



# A RELATIONSHIP OF SELECTED ANTHROPOMETRIC VARIABLES TO THE SKILL PERFORMANCE OF KARNATAKA STATE B-DIVISION HOCKEY PLAYERS



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## Abstract

Purpose of the study is to find out the relationship of selected anthropometric variables towards the skill performance (playing performance) of B division hockey players. 206 B Division male state hockey players were participated as the samples for the study. Different sites (Height, weight, arm length, Biliocrystal Shoulder width, Elbow width, Knee width, Chestcircumference, Arm circumference, Calf circumference) were measured of samples. Standard procedure was followed to measure the anthropometric sites. To measure the skill performance (playing performance) while samples playing the match three experts of hockey were asked to assess the skills of the player in match situation and give their marks for 50 each. After that all three experts' marks were added and averaged to get the marks of playing performance. Karl-Pearson's co-efficient of correlation technique was used to find out the relationship between anthropometric measurement and playing performance. Very few anthropometric measurements found significant with skill performance. The implication of results are discussed.

**Key Words:** Anthropometric, Skill performance and Hockey players

## 1. INTRODUCTION

A sport is the activity through which the physical ability is maintained and improved by participating in competitive physical activity or games. It provides the enjoyment to participants and entertains the spectators. There are many kinds of sports. Some of them include single participants while some include more than one participant. Sport is recognized through the system of activity which is based on the physical ability of an individual. However, there are certain sport which is recognized through the mental ability of an individual such as chess. Sports contains some rules which ensures fair competition and allow the best person to win. Winning depends on the ability of a person who is capable of defeating the opponent by following the game rules.

These days' sports have become the major source of entertainment. It not only draws large crowd but also generates the revenue. A number of competitions is set to be a tournament where the winning person or the winning team is declared as champions. Some sports are played through leagues, whereas some are played in seasons and it follows by playoffs.

## 1.1. Hockey

Field hockey is fast skill filled and competitive game .Its birth is difficult to state when and where it had its organs, but there was an evidence that a very rude hockey was played by different countries around the world thousands of year back. Hockey is a game which involves two teams playing against each other. One team tries to maneuver the ball and score a goal.

## 1.2. Anthropometry

The word anthropometry is coming from Greek word according to it 'anthropos' means physical and 'metry' means measurement so we can come to conclusion that anthropometry means it's a human body measurements. Nowadays anthropometry plays a vital role in many areas especially industrial designing, clothing design and especially here we are concentrating on sports performance in which anthropometry plays a very important role.

## 1.3. Relationship of hockey with anthropometry

Physical structure is also necessary to derive optimum benefit. Physical structure is comprised of various body segments whose measurements have been known as anthropometrical measurements. Whether one is a Forward, Half and Defenders are required to be blessed with ideal sized body and its parts like, height, weight, arm length, widths and girths according to his role in the team during competitive situation. The role of an ideal body shape and body type for a particular sport or a particular playing position has brought about the idea of "morphological optimization", meaning that athletes with the ideal body type will perform better at their sport at higher levels of competition. Also the majority of successful athletes will have that specific morphology, and the more ideally suited an athlete is to their sport, the lower their risk for injury. To hit the ball for longer distance arm length is needed more, with that arm girth which is also indicator of strength is to more to generate the strength while playing the ball. So researcher wanted to verify which anthropometric site is having significant correlation ship with skill performance (Playing performance).

## 2. METHODS

For the purpose of study 206 male B Division hockey players from various districts of Karnataka state served as the sample for the study. All samples age category was between 16 to 24. In that from Bangalore 76, Kodagu 34, Hassan 33, Mysore 41, Dharwad 08, Davangere 06, and Shimoga 08 are requested to give their anthropometric measurements namely height, weight, arm length, Shoulder width, Biliocristal width, Elbow width, Knee width ,Chest circumference ,Arm circumference and Calf circumference. Height was measured by stadio meter, weight was measured by weighing machine, arm length was measured by steel tape, All the widths were measured by bi-caliper, all the circumferences were measured by Gulic tape. Standard procedure was followed to measure the anthropometric sites. To measure the skill performance, when samples were playing the match three experts of hockey were asked to assess the skills of the player in match situation and give their marks for 50 each. After that all three experts' marks were added and averaged to get the marks of skill performance (playing performance). To find out the relationship between anthropometric measurement and playing performance Karl- Pearson's Co-efficient of correlation statistical technique was used.

### 3. Results

In the following table we can observe the mean and standard deviation of anthropometric sites and “r” value with significance level in relation to playing ability.

Independent Variable	Mean	Standard Deviation	Pearson's coefficient of correlation	Sig
Height	177.33	6.18	-0.054	0.219
Weight	59.70	5.79	0.089	0.102
Arm Span	177.08	7.10	-0.100	0.076
Bi epicondylar shoulder width	38.67	2.78	0.014	0.422
Bi ilio crystal width	26.72	2.13	-0.060	0.197
Bi epicondylar humerus width	7.10	0.52	0.646	0.256
Femur Width	9.48	0.61	0.022	0.378
Chest Circumference (Inspired)	33.62	2.11	0.138	<b>0.024*</b>
Chest Circumference (Expired)	34.60	3.37	0.182	<b>0.004*</b>
Biceps Circumference (Relaxed)	11.26	7.22	-0.005	0.471
Biceps Circumference (Tensed)	12.46	8.00	0.110	<b>0.058*</b>
Calf Circumference	13.22	0.98	0.047	0.250

From the above table we can observe that in selected anthropometric variables weight, shoulder width, chest circumference (inspire and expire), femur with, humerus width, biceps girth (tensed) and calf circumference are positively correlated with playing performance. Height, arm length, biliocrystal width and biceps circumference (relaxed) are negatively correlated with playing performance, but chest circumference (inspired and expired) and biceps circumference (tensed) were found significantly correlated with playing performance. Other than that remaining variables were not at the significant level.

### 4. Discussion.

As we found that Chest circumference (inspired and expired) and tensed arm girth are the two variables which are significantly correlated with playing performance. For the hockey player's upper body use to be strong to execute the skills like pushing, hitting, scooping and stopping. So that player's upper body areas like arm circumference which is the indicator of arm strength and chest circumference needs to be broader. So that might influence on the result. Apart from these three variables no other variables are not correlated at the significant level with playing performance because in this study we are having players playing the same league tourney of Karnataka state with having same potentials. So that might also influences on results.

### 5. Conclusion

In this study chest circumference (inspired and expired), strength, pushing and dribbling were found significantly correlated with playing performance of the B Division hockey players. Other than these variables other variables relationship with players playing performance was not at the significant level

## 6. Recommendations

With the help of results derived from the present study .the following Recommendation can be made

- 1) The present study results can be very much useful for physical educators, coaches and trainers for screening and selecting potential hockey players at university level.
- 2) Further the result of the study can help experts to frame different methods of training by emphasizing the development of factors which are significantly related to hockey performance at different levels
- 3) It is recommended that the present study is only limited to anthropometric variables, further it can be extended to motor fitness variables, psychological variable and for physiological variable.
- 4) It is recommended that the present study may be repeated by selecting subjects belonging to different age groups
- 5) This study is only limited to male hockey player, further it can be extend to female hockey player also.
- 6) This study is only limited to B division hockey players it can be further extended to University, Super division and A division tournament players.

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