

Effect of Isometric and Isotonic Exercises on Leg Strength

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ABSTRACT

Isometric is the reaction of pausing or pulling an immovable object like a wall or bar anchored to the floor. Research has shown that a muscle contraction during Isometric exercise produced more force than a contraction generated by lifting weights. Although research shows that isometric exercise increases muscle tension significantly. It still fails to change the length of the muscle. Isotonic exercise a dynamic muscle contracts in which the force remains constant isotonic exercise are typically performed with force weight or machines in which the resistance is started along a fixed point. Accommodating resistance training is considered isotonic Effect of isometric and isotonic exercise on leg strength. So experimental method was used is the study the present study was conducted on athletes studying in S.A Jain model school of Ambala city from 12 to 16 years. As per the requirement of study player have been divided into two groups .i.e. control group and experimental group. These subjects will be the players who have participated at state level competitions in athletics, basket ball , volley ball, and each group comprised of 25 subjects. All the instruments to use in this investigation should be found to quite precise and reliable. For isometric training the researcher is going to use the following instruments i.e. long jump pit, bar bell, weight plates of different weight. The difference between the group means and (t- test) test was employed and further to assess the significant improvement level of significant difference test has been employed. To test the proposed hypothesis the level confidence chosen was at 0.05 level of significance. The results show that isometric and isotonic is the effect on leg strength

Introduction

Isometric exercise are easy performer, can be done nearly any where, and require little time or expense. But it important to do each exercise at several different angles for each joint, because strength gain is specific to the angle at which the isometric exercise is performed. Isometric exercise is practiced but pushing or pulling an immovable object like a wall or bar anchored to the floor

Isotonic training has involved the use of weights in the form of bar bells, dumbbells, leg squats etc more commonly calisthenics are used to develop muscular endurance and strength. Isotonic muscular contractions take two forms: concentric, or muscle contraction with shortening, and eccentric, or muscular contraction with lengthening.

Anita (2000) Studied that isometric and dynamic strength and endurance of knee extensors were examined on 18 young males. The composition of slow and fast twitch fiber in the vastus lateralis muscle was evaluated needle biopsies and thigh muscle was examined by ultrasonic measurements Six trained with 50% and six with 80% dynamic strength, three times per week for one month and 3week with 20 and 12 repetitions in single session and controls as subjects. During training load was

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adjusted to the increase in strength. Results were found dynamic strength increased by 42.3% in the 80% group but no significance difference was found in 50% and control group. In overall increased in the 50% group in fast twitch fiber then slow twitch fiber increased 12.4% in 80% group dynamic strength 30% success full training.

Method

The objective of the present study is to ascertain the **Effect of isometric and isotonic exercise on leg strength**. So experimental involves the comparison of the effects of particular treatment with that of a different treatment or of no treatment. In a simple convention all experimental, reference was usually made to an experimental

Sample and Tools

The sampling used in this study was selected on the basis of purposive random sampling method. The present study was conducted on different game player of S.A Jain model school 12 to 16 years. Prior to the various testing procedures and training program was explained to them in detail so that they could fully grasp the importance of all features and should suffer from no confusion regarding the hard work they would have to put in the entire subject agreed to cooperate whole heartily. The physical instructor also exhorted them to put in every ounce of their energy in the experiment in order to promote scientific investigation in general and also to enhance their knowledge and skill. However, no external motivational technique were used while collection of data. All the instruments to be used in this investigation should be found to be quite precise and reliable. For isometric exercise the researcher is going to use the following instrument. i.e. long jump pit, bar bell etc. for isotonic weight, in different size leg press machine use in gym.

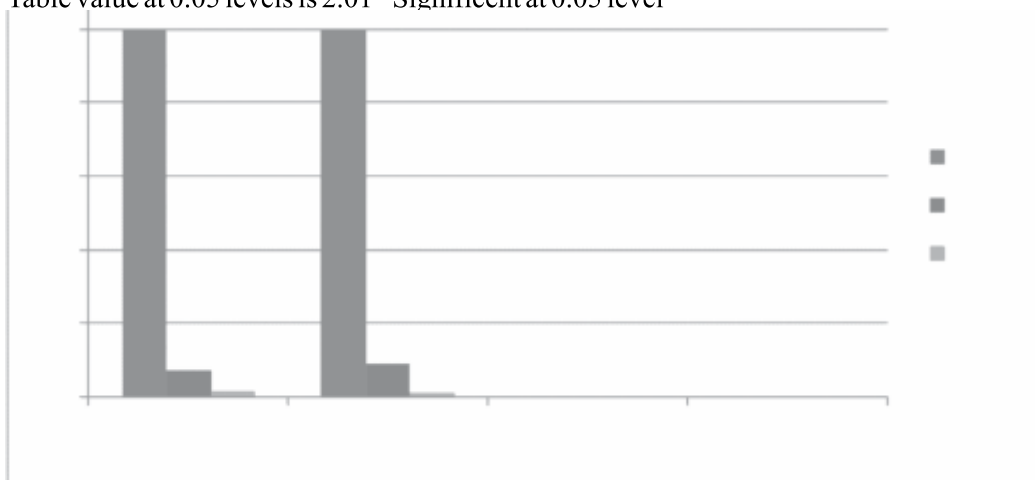
Procedure

Data was collected on the chosen variables at the pre and post experimental test. Performance test were conducted in the play field s.a Jain college. This test measures the strength of leg in jumping horizontal distance. After pre test subjects were divided into two groups i.e. experimental and control. The experimental period lasted eight weeks respectively. The aim was to check the effect of isometric and isotonic exercise on leg strength. The exercise selected for the training program was selected by keeping in view the following leg muscles quadriceps, hamstring, and calf muscle were tested and trained. And after knowing the maximum strength of all above mentioned leg muscles subjects were given training exercise at different methods. Time was controlled and evening session was started at 5:00pm to 6:pm. The isometric and isotonic training were given alternate week six days Sunday completed as rest day and regular exercises were performed in a well equipped in s.a Jain college field. Training schedule of eight weeks was followed by as under.

Table -1

Group	N	Mean	S.d	df	t. value
Pre experimental	25	1.77	0.32	48	7.49*
Post experimental	25	2.25	0.24		

Table value at 0.05 levels is 2.01* Significant at 0.05 level



Conclusion

1. To find out the significant difference between pre and post test mean score of experimental and control group 't' test is applied. The mean score of pre and post test of experimental group were found to be 1.77 and 2.25 meter, respective and the standard deviation of the pre and post test of experimental group were found to be 0.32 and 0.24 respectively. In statistically calculated ($t=7.49$) was found to be significant at 0.05 level of confidence. The result was found that post test experimental group has more leg strength as compared to pre test experimental group due to effect of isometric and isotonic training

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