



Comparative Study of Selected Anthropometric, Physical Fitness and Psychological Variables Between Softball and Cricket State Level Boys Players

KEYWORDS

Anthropometric, Physical Fitness, Psychological, BMI, Speed, agility, flexibility and strength etc.

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ABSTRACT *The purpose of this study is to compare selected Anthropometric, Physical fitness and psychological variables between Softball and Cricket male players at state level. Data will be collected from D.A.V. Public School Patiala, DAV Global School, Patiala and S.D school Patiala(Punjab) India. For achieving the purpose of the study, data was collected on total 60 players (softball-30 and cricket.-30). The study will be only conducted on 8th, 9th, 10th and 11th standard students. The age of all players will be ranging from 14 to 17 years. No physical training will be given before taking all measurements. The study was delimited to following variables: Anthropometric variables: body mass index, upper arm length, fore arm length, hand length, leg length and foot length. Physical fitness variables: Speed, agility, flexibility and strength. Psychological variable: Depth perception. To compare selected Anthropometric, Physical fitness and psychological variables between Softball and Cricket male players at state level mean, standard deviation and t-test were employed with the help of statistical package of SPSS. To test the hypothesis the significance level was set at 0.05 percent. The result showed that there was a significant difference between softball and cricket state level boys players for their hand length, leg length, Speed, agility, strength and no significant difference for their body mass index, upper arm length, fore arm length, foot length, flexibility and Depth perception.*

INTRODUCTION

Games and sports had become an integral part of human beings; it rose to its greatest height in Greece, which is called "Golden Era" in the history of games and sports (Singh, 2014). Anthropometry is the measurement of body size and proportions. The measurements include body weight, height, circumference, skin fold thickness and bony widths and lengths (Heyward, 2006). Anthropometry is a branch of science concerned with comparative measurements of the human body, its parts, and its proportions and composition. It is the study of measurement of the human body in terms of the dimensions of bone, muscle and adipose tissue. Anthropometry has been used to assess gross structure and function. There are numerous factors which are responsible for the performance of a sportsman. The physique and body composition, including the size, shape and form are known to play a significant role in this regard. At present, sportsman for superior performance in any sports is selected on the basis of physical structure and body size.

Physical fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserve of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him. Softball is a sport requiring high levels of physical fitness. It is one of those rare games which demands not only speed but agility, strength, power and endurance. Softball players need a combination of technical, tactical and physical skills in order to succeed. Improving aerobic capacity and overall fitness boosts performance on the Softball field. Cricket is a deceptively demanding sport; players spend a long day on their feet, there are periodic fast sprints when batting, chasing down a ball, and bowling, plus various dynamic movements such as leaping, throwing, and turning quickly. It really is vital that all players should increase their base levels of fitness because that will allow them to realize

their potential. It will allow them to maintain their level of performance for longer, increasing their concentration and endurance, and that is something each player will have to do if they want to do themselves justice on the world's biggest cricketing stage. Fitness is important at all levels of the game, whilst being essential for top level players; it is beneficial for beginners who will improve both their effectiveness and enjoyment through good standards of fitness. Fitness enables a player to cope with the physical demands of the game as well as allowing the efficient use of his various technical and tactical competencies throughout the match (Meswaniya, 2012).

Depth Perception is visual ability enables you to make spatial judgments, including how far away an object or person is from you. Some of this ability depends strictly on physical characteristics. For example, spacing between the centers of your two pupils is thought to play a major role in how well you see in three dimensions (Segre & Hadrill, 2008).

Depth perception is one of the most importance visual skills for athletes; especially those sports require accurate spatial localization. It is generally believed that uncorrected refractive errors would adversely affect depth perception. However, these case series reported three professional athletes showing significant deterioration of depth perception immediately after refractive correction (Erickson, 2007 & Wood, 1983).

STATEMENT OF THE PROBLEM:

The problem is entitled as "Comparative Study of Selected Anthropometric, Physical Fitness and Psychological Variables between Softball and Cricket State Level boys Players".

**METHOD AND PROCEDURE:
SELECTION OF SUBJECTS**

The subjects for the present study consist of softball and cricket players. Softball and cricket players who had participated in state level competition. Total 60 players have been selected for the research (softball-30 and cricket-30). The subjects were the students of D.A.V. Public School Patiala, DAV Global School, Patiala and S.D school Patiala (Punjab) studying in class 8th,9th, 10th,11th with the age group ranging from 14 to 17 years.

SELECTION OF VARIABLES

The following independent variables seem to contributing to the performance of state level softball and cricket players were selected as variables for the study.

- Anthropometric variables-Body Mass Index, Upper arm length, Fore arm length, Hand length, Leg length and Foot length.
- Physical Fitness variables- Speed (50 m. dash), Strength (Softball throw), Flexibility (Sit and reach) and Agility (Shuttle Run).
- Psychological variable-Depth perception.

TOOLS

Stop watch, Whistle, Wooden blocks, Marking powder, Weighing machine, Anthropometric rod, Sliding caliper, Me-Digraph depth perception.

STATISTICAL ANALYSIS

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

RESULT AND FINDING

**Table -1
MEAN AND STANDARD DEVIATION OF SELECTED ANTHROPOMETRIC, PHYSICAL FITNESS AND PSYCHOLOGICAL VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS**

Variable	Softball players (Mean)	Cricket players (Mean)	Softball players (S.D)	Cricket players (S.D)	Softball players (SEM)	Cricket players (SEM)	t-value
BMI	18.617	19.040	1.424	1.519	0.260	0.277	1.1134
Upper Arm Length	34.503	34.747	1.637	1.529	0.299	0.279	0.5949
Fore Arm Length	27.127	26.600	1.181	1.341	0.216	0.245	1.6145
Hand Length	18.963	19.500	0.983	0.892	0.179	0.163	2.2146*
Leg Length	87.117	89.633	4.622	4.277	0.844	0.781	2.1890*
Foot Length	25.197	25.500	0.986	0.820	0.180	0.150	1.2950
Speed	8.1407	8.7873	1.0024	1.1639	0.0890	0.2125	2.3058*
Strength	41.7170	44.5840	6.0389	5.0146	1.1026	0.9155	2.0005*
Flexibility	9.520	9.833	2.443	2.213	0.446	0.404	0.5206
Agility	10.8497	11.7423	1.2021	1.4287	0.2195	0.2608	2.6187*
Depth perception	6.73	-2.47	29.98	37.14	5.47	6.78	1.0558

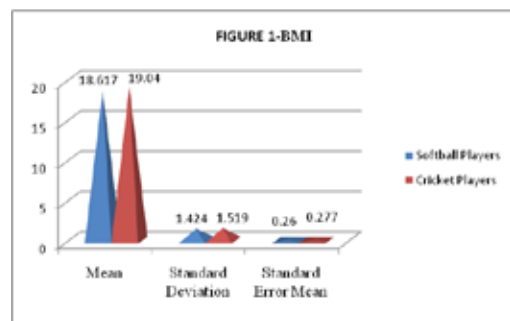
Level of Significance .05, *= Significant df=58

Tabulated't'-value at .05(2.000)

Table-1 & figure 1 to 11: statistically depict that the mean and standard deviation of Softball and Cricket boys players anthropometric variables on BMI 18.617±1.424 and 19.040 ± 1.519, in Upper Arm length (cm) has been found 34.503 ± 1.637 and 34.747 ± 1.529, in Fore Arm Length (cm) has been found 27.127 ± 1.181 and 26.600 ± 1.341, in Hand length (cm) has been found 18.963 ± 0.983 and 19.500 ± 0.892, in Leg length (cm) has been found 87.117 ± 4.622 and 89.633 ± 4.277, in Foot length has been found 25.197 ± 0.986 and 25.500 ± 0.820. Physical fitness variables on Speed(sec.) has been found 8.1407 ± 1.0024 and 8.7873 ± 1.1639 ,in Strength(meters) has been found 41.7170 ± 6.0389 and 44.5840 ± 5.0146 ,in Flexibility (°) has been found 9.520 ± 2.443 and 9.833 ± 2.213 ,in Agility (sec.) has been found 10.8497 ± 1.2021 and 11.7423 ± 1.4287 .Psychological variable on Depth perception has been found 6.73 ± 29.98 and -2.47±37.14. The't' value of BMI 1.1134, Upper Arm length 0.5949, Fore Arm Length 1.6145, Hand length 2.2146, Leg length 2.1890, Foot length 1.2950,Speed 2.3058, Strength 2.0005, Flexibility 0.5206, Agility 2.6187 and Depth perception 1.0558.

So it clearly indicates that there is significant difference in Hand length, Leg length, Speed, Strength and Agility variables between Softball and Cricket players at 0.05 level of significance. On the other hand table also indicates that there is no significant difference in BMI, Upper arm length, Fore arm length, Foot length, Flexibility and Depth perception variables between Softball and Cricket players at 0.05 level of significance.

**FIGURE -1
MEAN AND STANDARD DEVIATION OF SELECTED BMI VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.**



**FIGURE -2
MEAN AND STANDARD DEVIATION OF SELECTED UPPER ARM LENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.**

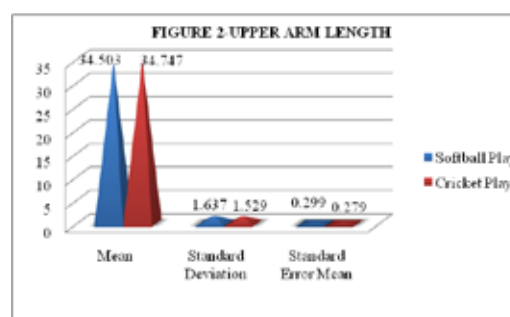


FIGURE -3
MEAN AND STANDARD DEVIATION OF SELECTED FORE ARM LENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

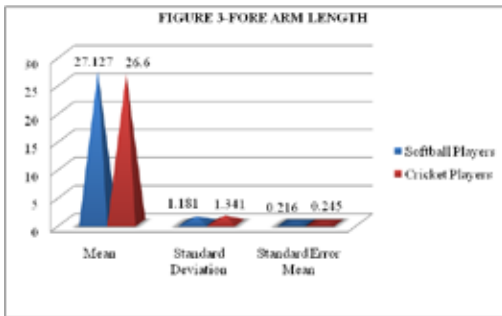


FIGURE -4
MEAN AND STANDARD DEVIATION OF SELECTED HAND LENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

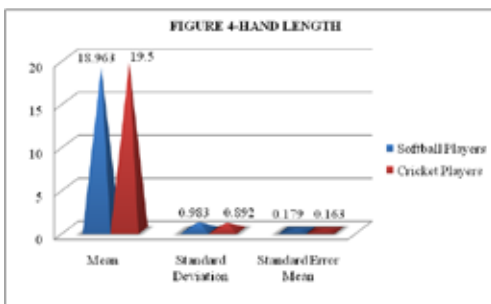


FIGURE -5
MEAN AND STANDARD DEVIATION OF SELECTED LEG LENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

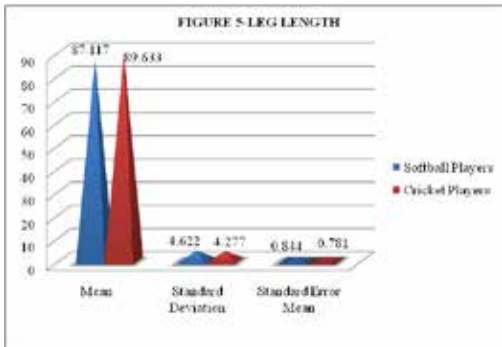


FIGURE -6
MEAN AND STANDARD DEVIATION OF SELECTED FOOT LENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

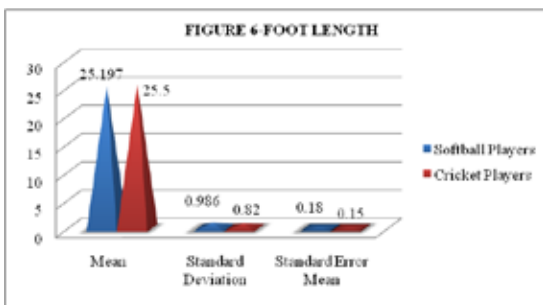


FIGURE -7
MEAN AND STANDARD DEVIATION OF SELECTED SPEED VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

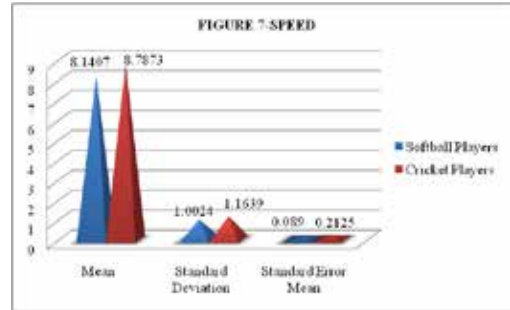


FIGURE -8
MEAN AND STANDARD DEVIATION OF SELECTED STRENGTH VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

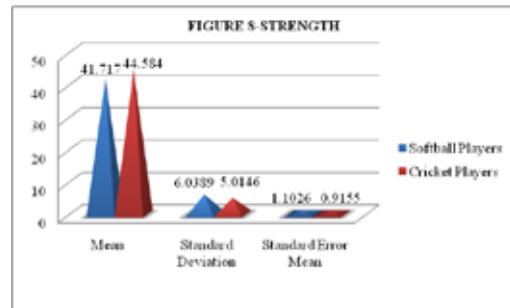


FIGURE -9
MEAN AND STANDARD DEVIATION OF SELECTED FLEXIBILITY VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

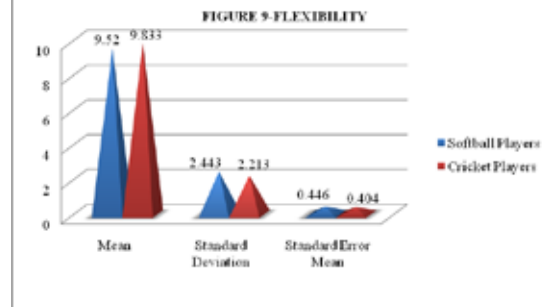


FIGURE -10
MEAN AND STANDARD DEVIATION OF SELECTED AGILITY VARIABLE OF SOFTBALL AND CRICKET STATE LEVEL PLAYERS.

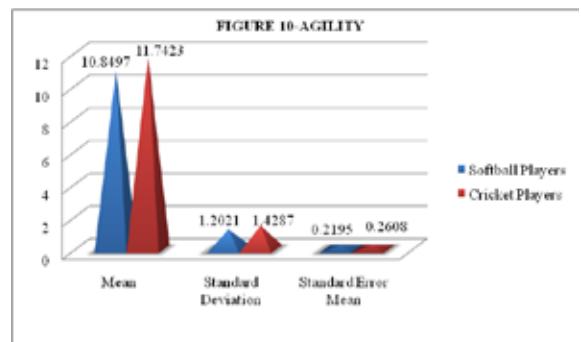
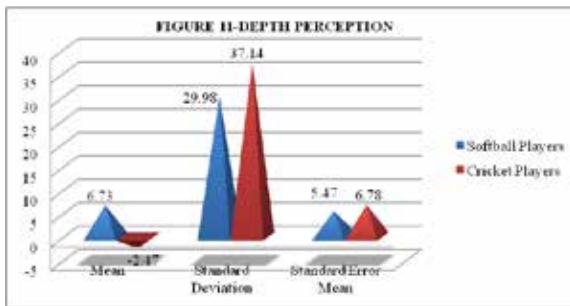


FIGURE -11
MEAN AND STANDARD DEVIATION OF SELECTED
DEPTH PERCEPTION VARIABLE OF SOFTBALL AND
CRICKET STATE LEVEL PLAYERS.



DISCUSSION

Descriptive statistics indicated the differences between level of Anthropometric, Physical Fitness and Psychological Variables between Softball and Cricket State Level boys Players. Analysis of student t- test showed the significant difference between softball and cricket state level boys players. In anthropometric variables cricket boys players are better than softball boys players viz BMI, Upper arm length, Hand length, Leg length and Foot length but in Fore arm length Softball players are best .In Physical fitness variables Softball boys players are better than cricket boys players viz Speed and Agility but in Strength and Flexibility cricket players are best. In psychological variable cricket boys players have better perception than softball boys players viz Depth Perception. The basis of analysis of the data, investigator found that the earlier studies of Dhadwal, M. (2012), Bhardwaj and Bhadoria(2014), Choudhary et. al. (2012), Sahu(2015), Singh & Bhola (2012) , Meswaniya (2012), Surendran & Sudheer (2013), Rathore and Singh (2014) and Singh,P. (2014) supported the present study.

CONCLUSIONS

Based on the results of the study the following conclusions were drawn by the investigator:

- The results strongly confirm that, insignificant differences observe between Softball and Cricket State Level boys Players for their BMI.
- The result authenticate that, there were insignificant differences between Softball and Cricket State Level boys Players for their Upper arm length.
- The results substantiate that, an Insignificant differences were observed between Softball and Cricket State Level boys Players for their Fore arm length.
- The results validate that, a significant difference was found in Hand length variable between Softball and Cricket State Level boys Players.
- The results powerfully prove that, significant differences observe between Softball and Cricket State Level boys Players for their Leg length.
- The result authenticate that there were insignificant differences between Softball and Cricket State Level boys Players for their Foot length.
- Significant differences were found between Softball and Cricket State Level boys Players for their Speed.
- The results substantiate that, significant differences were observed between Softball and Cricket State Level boys Players for their Strength.
- The results confirm that there were insignificant differences between Softball and Cricket State Level boys Players for their Flexibility.
- The results prove that, a significant difference was found in Agility variable between Softball and Cricket State Level boys Players.
- The results validate that, an insignificant difference was found in Depth perception variable between Softball and Cricket State Level boys Players.

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