

## COMPARISON OF STRENGTH, ENDURANCE ABILITY AMONG JUMPERS & THROWERS

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### Abstract:

*The purpose of this study to compare the strength, endurance among jumpers & throwers. For this study 60 athlete's, 30 jumpers & 30 throwers; equally divided into two groups under 17&19 years. The study was conducted from Punjab State; att the sample selected from random basis; the selected subjects at least participated at State Level Tournament. To find out the shoulder Strength; chin ups & for endurance; 600 yard run test was adopted. Results indicated that throwers have more shoulder strength than jumpers while jumpers have more endurance than throwers.*

### KEYWORDS:

Jumpers, Throwers, Strength, Endurance.

### INTRODUCTION

Typically track men are slight in skeletal framework with longer fore 'legs relative to thighs, and longer leg length relative to length of trunk, but with exceedingly well developed musculature. The jumpers, hurdlers and pole-vaulter are relatively slim in skeletal build and are taller with longer legs and shorter trunks. The typical throwers (including shot putters) are those with greater arm span / height and greater upper arm length / forearm length. The jumpers' hurdlers and pole-vaulters have relatively greater leg length / trunk length and relatively large foreleg length / thigh length. Throwers at different level of competitions are heavier and taller, with long muscular arm and wider shoulders. In shot-put, discus and hammer throwing, greater body weight is beneficial because during throwing the object forward and upward an equal and opposite reactive force is exerted on thrower, pushing him or her backwards and downwards. The effect of Newton's third law is less on a thrower with heavy body weight. The greater height is of further advantage to them by making the flight of the implement longer landing.

Between the two groups of jumpers, the woman long jumpers are somewhat smaller. Their trunk is longer and lower extremities are shorter than those of high jumpers. The women throwers are tall, heavy and muscular. Their longer trunk is accompanied with longer lower extremities. Their upper extremities are only slightly longer than the average of all the woman athletes. The woman discus throwers are the tallest and heaviest among all the women athletes. Similarly length of their trunk and lower extremities are the greatest. Their lower legs are relatively long and their thighs relatively short.

**Methodology:** It includes sampling, research strategy, tools & technique for collecting the evidences, & procedure employed to gather data. The total number of sample size was 60 athletes i.e. 30 jumpers & 30 throwers and equally divided into two groups under 17 & 19 years age. The sample was selected from Punjab State who had participated at State Level tournament. All the samples were selected from random basis & 't' test was used.

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RESULT & DISCUSSION:

**Table No.1**  
**Show the comparison of shoulder strength between jumpers and throwers of under17 and 19 years age groups.**

Jumpers				Throwers			
Groups	N	Mean	S.D.	N	Mean	S.D.	t value
Under17	16	9.00	1.35	17	9.07	1.34	0.21
Under19	16	9.48	1.17	18	10.04	1.15	2.15*

\*Significant at 0.05 level  
 (under 17 years df— 32) (Table Value t -2.03 at 0.05 level)  
 (under 19 years df— 33) (Table Value t -2.03 at 0.05 level)

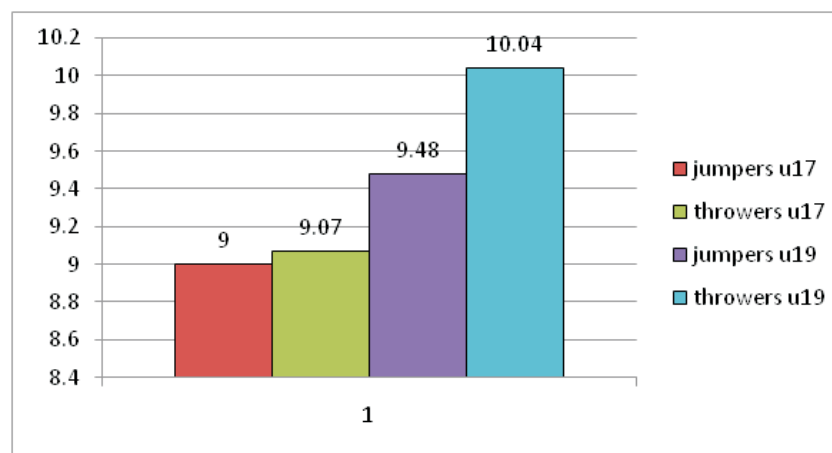


Figure show the comparison of shoulder strength (mt) between jumpers and throwers of under 17 and 19 years age groups.

Table and Figure no. 1 shows the comparison of shoulder strength (mt) between jumpers and throwers of under 17 and 19 years age groups. The mean values of under 17 years age group of jumpers and throwers were found to be (9.00 and 9.07), mt respectively and under 19 year age group were found to be (9.48 and 10.04), mt respectively. In statistically results were found to be non significant in under 17 and significant in 19 years age groups (t = 0.21 and 2.15), respectively. The results shows under 17 and 19 years age groups throwers have more shoulder strength than jumpers.

**Table No.2**  
**Show the comparison of Endurance (mm/sec) between jumpers and throwers of under 17 and 19 years age groups.**

Jumpers				Throwers			
Groups	N	Mean	S.D.	N	Mean	S.D.	t value
Under17	16	2.13	0.31	17	2.21	0.13	0.99
Under19	16	2.26	0.25	18	2.42	0.19	3.59*

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\*Significant at 0.05 level  
(Table Value t -2.03 at 0.05 level)

#### CONCLUSION :

The final conclusion of the study is that throwers have more shoulder strength than jumpers while jumpers have more endurance than throwers.

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