

A STUDY OF MUSCULAR ENDURANCE AND STRENGTH ABILITY OF SOFTBALL PLAYERS

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Abstract: The aim of the study is to determine the muscular power of softball players, Two groups were targeted; 20 softball players and 20 other than softball players. The age of the subjects were ranged between 18 to 25 year. Muscular Endurance was evaluated by using 1 minute Bent Knee Sit Up test. Abdominal muscular endurance was measured by performing the 1-minute bent knee sit-up test. Muscular strength was measured by using Kraus Weber Strength Test. Kraus Weber Strength Test made up by combining six physical activities or tests. The result shows that there were significant difference was found in Muscular strength ($t < .05$) and no significant difference in muscular endurance between softball and other than softball players.

Key words: Muscular Endurance, Muscular strength, softball

INTRODUCTION

The name "softball" was given to the game in 1926 because the ball used to be soft; however, in modern-day usage, the balls are hard. A tournament held in 1933 at the Chicago World's Fair spurred interest in the game (<https://www.softballrecruiting.com/blog/history-of-softball>). Softball players specifically need throwing power, acceleration power, and some muscular endurance is always beneficial especially for the pitchers. The game of softball requires a variety of skills and movements to execute an action correctly. Therefore, full body training is essential. Sports is also linked with the image of country and national pride. Everybody accepts the importance of sports as a base for health of body and mind. In addition to the high level of skill required to play softball, to be successful you need, among other things, good speed, strength, power, agility, reaction time and coordination. Softball is a sport where muscles and power within those muscles is imperative for optimum performance. If you look at most of the elite softball athletes, you will notice that they have toned and large muscles. This is due to the need for strong and powerful muscles in softball (<https://softballresources.weebly.com/strength-training.html>). Muscular endurance refers to the ability of a given muscle to exert force, consistently and repetitively, over a period of time. In other words Muscular endurance refers to how long muscles can sustain exercise. Improving muscular endurance can help enhance overall health and fitness. Muscular endurance increasing the performance of these muscles means they can continue to contract and work against these forces. Muscular strength is the ability of a muscle to exert a maximal or near maximal force against an object—or how much weight you can push, pull, or lift. Muscular endurance is your ability to hold a position for a long time, or push, pull, or lift an object many time (<https://www.hprc-online.org/physical-fitness/training-performance/how-improve-muscular-strength>)

METHODOLOGY

Two groups were targeted, 20 softball players and 20 other than softball players. The age of the subjects were ranged between 18 to 25 years. The data was collected through respondents in the form of different tests. The research design was experimental research design.

Muscular Endurance:

This component was evaluated by using 1 minute Bent Knee Sit Up test. Abdominal muscular endurance was measured by performing the 1-minute bent knee sit-up test. Subject Lied on his back with knees bent at a 90-degree angle. His feet were flat on the floor. Subject interlocked his fingers behind his head, and then slowly rises to sitting position and touched his elbows to knees. Now subject let down his body back to the starting position, and repeated the process as many times as possible for the subject within one minute.

Kraus Weber Strength Test:

This test is made up by combining six physical activities or tests. These are as follows: Test No. 1: The subject lied flat on back with his hands behind the neck, assistance held his feet on the ground, and performed one sit-up.

Test No. 2: The subject lied down with his knees were bent, with his ankles close to the buttocks and performed one sit-up.

Test No. 3: The subject lied flat on back with hands behind neck. Legs straightly lifted 10 inches off the floor. Subject holds his position for 10 seconds.

Test No. 4: The subject lied on stomach with a pillow under his lower abdomen and groin. Assistant holds his feet down. Subject lifted head, shoulders, and chest off the floor and holds for 10 seconds.

Test No. 5: The subject’s position was the same, but the assistant holds the chest down, with straight knees, lift legs off floor and hold for 10 seconds.

Test No. 6: The subject stands erect. Subject keeps knees straight. Bend over slowly and touch the floor with the fingertips. Hold this position for 3 seconds.

Result and discussion

The present section is dedicated to the presentation of results along with the discussion of present study. The results and discussion have been presented in console comprehensive manner that is easy to comprehend starting with selected variables

Table 1 shows Mean Scores, Standard Deviation and t-ratio of Softball players and Other than Softball players

Parameter	Stages	Numbers	Mean scores	S.D.	t-ratio
Muscular Endurance	Softball players	20	28.56	3.34	NS
	Other than Softball players	20	27.89	3.12	

Table 1 depicted Mean Scores, Standard Deviation and t-ratio of Softball players and Other than Softball players.

Figure-1 depicted Mean Scores and Standard Deviation of Softball players and Other than Softball players

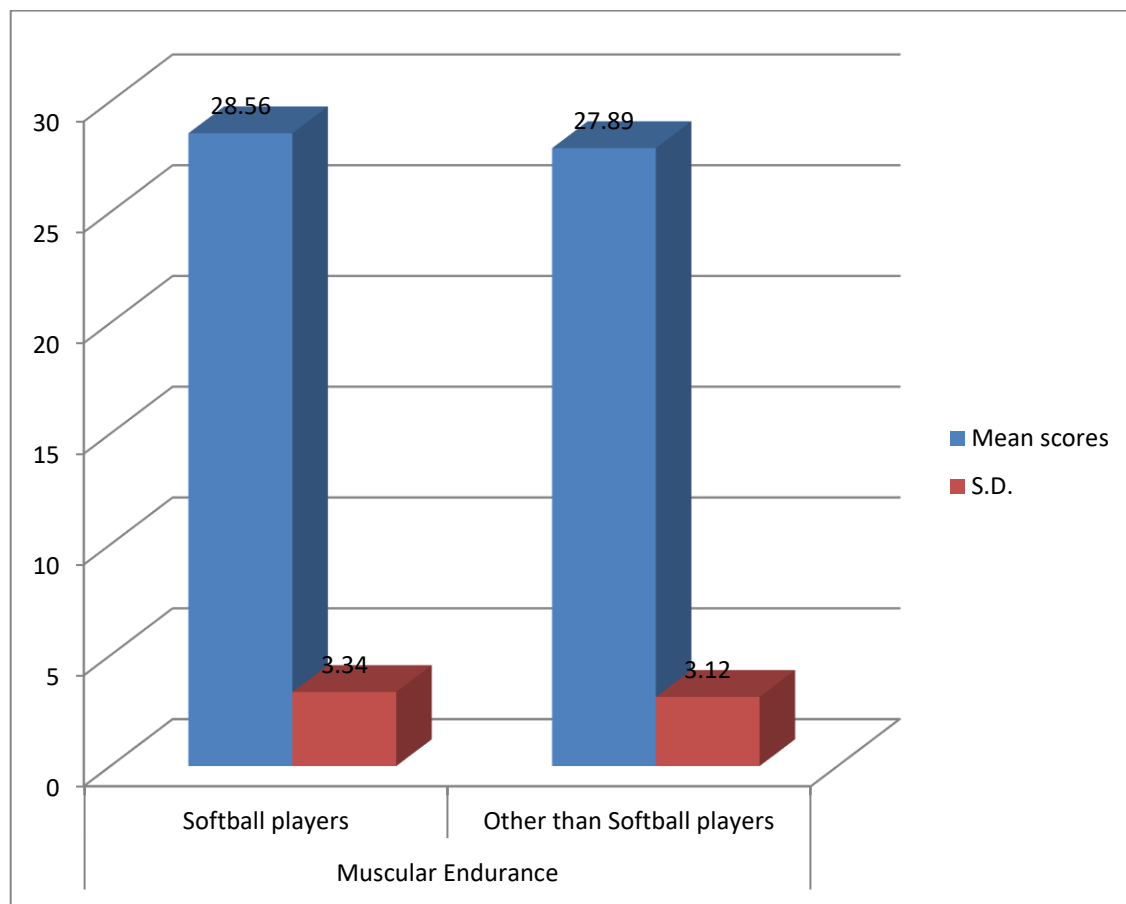


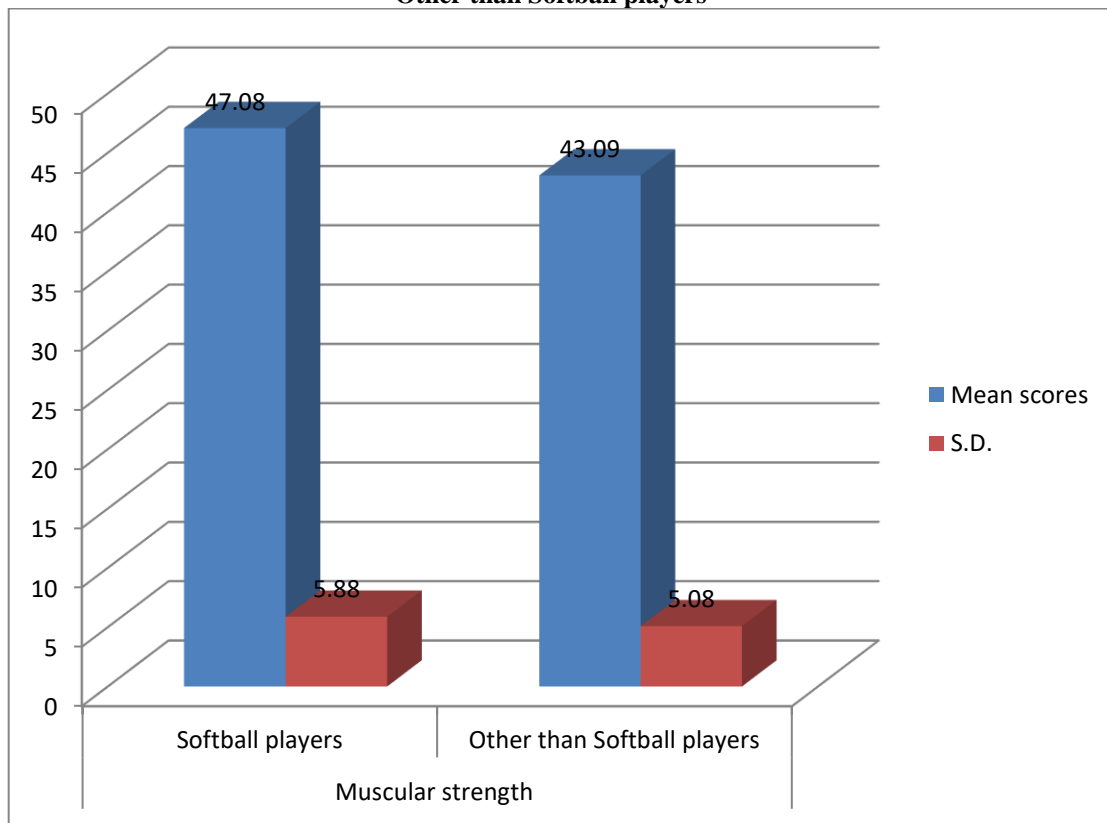
TABLE-2

Table 2 depicted Mean Scores, Standard Deviation and t-ratio of Muscular strength among Softball players and Other than Softball players

Parameter	Stages	Numbers	Mean scores	S.D.	t-ratio
Muscular strength	Softball players	20	47.08	5.88	P< .05
	Other than Softball players	20	43.09	5.08	

Table 2 depicted Mean Scores, Standard Deviation and t-ratio of Muscular strength among Softball players and Other than Softball players.

Figure 2 shows the Mean Scores and Standard Deviation of Muscular strength among Softball players and Other than Softball players



RESULTS AND DISCUSSION

The objective of the study is to determine the muscular strength and endurance of softball players . With regards to mean score of Softball players and Other than Softball players of Muscular Endurance were obtained 28.56 and 27.89 respectively , However, the Standard Deviation of Softball players and Other than Softball players of Muscular Endurance were obtained 3.34 and 3.12 respectively. The result given in Table 1 reveals that no significant difference of Muscular Endurance was found between Softball players and Other than Softball players . With regards to mean score of Softball players and Other than Softball players of Muscular strength were obtained 47.08 and 43.09 respectively , However, the Standard Deviation of Softball players and Other than Softball players of Muscular strength were obtained 5.88 and 5.08 respectively. The result given in Table 2 reveals that significant difference of Muscular strength was found between Softball players and Other than Softball players . Softball players was found to have got more muscular strength as compared to their counterparts. Softball athletes need strength in the majority of their muscles. Even small muscles like the hand and finger flexors. Building strength in the arms, legs and torso, especially, will improve performance greatly. Running, throwing, batting; all of these key elements of softball require power and power is achieved through strength in muscles (<https://softballresources.weebly.com/strength-training.html>). The softball **develops shoulder muscles used in throwing and swinging** — which includes the biceps, triceps, rotator

cuffs, forearms, and deltoids. These upper body muscles play a major role in being able to throw, swing, pitch, and field successfully (<https://softballtradingpins.net/6-great-benefits-youth-softball/>).

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