



# International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
Impact Factor (ISRA): 5.38  
IJPESH 2016; 3(5): 92-94  
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www.kheljournal.com  
Received: 20-07-2016  
Accepted: 21-08-2016

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## Assessment of reaction time and steadiness between Inter-College and Inter-University level female softball Players

**Shranjeet Kaur and Upma Bhagat**

### Abstract

The purpose of the study was to find out the significant difference of Reaction time and Steadiness between Inter-College and Inter-University level Female Softball players. The researcher collected the data on total 30 (Inter-College=15 and Inter-University=15) Female Softball players as subjects between the age group of 18-28 years. After the collection of related data, it was processed and analyzed with descriptive statistics and unpaired t-test was employed. The level of significance was set at 0.05 percent. The result shows that Reaction time (audio and visual) variable in significant deference and Steadiness variable shows significant deference between Inter-College and Inter-University level Female Softball players.

**Keywords:** Reaction time, steadiness, softball etc.

### Introduction

Reaction time is the time interval between the application of a stimulus and the appearance of appropriate voluntary response by a subject as rapidly as possible (Teichner, W.H., 1954) [4]. Reaction time has been widely studied as its practical implications may be of great consequence, e.g., a slower than normal reaction time while driving can have grave results. Many factors such as physiological, psychological, pharmacological etc., have been shown to affect reaction times. They are age, sex, gender, handedness, physical fitness, sleep, fatigue, distraction, alcohol, caffeine, diabetes, personality type and whether the stimulus is auditory or visual (Nikam and Gadkari, 2012) [3].

Steadiness is the ability to maintain the body or a part of body in the fixed position or the ability to perform a smooth moment without any deviation from the desired course. Steadiness is adversely affected by muscles tension normally decreases as strength of contraction increases. It is important component for softball game. Steadiness is an important component of softball skills. But somewhere in few skills it plays a good and important role. Arm hand steadiness is the ability to hold one's arm and hand in a specific position for a relatively short period of time. This is a psychomotor phenomenon. It depends upon the combination of psychological process as well as the motor events of the body (kumar and Deol, 2014) [2].

### Materials and Methods

The subjects for the present study consist of Softball Female players. Softball female players who had participated in inter-college and Inter-University level competition. Total 30 players have been selected for the research (15 inter-college and 15 Inter-University). The data was collected from affiliated colleges of Punjabi University Patiala with the age group ranging from 18 to 25 years.

### Selection of Variables

Following Psychological variables were selected for the study:

- (1) Reaction Time
- (2) Steadiness

**Administrations of the Tests**

• **Reaction Time**

a) **Visual Reaction Time**

**Purpose:** This test was administered to measure the visual reaction ability of the subjects.

**Equipment:** Visual Reaction Timer, Table and Chairs, Pencil, Papers.

**Procedure:** visual Reaction timer was kept on a table and started by plugging the plug. The subject was asked to sit on chair reachable to the table where reaction timer was placed opposite to the players' chair. On signal, the lights blinked, the subject reacts immediately to the lights pressing the buzzer in front of particular light for measuring reaction time. Each subject was given a practice trail before actual commencement of the test.

**Instructions**

Buzzer should be pressed only when light was shown on monitor of reaction timer. Press the buzzer in front of the light which blinks. Three trails were given to each subject and the best was considered.

**Scoring:** The score was the time taken in 1/100th seconds.

a) **Audio Reaction Time**

**Purpose:** This test was administered to measure the Audio reaction ability of the subjects.

**Equipment:** Audio Reaction Timer, Table and Chairs, Pencil, Papers.

**Procedure:** Audio Reaction timer was kept on a table and started by plugging the plug. The subject was asked to sit on chair reachable to the table where reaction timer was placed

opposite to the player's chair. On signal, of sound, the subject reacts immediately to the sound pressing the buzzer in front of particular sound for measuring reaction time. Each subject was given a practice trail before actual commencement of the test

**Instructions**

Buzzer should be pressed only when sound was blow on monitor of reaction timer. Press the buzzer in front of the sound which blows. Three trails were given to each subject and the best was considered.

**Scoring:** The score was the time taken in 1/100th seconds.

• **Steadiness**

**Purpose:** To measure an ability of steadiness of player.

**Equipment:** Nine hole steadiness Tester.

**Administration:** the subject is asked to sit on the chair at the front of the instrument in relaxed position. He/she will hold the pin pointer which is attached to with the wire. Subject is asked to dip the pin in the wholes on the instrument. Every time the pin must touch the base without touching the walls of wholes. Whenever the pin touches the walls of the wholes errors will be shown on the meter. Three trails are given.

**Scoring:** the total numbers of errors of each whole were counted. The less number of errors out of three trails are counted as the final score of the test.

**Statistical Procedure**

After the collection of related data, it was processed and analyzed with descriptive statistics. To compare the subjects mean, standard deviation and unpaired t-test was employed with the help of statistical package of SPSS. The significance level was set at 0.05 percent.

**Results and Discussions**

**Table 1 (A):** Mean and Standard Deviation of Selected Reaction Time (Visual) Variable of Softball Inter-College and Inter-University Level Female Players

Group	N	Mean	Standard deviation	Standard Error mean	t-value
Softball Inter- university players	15	0.37	0.12	0.03	1.32
Softball Inter- college players	15	0.43	0.13	0.03	

\*t'.05 (28)= 2.04

Table 1(a) statistically shows that the mean and standard deviation with regard to Softball Inter- university players is 0.37 and 0.12 where as in case of Softball Inter- college players is 0.43 and 0.13 respectively. The calculated t-value

(1.32) which is less than the tabulated t-value (2.04) at 0.05 levels. So, it indicates that there is insignificant difference between Inter-college and Inter-University level Female Softball players for their Reaction time visual variable.

**Table 1(B):** Mean and Standard Deviation of Selected Reaction Time (Audio) Variable of Softball Inter-College and Inter-University Level Female Players

Group	N	Mean	Standard deviation	Standard Error mean	t-value
Softball Inter- university players	15	0.49	0.19	0.05	1.09
Softball Inter- college players	15	0.57	0.18	0.04	

\*t'.05 (28)=2.04

Table 1(b) statistically depicts that the mean and standard deviation with regard to Softball Inter- university players is 0.49 and 0.19 where as in case of Softball Inter-college players is 0.57 and 0.18 respectively. The calculated t-value (1.09)

which is less than the tabulated t-value (2.04) at 0.05 levels. So, it indicates that there is insignificant difference between Inter-college and Inter-University level Female Softball players for their Reaction time audio variable.

**Table 2:** Mean and Standard Deviation of Selected Steadiness Variable of Softball Inter-College and Inter-University Level Female Players

Group	N	Mean	Standard deviation	Standard Error mean	t-value
Softball Inter- university players	15	8.33	2.61	0.67	2.19*
Softball Inter- college players	15	10.47	2.72	0.70	

\*t'.05 (28)=2.04

Table 2 statistically represent that the mean and standard deviation with regard to Softball Inter- university players is 8.33 and 2.61 where as in case of Softball Inter- college players is 10.47 and 2.72 respectively. The calculated t-value (2.19) which is more than the tabulated t-value (2.04) at 0.05 levels. So, it indicates that there is significant difference between Inter-college and Inter-University level Female Softball players for their Steadiness variable.

### Discussion

**Reaction time (visual and audio):** The result of the study established that there is insignificant difference between Reaction time (visual and audio) Inter-college and Inter-University level Female Softball players. While performing the reaction time test Inter-college and Inter-University level Female Softball players react differently to interval of time between the presentation of stimulus and the initiation of the response. The reason behind the insignificance differences is that, at the time of data collection the subjects were performing inconsistently.

**Steadiness:** The result of the study established that there is significant difference between Steadiness of Inter-college and Inter-University level Female Softball players. According to the result obtained it is established that there exists a significant differences between steadiness among Inter-college and Inter-University level Female Softball players because of the maturity level of game and training differences. On the basis of analysis of data, investigator found that the earlier study of kaur, *et al.* (2007) <sup>[1]</sup> supported the present study.

### Conclusions

- ✚ It was observed that there was an insignificant difference between Inter-college and Inter-University level female Softball players for their reaction time (visual and audio).
- ✚ Significant difference was observed between Inter-college and Inter-University level female Softball players for their steadiness.

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