# COMPARING BETWEEN DIFFERENT ANTHROPOMETRIC VARIABLES OF FOOTBALL AND HOCKEY PLAYERS

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**Abstract:**

The purpose of the study was to compare the Anthropometric variables between the Hockey and Football players. A total number of Forty (N=40) subjects were selected for the study, in which, twenty (n=20) male athletes had participated in various inter-college tournaments in Football and twenty (n=20) male athletes had participated in various inter-college tournaments in Hockey during the year 2014-15. The athletes were selected by applying purposive sampling technique. The variables selected for measurement and comparison between the athletes were height, weight, arm length and leg length. The age of subjects ranged between 16 to 18 years. The Mean, Standard Deviation, Mean Difference and 't'-value were calculated to find out the significance of difference between the groups. The level of significance was set at 0.05. The result revealed no significant differences between the height, weight and leg length of the Football and Hockey players however there was significant difference between the arm lengths of the two groups. In conclusion there was no significant difference between the height, weight and leg length of the Football and Hockey players. The Hockey players, however, have longer arms than the Football counterparts.

**Keywords:** Anthropometric variables, Football & Hockey Players.

**Introduction:**

In Greek 'Anthro' means man and 'pometry' means measurements literally meaning: "measurement of humans". The study of measurements or proportions of the human body according to sex, age, etc. for identification purposes & understanding human physical variation. Anthropometry is the systematic collection and correlation of measurements of the human body. Anthropometry is used for identification, for the purpose of understanding human variation and in various attempts to correlate physical with racial and physiological traits. In the 19th century, anthropometric data were applied, often subjectively, by social scientists attempting to support theories associating biological race with levels of cultural and intellectual development. The Italian psychiatrist and sociologist Cesare Lombroso, seeking physical evidence of the so-called criminal type, used the methods of anthropometry to examine and categorize prison inmates. In Physical Education and Sports anthropometry is used in many different ways. Many a times it is used for information of an individual and many a times to see how they affect performance.

**Methodology:**

**Sample:**

Total forty male subjects (N=40), who have participated in various college level tournaments in their respective games. Twenty subjects (n=20) participated in the game of Football while the other remaining twenty subjects (n=20) participated in Hockey. All the subjects played their respective games during the session of 2014-15 at Nagpur University. Purposive sampling technique was used for the selection of subjects. The age of the subjects ranged between 16 to 18 years.

**Tools:**

For Weight (kilograms) a weighing machine was used, for Height (centimeters) a stadiometer was used and for arm and leg length (centimeters) a measuring tape was used.

**Statistical Analysis:**

The Mean, Standard Deviation, Mean Difference and 't'-values were calculated to find out the significance of differences between the selected anthropometric components of Football and Hockey players. The level of significance was set at 0.05.

**Analysis of Data:**

The results with regard to the anthropometric variables arm length, leg length, height and weight are given in the tables below.

'Curiosity is the best Quality of a Good Researcher'                                    Page 1
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**Table No-I**
**Significance of difference between the arm length of hockey and football players**

| Sport | Mean | Standard Deviation | Mean Difference | Obtained t ratio | Table value of t ratio |
|---|---|---|---|---|---|
| Hockey | 69 | 3.65 | 2.2 | 2.39* | 2.09 |
| Football | 71.2 | 1.83 | | | |

*Significant at 0.05 level

The above table shows that the Mean value of Hockey players is 56 and the Mean value Football players are 58.4. Similarly it shows that the Standard Deviation of hockey players is 8.45 and 7.88 is the Standard Deviation of Football players. The Mean Difference between both groups was of 1.35. After calculations the value of the 't' ratio is 0.92 whereas the table value of the 't' ratio is 2.09. As the obtained 't' ratio is more than the table value of 't' ration, there is a significant difference between the height of Hockey and Football players.

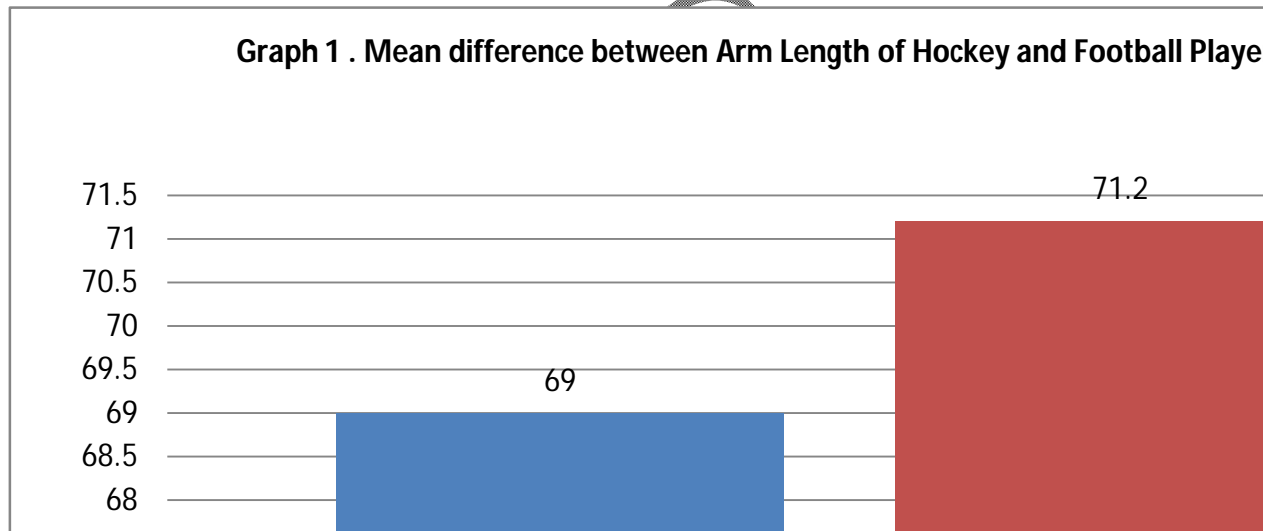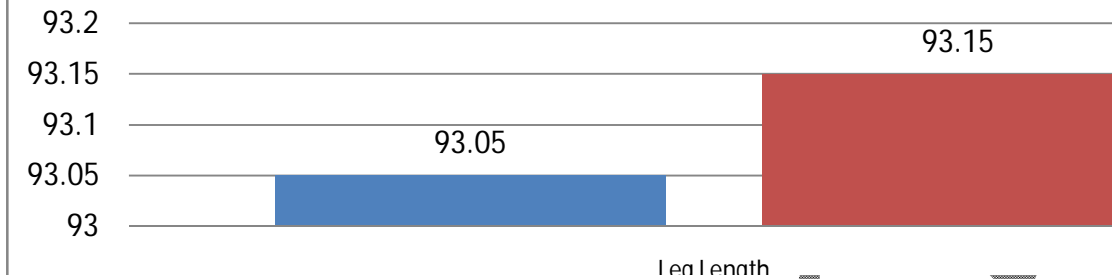**Graph 1 . Mean difference between Arm Length of Hockey and Football Player**



**Table No-II**
**Significance of difference between the leg length of hockey and football players**

| Sport | Mean | Standard Deviation | Mean Difference | Obtained t ratio | Table value of t ratio |
|---|---|---|---|---|---|
| Hockey | 93.05 | 2.52 | 0.35 | 0.14 | 2.09 |
| Football | 93.15 | 1.82 | | | |

*Significant at 0.05 level

The above table shows that the Mean value of Hockey players is 93.05 and the Mean value Football players is93.15. Similarly it shows that the Standard Deviation of hockey players is 2.52 and 1.82 is the Standard Deviation of Football players. The Mean Difference between both groups was of 0.35. After calculations the value of the 't' ratio is 0.14 whereas the table value of the 't' ratio is 2.09. As the obtained't' ratio is less than the table value of 't' ration, there is no significant difference between the height of Hockey and Football players.

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**INTERNATIONAL SCIENTIFIC INDEXED RESEARCH JOURNAL-UAE**
**Website: www.sportjournals.org.in**

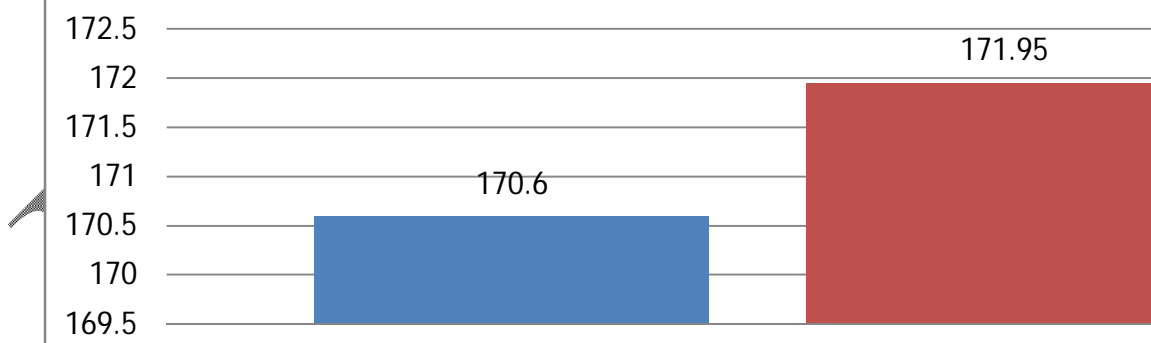**Graph II . Mean difference between Leg Length of Hockey and Football Pl**



Leg Length

**Table No-III**
**Significance of difference between the height of hockey and football players**

| Sport | Mean | Standard Deviation | Mean Difference | Obtained T ratio | Table value of t ratio |
|---|---|---|---|---|---|
| Hockey | 170.6 | 4.99 | 1.35 | 0.96 | 2.09 |
| Football | 171.95 | 3.80 | | | |

*Significant at 0.05 level

The above table shows that the Mean value of Hockey players is 170.6 and the Mean value Football players are 171.95. Similarly it shows that the Standard Deviation of hockey players is 4.99 and 3.80 is the Standard Deviation of Football players. The Mean Difference between both groups was of 1.35. After calculations the value of the 't' ratio is 0.96 whereas the table value of the 't' ratio is 2.09. As the obtained 't' ratio is less than the table value of 't' ration, there is no significant difference between the height of Hockey and Football players.

**Graph 3 . Mean difference between Height of Hockey and Football Playe**



**Table No-IV**
**Significance of difference between the weight of hockey and football players**

| Sport | Mean | Standard Deviation | Mean Difference | Obtained t ratio | Table value of t ratio |
|---|---|---|---|---|---|
| Hockey | 56 | 8.45 | 2.4 | 0.92 | 2.09 |
| Football | 58.4 | 7.88 | | | |

*Significant at 0.05 level

'Curiosity is the best Quality of a Good Researcher'    Page 3
**INTERNATIONAL SCIENTIFIC INDEXED RESEARCH JOURNAL-UAE**
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The above table shows that the Mean value of Hockey players is 56 and the Mean value Football players are 58.4. Similarly it shows that the Standard Deviation of hockey players is 8.45 and 7.88 is the Standard Deviation of Football players. The Mean Difference between both groups was of 2.4. After calculations the value of the 't' ratio is 0.92 whereas the table value of the 't' ratio is 2.09. As the obtained 't' ratio is less than the table value of 't' ration there is no significant difference between the height of Hockey and Football players.

### Graph 4 . Mean difference between Weight of Hockey and Football Players
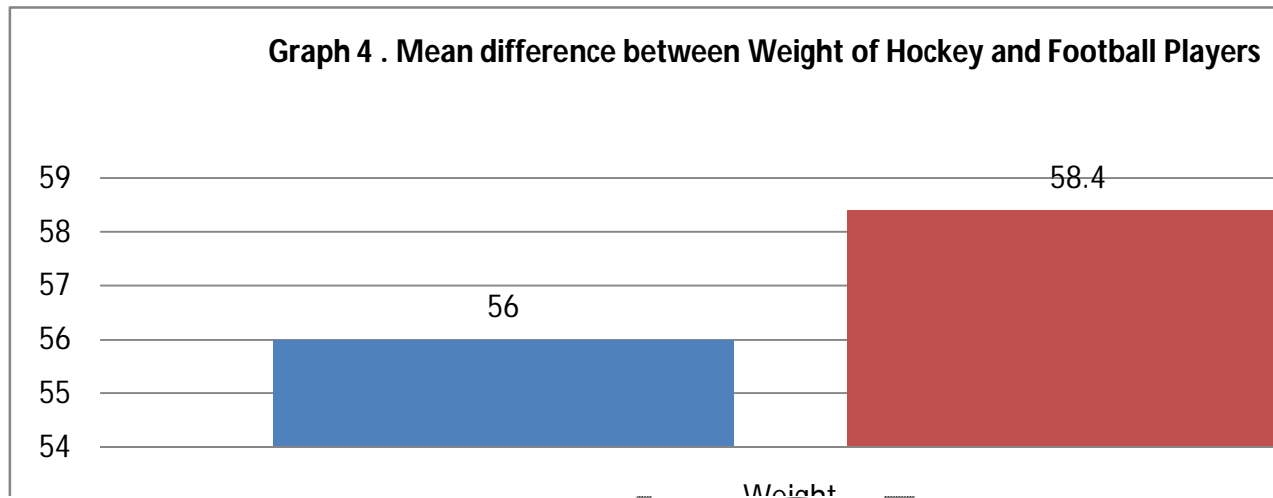


**Findings & Conclusion:**

The study shows that that there is no huge difference between the height, weight and leg length of the players of both games. This may be because of the similarities of both the games as both the games require extensive running and other such activities. However, the arm length of the Hockey players seems to be significantly larger than those of the Football players. This provided the Hockey players with much larger range with the Hockey stick. As many of the subjects are still developing further training might bring even more changes, albeit much slowly, in their bodies in response to their training.

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'Curiosity is the best Quality of a Good Researcher'  Page 4
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