

EFFECT OF PLYOMETRIC WITH MODIFIED TRAINING ON MOTOR ABILITY AMONG COLLEGE MEN STUDENT

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Abstract:

The aim of present study was to find out the effects of plyometric with modified training on motor ability among college men student (volleyball players). To attain the purpose of this study, twenty volleyball players (those are participated in intercollegiate tournaments) were randomly selected as participants from Alagappa University affiliated college students, Tamilnadu, India. Their age were ranged from 20 ± 1.06 years. The selected participants were randomly divided into two groups such as group 'I' underwent plyometric with modify training (n=10) and group II act as control group (n=10). Group 'I' underwent plyometric with modify training for three alternative days per week and one session per day with their intensity was progressively increased the range from 55% to 65% and volume of work was increased from 30 to 40 minutes for six weeks period. Group 'II' was not exposed to any specific training but they were participated in regular activities. The selected dependent variables on motor ability such as speed and explosive power and it were measured by 50-mts dash and vertical jump test. The data collected from experimental and control groups prior to and after completion of the training period on selected variable were statistically examined by using dependent-'t-test and Analysis of Covariance (ANCOVA). The level of confidence was fixed at 0.05 level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors. All the data were analyzed by used SPSS-22 version statistical package. It was concluded that the plyometric with modify training groups were significantly improved on speed and explosive power while compare than control group and also made significant differences among experimental and control groups.

Key Words: Plyometric with Modify Training, Speed, Explosive Power, Volleyball

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Introduction

Every volleyball player should make jump training (plyometrics) an essential component of their overall training. Good vertical jump height is a great skill to possess both offensively and defensively in volleyball. The ability to jump higher can provide a better angle and potentially more force when spiking the ball, especially for a player who lacks physical height. It can also help in defending a spiked ball from an opponent⁽²⁾.

A plyometric exercise is quick, powerful movement that starts with an eccentric (muscle-lengthening) action and is immediately followed by a concentric (muscle-shortening) action. Performing plyometric movements increases muscular power, which translates to higher jumps and faster sprint times⁽⁵⁾. Combining plyometric moves with resistance training is a way to maximize power and performance, but as a general rule, if you lift legs heavy one day, then skip the lower-body plyometrics training and vice versa for upper-body lifting and plyometrics⁽⁶⁾. Modify training is a training done with varied height boxes with resistance on the athlete. A modification of conventional train techniques for linear threshold dichotomous pattern recognition is described. The modification is capable of convergence in some cases where the classical training techniques are not. The utility of this technique for signal detection problems is discussed. Speed matters in volleyball because players are required to move quickly in multiple directions throughout the entire game. In volleyball, the achieved level of explosive power is fundamental. This explosive power is the most essential part of most player skills and enables players' activities during the game to be not only at the required height and with the necessary power but also at the right moment⁽⁴⁾. A volleyball player's use of explosive power in vertical, horizontal and side movements is critical. The relationship between explosive power and the technical and tactical level of the player is especially evident when observing the players activities at the net, attack from the field and spike serve⁽¹⁾.

Purpose of the Study

The purpose of the study was to find out effects of plyometric with modified training on motor ability among college men student (volleyball players).

Material and Methods

The aim of present study was to find out the effects of plyometric with modified training on motor ability among college men student (volleyball players). To attain the purpose of this study, twenty volleyball players (those are participated in intercollegiate tournaments) were randomly selected as participants from Alagappa University affiliated college students, Tamilnadu, India. Their age were ranged from 20 ± 1.06 years. The selected participants were randomly divided into two groups such as group 'I' underwent plyometric with modify training ($n=10$) and group II act as control group ($n=10$). Group 'I' underwent plyometric with modify training for three alternative days per week and one session per day with their intensity was progressively increased the range from 55% to 65% and volume of work was increased from 30 to 40 minutes for six weeks period. Group 'II' was not exposed to any specific training but they were participated in regular activities. The selected dependent variables on motor ability such as speed and explosive power and it were measured by 50-mts dash and vertical jump test. The data collected from experimental and control groups prior to and after completion of the training period on selected

variable were statistically examined by using dependent-‘t’ test and Analysis of Covariance (ANCOVA). The level of confidence was fixed at 0.05 level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors. All the data were analyzed by used SPSS-22 version statistical package. It was concluded that the plyometric with modify training groups were significantly improved on speed and explosive power while compare than control group and also made significant differences among experimental and control groups.

Results and Discussion

Table I
Means and Dependent ‘T’-Test for the Pre and Post Tests on Speed and Explosive Power of Experimental and Control Groups

Criterion variables	Mean	Experimental Group	Control Group
Speed (Seconds)	Pre test	7.69	7.71
	Post test	7.43	7.70
	‘t’test	9.73*	1.02
Explosive Power (Metres)	Pre test	0.70	0.69
	Post test	0.86	0.71
	‘t’test	11.35*	0.96

*Significant at .05 level. (Table value required for significance at .05 level for ‘t’-test with df 9 is 2.26)

From the table I the dependent ‘t-test values of speed between the pre and post tests means of experimental groups were greater than the table value 2.26 with df 9 at 0.05 level of confidence, it was concluded that the experimental group had significant improvement in the speed while compared to control group.

From the above table the dependent ‘t-test values of explosive power between the pre and post tests means of experimental groups were greater than the table value 2.26 with df 9 at .05 level of confidence, it was concluded that experimental group had significant improvement in the explosive power while compared to control group.

Computation of Analysis of Covariance

The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following tables.

Table - II

Computation of Mean and Analysis of Covariance on Speed and Explosive Power of Experimental and Control Groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Speed (Adjusted Post Mean)	7.41	7.69	BG	8.82	1	8.82	10.25*
			WG	14.62	17	0.86	
Explosive Power (Adjusted Post Mean)	0.85	0.72	BG	40.07	1	40.07	19.64*
			WG	34.68	17	2.04	

* Significant at 0.05 level. Table value for df 1, 17 was 4.45

The above table indicates the adjusted mean value on speed and explosive power of experimental and control groups were 7.41 & 7.69 and 0.85 & 0.72 respectively. The obtained F-ratio of 10.25 and 19.64 for adjusted mean was greater than the table value 4.45 for the degrees of freedom 1 and 17 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on speed and explosive power.

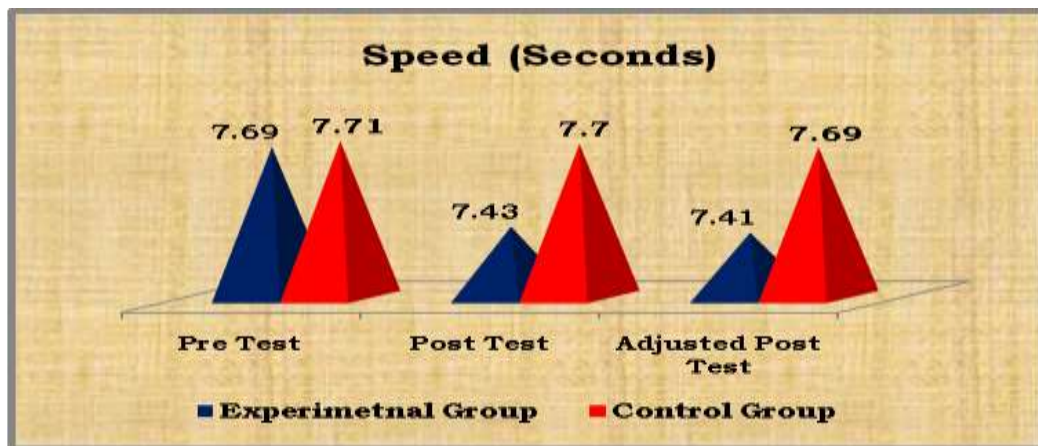




Figure 1: Pre Test, Post Test and Adjusted Post Test Mean Values of Experimental and Control Group on Speed and Explosive Power among Volleyball Players

Discussion on Findings

Trajkovic, (2016) conducted the study on effects of plyometric training on sport-specific tests in female volleyball players and **Silva, (2019)** conducted the study on the effect of plyometric training in volleyball players. From above these both supportive studies I intend to conduct this study. The result of my study indicates that there was a significant improvement on speed and explosive power due to the effect of plyometric with modified training practices among volleyball players when compared to control group.

Conclusion

1. There was significant improvement on speed and explosive power due to the effect of plyometric with modified training practices among volleyball players.
2. There was a significant difference between experimental and control groups on speed and explosive power among volleyball players.
3. However the control group had not shown any significant improvement on any of the selected variables.

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