



Comparison of the Relative Strength Among the Different Weight Categories of Men Weightlifters of Summer Olympics Games London 2012

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Abstract

B*ackground:* Today is an era of minimum input and maximum output and for this; every possible work is being done to increase efficiency. Every perspective angle is being thoroughly scrutinized by researchers and scientists together, so that sportsman can get maximum mechanical advantage to improve their performance, clear insight of sports during Greek period was reflected in the epic period of Homer. Games were the part of the daily life of the people or any important event. Strength is also one of key to success in modern games and sports. Such as a statement may sound extreme but nevertheless it is true strength, however is the key element because it is more improved than other elements? It is in fact the only element that can only be improved with one hundred percent success. Relative strength formulas are commonly used to determine the overall champion across all weight classes and in open meets, but are also invaluable tools for comparing the progress of a single lifter whose weight fluctuates over time. The analysis and research of the important factors to reach the high level of sport that gives us a real indication of the level of development and delays in sports, if he supported the correct analysis in scientific bases. In the Olympics the athletes compete in several events, including weightlifting, which real heavily on strength, but as the result of the athlete achieved in strength all linked weightlifting law which requires the athlete to compete in the category of grains and specific power is thus here called relative strength. There tore the importance of research in the analysis of the results of relative strength of men weightlifting in Olympic Games was in London 2012.

Keywords: Relative strength, Body weight, Lifting score, Weightlifters



Every perspective angle is being thoroughly scrutinized by researchers and scientists together, so that sportsman can get maximum mechanical advantage to improve their performance, clear insight of sports during Greek period was reflected in the epic period of Homer. Games were the part of the daily life of the people or any important event.¹ Sports can improve the components of fitness namely: Strength, speed, endurance, flexibility and suppleness. Strength, the ability to exert muscular force is a component of physical fitness and has been of interest since antiquity and many account of super human quality to lift stupendous weight have been recorded. The scientific principles of increasing the load of resistance against which muscles work that strength increases has been called progressive exercise and has been employed extensively in modern times by individuals interested in strength development and athletic performance.² Research indicates that for untrained individual not engaged in heavy manual labor or exercise, maximum muscles strength is reached between the ages of eighteen and twenty, after which it decreases gradually. With increased age and disuse of muscle there can be marked reduction in muscular strength.³ Strength is also one of key to success in modern games and sports. Such as a statement may sound extreme but nevertheless it is true strength, however is the key element because it is more improved than other elements? It is in fact the only element that can only be improved with one hundred percent success.⁴ Strength training is not only limited to competitive sports, but also training for prevention and rehabilitation, as well as strength training as a leisure time activity in gym is now quite common, strength training was, and still is a major part of athletic training with the aim to improve performance.⁵ Power lifting consists of three separate lifts; the squat, bench press and dead lift. In competitions people are grouped into weight classes where they compete against people of similar weight. Each lifter is allowed 3 attempts in each lift to lift the most weight they can. In order for a lift to be considered “good” at least two of three judges must agree that it was “good” lift, meeting all the rules of the power lifting competition for that lift.⁶

Methods

The population of the research has been chosen from the athletes participated in the Summer Olympics games of London /2012 in weightlifting for men, totaling (60) players. Weightlifters were divided into three groups of twenty (20) each in different weight categories. Group – I which covering the light weightlifters of second and third weight categories. Group-II which covering the middle weightlifters of fourth and fifth weight categories. Group-III which covering the heavyweight lifters of sixth and seventh weight categories. The reliability of data was ensured by establishing the instrument reliability and testers competence. The sum of the best 3 lift of respective events was considered as the scores of the lifters. The procedure for administration of the test only six (6) categories of



actual eight (08) body weight categories was taken by eliminating the first and last categories i.e. up to 56 kilograms and + 105 kilogram category for relative strength of weightlifters. The score or performance achieved in the weight lifting namely: Snatch, Clean and Jerk lift by the subjects can be divided with the body weight. The relative strength was recorded in kilograms. The scores or performance of the lifters were analyzed by calculating the means and the data were subject to one way analysis of variance (ANOVA) in order to find out the significance difference in the means. It was assess by conducting the test in Olympic arena by skillful and specialized experts with use of highly technological instruments.

Results

Findings pertaining to relative strength of the different weight categories of Olympics weightlifters 60 subjects were divided into three groups of 20 each. The sum of the best 3 lifts of respective events was considered as the scores of the lifters. The obtained value of 'F' ratio that is 64.93 was greater that the tabulated value of 3.17 for the selected degree of freedom and level of significance which indicates that the subjects of the entire group differ significantly in relative strength. To further analyses which group is better! Pair wise mean comparison analysis was done by using Post Hoc Test. After applying the Post Hoc Test it was found that there was significant difference in the entire three groups in their relative strength. However group I had higher relative strength. The analysis of data reveals that there is a significant difference in relative strength of various categories of lifters was found at the selected level of significance which establishes that various categories of lifters possesses different level of relative strength. After applying the Post Hoc Test it was found that there was significance difference in groups I (4.852), Group II (4.432) and Group III (4.040) in their relative strength. However group I had higher relative strength. This may be due to the different nature training and pre-requisite components for lifters. Such results may be due to small size of sample and factors such as different body types, difference in the body compositions etc.

Table-1
Analysis of Variance (Anova) For The Data of Relative Strength of Various Different Categories of Weight Lifters

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6.590515	2	3.295257	64.93051	2.015	3.158843
Within Groups	2.89278	57	0.050751			
Total	9.483295	59				



Post Hoc Test For The Comparison of Relative Strength Among The Different Weight Categories of Weight Lifters

Post hoc Test

LW	MW	HW	CD at 5% Level
4.852	4.432		0.42
4.852		4.040	0.81
	4.432	4.040	0.39

LW: Light Weight, MW=Middle Weight, HW=Heavy Weight

The significant differences in relative strength of different weight categories of power lifters were probably due to the different nature of training and pre-requisite components for athletes. Such results may be due to small size of sample and other factors such as different body type, difference in the body composition etc.

Conclusions

The purpose of the study was to compare the relative strength among the different weight categories of men weightlifters of Summer Olympics in 2012. The population of the research has been chosen from the athletes participated in the Summer Olympics games of London /2012 in weightlifting for men, totaling (60) players. Weightlifters were divided into three groups of twenty (20) each in different weight categories was selected. Group – I which covering the light weightlifters of second and third weight categories. Group-II which covering the middle weightlifters of fourth and fifth weight categories. Group-III which covering the heavy weight lifters of sixth and seventh weight categories. Their relative strength was recorded in kilograms. The scores or performance of the lifters were analyzed by calculating the means and the data were subject to one way analysis of variance in order to find out the significance difference in the means. The relative strength of Olympics weightlifters can be obtained by dividing recorded performance or score with body weight of the subjects. To see the significant difference of relative strength among the different weight categories of Olympics weightlifters the analysis of variance “F-ratio” was applied at.05 level of significance. For further analysis “Post-Hoc Test” (LSD Test) was applied. The results have shown that the lifters participated in various categories differ significantly in their relative strength. The selected level of significance was 0.05. After applying the Post Hoc Test it was found that there was significance difference in groups I (4.852), Group II (4.432) and Group III (4.040) in their relative strength. However group I had higher relative strength.

After applying the Post Hoc Test it was observed that there were significant difference in relative strength, however group I (4.852) had highest relative



strength as its mean value is highest among all group. The analysis of data reveals that there is a significant difference in the entire three groups in their relative strength, however group I had shown highest relative strength as its mean value is highest among all groups.

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