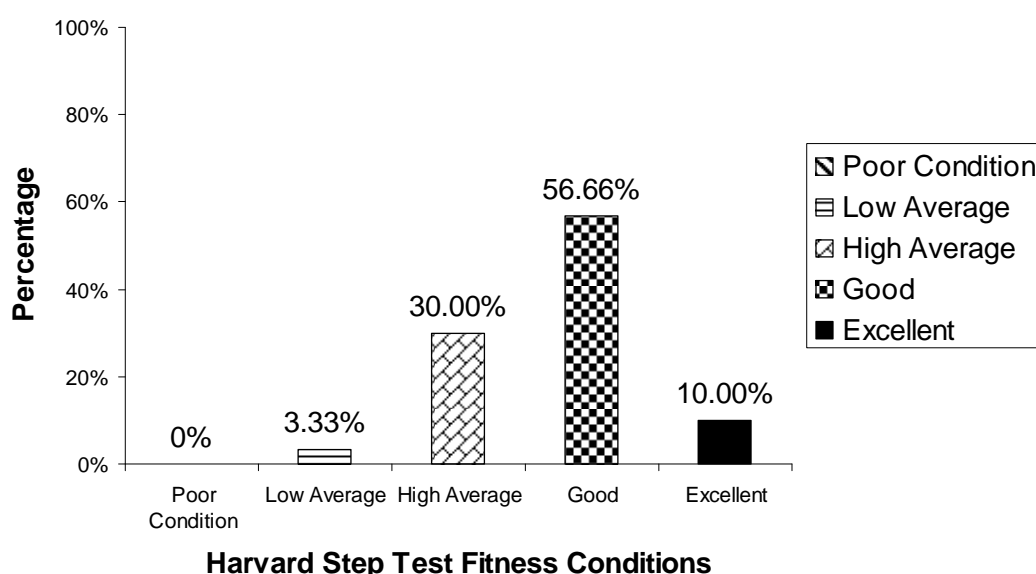
Table Showing the Effect of Exercises on Harvard Step Test (Cardio-vascular Endurance) of Soccer Players in Post-Test

Fitness Index Score	Fitness Conditions	Total	Percentage
Upto 54	Poor Condition	00	00%
Between 55-64	Low Average	01	3.33%
Between 65-79	High Average	09	30.00%
Between 80-89	Good	17	56.66%
90 and Above	Excellent	03	10.00%
	Total	30	100%

From the above table it was revealed that, There are no soccer player found in poor condition Harvard Step Test score not found below 54. 3.33% (1) soccer players found to be low average condition because Harvard Step Test score is between 55-64. 30.00% (9) soccer players found to be high average condition because Harvard Step Test score is between 65-79. 56.66% (17) soccer players found to be good in condition because Harvard Step Test score is between 80-89 and 10.00% (3) soccer players found to be Excellent because Harvard Step Test score is 90 and above.

Figure IX

Figure Showing the Percentage Difference of Harvard Step Test in Post -test Group of Soccer Players



Discussion on Finding

It was found that the calculated value of 't' for effectiveness of exercises on shuttle run (Agility) for pre and post test was 5.68 which was more than the table value of 't' 2.048 which was shown significant difference in pre and post test among the group of soccer players.

It can be revealed that the calculated value of 't' for effectiveness of exercises on shuttle run, agility for pre and mid test was 2.77 which was more than the table value of 't' 2.048 which was shown significant difference in pre and mid test among the group of soccer players.

The calculated value of 't' for effectiveness of exercises on shuttle run (agility) for mid and post test was 2.91 which was more than table value of 't' 2.048 which was shown significant difference in mid and post test among the group of soccer players.

It was shown that the calculated value of 't' for effectiveness of exercises on standing broad jump (explosive leg strength) for pre and post test was 9.2 which was more than the table value of 't' 2.048 which was shown significant difference in pre and

post test among the group of soccer players.

It was found that the obtained value of 't' for effectiveness of exercises on standing broad jump (explosive leg strength) for pre and mid test was 4.54 which was more than the table value of 't' 2.048 which was shown significant difference in pre and mid test among the group of soccer players.

It was seen in table VI that the calculated value of 't' for effectiveness of exercises on standing broad jump (explosive leg strength) for mid and post test was 4.49 which was more than the table value of 't' 2.048 which was shown significant difference in mid and post test among the group of soccer players.

It was found that the obtained value of Harvard Step test for effectiveness of cardio-vascular endurance is that 3.33% of players were found in poor condition because Harvard step test score lies below 54. It also be found that 16.66% of players were found in low average condition because Harvard step test score were found between 55 to 64. It was found that 56.66% players were found in high average condition because Harvard step test score were found between 65-79. It was revealed that 23.33% players were found in good condition because Harvard step test score were found between 80 to 89. It was also found that 0% players were found in excellent condition because Harvard step test were found above 90.

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