



Construction of Norms for Selected Anthropometric Variables for Engineering College Men Hockey Players in Tamilnadu

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Abstract

The study was designed to construct norms for engineering college men hockey players. Hence players from all over the engineering colleges in Tamilnadu who fulfill these conditions were selected for the study. The data were collected from 714 engineering college men hockey players. The researcher in this study attempted to construct norms for the selected anthropometrical variables for engineering colleges between the age group of 18 and 25 using single group normative design. The data for the selected variables to construct norms were collected by administering the appropriate standard tests. Before administering the test, the purpose and procedure were explained to the subjects in detail. The data was assessed during competition period. After collecting the raw scores mean and standard deviation were computed. After calculating the mean and the standard deviation(s) the scores were converted into percentile scale and 6- sigma scale for developing final grade. In arm length out of the seven hundred and fourteen players, 27 players were in excellent grade, 168 players were in very good grade, 334 players were in good grade, 158 players were in average grade and 27 players were in below average grade. In leg length out of the seven hundred and fourteen players, 22 players were in excellent grade, 171 players were in very good grade, 339 players were in good grade, 153 players were in average grade and 29 players were in below average grade.

Keywords: Norms, Anthropometric, Engineering, Hockey Players.

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Introduction

Hockey today is one of the most thrilling spectacular sports in the world it is a symbol of ruggedness and skill, dangerous to extent but exciting from start to finish. It is played with a nerve that makes both the players and spectators satisfied and happy. The very essence of the game lies in its obvious aggressiveness which makes it worth watching and playing. However dangerous it seems to be, the individual responsibility and team work that makes it transcend the line of cruelty and it is this quality of the game which leaves the spectators so enraptured. Norms are developed by transforming raw scores of a given norm group into some types of desired scores so that they may be interpreted more easily. Raw scores can be converted into percentage. Correct scores in which the score actually obtained on the test is decided by the highest possible test scores. This type of conversion is useful for tests of motor skills and abilities. But cannot be used for comparison among tests. A norm is a

standard point of reference that can provide a basis for judgment. Norms are used to interpret related standing to compare scores or group and either to combine of average scores. Norms imply a large number of cases. One hundred is more desirable (Anne, 1985).

Materials and Methods

The study was designed to construct norms for engineering college men hockey players. Hence players from all over the engineering colleges in Tamilnadu who fulfill these conditions were selected for the study. The data were collected from 714 engineering college men hockey players. The researcher in this study attempted to construct norms for the selected anthropometrical variables for engineering colleges between the age group of 18 and 25 using single group normative design. The data for the selected variables to construct norms were collected by administering the appropriate standard tests. Before administering the test, the purpose and procedure were explained to the subjects in detail. The data was assessed during competition period. After collecting the raw scores mean and standard deviation were computed. After calculating the mean and the standard deviation(s) the scores were converted into percentile scale and 6- sigma scale for developing final grade.

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Results and Discussions on Findings

Arm Length

In this study, the arm length of players was shown to be consistent with a good standard. For the

variable, the mean score was 75.37 and Standard Deviation was 5.78.

Table 1. *Descriptive analysis of raw scores on arm length*

S.No	Name of the Variable	Mean	Median	SD (\pm)
3.	Arm Length	75.37	75.40	5.78

The above table shows that the descriptive statistics of raw scores on arm length.

Table 2. *Percentile Norms for Arm Length*

Percentiles	Performance Scores
10	67.85
20	70.60
30	72.60
40	73.80
50	75.40
60	76.80
70	78.20
80	80.20
90	82.90
100	94.70

The above table shows the Percentile Scale for arm length for hockey players that was prepared by keeping the best scores on 100th percentile and the

poorest scores on 10th percentile. In 100th percentile the highest value recorded was 94.70 cm. and lowest value recorded was 67.85 cm. in 10th percentile.

Table 3. *6 – sigma scale for arm length*

6-Sigma Scale	Performance Scores
-3 σ	64.96
-2 σ	68.43
-1 σ	71.90
σ	75.37
1 σ	78.83
2 σ	82.30
3 σ	85.77

Finally from the norms a Grading Scale was developed to interpret the performance of the players

which was presented in table 4.

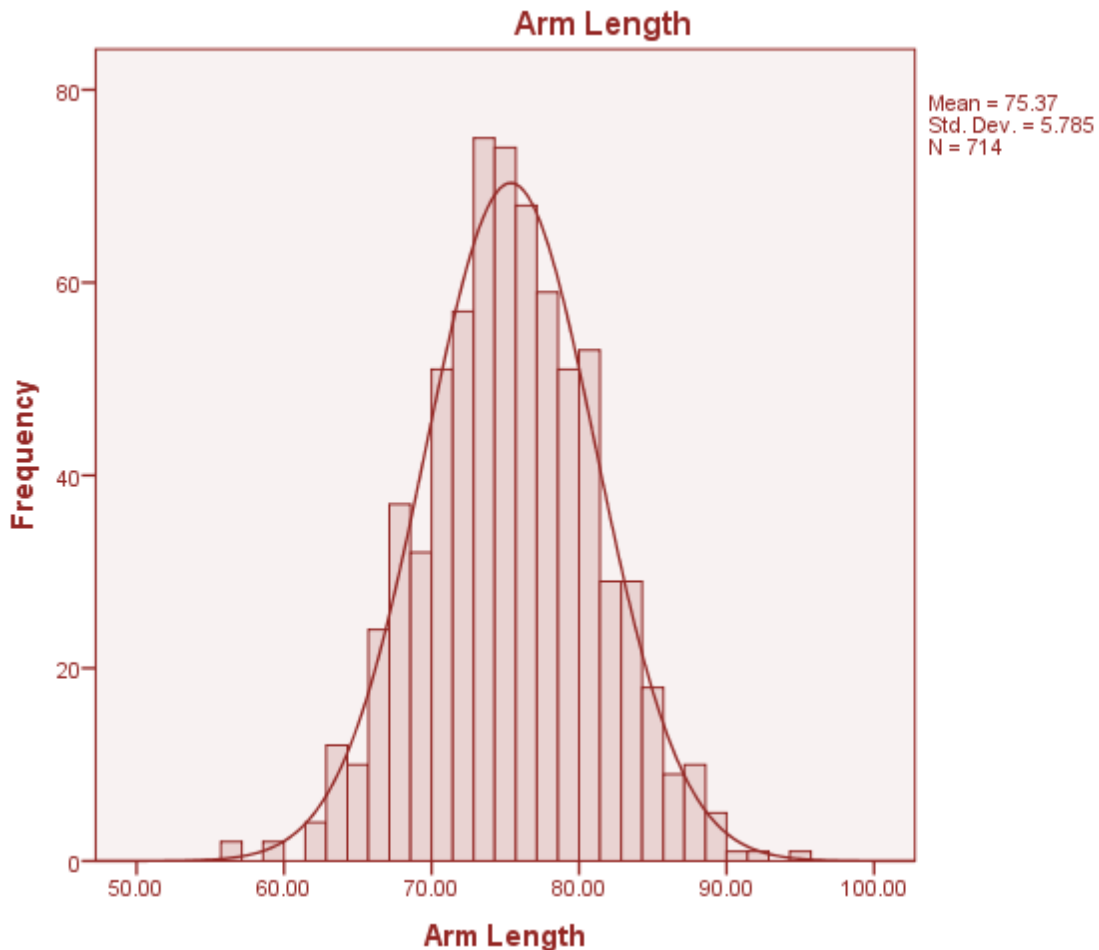
Table 4. Grading scale for the interpretation of arm length scores

Performance Scores	Alphabetical Grade	Interpretive Grade	No of Players in each Grade
Above 85.77	A	Excellent	27
78.84 to 85.77	B	Very Good	168
71.91 to 78.83	C	Good	334
64.96 to 71.90	D	Average	158
Below 64.96	E	Below Average	27

Out of the seven hundred and fourteen players, 27 players were in excellent grade, 168 players were in very good grade, 334 players were in good grade, 158

players were in average grade and 27 players were in below average grade.

Figure 1. Histogram showing the normal distribution of arm length



Leg Length

In this study, the leg length of players was shown to be consistent with a good standard. For the

variable, the mean score was 101.04 and Standard Deviation was 8.84.

Table 5. Descriptive analysis of raw scores on leg length

S.No	Name of the Variable	Mean	Median	SD (\pm)
4.	Leg Length	101.04	101.42	8.84

The above table shows that the descriptive statistics of raw scores on leg length.

Table 6. Percentile norms for leg length

Percentiles	Performance Scores
10	89.01
20	94.22
30	96.92
40	99.37
50	101.42
60	103.18
70	105.63
80	107.94
90	112.26
100	126.39

The above table shows the Percentile Scale for leg length for hockey players that was prepared by keeping the best scores on 100th percentile and the

poorest scores on 10th percentile. In 100th percentile the highest value recorded was 126.39 cm. and lowest value recorded was 89.01 cm. in 10th percentile.

Table 7. 6 – sigma scale for leg length

6-Sigma Scale	Performance Scores
-3 σ	85.18
-2 σ	90.49
-1 σ	95.79
σ	101.1
1 σ	106.40
2 σ	111.70
3 σ	117.01

Finally from the norms a Grading Scale was developed to interpret the performance of the players

which was presented in table 8.

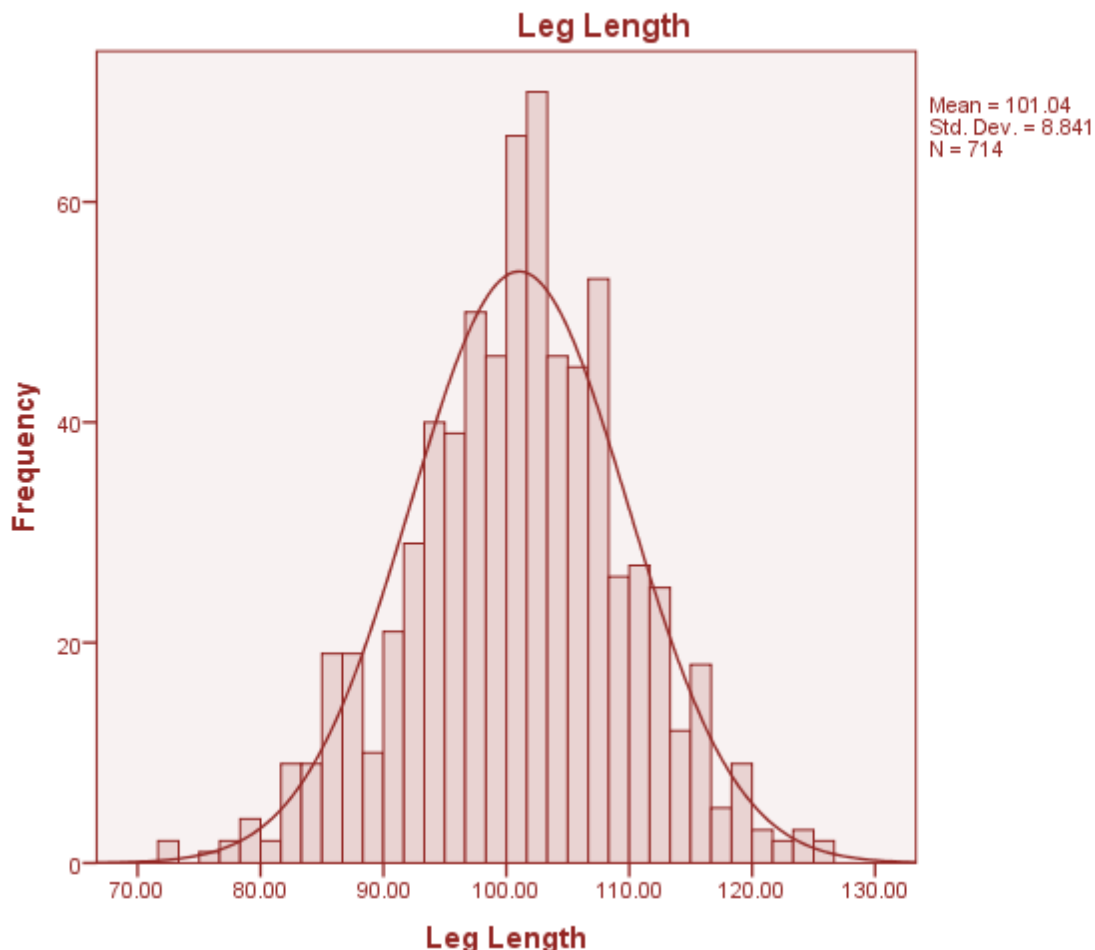
Table 8. Grading scale for the interpretation of leg length scores

Performance Scores	Alphabetical Grade	Interpretive Grade	No of Players in each Grade
Above 117.01	A	Excellent	22
106.41 to 117.01	B	Very Good	171
95.80 to 106.40	C	Good	339
85.18 to 95.79	D	Average	153
Below 85.18	E	Below Average	29

Out of the seven hundred and fourteen players, 22 players were in excellent grade, 171 players were in very good grade, 339 players were in good grade, 153

players were in average grade and 29 players were in below average grade.

Figure II. Histogram showing the normal distribution of leg length



Norms for hockey players of engineering college of Tamilnadu state were constructed in terms of Percentile Scales and 6 Sigma Scale. Selected anthropometric variables was tested and employed in this study. Hence players from all over the engineering colleges in Tamilnadu who fulfill these conditions were

selected for the study. The upper age group of players has been limited to 25 years. The players were evaluated by statistical methods such as percentile scale and 6-Sigma scale. Norms for the both above test were studied thoroughly. For evaluation of players using percentile scale lower score 10 and upper score 100 and in 6-Sigma

scale lower scale -3 SD and upper scale +3 SD were applied. It is concluded that percentile scale able to identify the players position where they stands. Results in the graphical representations of 6-sigma scale indicate that maximum numbers of players are recorded in mean range and in that lower scale remain below ten. Hence, the constructed norms would be able to select the players at engineering college level.

Conclusions

1. In arm length out of the seven hundred and fourteen players, 27 players were in excellent grade, 168 players were in very good grade, 334 players were in good grade, 158 players were in average grade and 27 players were in below average grade.
2. In leg length out of the seven hundred and fourteen players, 22 players were in excellent grade, 171 players were in very good grade, 339 players were in good grade, 153 players were in average grade and 29 players were in below average grade.

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