



## COMPARATIVE STUDY OF HAND GRIP STRENGTH, SHOULDER STRENGTH AND ABDOMINAL STRENGTH BETWEEN HOCKEY PLAYERS AND CRICKET PLAYERS

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### Abstract:

The aim was to compare the hand grip strength, shoulder strength and abdominal strength between hockey and cricket players. It was hypothesized that there would be significant difference on hand grip and abdominal strength between hockey and cricket players. 30 subjects of Hockey players and cricket players of Pondicherry University and Pondicherry University affiliated colleges were selected to examine the Hand grip, shoulder strength and abdominal strength. The data were statically analysed the data and results. The 'T' ratio employed separately for each variable between the two groups. Group A (Hockey players) and the Group B (Cricket players). The calculated 'T' ratio is tested for significance at 0.05 level of confidence for the variables. The result of the study analysis showed that the hand grip strength, abdominal strength of hockey players have better than the cricket players. Shoulder strength of the cricket players have better than the hockey players.

**Key Words:** Hand Grip Strength, Shoulder Strength, Abdominal Strength, Hockey Players, Cricket Players

### Introduction:

The word "Sport" comes from the old French Despot meaning "leisure". A sport is commonly defined as an organized, competitive, and skilful physical activity requiring commitment and fair play. It is governed by a set of rules or of the customs. In a sport the key factors are the physical capabilities and skills of the competitor when determining the outcome (winning or losing). The physical activity involves the movement of the people, animals and/or a variety of subjects such as balls and machine. In contrast, games such as card games and board games, though these could be called mind sports, require only mental skills. Non-competitive activities such as jogging usually classified as recreations.

### Strength Training:

Strength training is the use of resistance to muscular contraction to build the strength, anaerobic endurance and size of skeletal muscles. See the resistance training article of information about elastic / hydraulic training, but note that terms "strength training" and "resistance training" are often change interchangeably. When properly performed, strength training can provide significant functional benefits and improvement in overall health and well-being, including increased bone, muscle, tendon and muscle, ligament strength and toughness, improved joint function, reduced potential for injury increased bone density, strength training is primarily and anaerobic exercise through circuit training. Strength Training is a type of physical exercise specializing in the use of resistance induce muscular contraction which builds the strength, anaerobic, and size of skeletal muscles. When properly performed, strength training can provide significant functional benefits and improvement in overall health and well-being, including increased bone, muscle, tendon and ligament strength and toughness, improved joint function, reduced potential for injury, increased bone density increased metabolism, improved cardiac function, and elevated HDL ("good") cholesterol. Commonly uses the technique of progressively increasing the force output of the muscle through incremental weight increases and uses a variety of exercises and types of equipment to target specific muscle groups. Strength training is primarily an aerobic activity, although some proponents have adapted it to provide the benefits of aerobic exercise through circuit training.

### Resistance Training:

Resistance training is a form of strength training in which each is performed against a specific opposing force generated by resistance. Exercise are isometric if a body part is holding till against the force. Properly Performed, resistance training can provide significant functional benefits and improvement in overall health and well-being. The goal of resistance training, according to the American Sports Medicine Institute (ASMI) is to "gradually and progressively overload the musculoskeletal system so it gets stronger".

### Basic Principles:

The basic principles of the strength training involve a manipulation other number of repetitions, sets, tempo, exercises, and force to cause desired changes in strength, endurance, size or shape by overloading of a group of muscles. The benefits of strength training include increased muscle, tendon and ligament strength, bone density, flexibility, tone, metabolic rate and postural support. Strength training, by definition, is a concerted effort to use resistance or weights to work a muscle group. Being active is beneficial to the body, but it takes a focused effort to work by either using weights, or your own weight.

### **Grip Strength:**

Grip strength is the force applied by the hand to pull on or suspend from objects and is a specific part of hand strength. Optimum-sized objects permit the hand to wrap around a cylindrical shape with a diameter from one to three inches. Stair rails are an example of where shape and diameter are critical for proper grip in case of a fall. Other grip strengths that have been studied are the hammer and other hand tools. In applications of grip strength, the wrist must be in a neutral position to avoid developing cumulative trauma disorders.

### **Statement of the Problem:**

The statement of the study was to compare the hand grip strength, shoulder strength and abdominal strength between hockey and cricket players.

### **Hypothesis:**

It was hypothesized that there would be significant difference on hand grip and abdominal strength between hockey and cricket players.

### **Significant Of the Study:**

Physical education and sports scientists have been constantly examine the physical fitness of hockey players and cricket players of Pondicherry University and Pondicherry University affiliated colleges.

- The result of the study still is help to compare the hand grip strength, shoulder strength and abdominal strength between different players.
- The finding of the study will be useful of explore the relationship between hand grip strength, shoulder strength, abdominal strength.
- The findings of the study will be motivated the educational administrators, parents and college students to participate in sports activities and to enhance the strength.

### **Methodology:**

Methodology is a branch of logic concerned with the principles if reasoning. It is reasoning. It is concerned with scientific and philosophical of through a particular science-the system is method. The procedure adopted for the selection of subjects, selection of variables, tester, reliability, subject, orientation of the subject test, administration and statistical technique employed for analyzing the data been described in this chapter.

### **Selection of Subjects:**

This study was designed to compare the hand grip strength, shoulder strength and abdominal strength between the hockey players and cricket players of Pondicherry University. For this purpose the investigator selected 30 subjects from Department of physical Education and affiliated colleges from Pondicherry University.

### **Selection of Variables:**

The selections following variables were selected:

- Hand grip
- Shoulder strength
- Abdominal strength

### **Analysis of Data and Results:**

The data were statically analysis of the data and the results are presented in this chapter. The purpose of the study was to compare the level of hand grip strength, shoulder strength and abdominal strength between hockey and cricket players. For this purpose data were obtained from 15 hockey and 15 cricket players of Pondicherry University. The 'T' ratio employed separately for each variable between the two groups. Group A (Hockey players) and the Group B (Cricket players). The calculated 'T' ratio is tested for significance at 0.05 level of confidence. The results of the analysis are as follows.

Table 1: Comparison of the Level of Hand Grip Strength between Hockey and Cricket Players

Group	No	Mean	S.D	Mean Difference	't' ratio
Hockey	15	21.1333	1.55226	1.53333	2.924*
Cricket	15	19.6000	1.88225		

\* The table value 0.05 level is 2.048.

It may be seen from the above table that there is a significant difference in the level of hand grip strength between the hockey and cricket players. Since the calculated ratio is 2.924 higher than the table value i.e., 2.048 at 0.05 level of confidence the null hypothesis rejected.

Figure 1: Bar Diagram Showing the Mean Difference of Hand Grip Strength between Hockey and Cricket Players

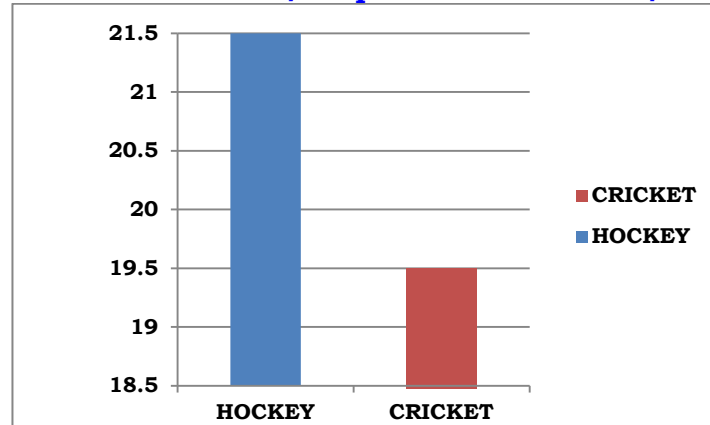


Table 2: Comparison of the Level of Shoulder Strength between Hockey and Cricket Players

Group	No	Mean	S.D	Mean Difference	't' ratio
Hockey	15	33.6667	1.54303	1.26607	3.537*
Cricket	15	34.9333	1.90738		

\* The table value 0.05 level is 2.048.

It may be seen from the above table that there is a significant difference in the level of shoulder strength between the hockey and cricket players. Since the calculated ratio is 3.537 higher than the table value i.e., 2.048 at 0.05 level of confidence the null hypothesis is rejected. It may be concluded that the level of shoulder strength of the hockey players is found to be significant than the cricket players

Figure 2: Bar Diagram Showing the Mean Difference of Shoulder Strength between Hockey and Cricket Players

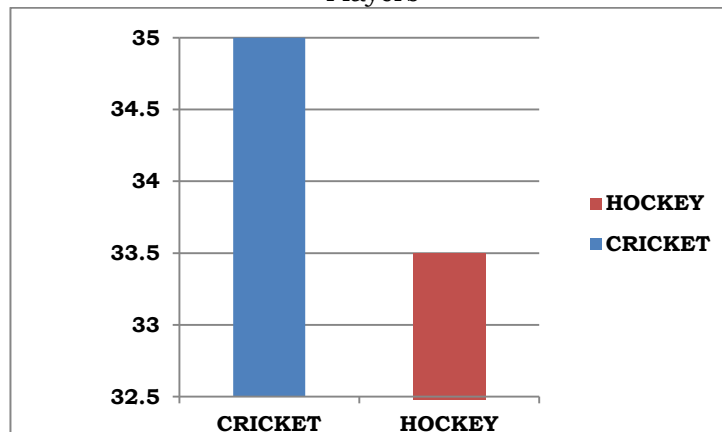


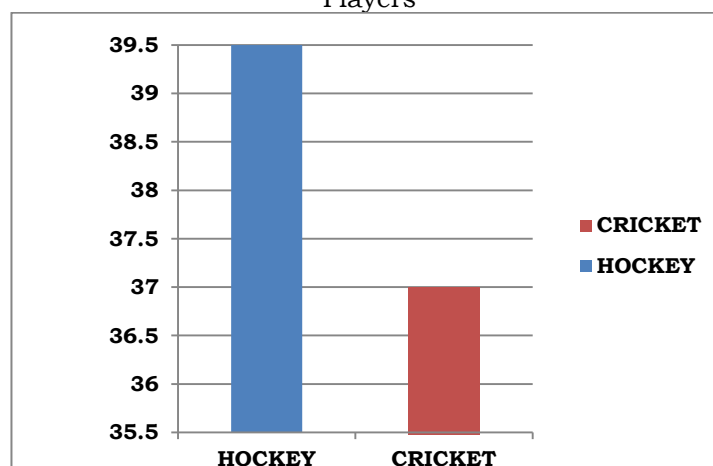
Table 3: Comparison of the Level of Abdominal Strength between Hockey and Cricket Players

Group	No	Mean	S.D	Mean Difference	't' ratio
Hockey	15	39.4667	1.72654	2.40000	4.431*
Cricket	15	37.0667	1.27988		

\* The table value 0.05 level is 2.048.

It may be seen from the above table that there is a significant difference in the level of shoulder strength between the hockey and cricket players. Since the calculated ratio is 4.431 higher than the table value i.e., 2.048 at 0.05 level of confidence the null hypothesis is rejected. It may be concluded that the level of abdominal strength of the hockey players is found to be significant than the cricket players.

Figure 3: Bar Diagram Showing the Mean Difference of Abdominal Strength between Hockey and Cricket Players



**Discussion:**

The present study is attempted to find out the level of hand grip strength, shoulder strength and abdominal strength between hockey and cricket players. In hand grip strength the mean value of the cricket players is 19.60 and the hockey players is 21.13. It indicated that the level of hand grip strength in the hockey players is better than the cricket players. In abdominal strength and the mean value of the hockey players is 39.46 and the cricket players is 37.06. It indicated that the level of the abdominal strength in the hockey players is better than cricket players. In shoulder strength the mean value of the hockey players is 33.66 and the cricket players is 34.93. It indicated that the level of shoulder strength in the cricket players is better than the hockey players. The purpose of the study was to find out level of hand grip strength, shoulder strength, abdominal strength between hockey and cricket players. For this study 30 hockey and cricket were selected from Department of Physical Education and Sports and affiliated Colleges of Pondicherry University. The data pertaining to variables was collected from hockey and cricket players by Hand grip Dynamometer (hand grip strength) Push up test (Shoulder strength) and Bend knee sit ups (abdominal strength).

**Results:**

- The result of the study analysis showed that the hand grip strength, abdominal strength of hockey players have better than the cricket players.
- Shoulder strength of the cricket players have better than the hockey players.

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