The comparison of between the effects of two training methods on dynamic strength of non-athletes males

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Abstract

The aim of this study was comparison effect of six weeks pyramidal and reverses pyramidal weight training on dynamic strength of male students. According this base among untrained male students of Islamic Azad University, Ahwaz branch 30 male selected as simples randomly. They divided in three groups (Control (N=10), pyramidal weight training (N=10), and reverse pyramidal weight training (N=10)). Pre test data was collected since three groups via measuring upper and lower body strength than used pyramidal and reverse pyramidal weight training for six weeks. At the end giving post test data via measuring upper and lower body strength again. Data were evaluated for normality of distribution and homogeneity of variance before hypothesis testing. All statistical analysis was accomplished using Spss (V 16). Main effects of training modality (pyramidal and reverse pyramidal) and time (pre-exercise and post-exercise) were assessed one way analysis of variance. Statistical significant was conferred at p=0.05. results of this research showed that there are significant differences between experimental groups in comparison with control group (P<0.05) but there are not significant differences between pyramidal and reverse pyramidal weight training on muscles strength of high squat, elbow flexion and knee flexion(P>0.05).

Keywords: Dynamic Strength; Pyramidal weight training; Reverse Pyramidal weight training.

1. Introduction

Nowadays, weight training schedules are designed and optimized on the base of several scientific principles as overload, progressive resistance and application of a movement pattern in entangled muscle groups. This usually being practically possible with manipulating the volume and intensity of training, number of repetition and also training sets, regulating the rest interval and decreasing it during training, training courses, and weekly, monthly or even yearly schedules. Strength is an important factor in carrying different exercise skills, better physical health and proportionate body structure, and also it is considered to be effective in preventing exercise injuries. Athletes and the researchers suggest and used different methods for increasing the muscle strength. So, it is evident that corresponding to each gender, age, body structure type, special exercise field or activity, there would be a suitable training approach and schedule. Till now, the efficiency of different weight training are studied in several researches, and various theories are presented for reject or confirming each of these methods. Many researchers compare different methods of weight training with each other and according to the structural and physiological conditions of a subject, they suggest a kind of method for a special group with regard to the other one. It could be concluded that till now, there isn’t any unit combination of several courses or repetition yet, so that could get the

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favorite result in increasing each individuals strength alone. Although the researchers aren’t in full agreement with the strength schedules in detail, but they unanimously approved a rule; that is the muscle strength will be improved according to progressive resistance training within overload limitation. (Stven.j.fleck.Knemer.j.William1997). One of the most important arguments among researchers is the train duration that usually wouldn’t be less than 6 weeks. While most of these researches confirm the progressive and considerable influence of a longer course of training, but the influences of several training session also shouldn’t be ignored. The latest investigations indicate that less repetition with heavier weight is more suitable. However, most of the dynamic strength training that are current today use the above mentioned method or changed form of progressive strength training. Berger (1962) carried a research regarding to different rate of resistance and repetition, and according to his report six repetitions in three sections will result in getting most strength. He studied different sets and repetitions especially in relation to Osku chest press. Increase in maximum strength is reported through a session training of one set (Alenetalj1962;Luthietalj1986;Marcinicketal, 1991; Morehouse & Rasch1957). On the other hand, it was showed that regardless to the session numbers in a training schedule, the best repetition for strength promotion is between 10-22 repetitions and optimized sets are between 2-5. It is also indicated that with three sessions of weekly training and employing a weight with one-repetition maximum, IRM, the chest press strength will be increased as 41%. While with 1, 2 or 4 days training in a week, this improvement in the chest press strength would be less, but 5 days training in a week will be more effective (Glliam 1982) "Hanter" et al. also reported more benefits from chest press movement with 1RM during 4 days than 3 days in a week (Hunter et al 1985). Studies showed that three sessions of training in a week are more effective than two sessions (Henderson1970) or conversely, two sessions of training will increase the strength more than two sessions (Berger1965). Other studies indicated that comparing to two sessions of training in a week, 3 or 5 sessions will lead to a significant increase in strength, and there isn’t any difference between five or three sessions of training in a week (Barham 1960). "Kamali Nia" (1381) in a research studied how discontinuing weight training in two methods of Pyramid and Reverse Pyramid among 20-30 years male beginners will lead in decreasing the chest muscles strength. The results of this research showed an increase in the strength of the subjects chest muscle after 8 weeks of training in Pyramid and Reverse Pyramid methods. The results indicated that three weeks of untraining, would not have any effect in decreasing chest muscle strength. In his research, "Torabi Goudarzi" dealt with comparing the effect of two short time plans of four-week weight training in Pyramid and Reverse Pyramid methods on the dynamic strength of students. After four weeks of weight training in Pyramid and Reverse Pyramid methods, he reported a similar increase in the strength of acting muscles in chest press movement, knee flexor, and elbow flexor among the two groups. After four weeks of weight training in two methods of Pyramid and Reverse Pyramid, the muscle strength of quadriceps increased in Hgue Osku, but the increase in the Pyramid method was greater. So he concluded that according to the research results, the Reverse Pyramid method that will get suitable results in a very short time could be suggested for strengthening the quadriceps muscle.

Method

2.1. Participants

This research is of semi-experimental. The statistic includes of non-athlete male students that register in general physical education unit (1) in the first semester of 89-90, among which 30 subjects (in three groups of control, Reverse pyramid, and Pyramid) are selected randomly.

The conditions and different steps of test establishment are described in details for the subjects, and those who experienced heart diseases, injury or even special health case are asked to abstain from engagement in this research.

2.1.1. Measurements

Before beginning the train, the purpose and intension of carrying this research are explained for the subjects, and then the practical work trend for each group of control and experimental one indicated carefully. The subjects are encouraged by their researchers to increase their motivation and do their maximum efforts. After 10 minutes of light warm up in the first session including jogging and stretching activities, an one-repetition maximum (IRM)
movement is determined through trial and error method for the acting muscles in chest press movement and Hgue osku, knee flexor and elbow flexor among the three groups (pre-test).

In the trial and test method, the value of weight is increased progressively, until an individual could move or raise his selected weight only once in a correct method. In determining a maximum repetition through trial and error method, the subjects are requested to have sufficient rest between recording steps. Then, two experimental groups engaged in 18 sessions of weight training with two different method; the training sessions are hold as one day to the others. The evidence group are asked to don’t engage in any other physical exercise. The training of both experimental groups is weight training included considered muscle groups that, respectively, instruments of chest press, Hague Osku, hamstring press and barbell with weight are used. Group 1 exercised Pyramid training method and group 2 exercise Reverse Pyramid one. The same as first session, all the three groups are examined for post-test (1RM) the strength of considered muscles.

2.1.1. Procedure
In this research, an inference statistic is used to analyze raw data, including Levin test that is used for variance homogeneity, Kolmogorov Smirnov test is used for studying the normality and sample volume distribution, one-way variance analyze (Anova) for determining the probability difference between three groups (Pyramid, Reverse Pyramid and control); and in case of significance, the post hoc LSD is used in the significance level of 0.05.

3. Results
After analyzing, the following results are obtained:
After six weeks of weight training in two methods of Pyramid and Reverse Pyramid, no significant difference is indicated for the change rate of acting muscle strength in knee flexor, Hague Osku movement, elbow flexor muscle and chest press movement. Although the increase in the mentioned muscle strength in chest press movement, knee flexor, elbow flexor and Hague Souk movement is similar between both groups; and both of these training groups, in a similar way, could increase the strength of their corresponding muscle significantly. See for more information to table 1.

<table>
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<th>SD</th>
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<tr>
<td></td>
<td>Reverse Pyramid</td>
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4. Discussion and Conclusion
The changes rate of acting muscles strength in the movement of chest press before and after 6 weeks of two groups training in Pyramid and Reverse Pyramid method, don’t show any significance difference, and increase in chest muscle strength is similar between the two groups. These results are consistent with those findings obtained by "Goodarzi" and "Kamali Nia". Before and after six weeks of training in two methods of Pyramid and Reverse Pyramid, the rate of changes in the strength of knee flexor muscles in hamstring press movement between the two training groups don’t show any significant difference, and both groups could get to a significant increase in their muscle strength. These findings are consistent with those results obtained by "Torabi Goodarzi", "Moris & Atkinz" and "Mansouri".
Before and after six weeks of training in two methods of Pyramid and Reverse Pyramid, the rate of changes in the strength of acting muscles in Hague Osku movement between the two training groups don’t show any significant difference, and both methods of training increase the muscle strength through Hague Osku movement. These
findings are consistent with those research findings obtained by “Torabi Goodarzi”, "Berger", "Harich" and "Mansoury".

Before and after six weeks of training in two methods of Pyramid and Reverse Pyramid, the rate of changes in the strength of elbow flexor muscles between the two training groups don’t show any significant difference, and both groups could get to a significant increase in the strength of their elbow flexor muscle(%7.17 in the Pyramid group,%16.9 in the Reverse Pyramid group). These findings are consistent with those results obtained by "Torabi Goodarzi", "Moris & Atkinz" and "Mansouri".

References

2- Torabi Godarzi, Mahmod. Effect and comparison between two way pyramidal and reverse pyramidal weight training on dynamic strength of male students at Islamic Azad University, Brojerd branch, unpublished thesis of postgraduate in physical education, 2005