Sports Scientists Views in
Indian Journal of Physical Education, Sports & Applied Sciences
I.J.P.E.S.A.S
Available Online
www.sportscientistsviews. com
Journal DOI-05-2016-44975451
Scientific Journal Impact Factor-5.684

EFFECTS OF WEIGHT TRAINING ON PERFORMANCE OF LONG JUMPERS

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ABSTRACT

The purpose of the study was to determine the effects of Weight training on performance of Long Jumpers. The subjects for the study were 20 male students studying in C.P.Ed course and were assigned at random to two groups (n=10) each. Group A trained with Weight Training, Group B acted as control. The training period for Weight Training experimental group underwent their respective training three days per week for eight weeks in addition to their regular activities. The data was collected in the beginning and at the end of 8 weeks experimental period in terms of pre and post test. A systematic and scientific training schedule was adopted for all the subjects and loading principles in mind. t-test was applied to find out the differences in pre and post test scores of Group A, and B. The significance was tested at 0.05 levels. It was found that Weight Training is effective Training for long jumpers.

Keywords: Weight Training., long Jump, athlete, Training group, Control Group

1. INTRODUCTION

Generally weight training should display its effect on body structure and ability of the players. Now modern weight equipment's. multi-gym and isokinetic machines are available for the development of specific strength for specific group of muscles for specific games **(Tim & Jay 1982).** For players of big games such as Football, Volleyball, Hockey, Cricket, Softball etc., almost all muscles of the body need to be very powerful and active. For other sports such as running, jumping and throwing, players can improve their performance through weight training. In this study an attempt is made to compare their training modalities.

Goal of the long jumper needs to develop the foremost economical coaching technique to maximise performance. Resistance training improves strength however not speed. The plyometric exercises train the quick muscle fibers and also the nerves that activate them yet as reflex and therefore it's one in all the first tools that enhance each i.e. strength and speed. They concluded that identification of plyometric training program as a lot of helpful and resultive than free quality exercise training program and have positive effect on long jump performance. **(Sharma, Saiyad & Nandwani, 2013)**

Long jump performance is, among different factors, extremely addicted to the athlete's ability to get spare vertical speed throughout take-off. For an exact time on the take-off board the impulse-momentum relationship states that vertical speed is directly proportional to the vertical force applied to the body centre of mass and reciprocally proportional to the athlete's body mass. A rise in an athlete's strength is assumed to be followed by a rise in body mass. This study investigated however strength gains as well as the corresponding body mass gains influenced jump length. The results showed that when an initial increase in jump length any will increase in strength and body mass didn't have an effect on performance **(Ssrensen, H., Simonsen, E.B. & van den Bogert, A.J. (1999a &b.)**

Carlson, Magnusen, & Walters (2009) examined the consequences of weight-training with weights and plyometrics plus training with weights and also with vertical jump. Subjects were thirty seven physical activity athletes distributed in 1 of 4 training groups: i.e. strength, strength-plyometric, strength-without arms , and strength with arms. Every training group completed a 6-week experimental training program. there have been no applied math will increase in pre–post vertical jump among all group of teams. there have been no vital variations for post-test vertical jump between the four training group of teams. Pre- and post-test result sizes were lowest among all group of teams. The findings of this study demonstrate that there's no distinction in vertical jump among strength training, plyometric training and jump training over a 6-week time frame.

Since the 1960, coaches and scientists round the world are finding out coaching means that and strategies to enhance the storage and employ of elastic potential energy in muscle throughout the stretch-shortening cycle. The alleged plyometric exercises are able to try this. they're outlined as exercises that "activate the stretch-shortening cycle of skeletal muscles, causing the elastic, reflex and mechanical potentiation" **(Moura, 1988).**

There is a growing scientific awareness among coaches and investigators **(David & Helen 1985).** Training in games and sports is no longer a myth and it does not appreciate casual approach, but it provides opportunities for scientific application and verification. Training has been accepted as a high specialised science **(Doris & Richard 1973)**. Strength is one of the most important components of physical fitness, which affects the performance in all activities in some form or the other. Development of

strength is essential for power and speed. Strength is a complex factor which depends upon both the stimulus given by the nervous system and upon the capacity of the muscles for contraction, their size and shape. Improvement in strength is brought about by the principle of over loading through resistance exercises and also through repetition of specific movements of the muscles especially of those which are involved. Weight training is today considered as one of the principle methods of securing strength, but this requires the guidance of a coach or expert **(Gene 1962).**

The ability to get lower body power could be a key part for fulfillment in several sporting activities **(Baker 1995; Haff and Potteiger 2001; Harman et al. 1990; Harris et al. 2000; Kemp 1997; Lyttle et al. 1996; Stone 1993).** This can be very true for athletes who requires activities that need sprinting and jumping **(Lyttle et al. 1996).**

Numerous forms of strength-training modalities are utilised so as to enhance lower body power, as may be measured by vertical jump. These modalities are classified into general, special, and specific. General strength-training exercises are utilized to extend the largest strength of the muscles utilized in jumping **(Baker, 1996)**. .

Bosco (1985a&b) detected a negative relationship between the event of largest strength and special strength in elite Italian jumpers. even supposing he didn't counsel eliminating largest strength training. He suggested that the limiting the length of this amount of training should be for a most of eight weeks.

Athletes engaged in power-based activities like long jump typically complement activity specific training with strength training. whereas the target is increased strength, this may typically be among increased body mass. there's general agreement within the literature that approach speed is that the single most significant determinant for fulfilment in long jump **(Hay, 1993).**

2.METHODOLOGY

2.1 Sample

20 students of Shri Chhotubhai Purani Vyayam Mahavidyalay, Rajpipla (Gujarat) age ranged between 18 to 22 were selected for this study. Random group design was adopted to equally divide the subjects in two groups consisted 10 subjects in each group.

2.2 Research Design.

Experimental group - A Weight Training, and B control group. Group A was assigned to Weight training with Leg Press, Leg Flexion and Extension, Half Squat, Hill Raise, Knee Ups with Bar and Jump with Weight exercises. Group B acted as control and did not participate in any kind of training.

2.3 Testing Procedure

Prior to initial testing, each subject was familiarized with testing protocol. The data was collected for both the two groups before starting experiment to Weight Training group in terms of pre test. Post data were collected after 8 weeks of imparting the Weight training for group A. Group B was also tested after the completion of 8 weeks.

2.4 Training Protocol

During the training period, the experimental group underwent their respective training Program three days per week (alternate days) for eight weeks in addition to their regular activities. Every day, the work out lasted for 90 minutes approximately including warming up and cool down periods. The Weight Training Program involved

Leg Press, Leg Flexion and Extension, Half Squat, Knee-Up with Bars, Heel Raise and Jump with Weight.

The load was progressively increased. All training sessions for experimental group was fully supervised and all the subjects remained present during the training period. None of them reported any injury. However, muscle soreness was reported in the early weeks which subsided later and there were no dropouts in the study.

2.5 Statistical Analysis

The data collected from the two groups prior to and after experiment were statistically examined for significant results were obtained ($P<0.05$), t-test was used to find out Weight Training is effective or not for long Jumpers.

3. RESULTS

This chapter presents the data concerning long jump performance collected on 20 subjects. t-test was applied to find out significance of differences between pre-test and post-test means. The results pertaining to t-test for long jump performance is given in table – 1 and it is evident that t- ratio obtained for experimental group A, was3.32. The obtained t-ratio for control group was 0.53. As the required 't'- ratio for significance was 2.26 at 0.05 level of confidence, therefore, Weight Training Group was found significant whereas the control group was found insignificant.

TABLE- 1

SIGNIFICANCE OF DIFFERENCES BETWEEN PRE-TEST AND POST-TEST MEANS OF WEIGHT TRAINING AND CONTROL GROUP IN LONG JUMP PERFORMANCE

Group	Pre-Test Mean	Post-Test Mean	Mean Difference	S.D.	t- ratio
Weight Training	4.44	4.65	0.21	0.20	3.32*
Control	4.49	4.46	0.03	0.17	0.53

Significant level 0.05 (9) 2.26

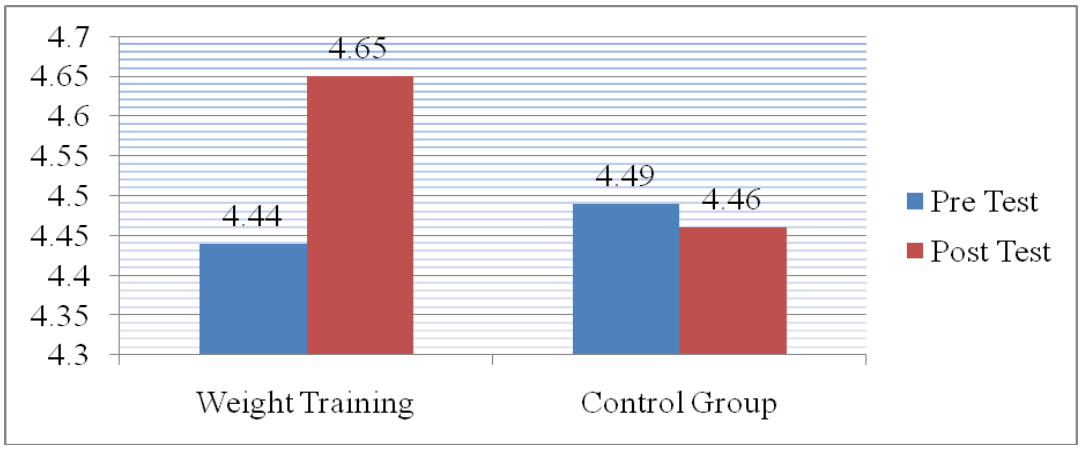

CHART-1: PRE AND POST TEST MEANS OF WEIGHT TRAINING GROUP AND CONTROL GROUP

4. CONCLUSION

On the basis of analysis of data and within the limitation of present investigations the following conclusions may be drawn.

1. The improvement observed in performance of Long jumpers after 8weeks training program of Weight Training.
2. There was no improvement observed in the control group

5. ACKNOWLEDGEMENTS

The authors would like to thank C.P.Ed. students of Shree Chhotubhai Purani Vyayam Mahavidyalaya, Rajpipla Gujarat for their support to complete this study.

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