

The Effects of Plyometric Training on Explosive Strength in Male Students at the College of Physical Education of Anbar (Iraq)

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ABSTRACT

The study was designed to assess the effects plyometric training program on the explosive strength development of students in the second level at the College of Sport and Physical Education of Anbar in Iraq. 2 groups (experimental group [EG: 16 Students] and control group [CG: 14 Students] were selected to participate in this study along Eight weeks with 3 training's sessions a week. Our results showed an important amelioration of the post tests among the two groups compared to the pre tests, also in favour of the first group which have a plyometric training in both tests the Squat Jump and the Medicine ball throw.

Keywords: Plyometric, explosive, strength, physical, anbar

INTRODUCTION

Strength training is a main process on the improvement of motor performance and consequently a basic demand of sport skill optimization (Fleck et al. 1997; Komi et al. 1988). In the same way that strength training improves performance, detraining carries out a decrease in strength levels and thus in athletic performance (Fleck, 1994, 1997; Hoffman, 2002). Several authors have pointed out decreases in strength levels over detraining periods (Ingle et al. 2006; Chu et al. 2006). To prevent detraining effects, some authors postulate the introduction of strength maintenance programs on training planning (Faigenbaum et al. 2001; Beunen et al. 2000; Matavulj et al. 2001). Thus, the available literature points out volume and training

frequency reduction as essential on the maintenance training design, while maintaining the initial intensity levels (Ebbets, 2006; Cissik, 2004).

Formerly characterized as a method for adult athletes, plyometric training is now seen as a safe, valuable, and challenging activity for younger athletes when it is appropriately designed and supervised (Beunen et al. 2000). Its application with young athletes has been recommended for explosive strength development (Cissik, 2004; Hoffman, 2002; Chu et al. 2006).

Regarding detraining and reduced training periods, there is a lack of investigation about their effects on upper- and lower body explosive strength in the adolescent male population previously submitted to a plyometric training program. To our knowledge, few studies have examined the effects of a training program followed by detraining and/or reduced training periods among pre pubertal (Chu et al. 2006; Ebbets, 2006) and pubertal boys (Cissik, 2004; Ebbets, 2006).

It seems reasonable to hypothesize that plyometric training increases upper- and lower body explosive strength in students that detraining and reduced training

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periods will have similar effects in the maintenance of explosive strength levels. Consequently, the aims of the present study were to determine the effects of plyometric training on explosive strength indicators in students at the College of sport and physical education of Anbar (Iraq).

METHODS

The study was designed to assess the effects plyometric training program on the explosive strength development of students in the second level at the College of Sport and Physical Education of Anbar in Iraq. 2 groups (experimental group [EG: 16 Students] and control group [CG: 14 Students) were selected to participate in this study along Eight weeks with 3 training's sessions a week.

For this study, we have used two tests: the squat jump (SJ) and the medicine ball throw (MBT).

RESULTS

Results of Pre and Post Tests for the Completion of the Two Variables in the Squat Jump and the Medicine Ball Throw

As it is shown in Table 1, the completion of the first group in the pre-test and who have plyometric training in Al-Anbar University in the Squat jump (40.3 cm) with standard deviation (7.17), while the post-test to the same variable is (51.16 cm) and standard deviation of (6.9). Also the value of (T) calculated is (4.69) when the degree of freedom is (28) with a level of significance (0.05), in favor of post test.

The second group has emerged Squat jump (5.39 cm) and a standard deviation of (4.7), while the post-test to the same variable is (48.13 cm) and a standard deviation of (7.4). The value of (T) calculated was

(16.4) which is greater than the value of theoretical (T). This difference is in favor of post test.

In the medicine ball throw test from the stability, the value (T) calculated for the Plyometrics group (4.84) which is greater than the theoretical (T) value and has a significant difference in favor of the post test. Also for the second group, the results were better in the post test compared to the pre-test.

It is shown in Table 2 the arithmetic mean and standard deviation of the two groups for each of the variables the Squat jump from the Stability and Medicine ball throw from the stability too, the (T) value calculated in the squat jump is (33.2) also the medicine ball equal to (20.61). The both values greater than the theoretical value below with a level of significance (0.05) and degrees of freedom (28).

It means that the moral differences in the completion of the two groups with the superiority of the Plyometric group in the Squat jump and the Medicine ball throw. By reference to the tables (1, 2) where we note the evolution of the level of explosive Strength of the muscles of the Parties of the two groups was significant.

DISCUSSION

The development that took place for the two groups indicates how important the training provided to the sample and its effectiveness for muscles (Cissik, 2004; Ingle et al. 2006). So we note that there is significant difference in the pre and post tests for both groups which show that the exercises of explosive Strength applied to the students have a positive impact in the development of athletes (Faigenbaum et al. 2001). As well as, there is a virtual and moral amelioration in favor of the Plyometric group (Chu et al. 2006).

Table 1: T value of pre and post tests for the completion of the two variables in the squat jump and the medicine ball throw

Variables	Group 1				T test	Significant
	Pre-Test		Post Test			
	Mean	SD	Mean	SD		
Squat Jump	40.3	7.17	51.16	6.9	4.69	Significant Differences
Medicine Ball Throw	9.91	17.1	3.22	9.15	4.24	Significant Differences
Group 2						
Squat Jump	39.5	4.7	48.13	7.4	4.16	Significant Differences
Medicine Ball Throw	208	13.7	4.38	8.13	6.7	Significant Differences

Table 2: (T) Calculated value of the squat jump and the medicine ball throw for the two groups

Variables	Group 1		Group 2		T test	Significant
	Mean	SD	Mean	SD		
Squat Jump	51.16	6.9	48.13	7.4	33.2	Significant Differences
Medicine Ball Throw	22.3	15.9	38.4	13.8	2.61	Significant Differences

Based on the ideas and outcomes previously presented it seems clear and strongly sustainable that plyometric training has positive effects on upper- and lower-body explosive strength levels, mainly in the improvement of vertical jump (Beunen et al. 2000; Matavulj et al. 2001). The present study showed that the 8 weeks in plyometric training significantly increased upper- and lower-body explosive strength among students (Diallo et al. 2001; Ebbets, 2006; Cissik, 2004).

CONCLUSION

Our study has shown that although both Trainings methods have shown a marked improvement in the students, as it has shown the importance of plyometric training in the development of explosive strength among students.

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