

# Constructing Norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Male Players

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## Abstract

The purpose of this study was to construct norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Male Players. For the purpose of the present study, Two Hundred (N=200) male Tug of War Players from various Universities of India between the age group of 18-25 years volunteered to participate in the study. All the subjects were informed about the objective and protocol of the study. To construct the norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Players, Handgrip Strength Test was used to measure Muscular Strength, Vertical Jump Test was used to measure Muscular Power, Pull-Up Test was used to measure Muscular Endurance. In order to construct the norms, Percentile Scale was used. Further, the scores were classified into five grades i.e. very good, good, average, poor and very poor.

**Keyword:** - Norms, Muscular Strength, Muscular Power, Muscular Endurance, Tug of War.

## Introduction: -

The Rope The game incorporates use of single rigging for instance a rope. There is a red engraving made in the rope. This red engraving on the rope ought to be at a contrary edge to the exact spotlight point on the ground, before the start of the game. A white engraving is made accurately 13 feet from the red engraving on either side of the rope. The match is dominated when either side with this white engraving crosses the center point. Gatherings According to the standards of to and fro, each gathering can suit a point of confinement of 8 people. Anyway, the merged heap of these people should not outperform the weight chose for the particular class. Field and Marking the game must be played on a level lavish fix of land. A line insinuated as a center line is separate on the playing zone and the rope is set such that its inside engraving should

alter the center set apart on the ground. On either sides of the rope at the partition of 4 m from the center line, 2 extra engravings ought to be made. This is the place in the chief individual from each gathering will stand. The best strategy to Play As referenced previously, the point of convergence of the rope should agree with within set apart on the ground. At the point when the official blows the whistle, each gathering can start moving the rope into their area.

The objective of the game is for each gathering to pull the rope nearby the people from opposition gathering to their side. At the point when the second engraving on the rope from within red engraving navigates to center line, the gathering to annihilate the rope to their zone wins. Competition The to and fro contention requires a judge. There are 3

one of a kind headings that the judge accommodates the players. The judge at first reports "Get the rope", he by then says "Take the string", ultimately he encourages the players to "Power". At the point when the take course is said out the gatherings start pulling the rope. If a person from the gathering tumbles down that part is given an alarm. Each gathering is allowed two alarms before getting blocked. Fouls There is a particular framework that ought to be applied while playing this game, if not, by then there will be a foul which can acquire for avoidances. For instance cutting down your elbow underneath the knee level while pulverizing the rope is seen as a foul and is called 'blasting'. Reaching the ground for an increasingly expanded time allotment is also considered as a foul. Sports getting ready rely upon intentional truth and benchmarks. An efficient and sensible for achieving world class must be first made dependent on which sports getting ready is plan. It is always reviewed, orchestrated sifted through and completed by a tutor or a games teacher or some other person.

### **Statement**

The statement of problem is "Constructing Norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Male Players".

### **Selection Of Subjects**

For the purpose of the present study, Two Hundred (N=200) male Tug of War Players from various Universities of India between the age group of 18-25 years volunteered to participate in the study.

### **Objective Of Study**

To find out the Descriptive Statistics (Mean & Standard Deviation) and

### **Results And Discussion: -**

Percentile Plot (Hi & Low) Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Players.

To construct Percentile Norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Players.

To find out the distribution of Grades under Normal Distribution of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Players.

### **Limitation**

No special motivational technique was used during the test.

The investigator was unable to control their diet and rest schedules.

### **Delimitations**

The study was delimited to 18-25 years age group.

The study was delimited to only Male Tug of War Players.

### **Methodology**

To Constructing Norms of Muscular Strength, Muscular Power and Muscular Endurance for Tug of War Players, Handgrip Strength Test was used to measure Muscular Strength, Vertical Jump Test was used to measure Muscular Power, Pull-Up Test was used to measure Muscular Endurance.

### **Statistical Procedure**

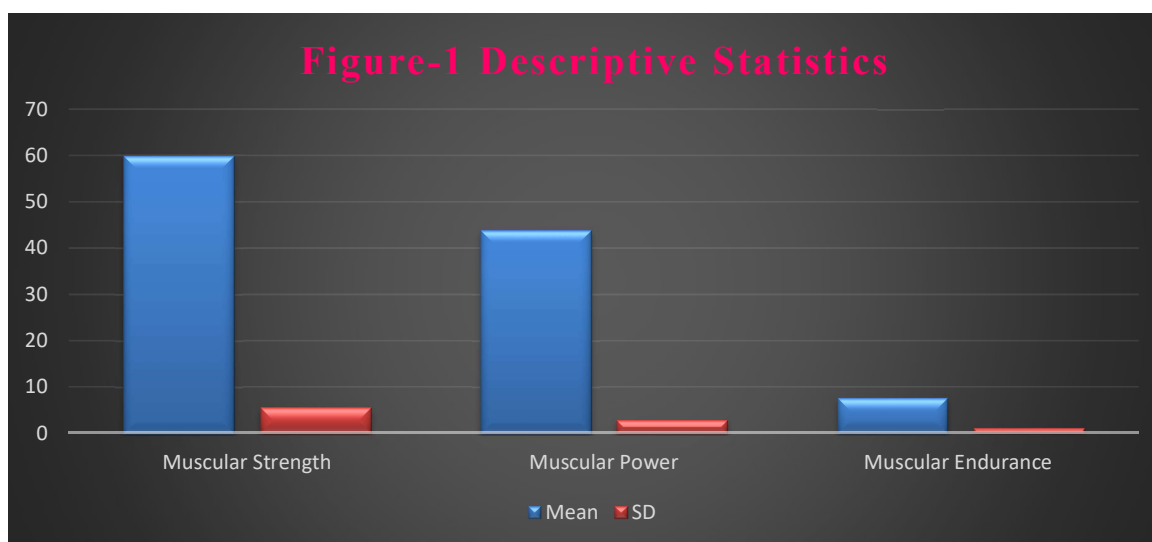
The data, which was collected by administering tests, was statistically treated to develop for all the test items. In order to construct the norms, Percentile Scale was used. Further, the scores were classified into five grades i.e. very good, good, average, poor and very poor.

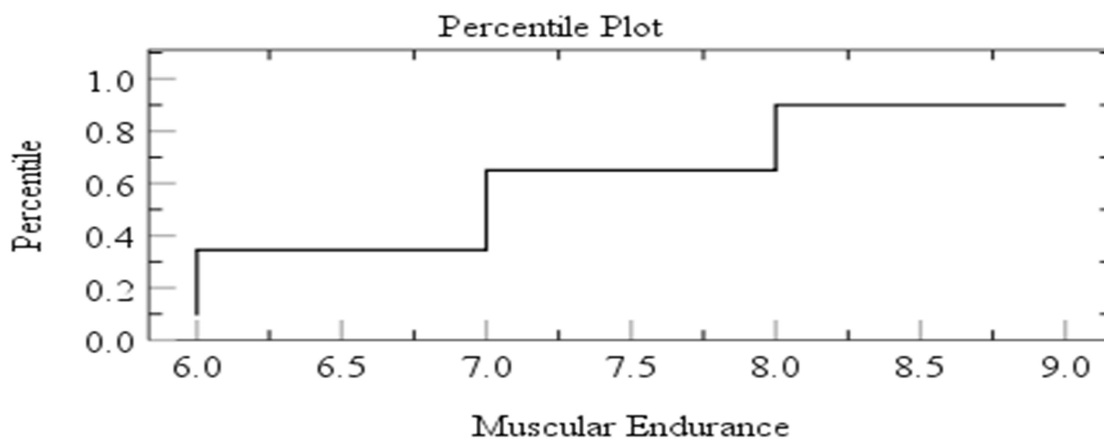
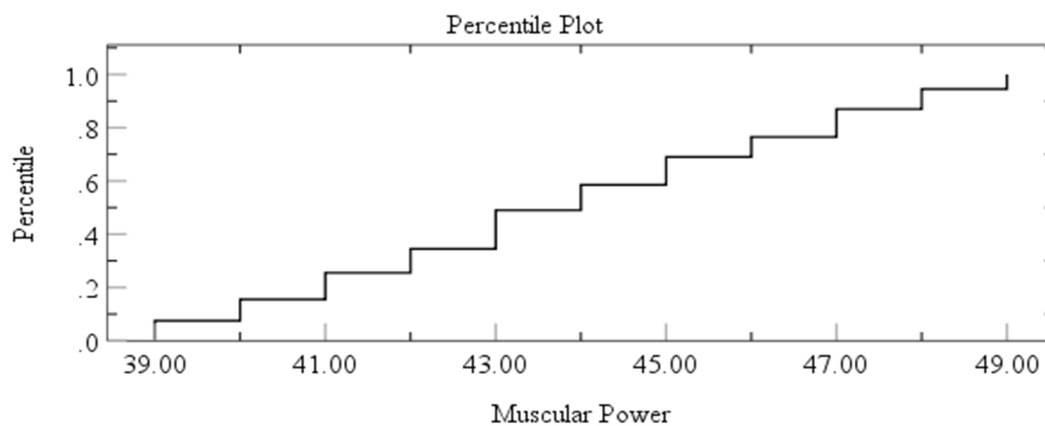
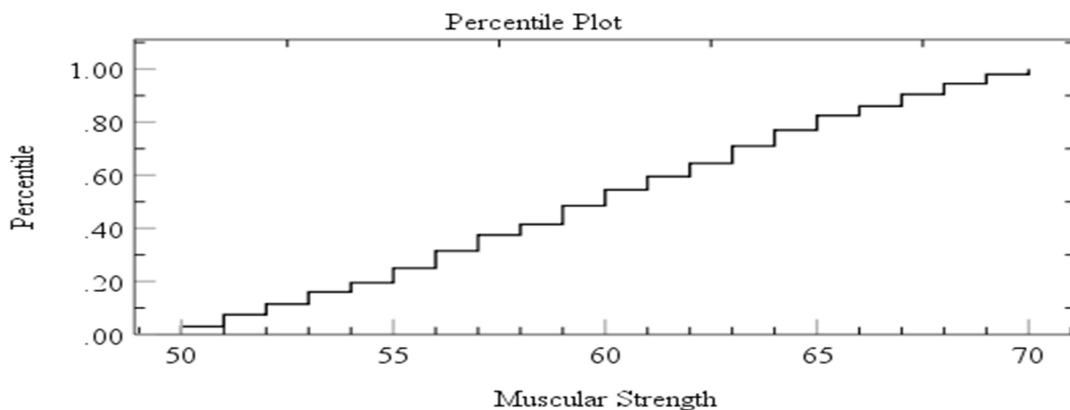
**Table-1**  
**Descriptive Statistics (Mean and Standard Deviation) and Percentile Plot (Hi and Low)**  
**on Muscular Strength, Muscular Power and Muscular Endurance from Tug of War**  
**Players**

Sr. No.	Test Items	Mean ± Standard Deviation		Hi	Low
		Mean	SD		
1	Muscular Strength	Mean	59.90	70	50
		SD	5.47		
2	Muscular Power	Mean	43.87	49	39
		SD	2.91		
3	Muscular Endurance	Mean	7.52	9	6
		SD	1.01		

Table- 1 shows that in Muscular Strength, the Mean score was 59.90 and Standard Deviation score was 5.47. In Muscular Power, the Mean score was 43.87 and Standard Deviation score was 2.91. In Muscular Endurance, the Mean score was 7.52 and Standard Deviation score was 1.01.

The descriptive statistics (mean and standard deviation) on Muscular Strength, Muscular Power and Muscular Endurance of Tug of War Players (N=200) has been presented graphically in figure-1 and the Percentile Plot (Hi and Low) on Muscular Strength, Muscular Power and Muscular Endurance from Tug of War Players (N=200) has been presented graphically in figure-2.





**Percentile Norms for the selected Physical: Fitness test items:**

The Percentile score received by Tug of War Players (N=200) on Muscular Strength, Muscular Power and Muscular Endurance has been presented in the table 2.

**Table-2**  
**The Percentile score received by Tug of War Players (N=200) on Muscular Strength, Muscular Power and Muscular Endurance**

Percentile	Tug of War Players (N=200)		
	Muscular Strength	Muscular Power	Muscular Endurance
0	--	--	--
10	52.00	40.00	6.00
20	55.00	41.00	7.00
30	56.00	42.00	7.00
40	58.00	43.00	7.00
50	60.00	44.00	7.50
60	62.00	45.00	8.00
70	63.00	46.00	8.00
80	65.00	47.00	9.00
90	67.90	48.00	9.00
100	70.00	49.00	9.00

Table 2 shows that in Muscular Strength, the highest score was 70.00 and lowest score was 52.00. In Muscular Power, the highest score was 49.00 and lowest score was 40.00. In Muscular Endurance, the highest score was 9.00 and lowest score was 6.00 of Tug of War Players (N=200).

**Distribution of Grades Under Normal Distribution:**

For each of selected Physical Fitness Variables of Tug of War Players (N=200) five types of classification/grades i.e., very poor, poor, average, good and very good have also been prepared under Normal Distribution. Grades have been presented in table 3.

**Table-3**  
**Grading of Selected Physical Fitness Variables for Tug of War Players (N=60)**

<b>Variables</b>	<b>Very Poor</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>
Muscular Strength	Less than (<)48.95	48.95-54.43	54.43-65.39	65.39-70.87	Greater than (>)70.87
Muscular Power	Less than (<)38.05	38.05-40.96	40.96-46.78	46.78-49.69	Greater than (>)49.69
Muscular Endurance	Less than (<)5.50	5.50-6.51	6.51-8.53	8.53-9.54	Greater than (>) 9.54

The values listed in table 3 gives a guide to expected scores for Tug of War Players (N=200) on Muscular Strength, Muscular Power and Muscular Endurance. In Muscular Strength, the scores Less than (<)48.95 are considered very poor, from about 48.95-54.43 is considered poor, 54.43-65.39 is considered average, 65.39-70.87 is considered good and the scores Greater than (>)70.87 are considered very good. In Muscular Power, the scores Less than (<)38.05 are considered very poor, from about 38.05-40.96 is considered poor, 40.96-46.78 is considered average, 46.78-49.69 is considered good and the scores above Greater than (>)49.69 are considered very good. In Muscular Endurance, the scores below Less than (<)5.50 are considered very poor, from about 5.50-6.51 is considered poor, 6.51-8.53 is considered average, 8.53-9.54 is considered good and the scores above Greater than (>) 9.54 are considered very good.

**Conclusion**

Based on the findings of this study, the following conclusions were drawn:

In Muscular Strength, the scores Less than (<)48.95 are considered very poor, from about 48.95-54.43 is considered poor, 54.43-65.39 is considered average, 65.39-70.87 is considered good and the scores Greater than (>)70.87 are considered very good.

In Muscular Power, the scores Less than (<)38.05 are considered very poor, from about 38.05-40.96 is considered poor, 40.96-46.78 is considered average, 46.78-49.69 is considered good and the scores above Greater than (>)49.69 are considered very good.

In Muscular Endurance, the scores below Less than (<)5.50 are considered very poor, from about 5.50-6.51 is considered poor, 6.51-8.53 is considered average, 8.53-9.54 is considered good and the scores above Greater than (>) 9.54 are considered very good.

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