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EFFECT OF INTENSIVE AND EXTENSIVE CIRCUIT WEIGHT TRAINING ON SERUM CREATINEKINEASE

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Abstract:- The underlying principal of this study was to asses the effect of ten weeks of circuit weight training on selected criterion variable creatinekinease, study consisted of two experimental (independent) variables such as intensive and extensive circuit weight training. For the purpose of the study forty-five male students from the department of Physical Education, Annamalai university , in the age group of 22 to 23 years were recruited with there consent. The subjects was randomlyselected among the three groups, group I was treated with intensive circuit weight training; group II was followed extensive circuit weight training and group III acted as control group. Each group consists of 15 subjects and they were tested prior (pre – test) and after ten weeks (post – test) of circuit weight training. These finding suggests that improvement of serum creatinekinase is significantly higher for extensive circuit weight training group.

Keywords: serum creatinekinease , Physical Education, Annamalai university , circuit weight training and group

INTRODUCTION :

Scientific training methods and application of basic principles of body mechanics in sports skill has attributed to the higher level of performance in sports skills. Performance is the combined result of coordinated exertion and integration of a variety of functions. Although genetic factors environment and geographic location have an important role in performance, to certain extent performance depends upon the bio chemical, physical variables in which definite improvement can be achieved through appropriate training.

Exercise biochemistry is one of the most important areas of research in physical education and sports. Muscle soreness and muscle damage are closely associated with intensive and extensive training because of biochemical variables such as creatinekinase.

Serum creatine increases in proportion to the intensity and duration of the proceeding exercise. the highest post exercise serum creatinekinase activities are found after very prolonged weight bearing exercise, creatinekinase activities increase very little after non weight bearing physical activities such as cycling, which does not include intensive eccentric muscle contraction Tides and Ianuz(1983).

METHODOLOGY

SUBJECTS AND VARIABLES :

For the purpose of the study forty-five male students from the department of physical education, Annamalai university, in the age group of 22 to 23 years were recruited with there consent. All were healthy. Selected groups were assigne to intensive and extensive circuit weight training group and control groups of fifteen each. The selected criterion variable was assed using standard test and procedures, prior to and immediately after the training regimen. Serum creatinekinease (N – Acetyl cysteine activated) was estimated by the 'optimized standard method' conforming to the recommendations of the Deutsche Gesellschaft fur Klinische Chemise (SZ9S2, 1976).

The auto analyzer kit used for this test was 'Bioclin'CreatineKinase (NAC/Kinectic). 20ml of working solution and 0.02ml of sample was pipetted out in to a test tube and mixed well. Initial reading of the absorbance pf the test was taken after 1 minute at 37? C at 340nm. The readings were further taken after 2nd and 3rd. Using the 'Boehringer Mannheim' kit.

CALCULATION:

CK activity on IU/L = #A/min x 8095 (at 340nm)
The creatinekinase N-Acetyl cysteine activity was expressed as u/l of serum.

Training Protocol:

The experimental groups underwent training regime that consists of six to eight exercise session, two sessions a day four days a week for ten weeks. In the morning, circuit weight training was administrated with intensive sessions Monday and Friday for upper and lower body respectively, and extensive sessions on Tuesday and Thursday respectively. The control group did not participated in any specialized training during this period of study.

Experimental design and statistical procedure :

The experimental group design used in this study was random group design involving forty-five subjects. (Clark et al., 1972)Analysis of covariance (ANCOVA) was used for computing, further, since three groups were involved, whenever the 'F' ratio was significant, Scheff'e S post hoc test was used to determine which of the paired mean differ significantly.

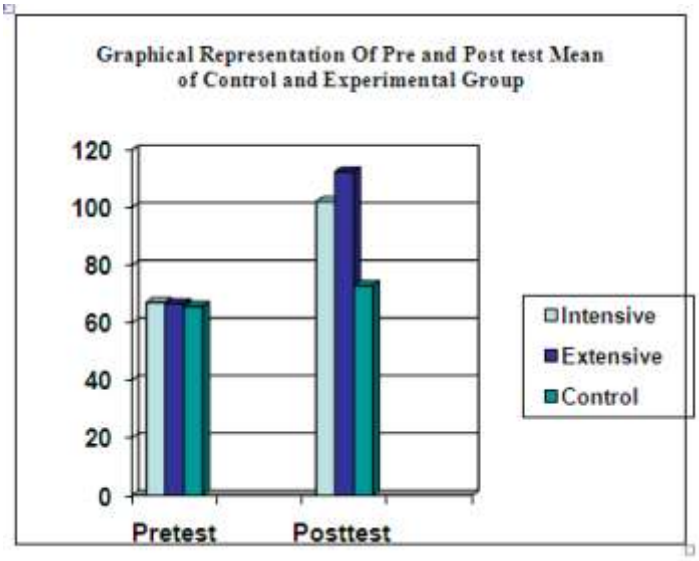
Results and Discussions :

The mean and standard deviation values on creatinekinase of intensive, extensive circuit weight training group and control group during pre and posttest periods and analysis of covariance for the pre and post-tests data on creatinekinase of experimental and control groups have been analyzed and presented in table 1.

Table1
Analysis of Covariance for Pre and Post Tests Data on CreatineKinase of Experimental and Control Groups

	Intensive Weight Training Group	Extensive Weight Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	**'F' Ratio**
Pretest Mean	67.00	66.60	65.66	Between	14.04	2	7.02	0.210
SD	3.77	7.82	4.99	Within	1406.93	42	33.50	
Posttest Mean	102.00	112.40	72.86	Between	12598.97	2	6299.48	152.29*
SD	5.39	8.87	4.03	Within	1737.33	42	41.37	
Adjusted Posttest Mean	101.42	112.22	73.63	Between	11809.72	2	5904.86	774.11*
				Within	312.745	41	7.62	

* Significant at 0.05 level.
The table value required for significance at 0.05 level of confidence with degrees of freedom 2, 41 is 3.23 and degree of freedom 2, 42 is 3.22.



The 'F' ratio value of 152.29 for post-test data on creatinekinase is significant at 0.05 levels. The 'F' ratio value of 774.11 for adjusted post-test on creatinekinase is significant at 0.05 level. It reveals that there is significant difference among the groups on creatinekinase because of circuit weight training . The results of Scheffe's post-hoc test is presented in table 2.

Table2
Scheffe's Test for the Differences between the Adjusted Post Test Paired Means on CreatineKinaseof Experimental and Control Groups

Adjusted Post Test Mean			Mean Differences	Confidential Interval
Intensive Circuit Weight Training Group	Extensive Circuit Weight Training Group	Control Group		
101.42	112.22		10.80*	2.56
101.42		73.63	27.79*	2.56
	112.22	73.63	38.59*	2.56

* Significant at 0.05 level.
The confidence interval required for 0.05 level of significance is 2.56.

Table 2 shows that all the three paired means are significant at 0.05 level. The improvement of creatinekinase is significantly higher for extensive circuit weight training group than intensive circuit weight training group.

CONCLUSION :

It reveals that both experimental groups have significantly increased the creatinekinase compared to control group. Further, the improvement of creatinekinase is significantly higher for extensive circuit weight training group than intensive circuit weight training group.

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