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Effect of Plyometric Training on Explosive Strength of College Girls

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Abstract

The purpose of the study was to determine the effect of Plyometric training programme on Explosive strength. Randomly selected 60 college girls were divided into two equal groups as A and B. After taking the pre-test for Explosive strength the Plyometric training programme was given to experimental groups A where as the group B was a control group. The experimental group 'A' had undergone the plyometric training programme, thrice a week for 12 weeks. Post test was conducted after 12 weeks. The t-test was employed to analyse the significance of difference from the pre-test to post test on selected variable. The result reveals that there was significant improvement in Explosive strength for the experimental group as a result of the plyometric training programme conducted for a period of three months.

Keywords: Plyometric training, Explosive strength

Introduction

Plyometric exercises are powerful aerobic exercises used to increase your speed, endurance, and strength. They require you to exert your muscles to their maximum potential in short periods of time. Also known as jump training, plyometric exercises are usually geared toward highly trained athletes or people in peak physical condition. However, they can also be used by people wishing to improve their fitness. Plyometric exercises can cause stress to the tendons, ligaments, and lower-extremity joints, especially the knees and ankles. It's important that you have the strength and fitness level necessary to do these exercises safely and effectively. If you're adding plyometric exercises to your workout routine, work up to them gradually. Slowly increase the duration, difficulty, and intensity of the exercises.

Explosive strength refers to an individual's ability to exert a maximal amount of force in the shortest possible time interval. For conceptual purposes, think of a sprinter forcefully driving into the starting blocks, a high-jumper propelling himself off of the ground, a football player exploding off the line, or a weight lifter squatting a near maximal load. While each of these movements are markedly different from one another, both in form and speed of movement, they all require explosive strength. Generally speaking, athletes who need to display large amounts of force in relatively short periods of time would do well to incorporate explosive based strength training. within their regimen. Clearly this includes most common sports such as baseball, soccer, basketball, football, lacrosse, hockey, tennis, boxing, wrestling, golf, track & field, and weightlifting. The rate of force development is at the maximum for any type of muscle action is explosive power. In activities requiring high acceleration and output, explosive power training is necessary for maximum development. The general exerciser doesn't usually need to include explosive power training in a regular workout. Cardiovascular and strength training in a slow, steady manner will give adequate results. In contrast, Athletic movements need to be performed at high speeds. The muscles have to be developed and trained outside of the sport in order to do this. The types of exercises used in explosive power training are determined by the type of sport that is being trained for. For example, for a basketball player trying to improve his jump shot would have a training program that would include weighted vertical jumps.

The Sargent Jump Test also known as the vertical jump test, was developed by Dr. Dudley Allen Sargent. The purpose of the test required for the test are measuring tape or marked wall, chalk for marking wall. The athlete stands side on to a wall and reaches up with the hand

closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the standing reach height. The athlete then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. The jumping technique can or cannot use a countermovement. Attempt to touch the wall at the highest point of the jump. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded.

Objective of the study

The purpose of the study was to determine the effect of plyometric training on explosive strength of college girls. The study may help the people to know the effect of Plyometric Training on Explosive strength. The study may probably make an impact on the public to follow plyometric training exercises to maintain good health and fitness. Further, this study may help to reveal the importance to include plyometric exercises in the training schedule to improve Explosive strength.

Hypotheses

There will be significant improvement in Explosive strength as a result of Plyometric Training programme.

Design of the study

Randomly selected 60 college girls were divided into two equal groups as A and B. After taking the pre-test for Sargent Test, the ladder training programme was given to experimental groups A, where group B was the control group. The experimental group 'A' had undergone the Plyometric training programme thrice a week for 12 weeks. Post test was conducted for all the groups.

Statistical technique for analysis of data

To find out the significance of difference between the pre-test and post-test data on selected variables for the experimental and control groups, the 't'-test was applied. The level of significance chosen was 0.05. The descriptive statistics given in the following tables, reveal the effect of Plyometric training programme on Explosive strength.

Table 1: Significance of differences between the initial and final means of the experimental and control groups on explosive strength

Groups	Initial Mean	Final Mean	MD	SD	't' value
Experimental group (N=30)	25.24	33.21	5.763	1.248	25.13*
Control group (N=30)	26.24	25.72	0.212	0.731	0.531

* Significant at 0.05 level

't' value required at 0.05 level = 2.045 (df 29)

The above table indicates that the Experimental group exhibited significant improvement in Explosive strength with initial mean score (25.24) and the final mean score (33.21). Further, it shows that the obtained 't' value (25.13) is much higher than the tabulated 't' value (2.045) at 29 degrees of freedom. Hence the obtained 't' value was found to be highly significant at 0.05 level. On the contrary, the initial mean value (26.24) and final mean value (25.72) of control group showed negligible difference. Further the obtained 't' value (0.531) is less than the required 't' value (2.045) which was insignificant at 0.05 level. The initial and final means of

Experimental and Control groups on Explosive strength are diagrammatically shown below.

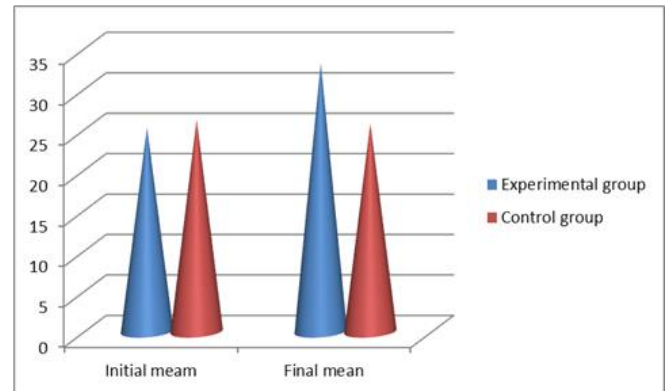


Fig 2: Graphical representation of mean difference of Experimental and control groups on Explosive strength

Conclusion

Based on the analysis of statistical results, it was observed that there was significant improvement in Explosive strength for the experimental group as a result of the plyometric training programme conducted for a period of three months. There was no significant improvement shown by the control group.

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