A STUDY OF THE EFFECT OF RESISTANCE TRAINING ON ARM STRENGTH OF STATE LEVEL ADOLESCENT MALE ATHLETES

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ABSTRACT

Resistance training is a form of strength training in which each effort is performed against a specific opposing force generated by resistance. The objective of the present study is to ascertain the effect of resistance training on arm strength of state level adolescent male athletes. So experimental method was used is the study. The present study was conducted on athletes studying in school of Ambala city from 13 to 18 years. As per the requirement of the study the players have been divided into two groups. i.e., control group and experimental group 1, and, experimental group 2. These subjects will be the players who have participated at state level competitions in athletes and each group comprised of 66 subjects. All the instruments to be used in this investigation should be found to be quite precise and reliable. For resistance training the researcher is going to use the following instruments. i.e. bar-bell, rubber plates of different weights, fixed bar (for pull-ups), adjustable bench (for bench press) and mats (for sit-ups). For testing the statistical significance of the difference between the group means and Analysis of co-variance (ANCOVA) test was employed and further to access the significant improvement Level of Significant Difference (LSD) Test has been employed. To test the proposed hypothesis the level confidence chosen was at 0.05 level of significance. The results show that resistance training is better to improve arm strength.

INTRODUCTION

A fit person is one who has well adjusted to his environment, whose mind and body are in harmony, and who can meet the normal demands both mentally and physically without undue fatigue. Physical fitness implies that the body systems are capable of carrying on their activities satisfactorily. It is one of the basic elements which are essential for better performance. The athlete must be in top most physical condition. In the word of Vc Rossum Rax (1986), Physical fitness for track and field event consists of a number of interrelated qualities or components.”
Trank, Robert and Lewis (1993) defined Physical fitness as a “quantitative expression of the physical condition of an individual”. The development of the body to a state or condition which permits the performance of a given amount of physical work, when desired, with a minimum of physical efforts. The efficiency of physical efforts depends upon the mutual development of the muscular respiratory and circulatory system integrated and co-ordinate by the activity of the central nervous systems.

Resistance training is a form of strength training in which each effort is performed against a specific opposing force generated by resistance (i.e. resistance to being pushed, squeezed, stretched or bent). Exercises are isotonic if a body part is moving against the force. Exercises are isometric if a body part is holding still against the force. Resistance exercise is used to develop the strength and size of skeletal muscles. Properly performed, resistance training can provide significant functional benefits and improvement in overall health and well-being.

The goal of resistance training, according to the American Sports Medicine Institute (ASMI), is to "gradually and progressively overload the musculoskeletal system so it gets stronger." Research shows that regular resistance training will strengthen and tone muscles and increase bone mass. Resistance training should not be confused with weightlifting, power lifting or bodybuilding, which are competitive sports involving different types of strength training with non-elastic forces such as gravity (weight training or plyometrics) rather than immovable resistance (isometrics, usually the body's own muscles or a structural feature such as a doorframe). Full range of motion is important in resistance training because muscle overload occurs only at the specific joint angles where the muscle is worked.

**METHOD**

The objective of the present study is to ascertain the effect of resistance training on arm strength of state level adolescent male athletes. So experimental method was used in the study. It is because of experiment involves the comparison of the effects of a particular treatment with that of a different treatment or of no treatment. In a simple convention all experimental, reference was usually made to a both experimental group and to a control group.

**SAMPLE**

The sampling used in this study was selected on the basis of purposive random sampling method. The present study was conducted on athletes studying in school of Ambala city from 13 to 18 years. Prior to the various testing procedures and training program was explained to them in detail so that they could fully grasp the important 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. As per the requirement of the study the players have been divided into two groups. i.e., control group and experimental group 1, and, experimental group 2. These subjects will be the players who have participated at state level competitions in athletes and each group comprised of 66 subjects. The average age of the state level adolescent athletes’ .For the purpose
of the study the selections of subjects have been made among the students studying at all School of Ambala city who have participated at state level competition in athletes.

**SAMPLING TECHNIQUE**

The selection of the subjects for the study was done on the basis of random sampling technique and further divided into two groups on the basis of non-probability sampling technique. The research scholar established the instrument reliability, tester’s competency and reliability of tests, which in turn assured the reliability of data.

**TOOLS**

All the instruments to be used in this investigation should be found to be quite precise and reliable. For resistance training the researcher is going to use the following instruments. i.e. barbell, rubber plates of different weights, fixed bar (for pull-ups), adjustable bench (for bench press) and mats (for sit-ups).

**PROCEDURE FOR ADMINISTERING THE TEST**

The research scholar was make sincere attempt to collect data from the subjects authentically. Therefore, he was trying his best to motivate the subjects to get their sincere and all out response for the successful completion of the study. Also they will be asked to put up their best performance as the findings will also help them to know about their performance. All the subjects were being assembled on one fine morning in the track in football ground in Government school of Panjokhera Sahib. They were informed with the requirements of the study and the testing procedure. Then the researcher was administer the test for flexibility, in time was stared at 6.00 to 7.30 am the resistance training were given alternate week i.e. six days Sunday completed as rest day regular exercises were preformed in a well equipped in track and field training schedule of ten weeks and one seasons to collect the data followed by us under. Then the researcher was divide the subjects into two different groups i.e. experimental group and control group. Further the experimental group was receiving ten week resistance training along with the normal training schedule. The experimental group will undergo through an 8 week resistance training program. All of the training sessions were is supervised.

**STATISTICAL TECHNIQUE**

For testing the statistical significance of the difference between the group means and Analysis of co-variance (ANCOVA) test was employed and further to access the significant improvement Level of Significant Difference (LSD) Test has been employed. To test the proposed hypothesis the level confidence chosen was at 0.05 level of significance.

**RESULT AND CONCLUSION**

Table 1 and figure I shows the analyzed data of pull ups. The pre-test mean of pull ups were 5.92 for resistance training group, control group is pre-test mean of pull ups were 6.52 The post test mean of pull ups were 8.32 of resistance group 6.88 for control group the adjusted post test mean of pull ups 8.57 for resistance group and 6.63 for control group. The obtained F- value
is *000 at 0.05 level of confidence. The result was found to be experimental group have more pull ups test comparative to control group.

**TABLE-1**

**ANALYSIS OF COVARIANCE OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST ON PULL UPS VALUE OF RESISTANCE GROUP, AND RESISTANCE CONTROL GROUP VALUE .**

**ANCOVA RESULTS (K=2)**

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted means</td>
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<td>46.75</td>
<td>46.75</td>
<td>24.04</td>
<td>.000</td>
</tr>
<tr>
<td>Adjusted error</td>
<td>47</td>
<td>91.41</td>
<td>1.94</td>
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</tr>
<tr>
<td>Adjusted total</td>
<td>48</td>
<td>138.16</td>
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</table>

**TEST FOR HOMOGENEITY OF REGRESSIONS**

<table>
<thead>
<tr>
<th>Source</th>
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<th>MS</th>
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<tbody>
<tr>
<td>Between Regressions</td>
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<td>0.34</td>
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<td>Remainder</td>
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<td>1.94</td>
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</tbody>
</table>

*significant at 0.05 level
The results shows that resistance training improves the arm strength of the male athletes.

**BIBLIOGRAPHY**


