



## EFFECT OF COMPLEX TRAINING ON ARM EXPLOSIVE POWER AMONG COLLEGE MEN STUDENTS

G. Ashok kumar

Ph.D, Research Scholar, Alagappa University College of Physical Education, Alagappa University, Karaikudi.

Dr.M. Sundar\*

Principal, Alagappa University College of Physical Education, Alagappa University, Karaikudi. \*Corresponding Author

**ABSTRACT** The purpose of this study was to find out the effect of complex training on selected arm explosive power among college men students. To achieve this purpose of this study, 30 men college students from Alagappa University College of physical education, Karaikudi were selected as subjects at random. Their age range between 21 to 25years. The selected subjects were divided in to two equal groups of fifteen each namely complex training group and control group. The experimental group underwent twelve weeks of training program, whereas the control group maintained their daily routine activities and no special training was given to them. The subject of the two groups were tested on selected arm explosive power using seated medicine ball throw respectively before and immediately after the training period. The collected data were analyzed statistically through analysis of "t" test to find out the significant improvement between pre and post-test means of both groups. if any, among the groups. The .05 level of significance was fixed to test the level of significance which was considered an appropriate. The results of the study showed that complex training group showed significant improvement on arm explosive power variables when compared to the control group.

**KEYWORDS :** Complex training, arm explosive power, medicine ball

## INTRODUCTION

Complex training is a workout comprising of a resistance exercise followed by plyometric exercise e.g. squats followed by squat jumps; bench press followed by plyometric press up. The logic behind these matched pair of exercise is that the resistance work gets the nervous system into full action so that more type IIb fibers are available for the explosive exercise, hence a better training benefit of complex training programme can be used in the general, specific and competitive phase of training. Ebbon (2002) in his recent literature review has stated that complex training has investigated both the acute and long term effects of this conditioning approach. Complex training describes a power-developing workout that combines weights and plyometric exercises. The two benefits from traditional strength work are increased neural activity and increased muscle mass (hypertrophy).

According to Hakkinen (1998) the strength training in combination with some explosive types of exercises can be recommended as a part of overall physical training to maintain the functional capacity. Combining both resistance strength training and plyometric training is to use the combination of resistance and plyometric exercises to superbly engage the nervous system and activate more fibers (Beachle and Earle, 2000). Ebban (2002) states that resistance training followed by plyometric training alternates bio mechanically similar to high load weight training exercises with plyometric exercises. This type of training describes a power-developing workout that combines weights and plyometric exercises. About ten years ago, these workouts were greeted with great acclaim as research indicated that they could significantly enhance fast twitch muscle fiber power and, therefore, produce dynamic sports performance. The logic behind this pair of exercise is that the resistance work gets the nervous system into full action so that type II b fibers are available for the explosive exercise; hence a better training benefit of complex training programme can be used in the general, specific and competitive phase of training

## Selection of subject

The purpose of this study was to find out the effect of complex training on selected arm explosive power among college men students. To achieve this purpose of this study, 30 men college students from Alagappa University College of physical education, Karaikudi were selected as subjects at random. Their age range between 21 to 25years.

## EXPERIMENTAL DESIGN

The selected subjects (N=30) were divided in to two equal groups of fifteen each namely complex training group and control group. The experimental group treated with complex training for duration of one hour, three days per week for a period of twelve weeks of training program, whereas the control group maintained their daily routine activities and no special training was given to them. The subject of the two groups were tested on selected arm explosive power using seated medicine ball throw respectively before and immediately after the training period.

## SELECTION OF VARIABLES

Complex training

## DEPENDENT VARIABLES

Arm explosive power

## ANALYSIS OF THE DATA

The significance of the difference among the means of experimental group was found out by pre-test. The data were analyzed dependent 't' test technique was used with 0.05 level as confidence.

**TABLE I: ANALYSIS OF 't'-RATIO FOR THE PRE AND POST TESTS OF EXPERIMENTAL AND CONTROL GROUP ON ARM EXPLOSIVE POWER AMONG COLLEGE MEN STUDENTS (Measures in meter)**

| Groups       | Mean |      | Mean Difference | S.D  | Standard Error | 't' ratio |
|--------------|------|------|-----------------|------|----------------|-----------|
|              | Pre  | Post |                 |      |                |           |
| Experimental | 5.40 | 6.53 | 1.125           | .781 | .202           | 5.578*    |
| Control      | 5.61 | 5.61 | .002            | .572 | .148           | .014      |

\*Significance at .05 level of confidence. (The table value required for 0.05 level of significant with df of 14 is 2.14)

The Table-I shows that the mean values of pre-test and post-test of control group on arm explosive power were 5.61 and 5.61 respectively. The obtained 't' ratio was .014 since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on strength were 5.40 and 6.53 respectively. The obtained 't' ratio was 5.578\* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in arm explosive power. It may be concluded from the result of the study that experimental group improved in arm explosive power due to twelve weeks of complex training.



**Figure 1: The pre and post test Mean values of complex training group and control group on arm explosive power (Seated medicine ball means count in meters)**

**DISCUSSIONS ON FINDINGS**

The result of the study indicates that the experimental group namely complex training group had significantly improved the selected dependent variables namely strength and speed, when compared to the control group. It is also found that the improvement caused by complex training when compared to the control group.

**CONCLUSIONS**

1. There was a significant difference between experimental and control group on arm explosive power after the exercise period.
2. There was a significant improvement in arm explosive power. However the improvement was in favor of experimental group due to Twelve weeks of complex training.

**REFERENCES**

1. Donald A. Chu, (1996). Explosive Power and Strength Complex Training for Maximum Results – A Better Way to Train. Champaign, Illinois: Human Kinetics.
2. Fleck S, (1999). Periodized Strength Training: A Critical Review. Journal of Strength and Conditioning Research, 13, 82-29.
3. Ebben (2002). Complex Training: A brief review. Journal of Sports Science and Medicine 1, 42-46.