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# A COMPARITIVE STUDY TO FIND OUT THE EFFECTIVENESS OF REACTION BALL TRAINING TO IMPROVE HAND-EYE CO-ORDINATION AND REACTION TIME BETWEEN CONTINUES TRAINING AND INTERVAL TRAINING AMONG NOVICE CRICKET PL

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## ABSTRACT

**Background and objectives**

Cricket has been an established team sport for hundreds of years and is most popular sports in the world. It originated in England and is today popular in countries such as India, Pakistan, Sri Lanka, Australia and South Africa. Competitive cricket is essentially a bat and ball sport. There are 11 players a side and a game can last anywhere from one day to 5days. Fielding in cricket requires a range of different skills. Close catchers require the ability to be able to take quick reaction catches with a high degree of consistency. This can require considerable efforts of concentration as a catcher may only be required to take one catch in an entire game, but his success in taking that catch may have a considerable effect on the outcome of match .The purpose of this study is to find the effectiveness of reaction ball training in improving hand eye co-ordination among no -vice cricket players.

**Methods**

3.1 Study setting

The study was conducted in RVS Cricket academy.

3.2 Selection of subjects

20 subjects who fulfilled the inclusion and exclusion criteria were selected randomly and divided into two groups.

Group A and Group B

1. Group A:Continues Training.
2. Group B: Interval Training.

**Variables**

**Dependent variables**

- Reaction Time
- Hand - Eye Coordination

Independent variables

- Continues Training
- Interval Training

**Measurement tools**

**Variables**

Reaction time

Hand-eye co-ordination

**Tools**

Ruler drop test

Alternative hand wall toss test

**Results**

The collected data were analyzed by paired 't' test to find out significance difference between pre-test and post-test values of experimental groups and further unpaired 't' test was applied to find out the differences between groups. When comparing the mean value it was found that the continuous training with reaction ball is more effective than interval training with reaction ball. The result showed significant improvement in the players reaction time and hand-eye co-ordination.

**KEYWORDS :** Reaction ball , Reaction time , Hand-eye co-ordination , Ruler drop test, Alternative hand wall toss test

## INTRODUCTION

Cricket has been an established team sport for hundreds of years and is most popular sports in the world. It originated in England and is today popular in countries such as India, Pakistan, Sri Lanka, Australia and South Africa. The beneficial part is that any player can improve his fielding1. Fielding can only improve with adequate practice and implementing certain techniques. With good fielding you can save many run and hold on to those catches that makes a great difference in the game of cricket2. Fielding in cricket requires a range of different skills. Close catchers require the ability to be able to take quick reaction catches with a high degree of consistency. This can require considerable efforts of concentration as a catcher may only be required to take one catch in an entire game; Reaction Ball is a fielding aid which is perfect for improvement of hand eye coordination and reaction time. Volley the Reaction Ball between two players, or rebound it against a wall. Upon landing, the ball will bounce in an unpredictable manner. Repeating these steps will improve your speed and coordination for cricket ball. The unpredictable bounce of these rubber balls forces players to make split – second decisions in order to catch the balls. The random bounce helps train reaction time and hand- eye coordination, so athletes improve overall coordination and depth perception .Throw the balls against any hard surface for multidimensional drills.

## MATERIALS AND METHODS

20 subjects who fulfilled the inclusion and exclusion criteria were selected randomly and divided into two groups. Group A with Continues Training and Group B with Interval Training. The study was a Pre and Post Test Experimental Design. Reaction time Hand-eye co-ordination was calculated using Ruler drop test and Alternative hand wall toss test.

### Inclusion criteria

- Male players
- Age group between 17-21yrs
- Non regular cricket players
- Dominant hand either Right Hand or Left Hand

**Exclusion criteria**

- Players wearing contacts lenses or power glasses
- Players with any recent trauma or injury
- Players with hypo joint mobility
- Players with any infection or under any medication
- Players with Low Back Pain
- Professional Cricket players

Before The Collection Of data all the subjects were explained about the purpose of the study.Full co-operation of each participant was sought after complete explanation of the condition effectiveness and demonstration of the procedure involved in the study.

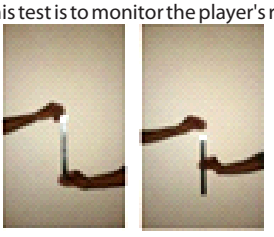
**3.9 Materials used**

- Reaction Ball
- Ruler

**RULER DROP TEST**

**Objective:**

The objective of this test is to monitor the player's reaction type.



**Required Resources:**

- Meter ruler (30 cm)
- Note pad and a pen to note down the readings

**Testing Procedure**

- The player was in sitting position by resting his forearm end of the couch with wrist hanging outside the couch.
- The ruler was held by the examiner between outstretched index finger and thumb in such a way that the top of thumb of the players is level with zero centimeter line on the ruler
- The examiner instructed the player to catch the ruler as soon as possible after it has been released. The player has to catch the ruler between his thumb and index finger.
- The examiner then notes the reading on top of the players thumb.
- The procedure is repeated 2-3 times to get the average value

**Scoring:**

The value is noted for all the selected subjects and the values are converted into reaction time by a formula. Calculations are based on normative data table tabulated below

The anti-logarithm to calculated the reaction speed is d=vt + ½ at2 where,

- d=distance in meters
- v=initial velocity=0
- a=acceleration due to gravity =9.81 m/s-2
- T=time is seconds.

**ALTERNATIVE HAND AND WALL TOSS TEST**

**Objectives:**

The objective of this test is to measure Hand-Eye Coordination for a player

**Required Resources:**

- Reaction ball
- Smooth and solid wall
- Marking tape
- Stop watch

**Testing procedure:**

- A line was drawn from the wall at a certain distance (e.g.2meters or 3 feet)
- Then the player was asked to stay behind the drawn line. The ball was thrown from one hand in an underarm action against the wall, and attempted to be caught with the opposite hand.
- The player was asked to perform the test as trail for once or twice.
- Once he is ready the test was performed for 30sec
- As instructed by the examiner.
- Number of ball hitting the wall is counted as a score for each individual was noted and
- The values were tabulated.

**Experimental procedure:**

**Group A: Reaction ball with continues training**

**Warm-up exercises:**

The players were trained with Warm up exercises so that there won't be any discomfort during the training session. The main aim of the Warm up exercises is to elongate and lengthen the muscles. The Warm up exercises also help the players to rule out the Asymmetries in the body and make the muscles in both sides equal. Mainly the Warm up exercise reinforces the flexibility of the body to optimize during timing session. Some of the Warm up exercises given are as follows.

**Reaction ball drill:**

At first the player explained about the training with Reaction Ball Before going for Reaction Ball Drills the player is trained with the Reaction Ball by simple throw and catch and toss and catch. This will help the player to understand how the ball bounces in the different directions and how to react to it As a progression smaller reaction ball was introduced to the player this will be much more difficult for the players. The subjects were trained specifically with two drills they are as follows.

**Continues exercise training**

Duration: 4 week (7 days/ week)
Session: 1 session/ day
Duration of 1 session: 30 minutes

**A) Burning ball:**

Benefits: Improves Hand-eye co-ordination and reaction time.
Procedure: Burning ball involves three different levels of exercises which increases in difficulty. Throughout this exercise the players were asked to maintain feet at a shoulder width with knee slightly bent. This stance provides good balance and enables trainee to string into the necessary step to catch the ball.
Goal: Instructed catch the ball in one to two bounces without chasing it .

1. Drop the ball from knee height and catch
2. Drop the ball from waist height and catch
3. Drop the ball from chest height and catch

**B) The side step:**

Benefits: improves Hand-eye co-ordination, reaction time and bilateral agility .

Procedure: this exercise involves quick movement using side to side steps.

**Goal: Catch ball with a minimal amount of steps.**

1. Stand approximately 5 feet away from the wall , facing the wall
2. Bounce the ball of the wall and catch the using one or both hand.
3. Slide toward the ball using side to side step
4. Do not chase the ball.

**Group B: Reaction ball with interval training**

**Warm up exercises**

**Interval exercise training**

Duration: 4 week (4 days/week)
Session: 1/day
Duration of 1 section: 30 minutes

## RESULTS

**Table Shows the mean value of ruler drop test.**

| S.NO | Variables | Important | | Standard deviation | Paired t value |
|---|---|---|---|---|---|
| | Reaction Time | Mean | Mean Difference | | |
| GROUP A | Pre test<br>Post test | 15.19<br>12.52 | 2.67<br><br>12.49 | 0.689<br><br>3.35 | 17.72<br><br>11.78 |
| GROUP B | Pre test<br>Post test | 23.09<br>10.6 | | | |

**Table shows the comparative mean value, mean difference, standard deviation and unpaired' values of Ruler drop test between Group A and Group B.**

| Sl. no | Groups | Improvement | | Standard deviation | Unpaired "t" Test |
|---|---|---|---|---|---|
| 1<br><br>2 | Group-A<br><br>Group-B | Mean | Mean difference | 2.41 | 90.86 |
| | | 2.67<br><br>12.49 | 9.82 | | |

**Table Shows pre-test and post-test value of Alternative hand wall toss test .**

| S.NO | Variables | Important | | Standard deviation | Paired t value |
|---|---|---|---|---|---|
| | Hand eye coordination | Mean | Mean difference | | |
| GROUP A | Pre-test<br>Post-test | 23.1<br>25.1 | 2 | 0.66 | 9.57 |
| GROUP B | Pre-test<br>Post-test | 29.2<br>35.7 | 6.5 | 6.53 | 3.16 |

**Table shows the comparative mean value, mean difference, standard deviation and unpaired 't' values of Alternative hand wall toss test between Group A and Group B.**

| Sl. no | Groups | Improvement | | Standard deviation | Unpaired "t" Test |
|---|---|---|---|---|---|
| 1<br><br>2 | Group-A<br><br>Group-B | Mean | Mean difference | 2.26 | 44.40 |
| | | 2<br><br>6.5 | 4.2 | | |

Analysis of dependent variable reaction time on continues training with reaction ball in Group A: The Calculated Paired't' value is 17.72 and the Table 't' value is 3.250 at 0.005 level of significance. Hence, the calculated't' value is greater than the Table 't' value there is significant difference in reaction time in continues training with reaction ball among novice cricket players .

Analysis of dependent variable reaction time on interval training with reaction ball in Group B: The Calculated Paired't' value is 11.78 and the Table 't' value is 3.250 at 0.005 level of significance. Hence, the calculated't' value is greater than the Table 't' value there is significant difference in reaction time in interval training with reaction ball among novice cricket players.

Dependent variable reaction time between Group A and Group B: The calculated Unpaired't' value is 90.86 and the Table't' value is 2.878 at 0.005 level of significance. Hence, the calculated't' value is greater than Table 't' value there in significant difference between reaction time in continues training and interval training with reaction ball among novice cricket players.

Analysis of dependent variable hand-eye co-ordination on continues training with reaction ball in Group A:

The Calculated Paired't' value is 9.57 and the Table't' value is 3.250 at 0.005 level of significance. Hence, the calculated't' value is greater than the Table 't' value there is significant difference in hand-eye co-coordination in continues training with reaction ball among novice cricket players.

Analysis of dependent variable hand-eye co-ordination on interval training with reaction ball in Group B:

The Calculated Paired't' value is 3.16 and the Table't' value is 3.250 at 0.005 level of significance. Hence, the calculated't' value is greater than the Table 't' value there is significant difference in hand-eye co-coordination in interval training with reaction ball among novice cricket players .

Dependent variable hand-eye co-ordination between Group A and Group B: The calculated Unpaired't' value is 44.40 and the Table't' value is 2.878 at 0.005 level of significance. Hence, the calculated't' value is greater than Table 't' value there in significant difference between hand-eye co-ordination in continues training and interval training with reaction ball among novice cricket players .

## CONCLUSION

A comparative study was conducted to analyze the efficacy of Continues training and interval training with reaction ball among novice cricket players. The statistical analysis was done by using "paired t test". When comparing the mean value it was found that continues training with reaction ball is more effective than interval training with reaction ball. The result showed significant improvement in the player's reaction time and hand-eye co-ordination.

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