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Physiological Profiles of Vital Capacity of Elite Women Weightlifters

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ABSTRACT

Present study was selected to develop the physiological profiles of vital capacity of elite women weightlifters. For this study 35 elite women weight lifters were selected who were in the Indian camp at Bangalore and Shimla, preparing for common wealth games 2010 to be held at Delhi. The subjects were selected from each of the seven weight categories of weightlifting in the age group of 15 to 35 years. Mean score and standard deviation were calculated in order to study the physiological profiles of elite women weightlifters. Players profiles have been discussed in term of each player, besides individual profile, group profile were also judged keeping the norms as well as percentiles into consideration. The elite women weightlifters would have high level of vital capacity. On the basis of investigators self-experience and finding of the study, some recommendations were made as follows: Every coach should sketch the physiological profiles of his/her team and find out what physiological factors are most conducive to their performance.

Keywords – Elite, Weightlifters, Vital Capacity, Physiological Profile

INTRODUCTION

Profile studies have been employed in order to show various trait patterns. Essentially this involves placement of the individuals on test scales for a number of characteristics. Thus the individual's strength and weakness can be accessed from his position on a common scale for all traits. The scale may be from norms already available or may be constructed from a sample of the population to which the subject belongs. A glance in the history reveals that Human beings had to perform basic movements such as running jumping and throwing etc. with time the lifting of heavy weights was organized in a systematic manner called 'weightlifting". Weightlifting is a perfect demonstration of physical strength, technical skill and concentration. Lifters compete individually in a competition that require physical and mental preparedness and eventually tactical skill each completion is a final, whereas athletes are ranked in accordance with their performance. The study of functional state of human organism is also important to optimizing human performance. This argument can be supported by the fact that the efficiency of activity of performance is closely related to the psychological and physiological functional state. In weightlifting it has been proved that different body types need different training methods to achieve maximum results further the physical type of men governs largely what particular sport or athlete pursuit he will be best suited for, hence the physical type of a man is crucial in weightlifting performance. The concept of weight lifting has been entirely changed in India after the great incident of 2000 Sydney Olympics where a female athlete has won the bronze medal and brought laurels to the country. Karnamm maleshwari toil and

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effort has been proved successful.

METHODS:

Spirometry is an essential tool to evaluate lung function of health and disease. Total 35 elite junior and senior women weightlifters were selected for the study. Before collecting data from the elite weight lifters, the researcher collected information for the demographic profile for each of the 35 subjects which consisted of various questions related to the demographic profile. It showed that amongst these players some were having playing experience of more than 7 years, some had between 6-5 years but none had less than 4 years and the training schedule they undergone during the India Camp was more than 8 hours daily approximately. Some of the weight lifters were married as well some belonged to rich families whereas some belonged to extremely poor families but they all had higher achievements in international championships.

The following weight categories were adopted for the study;-

Below and including 48 kg weight category, Above 48 kg and upto 53 kg weight category, Above 53 kg and upto 58 kg weight category. Above 58 kg and upto 63 kg weight category, Above 63 kg and upto 69 kg weight category, Above 69 kg and upto 75 kg weight category, Above 75 kg weight category.

Procedure:-vital capacity was measured in millilitres by using a dry spirometer.The spirometer was brought the zero position .the subject inhaled to his maximum capacity and after closing both the nostrils, the air inside the lungs was blown out as intensely as possible into the mouthpiece of the dry spirometer.

For the said project the data would be collected by the researcher personally with the permission of the various academies like, sports authority of India, Bangalore and sports authority of India, shimla during the time of the coaching camps for the collection of data. Prior to the administration of the test the investigator had a meeting with the concerned national coaches and players. The data pertaining to physiological profile such as vital capacity will be collected through instruments.

RESULTS

As a measure for the present data (SPSS 17.0 was used).Mean Scores, standard deviations and percentile were calculated in order to study the Physiological profiles of Vital capacity of elite women weightlifters.

Table-1

Descriptive Statistics and Percentile Scores of Vital Capacity of Weightlifters

N		35
Mean		2.8057
Std. Deviation		.50173
Minimum		2.00
Maximum		4.30
Percentiles	10	2.1600
	20	2.3200
	30	2.5000
	40	2.6000
	50	2.8000
	60	3.0000
	70	3.0200
	80	3.1000
	90	3.5000
	100	4.3000

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Table -4 indicates that Mean and SD values of vital capacity of female weight lifters are 2.80 and ± 0.50 respectively. Out of 35 weight lifters the value of vital capacity of 10% of the weight lifters were below 2.16 litres, 20% of the weight lifters' vital capacity were below 2.32 litres, 30% of the weight lifters' vital capacity were below 2.5litres, 40% of the weight lifters' vital capacity were below 2.6 litres 50% of the weight lifters' vital capacity were below 2.8 , 60% of the weight lifters' vital capacity were below 3 litres, 70% of the weight lifters' vital capacity were below 3.02 litres, 75% of the weight lifters' vital capacity were below 3.1 litres, 80% of the weight lifters' vital capacity were below 3.1litres, 90% of the weight lifters' vital capacity were below 2.32 litres at 90th percentile and none of the subjects had vital capacity more than 4.30.

Table-2

Frequency Distribution of the Vital Capacity of the Weightlifters

Vital Capacity	Frequency	Percentage
2.00	2	5.7
2.10	1	2.9
2.20	3	8.6
2.30	1	2.9
2.40	2	5.7
2.50	2	5.7
2.60	4	11.4
2.80	3	8.6
2.90	1	2.9
3.00	6	17.1
3.10	4	11.4
3.20	2	5.7
3.50	2	5.7
3.60	1	2.9
4.30	1	2.9
Total	35	100.0

Table- 5 shows that out of 35 weight lifters 2 are having vital capacity under 2.00 litres, 1 is having under 2.10 litres, 3 under 2.20 litres, 1 is having under 2.30 litres, 2 are having under 2.40 litres, 2 under 2.50 litres, 4 are under 2.60 litres, 3 are under 2.80 litres, 1 under 2.90 litres, 6 are under 3.00 litres, 4 under 3.10 litres, 2 under 3.20 litres, 2 under 3.50 litres, 1 under 3.60 litres and 1 is under 4.30 litres respectively.

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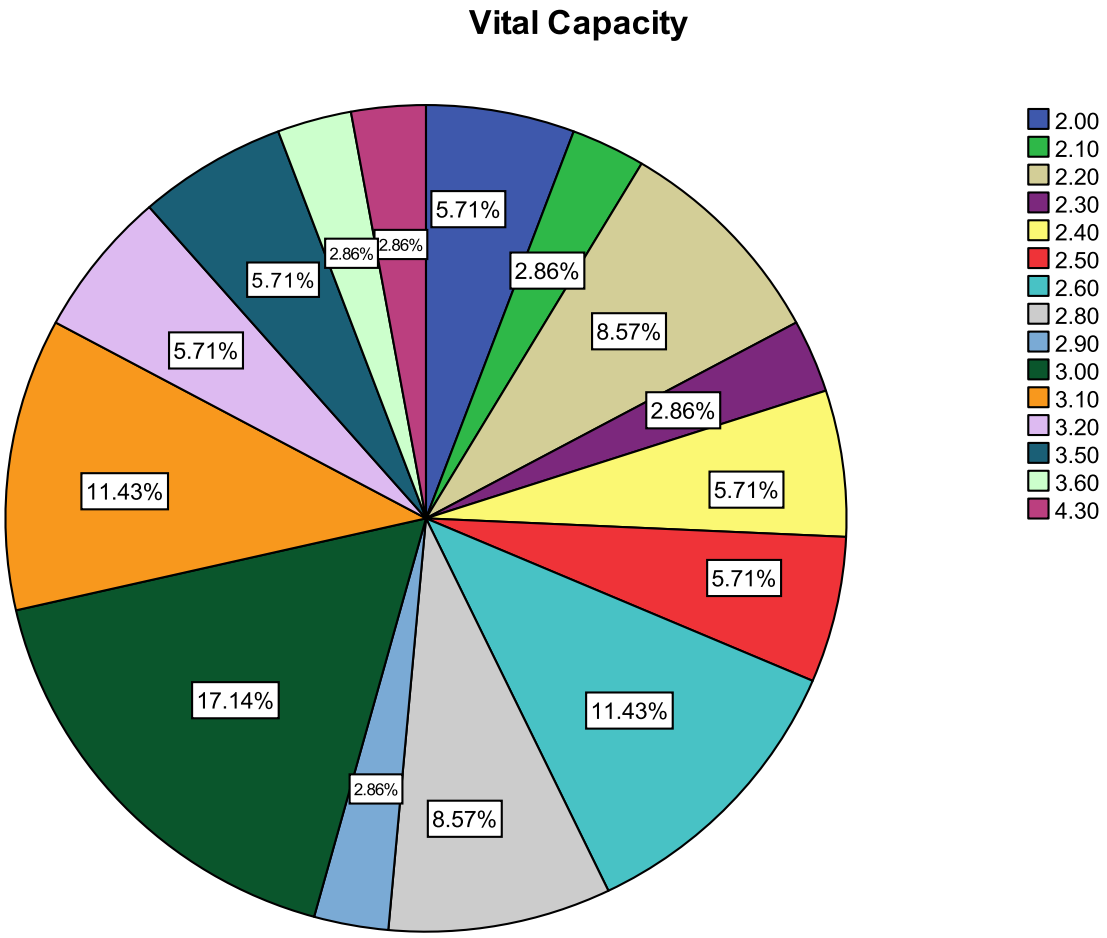

Figure-3 Percentage Values of Vital Capacity of Weightlifters

Graphical representation of the vital capacity showed that out of 100% 5.71% are having vital capacity under 2.00 litres, 2.86% are having under 2.10 litres, 8.57% under 2.20 litres, 2.86% are having under 2.30 litres, 5.71% are under 2.40 litres, 5.71% are under 2.50 litres, 11.43% are under 2.60 litres, 8.57% are under 2.80 litres, 2.86% are under 2.90 litres, 17.14% are under 3.00 litres, 11.43% are under 3.10 litres, 5.71% are under 3.20 litres, 5.71% are under 3.50 litres, 2.86% are under 3.60 litres and 2.86% are under 4.30 litres respectively.

DISCUSSION

After the analysis based on the hypothesis stated, the discussion with regard to the findings are presented. The finding of the study revealed that,:-

Vital capacity- it is the lung capacity of an individual, which is maximum volume of air, which a person can exhale after maximum inhalation shows an individual's endurance tolerance capacity which helps during the training period of the individual denoting that how much lifts an individual can perform, which will help in enhancing the performance of the individual if he is capable of carrying out that amount of load.

The obtained percentile score in vital capacity revealed that out of 35weight lifters, 17.14%of weight lifters have occupied the largest area which shows the majority of the players lies on the particular score; 3lts is the score which denotes above average vital capacity in the table of the elite athletes we assumed that 3 litres is the score that is aggregate for other weight lifters too of state &national level lifters.

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CONCLUSIONS

Power, strength and explosiveness of the skeletal muscles are vital domains in weightlifting sport. Weightlifting is such a sport doesn't require much ventilator efforts during training as well as competition. This study clueing that physiological adaptation/ improvement of the pulmonary function (PF) depends on the type of the sport being engaged by the athletes.

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