



EFFECT OF COMPLEX TRAINING ON SELECTED PHYSICAL VARIABLES AMONG PHYSICAL EDUCATION STUDENTS

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ABSTRACT

The purpose of the study was to find out the effect of complex training on selected physical variables among college physical education students. It was hypothesized that there would be significant differences on selected physical variables due to the effect of complex training among physical education students. For the present study the 30 male physical education students from Alagappa University College of Physical Education, Karaikudi, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent complex training and Group 'B' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying ANCOVA test. The level of significance was set at 0.05. The complex training had positive impact on strength and flexibility among physical education students.

KEYWORDS: Complex Training, Physical Variables, Physical Education Students.

INTRODUCTION

Sport form an inspirable part of the system of physical education. Physical education offers opportunity in competitive situation for physical, social, emotional and moral development. Sports and games are the best ways to earn social recognition and acquire a status in the modern society. There are many factors that contribute to successful performance in athletic skill. In most of the advanced and developed countries, the awareness for motor learning and skill developed among children is very much scientific and prolonged which perhaps helped them to level of general fitness with motor abilities like power, speed, agility, balance, reaction time etc. are essential qualities required to be develops in the players. Sports training is a programme of exercise designed to improve the skills and increase the energy capacities of an athlete for a particular event. Sports activities consist of motor movement and action and their success depends to a great extent on how correctly they are performed. Techniques of training and improvement of tactical efficiency play a vital role in a training process (Fox, 1984). Bompa (1999) suggested that the physical goal of training is to improve body function and optimize athletic performance. Training is primarily a systematic athletic activity of long duration, which is progressively and individually graded. Human physical functions are modeled to meet demanding tasks.

Complex training, one of the most advanced forms of sports training, integrates strength training, plyometrics, and sport-specific movement. It consists of an intense strength exercise followed by a plyometric

exercise. Complex training activates and works the nervous system and fast twitch muscle fibers simultaneously. The strength exercise activates the fast twitch muscle fibers (responsible for explosive power). The plyometric movement stresses those muscle fibers that have been activated by the strength training movement. During this activated state, the muscles have a tremendous ability to adapt. This form of intense training can teach slow twitch muscle fibers to perform like fast twitch fibers. Complex training as alternating biomechanically comparable high-load weight training and plyometric exercises in the same workout. Complex training as various sets of groups/complexes of exercises performed in a manner in which several sets of a heavy resistance exercise are followed by sets of a lighter resistance exercise. These authors also mention the term contrast loading and define this as “the use of exercises of contrasting loads that is, alternating heavy and light exercises set for set”. Complex training as the execution of a resistance-training exercise using a heavy load (1-5RM) followed relatively quickly by the execution of a biomechanically similar plyometric exercise.

METHODOLOGY

The purpose of the study was to find out the effect of complex training on selected physical variables among physical education students. It was hypothesized that there would be significant differences on selected physical variables due to the effect of complex training among physical education students. For the present study the 30 male physical education students from Alagappa

University College of Physical Education, Karaikudi, Tamilnadu were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group ‘A’ and Group ‘B’. Group ‘A’

underwent complex training and Group ‘B’ has not undergone any training. Strength was assessed by leg dynamometer and flexibility was assessed by sit and reach test. The data was collected before and after six weeks of training. The data was analyzed by applying ANCOVA test. The level of significance was set at 0.05.

**TABLE I
VARIABLES AND TEST**

S.No	Variables	Tests
1	Strength	Leg dynamometer
2	Flexibility	Sit and Reach

RESULTS

The findings pertaining to analysis of ANCOVA test between experimental group and control

group on selected physical variables among for pre-post test respectively have been presented in table II to III.

**TABLE II
SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST TEST SCORES ON SELECTED VARIABLES OF COMPLEX TRAINING GROUP (CTG)**

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	‘t’ Ratio
1	Strength	51.65	66.52	14.85	6.21	1.61	9.16*
2	Flexibility	22.74	34.74	12.00	4.22	1.13	10.62*

* Significant at 0.05 level

Table II shows the obtained ‘t’ ratios for pre and post test mean difference in the selected variable of strength (9.16) and flexibility (10.62). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically

significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were significantly improved in physical variables namely strength (14.85, p<0.05) and flexibility (12.00, p<0.05) thus the formulated hypothesis is accepted.

FIGURE I

COMPARISONS OF PRE – TEST MEANS AND POST – TEST MEANS FOR EXPERIMENTAL GROUP IN RELATION TO PHYSICAL VARIABLES

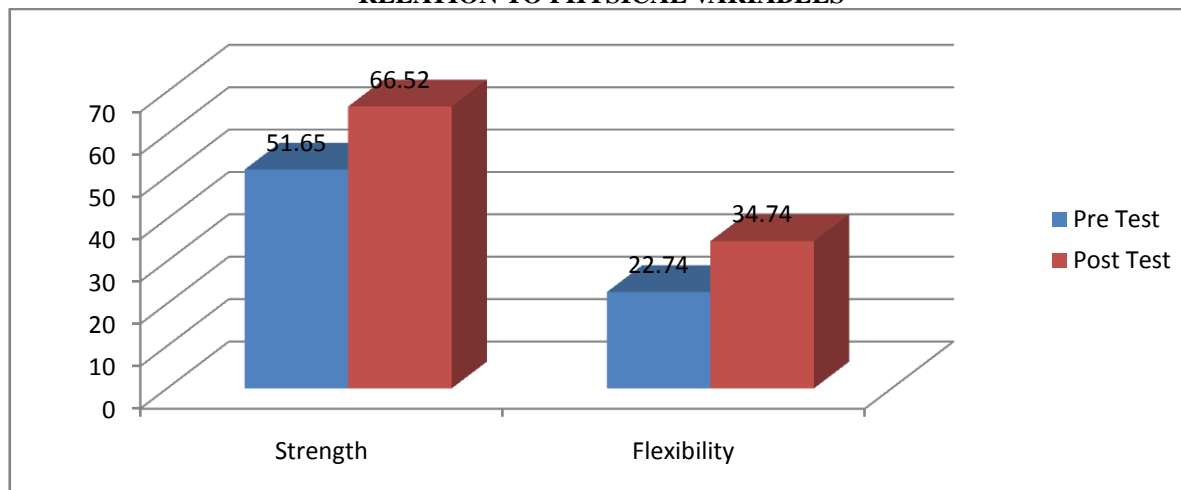


TABLE III
SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST TEST SCORES ON SELECTED VARIABLES OF CONTROL GROUP (CG)

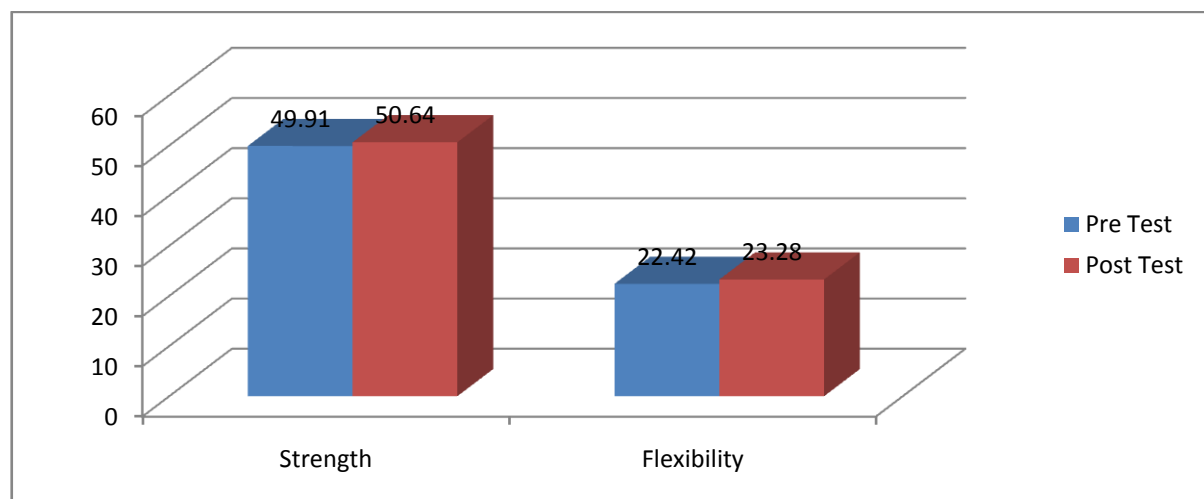
S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (\pm)	σ DM	't' Ratio
1	Strength	49.91	50.64	0.73	6.21	1.51	0.43
2	Flexibility	22.42	23.28	0.86	3.38	0.85	0.91

* Significant at 0.05 level

Table III shows the obtained 't' ratios for pre and post test mean difference in the selected variable of strength (0.43) and flexibility (0.91). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically

significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were not significantly improved in physical variables strength (0.73, $p > 0.05$) and flexibility (0.86, $p > 0.05$).

FIGURE II
COMPARISONS OF PRE – TEST MEANS AND POST – TEST MEANS FOR CONTROL GROUP IN RELATION TO PHYSICAL VARIABLES



DISCUSSIONS ON FINDINGS

In case of physical variables i.e. strength and flexibility power the results between pre and post test has been found significantly higher in experimental group in comparison to control group. This is possible because due to regular complex training which may also bring sudden spurt in physical variables in physical education students. The findings of the present study have strongly indicates that complex training of six weeks have significant effect on selected physical variables i.e., strength and flexibility of physical education students. Hence the hypothesis earlier set that complex training programme would have been significant effect on selected physical variables in light of the same the hypothesis was accepted.

CONCLUSIONS

On the basis of findings and within the limitations of the study the following conclusions were drawn:

1. The complex training had positive impact on strength and flexibility among physical education students.
2. The experimental group showed better improvement on strength and flexibility among physical education students than the control group.

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