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# EFFECT OF PLYOMETRICS EXERCISES ON CARDIO-VASCULAR ENDURANCE AND PLAYING ABILITY OF CRICKET PLAYERS

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## ABSTRACT

Plyometrics, also known as jump training or explosive training, is a type of exercise that involves rapid, high intensity movements that aim to improve muscular power, speed and reactivity.After the statistical Analysis Pre-test and Post-test of control group was not significant, in Cardio-vascular Endurance (t = 0.120), Off Side Batting Ability (t = 0.807), Defend Batting Ability (t = 0.784) and Length Bowling Ability (t = 0.464), Full Length Bowling Ability (t = 0.354), Fielding Ability (t = 0.209) and Overall playing Ability (t = 0.738), because these t-values are less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom. After the statistical Analysis Pre-test and Post-test of Experimental group was not significant, in Cardio-vascular Endurance (t = 2.172), Off Side Batting Ability (t = 4.299), Defend Batting Ability (t = 3.930) and Length Bowling Ability (t = 3.371), Full Length Bowling Ability (t = 2.567), Fielding Ability (t = 2.347) and Overall playing Ability (t = 7.407), because these t-values are less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

**Keywords:** Plyometrics, Endurance, Ability and Cardio-vascular etc

## 1. INTRODUCTION

Plyometric exercise involves and uses practicing plyometric movements to enhance tissues abilities and train nerve cells to stimulate a specific pattern of [muscle contraction] so the muscle generates as strong a contraction as possible in the shortest amount of time. A plyometric contraction involves first a rapid muscle lengthening movement (eccentric phase), followed by a short resting phase (amortization phase), then an explosive muscle shortening movement (concentric phase), which enables muscles to work together in doing the particular motion. Plyometric exercise engages the myotatic reflex, which is the automatic contraction of muscles when their stretch sensory receptors are stimulated.

Plyometrics are not inherently dangerous, but the highly focused, intense movements used in repetition increase the potential level of stress on joints and musculo-tendonous units. Therefore safety precautions are a strong prerequisite to this particular method of exercise. Low-intensity variations of plyometrics are frequently utilized in

various stages of injury rehabilitation, indicating that the application of proper technique and appropriate safety precautions can make plyometrics safe and effective for most people.

## 1.1. PURPOSE OF THE STUDY

The main purpose of the present study was to determine the effect of Plyometrics Exercises on cardio-vascular endurance and playing ability of inter-collegiate Cricket players.

## 2. METHODOLOGY

For the present study the data was collected from inter-collegiate Cricket Players of Gondwana University, Gadchiroli. The study was delimited to 30 male inter-collegiate Cricket players. Age of the cricket players was ranging from 18 to 28 years.The researcher divided the Cricket players into two equal groups on the basis of the mean performance of pre-test score. The groups were equated and distributed into two homogeneous groups namely.

1) Experimental Group2) Control Group

## 3. ANALYSIS AND INTERPRETATION OF DATA

To determine the significant difference in the means of Cardio-vascular endurance and playing ability of Cricket players between the two groups as well as between the pre-test and post test means of experimental and control group t-test was employed. .

Findings of the statistical analysis have been shown in the following tables.

**Table 1**

| Test | Mean | S.D. | M.D. | S.E. | t-ratio |
|---|---|---|---|---|---|
| Pre-test | 2188 | 78.098 | 3.000 | 24.878 | 0.120@ |
| Post-test | 2191 | 57.140 | | | |

The above Table 1 show that, Cardio-vascular Endurance mean difference between the pre test and post test of control group is not significant, because the calculated t-value of 0.120 is less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

**Table 2**

| Batting | Test | Mean | S.D. | M.D. | S.E. | t-ratio |
|---|---|---|---|---|---|---|
| Off Side | Pre-test | 4.000 | 1.069 | 0.267 | 0.330 | 0.807@ |
| | Post-test | 4.267 | 0.704 | | | |
| Defend | Pre-test | 3.467 | 0.990 | 0.266 | 0.356 | 0.748@ |
| | Post-test | 3.733 | 0.961 | | | |

The above Table 2 reveal that, mean difference of Off Side Batting Ability calculated t-value of 0.807 and Defend Batting Ability calculated t-value of 0.748 between the Pre-test and Post-test of Control group is not significant, because the calculated t-value was less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

**Table-3**

| Bowling | Test | Mean | S.D. | M.D. | S.E. | t-ratio |
|---|---|---|---|---|---|---|
| Good Length | Pre-test | 4.533 | 1.407 | 0.200 | 0.431 | 0.464@ |
| | Post-test | 4.333 | 0.900 | | | |
| Full Length | Pre-test | 3.933 | 1.033 | 0.134 | 0.377 | 0.354@ |
| | Post-test | 4.067 | 1.033 | | | |

The above Table 3 reveal that, mean difference of Good Length Bowling Ability calculated t-value of 0.464 and Full Length Bowling Ability calculated t-value of 0.354 between the Pre-test and Post-test of Control group is not significant, because the calculated t-value was less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

Table-4

Summary of Mean, Standard Deviation and t-ratio for the Data on

Fielding Ability Between the Means of Pre and Post-tests of Control Group

| Test | Mean | S.D. | M.D. | S.E. | t-ratio |
|---|---|---|---|---|---|
| Pre-test | 4.533 | 0.834 | 0.067 | 0.319 | 0.209@ |
| Post-test | 4.600 | 0.910 | | | |

@ Not significant at 0.05 level Tabulated t0.05(14) = 2.144

The above Table 4 show that, Fielding Ability mean difference between the Pre-test and Post-test of Control group is not significant, because the calculated t-value of 0.209 is less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

**Table 5**

Summary of Mean, Standard Deviation and t-ratio for the Data on

Playing Ability of Cricketer Between the Means of Pre and Post-tests of Control Group

| Test | Mean | S.D. | M.D. | S.E. | t-ratio |
|---|---|---|---|---|---|
| Pre-test | 20.467 | 1.807 | 0.533 | 0.723 | 0.738@ |
| Post-test | 21.000 | 2.138 | | | |

@ Not significant at 0.05 level Tabulated t0.05(14) = 2.144

The above Table 5 show that, Playing Ability mean difference between the Pre-test and Post-test of Control group is not significant, because the calculated t-value of 0.738 is less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

## 4. DISCUSSION OF FINDINGS

After the statistical Analysis Pre-test and Post-test of control group was not significant, in Cardio-vascular Endurance (t = 0.120), Off Side Batting Ability (t = 0.807), Defend Batting Ability (t = 0.784) and Length Bowling Ability (t = 0.464), Full Length Bowling Ability (t = 0.354), Fielding Ability (t = 0.209) and Overall playing Ability (t = 0.738), because these t-values are less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

After the statistical Analysis Pre-test and Post-test of Experimental group was not significant, in Cardio-vascular Endurance (t = 2.172), Off Side Batting Ability (t = 4.299), Defend Batting Ability (t = 3.930) and Length Bowling Ability (t = 3.371), Full Length Bowling Ability (t = 2.567), Fielding Ability (t = 2.347) and Overall playing Ability (t = 7.407), because these t-values are less than the tabulated t-value of 2.144 at 0.05 level of confidence of 14 degree of freedom.

It is also observed that insignificant difference in Fielding Ability (t = 1.247) which was less than tabulated t-value of 2.048 at 0.05 level of confidence of 28 degree of freedom.

## 5. CONCLUSION

From the above findings following are the conclusion the drawn

- There was no significant difference found in vascular endurance and cricket playing ability control group.
- The significant effect observed in Experimental group on cardio-vascular endurance and cricket playing ability, because of training schedule of players.
- In the post test of control and experimental group significant difference found in cardio-vascular endurance, Off Side Batting Ability, Defend Batting Ability, Length Bowling Ability, Full Length Bowling Ability and Overall playing Ability. But insignificant in Fielding Ability.

## 6. RECOMMENDATION

Researcher given some recommendation are as-

- Similar study may be conducted on girls players.
- If the training schedule increase may given the positive result on fielding ability.
- Similar study may be conducted on different level of players i.e. district, state, national.
- For the better and reliable result number of subjects may be increase.

## CONFLICT OF INTERESTS

None.

## ACKNOWLEDGMENTS

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