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Dr. Ranbir Singh
Assistant Professor, S.R.S
Chahal College of Physical
Education, Kalayan, Patiala,
Punjab, India

Impact of two months static stretching exercises on explosive leg strength

Dr. Ranbir Singh

Abstract

The present was conducted to assess the impact of two months static stretching exercises on explosive leg strength. To achieve this aim total one hundred and four subjects were taken for the present experiment. All the subjects were residing in the boys hostel of S.R.S Chahal College of Physical Education, Kalayan, Patiala, Punjab. Experimental group was given selected stretching exercises thrice a week for nine weeks. Each subject was put through a static stretching regimen of ten muscle groups viz. gluteus, hamstring, adductors, quadriceps, calf, tibials anterior, gluteal region, posterior thigh region, medial thigh region, and lateral thigh region. Control group was not given any kind of training. The overall results concluded that, in this study, there was a statistical significance between passive static stretching and Explosive Strength. There was a statistical significant difference between experimental group and controlled group.

Keywords: static stretching exercises, explosive leg strength, Experimental group

Introduction

The body must need to be vigorous in order to obey the soul a good servant ought to be robust. The weaker the body, the more it commands. The stronger it is, the better it obeys. In order to think, we must exercise our limbs, our senses and our organs, -which are the instruments our intelligence. In order to drive all the advantages possible from these instruments, it is necessary that the body which furnishes them should be robust and sound.

Explosive Strength is a combination of strength and speed abilities. It can be defined as the ability to overcome resistance with high speed. Depending on the nature of combination of strength and speed the explosive, strength can be further sub-divided into start strength, strength speed (Power) and speed strength. Start strength, is the ability to develop maximal muscle force during the starting phase of the movement e.g., sprint start, weight lifting etc. Strength speed is the ability to overcome heavy resistances with high speed e.g., throws, jumps etc. Speed strength is the ability to overcome lower resistances with high speed e.g., team games, combat sports (lower weight categories.) The explosive strength is of different in cyclic and acyclic movements.

Methodology

Total one hundred and four subjects were taken for the present experiment. All the subjects were residing in the Boys hostel of S.R.S Chahal College of Physical Education, Kalayan, Patiala, Punjab. They were the students of professional courses of Bachelors and Masters Level. The subjects were divided into two groups, Experimental Group (N=52) and Control Group (N=52).

Experimental group was given selected stretching exercises thrice a week for nine weeks. Each subject was put through a static stretching regimen of ten muscle groups viz. the gluteus, hamstring, adductors, quadriceps, calf, tibials anterior, gluteal region, posterior thigh region, medial thigh region, and lateral thigh region.

Control group was not given any kind of training. However, this group was allowed to engage in activities during the experimental session. A black board of 4.5 feet x 2 feet painted with green and red lines parallel to the ground, one inch apart green lines and one feet apart red lines respectively. The board was fixed firmly to a wall and preferably six inches from the wall and seventy inches above the ground used in this study.

Correspondence
Dr. Ranbir Singh
Assistant Professor, S.R.S
Chahal College of Physical
Education, Kalayan, Patiala,
Punjab, India

Procedure

The subject was asked to sign an informed consent to participate in his experiment. Each subject was also told to stay somewhat "inactive" for twenty four hours prior to the test. Examples of "inactive" were not to perform strenuous activity twenty four hours prior to the test or not drinking alcohol the night before they were asked to perform the Vertical jump.

In the beginning a demonstration of the Vertical jump was given to the subjects. The subject was asked to stand erect facing the wall (board). His dominant hand's fingertips were marked with chalk powder and the subject was asked to raise the marked fingertips to the maximum height of the Avail (board) without lifting the heels so as to mark the maximum reach point. The fingertips were rechalked. With the chalked hand side towards the board, a Vertical jump was performed by the subject to make another mark at the maximal height of the jump. The subject was not allowed to run or hop. However, the subject was properly instructed to take a good jump by bending the knees swinging the arms. Once the subjects were ready to complete the Vertical jump routine, the time it took them to start the first jump was approximately thirty seconds. The subjects were given three trials. The results from all the three jumps were recorded in inches. Only the best jump was considered for data analysis. The maximum distance (among all the trial) between the reaching height and the jumping height provides the score of the test. The collected data were tabulated and computerized to draw out the meaningful conclusion. Mean, Mean Difference, Standard Deviation and 't' value of the pre and post-test for experimental group has been presented as follow:

Results

Table 1: Mean, Mean Difference, Standard Deviation And 'T'-Value of Pre-Test And Post-Test Of Experimental Group.

Test	Mean	Mean difference	Std. deviation	't' value
Pre-test	23.307	1.442	1.578	7.881*
Post-test	21.865		1.715	

t. 05(51) = 2.01

The finding pertaining to pre-test and post-test of Vertical jump of experimental group has been presented in table-4.1 and figure number 4.1 which shows the mean values, standard deviation and mean differences of pre-test and post-test of experimental group that were 23.307: 21.865. 1.578: 1.715 and 1.442 respectively. When the mean values and standard deviation were compared by applying the 't'-test, the computed 't'-value of 7.881 was greater than the table value of 2.01 at 0.05 level of confidence. It has been found that there exists a significant difference between the scores of pre-test and post-test of experimental group.

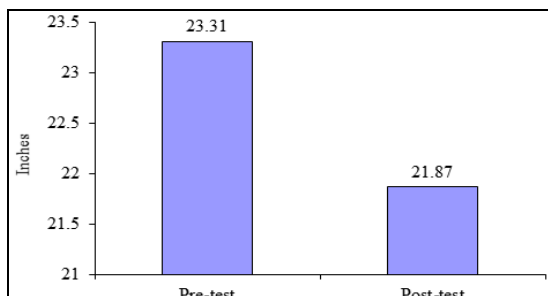


Fig 1: Graphical Presentation of Mean Difference between Pre-Test and Post-Test of Experimental Group

Table 2: Mean, Mean Difference, Standard Deviation and 'T' Value of Pre-Test and Post-Test Of Control Group

Test	Mean	Mean difference	Std. deviation	't' value
Pre-test	23.346	0.040	1.426	0.362
Post-test	23.386		1.223	

t. 05(51) = 2.01

The findings pertaining to pre-test and post-test of the Vertical jump of the control group has been presented in table-4.2 and figure number 4.2, which shows the mean, mean difference and standard deviation of the pre-test and post-test of the control group that were 23.346; 23.386, 0.040 and 1.426: 1.223 respectively. When the mean values and standard deviation were compared by applying the t-test., the computed 't' value of 0.362 was less than the table value of 2.01 at 0.05 level of confidence. Thus, there exists non significant difference between the scores of pre-test and post-test of control group.

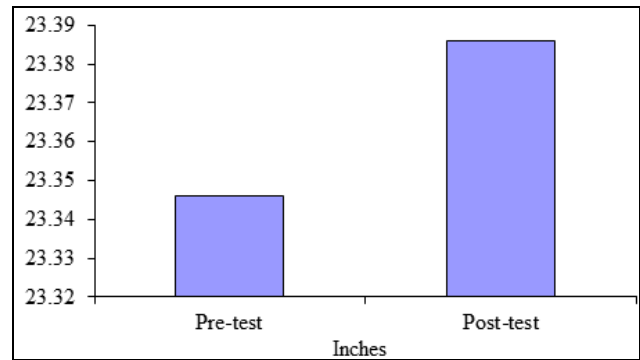


Fig 2: Graphical Presentation of Mean Difference between Pre-Test and Post-Test of Control Group.

Table 3: Mean, Mean Difference, Standard Deviation and 'T' Value of Post-Test of Experimental Group and Control Group.

Test	Mean	Mean difference	Std. deviation	't' value
Experimental Group	21.865	1.519	1.715	5.200#
Control Group	23.384		1.223	

t. 05(51) = 1.98

The tabulated data of the post-tests shows the mean, mean difference and standard deviation of experimental and control groups that were 21.865: 23.384, 1.519 and 1.715: 1.223 inches respectively. When the mean values and standard deviation were compared by applying the t-test, the computed 't' value of 5.200 was greater than the table value of 1.98 at 0.05 level of confidence. Thus, there exists a significant difference between the scores of experimental and control group.

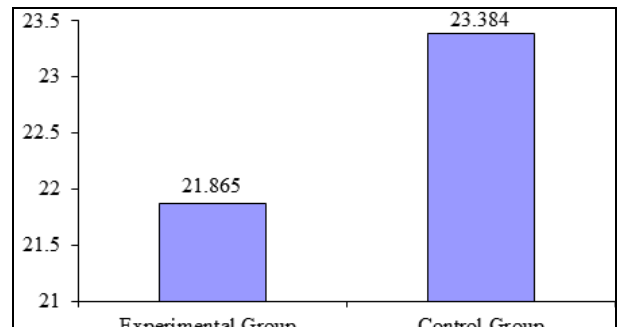


Fig 3: Graphical Presentation of Mean Difference between Pre-Test and Post-Test Experimental Group and Control Group.

Discussion of Findings

The overall results concluded that, in this study, there was a statistical significance between passive static stretching and Explosive Strength. There was a statistical significant difference between experimental group and controlled group. The two comparisons that were most relative to this study showed a great statistical significance that here is a negative effect on Explosive Strength when passive static stretching is applied. Hence, the hypothesis formulated has been rejected as the findings depict that there is a statistical significant effect of stretching on Explosive Strength.

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