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Effect of various strength trainings on speed among pre-adolescent girls students

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Abstract

The purpose of this investigation was to find out the effect of various strength trainings on speed among pre-adolescent girls. To achieve this purpose, thirty (N= 30) girls from different schools of Chidambaram, Tamil Nadu were selected as subjects. The age ranged between 12 to 14 years. The selected subjects were randomly assigned into two equal groups of fifteen (n=15) subjects each such as various strength training group and control group. The Group I underwent various strength trainings three days per week for twelve weeks. Group II acted as control group which did not participate in any special training programme apart from their regular activities. The speed was taken as criterion variable for the present study and it was measured by 50 meter run dash. All the subjects of the two groups were tested on the selected dependable variable at prior to and after the training programme. The analysis of t-test was used to analyse the significant difference, if any, between the groups. Level of confidence was fixed at .05 to find out the level of significance which was considered as an appropriate. Results revealed that various strength trainings have significantly improved speed of experimental group when compared with control group.

Keywords: Strength trainings, Speed, t-test

Introduction

Strength training is an important factor in annual training planning for maximal velocity in modern sprint races. In the last decade an increase in the use of strength training in young athletes' training has been noted, especially at the perfection stage of training in athletes aged 17 to 20 years. The main goal of this training stage is to realize athletes' technical potential in strength training in order to avoid injuries (Reilly and Stratton 1995) [4]. However, strength training is a means of training with resistance that is focused on improving strength, as compared with muscle size. Resistance training, also known as strength or weight training has become one of the most popular forms of exercise to enhance an individual's physical fitness and condition athletes. The terms strength and resistance trainings have all been used to describe a type of exercise that require to move (or attempt to move) against an opposing force usually presented by some type of equipments (Flack. 1987) [6].

Speed is the quickness of movement of limb, whether this is the legs of a runner or the arm of the shot putter. Speed is an integral part of every sport band, can be expressed as combination of maximum speed and speed endurance. It is influenced by the athlete's mobility, special strength, strength endurance and techniques (Singh *et al.* 2008) [5]. Speed strength ability is known as power. Although most coaches and athletes know that power is the name of the game, few have understood the mechanics, necessary to develop it. Plyometrics is a common training methodology used by competitive athletes to develop speed and power. Jumping, bounding, skipping, throwing or any basic recoil movement, which ballistically stretches muscles, are characteristic of plyometric drills, and are characteristic of motions found virtually in energy sport. The acquisition of a more rapid and forceful contraction is the fundamental basis for engaging in plyometrics training. As with most forms of exercises there are varying degrees of difficulty of intensity. Muscles, along with bones, provide posture and movement in the human body. Unlike the other supporting structures, ligaments and tendons, muscles possess a unique ability to impart dynamic activity to the body (Chu 1992) [1].

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Materials and Methods

The aim of this study was to find out the effect of various strength trainings on speed among pre-adolescent girls to achieve this purpose, thirty (N= 30) girls, from different schools of Chidambaram, Tamilnadu were selected as subjects. The age ranged between 12 to 14 years. The selected subjects were divided into two equal groups of fifteen subjects each at random. Group 1 underwent strength trainings for three days per week for twelve weeks. Every day the work out is conducted about 45 to 60 minutes including warming up and cooling down exercises. Group II (control group) did not participate in any specific activity. The subjects underwent their respective training programme under the strict supervision. The data on speed was collected by administering by administrating 50 meter dash running. Pre-

test data were collected prior to the training programme and post-test data were collected immediately after the twelve-weeks of training programme from both the experimental group and control group.

Statistical procedure

The collected data from experimental and control groups during pre and post-test on selected criterion variable such as speed used for statistical treatment to find out the significant difference between means by computing the analysis of t-test. The 0.05 level of confidence was fixed to test the significance which was considered to be appropriate measures.

Results and Discussion

Table 1: Collected data from experimental and control groups during pre and post-test

| Tests | Experimental group | Control group | N | Md | Df | T value |
|----------------|--------------------|---------------|----|------|----|---------|
| Pre-test mean | 8.38 | 8.45 | 15 | 0.06 | 14 | 1.175 |
| Sd(±) | 0.34 | 0.27 | 15 | | | |
| Post-test mean | 7.96 | 8.46 | 15 | 0.49 | 14 | 7.86* |
| Sd(±) | 0.33 | 0.26 | 15 | | | |

In order to measure the level of speed of pre-adolescent girl's students, means and standard deviations were separately calculated. The findings indicated that there was a significant

difference in speed of the experimental group when compared with the control group.

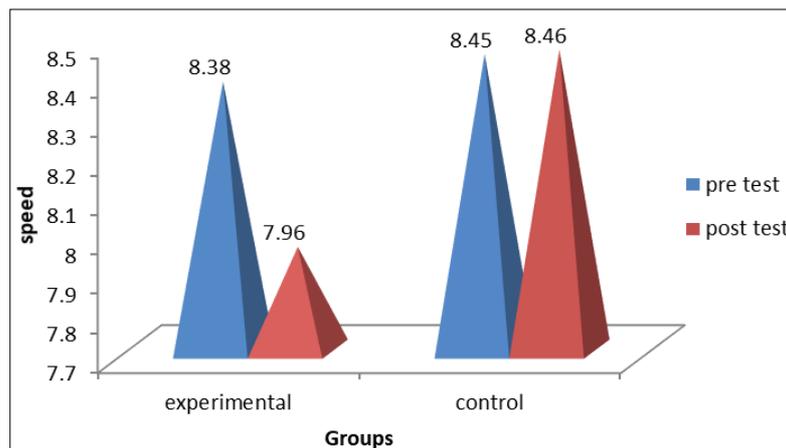


Fig 1: Bar diagram showing the pre and post-test means and standard deviations of experimental and control groups on speed of pre-adolescent girls students

The graph indicates that there is a significant change in speed of the experimental group when compared with the control group. After going through the results, it was concluded that various strength trainings has resulted in a significant change in speed of pre-adolescent girls students of the experimental group when compared with the control group.

Discussion

The result of the present study pointed out that there was a significant difference in speed due to twelve weeks of various strength trainings. Naidu (2016) [2] investigated the Impact of Speed training combined with Plyometric training and Intensive interval training on Speed endurance the result of the study showed that due to the effect of combined Speed and Plyometric training and combined Speed and Intensive interval training the Speed endurance of subjects is significantly improved. Palanisamy, Rajashekar and Kulothungan (2010) [3] conducted a study to find out the effect of interval training on speed and speed endurance of university women players. The result reveals that there was

significant difference between interval training group and control group on speed and speed endurance. From the results of the present study and literature, it is concluded that dependent variable namely speed was significantly increased due to various strength trainings.

Conclusion

The result of the study revealed that due to the effect of various strength trainings the speed of the subjects is significantly improved. It was also concluded that various strength trainings are the best methods for increasing the speed and as well as the physical fitness of pre-adolescent girls students.

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