



**COMPARISON OF EXPLOSIVE STRENGTH BETWEEN WRESTLERS AND WEIGHT LIFTERS**

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**ABSTRACT**

Strength is a parameter determining the ability of the explosive to move the surroundings material. Explosive exercise training builds power, strength and fitness quickly. The rate of force development is at the maximum for any type of muscle action is explosive power, in activities requiring high neuromuscular system's ability to generate high action velocities. Explosive strength is required for wrestlers and weight lifters because both want strength for proper work out and training. This study is carried out to determine which group of players has more strength between Wrestlers and Weight lifters so that it can be incorporated in the training and conditioning program of respective group of players.

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**INTRODUCTION**

Strength is a parameter determining the ability of the explosive to move the surroundings material. It is related to the total gas yield of the reaction, and the amount of heat production. The strength or potential of an explosive is the total work that can be performed by the gas resulting from its explosion [Hasswill, 1990]. The potential is therefore the total quantity of heat given off at constant volume, when expressed in equivalent work units and is a measure of the strength of the explosive. It refers to an individual's ability to exert a maximal amount of force in the shortest possible time intervals [Jennifer, 2003].

Explosive exercise training builds power, strength and fitness quickly. The rate of force development is at the maximum for any type of muscle action is explosive power, in activities requiring high neuromuscular system's ability to generate high action velocities. Explosive strength is measured by various tests such as standing board, vertical jump, medicine ball put, dumb bell put, snatch exercise, long jump, sprints etc [Hasswill, 1990].

Explosive strength is required for wrestlers and weight lifters because both want strength for proper work out and training. Both wrestlers and weight lifters must be able to stabilize and manipulate their own body as well as the body of their opponent, the explosive strength training also required for both muscular endurance and strengthen muscle [Jullien and Ahmaidi, 2003]. Explosive power exercises should be taught and supervised by fitness professionals to reduce the risk of injury. They should also be done in conjunction with a regular workout program to ensure that the athlete is balanced in all exercise areas [Sohan and Perminder, 1990].

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This study is carried out to determine which group of players has more strength between Wrestlers and Weight lifters so that it can be incorporated in the training and conditioning program of respective group of players.

**MATERIALS AND METHODS**

**Sample – Elite players** i.e.- “those individuals who are currently or has previously competed as a varsity player (individual or team), a professional (national or international) level player”, was recruited from Indira Gandhi Sports Complex .

**Sample size** –15 samples per group (i.e. wrestlers and weight lifters) were included in the study.

**Inclusion Criteria**

- Age- 18 to 30 years
- Male players (only)
- BMI- 19 - 24.9 kg/ m<sup>2</sup>
- Be in good physical health (assessed using physical activity readiness questionnaire, PAR-Q (Church T 2006).
- No injury in last six months.

**Exclusion criteria**

- Any history of joint instability.
- Any higher motor function impairment.
- Any health condition that would preclude physical activity.

**Procedure**

This is an observational study which includes Elite players from Indira Gandhi stadium. The players were informed previously about the study. The players were selected based on

inclusion criteria and exclusion criteria. The informed consent form was given to the subject explaining their rights as research subjects.

All identifying information written in the consent form and demographic history questionnaire will be kept confidential by assigning a number to each subject. Height and weight of the subjects will be measured by weighing machine and stadiometer. Both the groups will perform both tests one by one.

Various measurements (such as vertical jump, Medicine ball throw, Standing jump) were done according to the standard procedures. Study design is shown in figure 1.

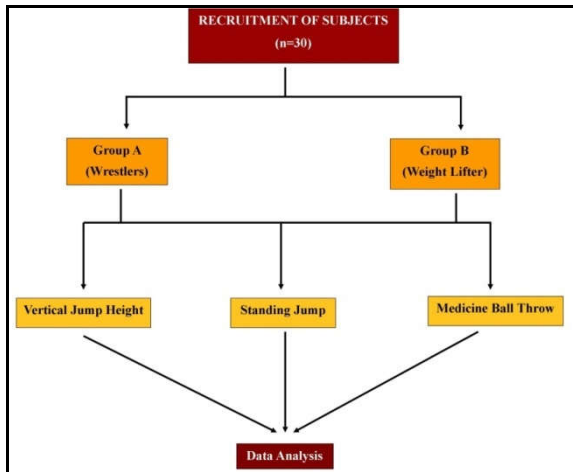


Figure 1 Study Design

**Statistical Analysis**

The SPSS Version 21.0 software programme was used for the data analysis. Mean and standard deviation (SD) of the demographic characteristics of age, height, weight and BMI were analyzed. Comparison of baseline criterion measurement between both the groups i.e. Wrestlers and Weight lifters was done by using one way ANOVA. Comparison of variables of explosive strength i.e vertical jump height, standing long jump and medicine ball throw was done by using unpaired T-test. The confidence interval used was 95% with level of significance was set at  $p < 0.05$ .

**RESULTS**

Comparisons of demographic characteristics of age, height, weight were done. All results are reported in mean±SD. There was no significant difference found between Wrestlers and Weight Lifters in various parameters ( $p > 0.05$ ) (Table 1).

Table 1 Demographic characteristics

Variables	Wrestlers	Weight Lifters	t-value	p-value
Age	23.50±2.12	23.90±2.88	0.353	0.348
Weight	74.60±1.26	74.25±2.04	0.460	0.398
Height	178.23±2.79	177.54±2.22	0.611	0.674
BMI	23.50±.878	23.52±.957	0.061	0.457

Un-paired T- test was used to compare variables of explosive strength i.e. standing long jump, Vertical jump height and Medicine ball throw. T- test measures shows significant difference between wrestlers and weight lifters in Standing ball Jump ( $p \leq 0.025$ ) and Medicine ball throw ( $p \leq 0.019$ ). But there is no significant difference found in Medicine ball throw ( $p \leq 0.198$ ) between two groups (Table 2; Figure 2).

Table 2 Comparison of standing long jump (cm), Vertical jump height (cm) and Medicine ball throw (cm) in two groups

Variables	Wrestlers	Weight Lifters	t-value	p-value
Standing Long Jump	259.70±6.14	265.00±3.05	2.41	0.025
Vertical Jump Height	34.00±1.05	34.70±1.25	1.35	0.198
Medicine ball throw	590.00±6.23	259.70±5.83	2.58	0.019

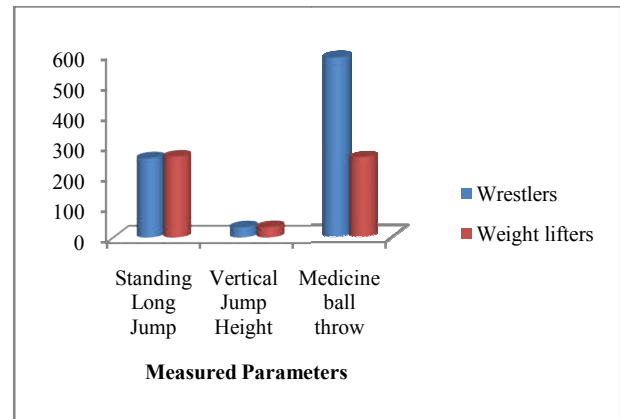


Figure 2 Comparison of various measured parameters in two groups

**DISCUSSION**

The present study was designed to investigate and compare the difference of explosive strength between wrestlers and weight lifters of elite athletes. Our primary findings were that, there was no difference in vertical jump ( $p$  value  $> 1$ ) between wrestlers and weight lifters. There is a statistical significant difference in standing long jump between wrestlers and weight lifters ( $p$  value= 0.025) i.e weight lifters have more strength of standing long jump because they required more lower body power for weight lifting. There is a statistical significant difference in medicine ball throw between wrestlers and weight lifters ( $p$  value= 0.019 ) i.e wrestlers required more upper body strength so that medicine ball throw level is higher than the weight lifters.

**References**

- Hasswill, R. 1990. Changes in the protein nutritional status adolescent wrestlers. *J. Med. Sci. Sports. Exercise.*, 45(4).
- Jennifer, W. 2003. Consumption of nutritional supplements among adolescents. *J. Health. Education. Res.*, 18 (1).
- Jullien, H., Ahmaidi, P. 2003. Nutritional supply and behaviour in ice hockey players and judoists: Effects of sports and scolarity status. *J. Nutrition Food. Sci.*, 40 (4).
- Sohan, M.K., Perminder, K.K. 1990. A study of nutritional status of university level female players, International conference on physical education & sports, Department of Sports Science. Punjabi University, Patiala, Panjab.