Effect of Maximal Power Training on Power Parameters among College Men Players

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Abstract

The purpose of the study was to find out the effects of maximal selected power training on power parameters among forty men students from Alagappa University College of Physical Education, karaikudi were selected randomly as subjects. The age of the students ranged from 18 to 23 years. The selected subjects were divided into two groups. Group A underwent maximal power training and group B acted as control group. The experimental groups were subjected to the training for three days in a week for a period of 12 weeks. The dependent variables namely Anaerobic power measured by Margaria Kalaman Anaerobic power test, Explosive power in terms of vertical measured by vertical jump, Explosive power in terms of Horizontal measured by standing Broad jump. The Data were collected from each subject before and after the training period and statistically analyzed by using dependent't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement on maximal power training on power parameters.

Key words: Maximal Power, Anaerobic, Margaria Kalaman, Explosive Vertical

Introduction

Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an Individual. Therefore, Sports life is affected by various factors like physiology, Biomechanics, sports Training, Sports medicine, Sociology and Psychology extra. Coaches, trainers, physical education personal and doctors are doing their best to improve the performance of the players of their country. Athletes/players of all countries are also trying hard to bring laurels/medals for their countries in international competitions.

The quest for optimal power training has to the development of various training methods. Traditionally, heavy resistance training techniques have been used to improve strength and subsequently, performance. These techniques have typically used weights of 60 to 90 percent of one-repetition maximum for repetitions four to six in number. More current thought combines a variety of training modalities, including plyometrics, dynamic weightlifting and combinations of these, to enhance power components.

The main characteristic of a maximum power training programme is involving exercise of all or at least most of the neuromuscular units. Everyone aiming to develop maximum strength must, therefore, frequently employ maximum and super maximum stimuli.

Maximal power training exercises must be employed to activate the motor units more quickly to encourage better nervous system adaptation. Training practice and research has shown that muscle adaptation requires considerable time and progresses from year to year. Adaptation, especially in well trained athletes, shows itself in the form of higher and better synchronization of motor units and their fixing pattern. Another physiological adaptation phenomenon, so critical in the display of power is that muscles discharge a greater number of muscle fibers in a very short time.

Neuromuscular adaptation to maximal power training also results in improved infra muscular coordination, better linkages between the excitatory and inhibitory reactions of a muscle to many stimuli. As a result of such Adaptation the CNS "learns" when and when not to send a nerve impulse that signals the muscle to contract and perform a movement. A further indication of adaptation to maximal power training is realized by better inter muscular co-ordination or the ability of the agonistic and antagonistic muscles co-operate to perform a movement effectively. Improved inter muscular co-ordination enhances the ability to contract some muscles and relax others, namely to relax the antagonistic muscles which results in improved speed of contraction of the prime movers and the relaxation of agonistic muscles.

The main difference between traditional heavy weight training and power training lies in the load and speed of the exercises. Loads of 75-95% of 1RM will result in increased maximum strength, while loads of 50-60% of IRM, Performed ballistically, will result in increased maximum power. Once an athlete has reached high strength levels, maximum power training may be more conducive to peak athletic performance than further increases in max strength.

The human body has the capacity to adapt to any environment and therefore any type of training. If an athlete is trained with body building methods which are often the case, the neuromuscular system adapts to them. As a result, the athlete should not be expected to display fast the explosive power because the neuromuscular system was not trained for it.

Methodology

To achieve the purpose, Forty men students from Alagappa University College of Physical Education, Karaikudi were selected randomly as subjects. The age of the subjects ranged from 18 to 23 years. They were assigned randomly into experimental and control group. Each group consists of 20 subjects only. Experimental group underwent maximal power training. The experimental group was subjected to the maximal power Training during morning hours for alternative days in a week for twelve weeks. The control group was not exposed any training. The dependent variables namely Anaerobic power measured by Margaria Kalaman Anaerobic power test, Explosive power in terms of vertical measured by vertical jump, Explosive power in terms of Horizontal measured by standing Broad jump.

Results and Discussions

The data pertaining to the variables in this study were examined by using the analysis of covariance (ANCOVA) for each variable separately in order to determine the difference and tested at 0.05 level of significance. The dependent 't' test also used to find out the pre and post test means on the selected variables.

Table-I

Shows the Mean and 'T' Ratio of Maximum Power Training on Selected Power Parameters among College Men Players

S.No.	Variables	Mean	Experimental Group	Control Group
1.	Anaerobic Power	Pre test mean	80.34	80.20
		Post test mean	81.76	79.21
		't' test	4.67 *	0.23
2.	Explosive Power in terms of Vertical (Cm)	Pre test mean	0.41	0.396
		Post test mean	043	0.391
		't' test	3.14 *	0.07
3.	Explosive power in terms of Horizontal (M)	Pre test mean	1.83	1.84
		Post test mean	1.94	1.79
		't' test	4.87 *	0.19

*significance at 0.05 level of confidence.

The obtained 't' ratio value of experimental groups is higher than the table value and it is understood that maximal power Training had significantly improved the performance of Anaerobic power, Explosive power in terms of vertical and Horizontal jump.

The analysis of covariance on the data obtained on Anaerobic Power in terms of vertical and Explosive power in terms of Horizontal jump due to the effect of maximal power training have been analyzed and presented in Table-II

Table-II

Analysis of Covariance of Experimental and Control Groups on Power Parameters among College Men Players

S.No.	Variables	Adjusted post Test means		Source of variance	SS	df	Mean squares	'F" Ratio
		Experimental Group	Control Group					
1.	Anaerobic power	81.70	79.27	Between	58.55	1	58.55	80.24*
				within	27	37	0.73	
2.	Explosive power in terms of vertical jump	0.43	0.39	Between	0.01	1	0.01	37.04*
				Within	0.01	37	0.00027	
3.	Explosive power in terms of Horizontal jump	1.94	1.79	Between	0.23	1	0.23	76.67*
				within	0.11	37	0.003	

*significance at 0.05 level of confidence with df(1,37)- =4.11

Table II shows that the adjusted post test mean values of Anaerobic power, Explosive power in terms of vertical and Horizontal jump of experimental and control groups were 81.70 & 79.27, 0.43 & 0.39 and 1.94 & 1.79 respectively. The obtained 'F' ratio value is 80.24, 37.04 and 76.67 which is higher than the table value 4.11 with df 1 and 37 required for significance at 0.05 level. Since the value of F- ratio is higher than the table value , it indicates that there is significant difference exist between the adjusted post test means of Experimental group in improving the performance of Anaerobic power, Explosive power in terms of vertical and horizontal jump when compared to control group.

Conclusions

The experimental group namely maximal power training group had achieved significant improvement on Anaerobic power, Explosive power in terms of vertical and Horizontal jump. Significant differences were found among the two groups namely experimental and control groups. Maximal power training group found that there is better improvement in selected variables selected variables such as Anaerobic power, Explosive power in terms of vertical and Horizontal jump. It was found that the improvement caused by maximal power training. So, maximal power training group was better than control group.

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