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Comparison of hand-eye coordination of female baseball and softball players of Amravati District

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Abstract
The main purpose of the study is to find the comparison of hand-eye coordination of female baseball and softball players of Amravati District. The subjects for this study were from the District of Amravati (M.S.). A total of sixty (60) female subjects were selected from baseball and softball games. Twenty subjects were selected from each level i.e. Sub Junior, Junior and Senior level baseball and softball female players. Alternate Hand Wall Toss Test Perception respectively for the three groups. The various tests and data was conducted and collected respectively by the researcher himself with the help of experts and sports professionals. The test was administered in the evening at 3.30 p.m. to 5.30 p.m. consecutively for one day. The values of mean, standard deviations of variable was computed on Microsoft Excel 2007 and 't' test was applied to find out significance of differences between the scores of the selected variable and groups. Further the level of significance was set at 0.05 levels with 38 degree of freedom. The experiment carried out on twenty sub junior baseball and softball female players, twenty junior baseball and softball female players and twenty senior baseball and softball female players to find out the comparison on hand eye coordination. Statistical treatment, the results come out were shows insignificant difference between sub junior, junior and senior baseball and softball female players.

Keywords: hand-eye coordination, baseball, softball, players

Introduction
Coordination is the ability of people to execute and control their movements, which is imperative in order to throw a ball, hit a home run, or even kick a goal. In sports, coordination must occur between the eyes, hands, and feet. As children grow up, they lose their coordination skills. Children are smaller, which means they have a lower center of gravity that makes it easier for them to control their bodies. Because of this, they are often better at sports that require high levels of coordination, such as gymnastics [1].

In order to master coordination for sports, it takes practice. For those who participate in racket sports, it is important to learn how to coordinate the movement of the racket with the eyes and hand movements. Research has shown that men and women differ in a variety of ways primarily due to the differences of how they utilize their brains. According to an anthropology article from the Columbia University website, men are more proficient than women at hand-eye coordination because of their aptitude in spatial coordination. Columbia goes into vast detail on the differences between gender-specific abilities as a result of their varying brains. The average man, for example, tends to use only one side of his brain, specifically the left hemisphere for purposes of verbal reasoning. On the other hand, women actively use both sides of their brains for visual, verbal and especially emotional responses. Utilizing both cerebral areas of the brain, women are more competent at sensing emotional messages in conversations, gestures and facial expressions, thus entitling women as the more sensitive sex. Men, however, are adept in spatial coordination, which gives them the ability to have a better sense of direction, more exact control of large muscle movement and better hand-eye coordination [2].

Hand-eye coordination is used in many daily activities. Pour the milk, fold the clothes, set the glass on the coaster. In sports, it's used from start to finish. Throw the ball, stop the puck, hit it straight, pass the ball, catch the ball. Each sport uses it in a different way. Some sports reward reactionary skill while others reward intense concentration. Your hand-eye coordination must be stellar even if you are a mediocre athlete; one minor miscalculation can be disastrous. America's national pastime requires exceptionally high hand-eye coordination. Ted Williams, the last player ever to hit. 400 in a season, once said, "The hardest thing to do is to hit a round baseball with a round bat, squarely." A fastball coming at 90 miles per hour or more from 60 feet, 6 inches away, gives a batter 0.4 seconds to see the ball, swing the bat and make solid contact. Combine that with catching a batted ball traveling over 100 miles per hour, pulling it out of your glove, and throwing it 120-plus feet to a stationary target, often inside of four seconds. All of this can happen dozens of times in every game [3].

Methodology
The subjects for this study were from the District of Amravati (M.S.). A total of sixty (60) female subjects were selected from baseball and softball games. Twenty subjects were selected from each level i.e. Sub Junior, Junior and Senior level baseball and softball female players. Alternate Hand Wall Toss Test Perception respectively for the three groups. The various tests and data was conducted and collected respectively by the researcher himself with the help of experts and sports professionals. The test was administered in the evening at 3.30 p.m. to 5.30 p.m. consecutively for one day.

Alternate Hand Wall Toss Test
Purpose: to measure hand-eye coordination.

Equipment required
Tennis ball or baseball, smooth and solid wall, marking tape, stopwatch (optional).

Procedure
A mark is placed a certain distance from the wall (e.g. 2 meters, 3 feet). The female player stands behind the line and facing the wall. The ball is thrown from one hand in an underarm action against the wall, and attempted to be caught with the opposite hand. The ball is then thrown back against the wall and caught with the initial hand. The test can continue for a nominated number of attempts or for a set time period (e.g. 30 seconds). By adding the constraint of a set time period, you also add the factor of working under pressure.

Scoring
This table lists general ratings for the Wall Toss Test, based on the score of the number of successful catches in a 30 second period [4].

Statistical Analysis
The values of mean, standard deviations of variable was computed on Microsoft Excel 2007 and 't' test was applied to find out significance of differences between the scores of the selected variable and groups. Further the level of significance was set at 0.05 levels with 38 degree of freedom.

Table 1: Comparison of hand-eye coordination of among level female baseball and softball players.

Level	Group	Mean	SD	SE	MD	Ot	df	Tt
Sub Junior	Baseball	21.3	3.89	1.24	0.85	0.68	38	2.01
	Softball	20.45	3.97					
Junior	Baseball	24.4	3.82	1.49	1.1	0.74	38	2.01
	Softball	23.3	5.47					
Senior	Baseball	27.75	4.79	1.72	0.95	0.55	38	2.01
	Softball	26.8	6.01					

*Significant at 0.05 level of confidence, $t_{.05}$ (48) = 2.01.

The table -1 indicates that a mean and standard deviation values with regard to hand eye coordination variable in sub junior baseball female players were 21.3 and 3.89 whereas in softball female players the mean and standard deviation were recorded as 20.45 and 3.97 respectively. There was insignificant difference between sub junior baseball and softball games female players found as the calculated t-value (0.68) was less than tabulation t-value (2.01) at 0.5 level. Graphical representation of above table is made in fig.1.

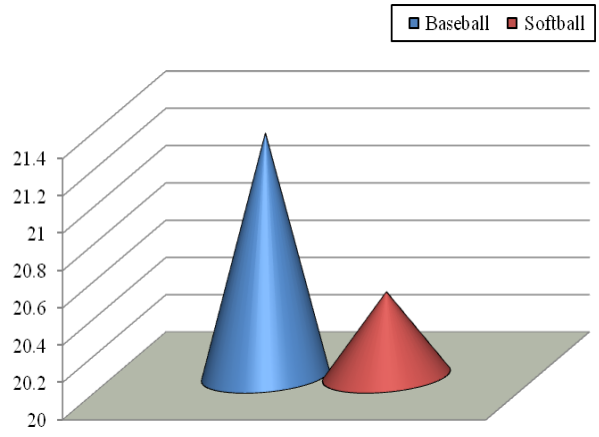

Fig 1: Comparison of Mean of hand-eye coordination of sub junior level female baseball and softball players.

The table -1 indicates that a mean and standard deviation values with regard to hand eye coordination variable in junior baseball female players were 24.4 and 3.82 whereas in softball female players the mean and standard deviation were recorded as 23.3 and 5.47 respectively. There was insignificant difference between junior baseball and softball games female players found as the calculated t-value (0.74) was less than tabulation t-value (2.01) at 0.5 level. Graphical representation of above table is made in fig.2.

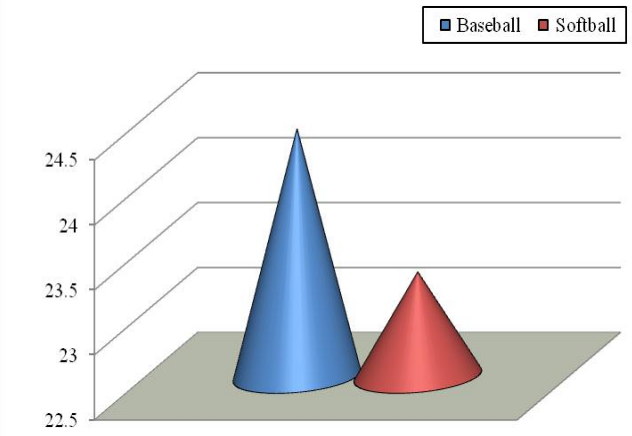

Fig 2: Comparison of Mean of hand-eye coordination of junior level female baseball and softball players.

The table -1 indicates that a mean and standard deviation values with regard to hand eye coordination variable in senior baseball female players were 27.75 and 4.79 whereas in softball female players the mean and standard deviation were recorded as 26.8 and 6.01 respectively. There was insignificant difference between senior baseball and softball games female players found as the calculated t-value (0.55) was less than tabulation t-value (2.01) at 0.5 level. Graphical representation of above table is made in fig.3.

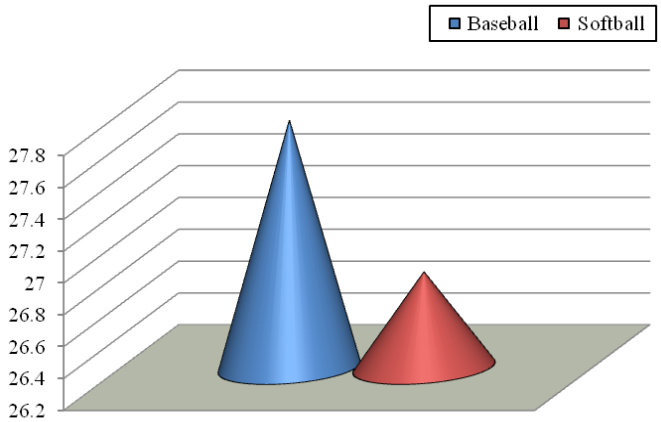

Fig 3: Comparison of Mean of hand-eye coordination of senior level female baseball and softball players.

Conclusion

The experiment carried out on twenty sub junior baseball and softball female players, twenty junior baseball and softball female players and twenty senior baseball and softball female players to find out the comparison on hand eye coordination. Statistical treatment, the results come out were shows insignificant difference between sub junior, junior and senior baseball and softball female players.

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