COMPARISON OF UPPER BODY STRENGTH AMONG INDIAN GOLFERS AND SHUTTLERS

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ABSTRACT

Muscle strength has been considered as a major factor on sports performance. The purpose of the study is to comparison of upper body strength amongst the Indian Golfers and shuttlers and the Levels of upper-body strength and power can distinguish between athletes of different levels in a number of sports. Strength in the muscles of upper body, specifically the chest, shoulder triceps and core is a good indication of overall fitness, keeping in mind as the most important aspects of performance enhancement other than the skill is the muscular strength. For which the subjects for study as seven male golfers and seven male shuttler ages ranging between 18 to 21 years, were randomly selected for comparing the Strength parameters of Upper Body strength, as the Shoulder strength- Grip strength- Abdomen strength minus Psoas muscle- Strength of Psoas and lower abdomen muscle- Lower back strength, hence the value of 't' test calculated for Shoulder strength, Grip strength, Abdomen strength minus Psoas muscle, Strength of Psoas and lower abdomen muscle, Lower back strength are 0.15, 0.56, 0.33, 0.59 and 0.37 respectively which are lower than the table value of t $.05_{(95)} = 2.44$ therefore the analysis of data reveals that muscular strength parameter has insignificant difference between golfers and shuttlers.

Keywords*: Strength, Kraus-weber test, grip dynamometer, abdominal strength, lower back strength, shoulder strength, etc.*

Introduction

Today's sports and recreation activities have become more and more competitive, with this increased competitive nature comes an increase in the desire to improve performance. Many techniques have been used over the years in an attempt to enhance performance and thus improve success. One of the most important aspects of performance enhancement other than the skill is the muscular strength. Strength in the muscles of upper body, specifically the chest, shoulder, triceps and core is a good indication of overall fitness. Upper body strength and is essential for athletes such as swimmers, tennis players, climbers or golfers, shuttlers who demand strength from their arms and shoulder to perform well and avoid injury. So, developing upper body strength should be integrated part of a complete training program.
The subjects for study were 7 male golfers and 7 male shuttler ages ranging between 18 to 21 years. The present study was delimited to the following parameters (Upper Body strength)

1. Shoulder strength
2. Grip strength
3. Abdomen strength minus Psoas muscle
4. Strength of Psoas and lower abdomen muscle
5. Lower back strength

Methodology

Shoulder strength: The bar had been kept at such height with an intention that even the feet of the tallest subject don't contact the ground while holding tight at the time of chinning bar. The subject was told to dangle from the bar by his hands with forward hold and to jaw up by pulling himself up until his jawline was over the bar. At that point he was told to bring down the body until his arms are straight. He was asked not utilize jerky movements or kicks. All out correct completed pull ups of each subject were noted and considered as successful scores.(Roger's strength test).

Grip strength: A grip dynamometer was utilized for analyzing this parameter. The subject was told to hold the dynamometer with a justified manner either right or left hand to be for which strength was to be measured, with his arm at right angle and the elbow by the side of the body. The handle of the dynamometer was changed any place needed so that the base should lay on first metacarpal (impact point of palm), while the handle should rest on center of four fingers. As the subject was prepared he pressed the dynamometer with most extreme power, which was kept up for around 5 seconds. Subject was not permitted any other movements thereading on dynamometer

(pound) was recorded by the expert as a final score.

Abdomen strength (strength of abdominal minus psoas muscles): Researcher asked the subject to lie down in supine position with his hands behind neck and knees bent. Researcher held the feet of subject to keep the knees bent and feet down. Now the subject was instructed to perform a sit-up. Maximum numbers of clean and complete sit ups were counted for the final score of subject. (Kraus-Weber Test 2)

Strength of psoas and lower abdominal muscle: Researcher asked the subject to lie down in supine position with his hands behind neck and feet raised to a height of 10 inches with knee straight. Then the time was recorded in seconds and maximum duration of each subject was his final score. (Kraus-Weber Test 3)

Lower back strength: To check the lower back strength researcher instructs the subject to lie down in prone position i.e., face down on his stomach, and adjusts a pillow under his lower abdomen with his hands behind the neck. The examiner holds his chest down. The subject was asked to raise his feet, keeping his knees straight. The time was recorded by the researcher in seconds and maximum duration of each subject was his final score. (Kraus-Weber Test 5)

TABLE - 1: Comparison of muscular strength test items

S. No.	Test Items	Elements Tested
1.	Shoulder strength	Concentric and Eccentric muscular contraction
2.	Grip strength	Isometric Strength (Pounds)
3.	Abdomen strength minus Psoas muscle	Core strength / concentric muscle action
4.	Psoas muscle strength and lower abdomen	Isometric Strength
5.	Lower back strength	Isometric Strength

TABLE – 2: Data of golfers

Shoulder strength (No)	Grip strength (pound)	Abdomen strength minus Psoas (No)	Psoas Strength and lower abdomen (Sec)	Lower back strength (Sec)
22	62	30	30	15
21	50	32	50	16
25	60	25	40	14
30	76	26	40	14
26	50	29	40	15
28	55	33	55	16
20	50	40	55	18

TABLE – 3: Data of shuttlers

Shoulder strength (No)	Grip strength (pound)	Abdomen strength minus Psoas (No)	Psoas Strength and lower abdomen (Sec)	Lower back strength (Sec)
25	60	31	35	17
23	61	35	45	15
28	65	30	38	19
25	52	33	42	17
29	68	35	46	13
30	55	36	47	15
31	59	30	42	18

Statistical procedures

Mean, standard deviation and 't' test were computed at .05 level of confidence to analyze the data.

Analysis of Data

TABLE – 4: Descriptive statistics of muscular strength test items for golfers

S. No.	Variables	Lowest score	Highest Score	Mean Score	Standard Deviation
1.	Shoulder strength	21	30	24.57	3.73
2.	Grip strength	50	76	57.57	9.51
3.	Abdomen strength minus Psoas muscle	25	40	30.71	5.02
4.	Psoas Strength and lower abdomen muscle	30	55	44.28	9.32
5.	Lower back strength	14	18	15.42	1.39

Table 4 depicts the lowest and highest score for all the five parameters for golfers. It also shows that mean score and standard deviation for Shoulder strength, Grip strength, Abdomen strength minus Psoas muscle, Strength of Psoas and lower abdomen muscle, Lower back strength are 24.57, 57.57, 30.71, 44.28, 15.42 and 3.73, 9.51, 5.02, 9.32, 1.39 respectively. The mean value shows where the total concentration of raw score is falling on normal curve whereas standard deviation reveals how much the players differ from the mean value of group.

Graph 1 : Comparison between muscular strength parameters for golfers

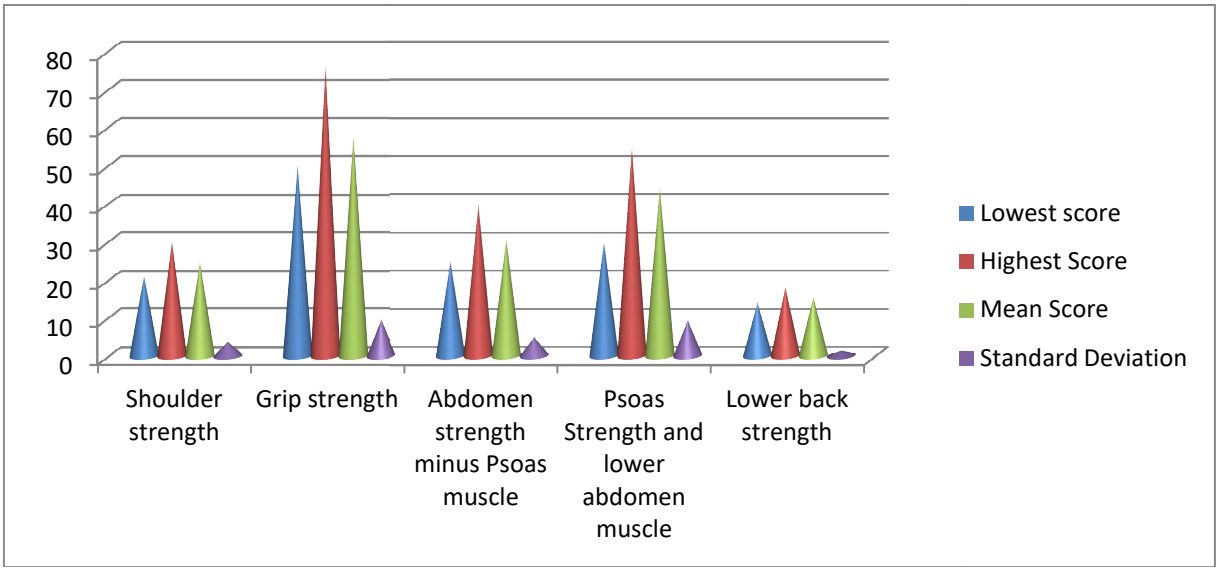

TABLE – 5: Descriptive statistics of muscular strength test items for shuttlers

S. No.	Variables	Lowest score	Highest Score	Mean Score	Standard Deviation
1.	Shoulder strength	23	31	27.28	2.98
2.	Grip strength	52	68	60	5.47
3.	Abdomen strength minus Psoas muscle	30	36	32.85	2.54
4.	Psoas Strength and lower abdomen muscle	35	47	42.14	4.37
5.	Lower back strength	13	19	16.28	2.05

Table 5 depicts the lowest and highest score for all the five parameters for shuttlers. It also shows that mean score and standard deviation for Shoulder strength, Grip strength, Abdomen strength minus Psoas muscle, Strength of Psoas and lower abdomen muscle, Lower back

strength are 2.28, 60, 32.85, 42.14, 16.28 and 2.98, 5.47, 2.54, 4.37, 2.05 respectively. The mean value shows where the total concentration of raw score is falling on normal curve whereas standard deviation reveals how much the players differ from the mean value of group.

Graph 2: Comparison between muscular strength parameters for shuttlers

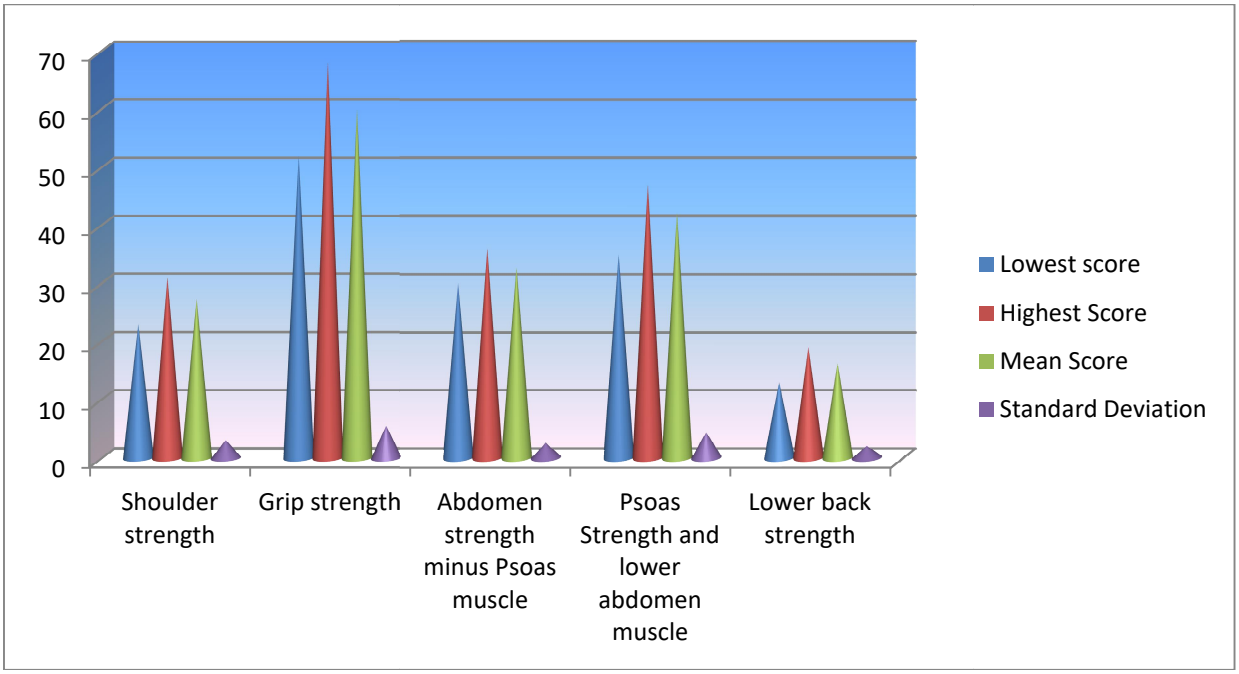

TABLE – 6: Comparison between golfers and shuttlers for muscular strength test items

S. No	Variables	't' Test Scores
1.	Shoulder strength	0.15
2.	Grip strength	0.56
3.	Abdomen strength minus Psoas muscle	0.33
4.	Psoas Strength and lower abdomen muscle	0.59
5.	Lower back strength	0.37

Table 6 depicts the computed value of 't' test for all the five parameters. It also shows that due to less difference between mean score and standard deviation of both groups the calculated value for Shoulder strength, Grip strength, Abdomen strength minus Psoas muscle, Strength of Psoas and lower abdomen muscle, Lower back strength are0.15, 0.56, 0.33, 0.59 and 0.37 respectively.

Conclusion

Based on the analysis and within the delimitation of present study following conclusion were drawn:-

1. The difference between the mean scores and standard deviation of golfers and shuttlers is not much therefore it is evident that t distribution of data on Gaussian curve shows similar or equal distribution and insignificant difference.
2. The value of't' test calculated for Shoulder strength, Grip strength, Abdomen strength minus Psoas muscle, Strength of Psoas and lower abdomen muscle, Lower back strength are 0.15, 0.56, 0.33, 0.59 and 0.37 respectively which are lower than the table value of t $.05_{(95)} = 2.44$ therefore the analysis of data reveals that muscular strength parameter has insignificant difference between golfers and shuttlers.
3. Strength as a fitness parameter can be improved to great extent. Although various research have been done as pre and post test for improving upper body strength

comparison was done in various games and sports.

4. In today's game of golf and badminton, muscular power is more in demand in comparison with the past because of improvements in equipment, competition and level of fitness of players. Therefore, muscle (resistance) training is important for golfers and shuttlers in addition to their hitting and smashing skill improvement.

Recommendation

The present study may contribute in following way:-

1. This study may be under taken to analyze others elements in other games and sports.
2. Similar study can be conducted on different age group and gender.
3. An experimental study may be undertaken to check changes in fitness parameters.
4. A study with physical and physiological parameters can be correlated for people of living at different regions.

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