



IMPACT OF TRIPHASIC TRAINING WITH TAPERING ON SELECTED STRENGTH PARAMETERS AND PERFORMANCE VARIABLES AMONG VOLLEYBALL PLAYERS

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Abstract

The purpose of the study was to find out the impact of triphasic training with tapering on selected strength parameters and performance namely arm strength, explosive strength, explosive power among male volleyball players. To achieve the purpose of the study twenty four male volleyball players have been randomly selected from various colleges in and around salem district in the state of Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had past experience of at least three years in volleyball and only who those represented their respective college teams were taken as subjects. The subjects were randomly assigned into two groups of twelve each, such as experimental and control groups. The experimental group participated in the of triphasic training with tapering for 3 days a week, one session per day and for 8 weeks each session lasted 45 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant differences exist between triphasic training with tapering group and control group. And also triphasic training with tapering group showed significant improvement on arm strength, explosive strength, explosive power and performance compared to control group.

Key Words: Triphasic Training, Arm Strength, Explosive Strength, Explosive Power.

Introduction

Volleyball is a social game, where next to the good coordination and cleverness comes up to the important place team players good rapprochement and cooperation Adams, et al (2002). Modern volleyball requires for player a good physical endurance, parallel it is very important to develop speed and explosive power and force endurance. Vertical jump ability is critical for success in volleyball. Jumping is utilized during the jump set, jump serve, blocking and spiking. A successful player must not only be able to jump high but must also be able to reach that height quickly, this requires an ability to generate power in a very short time Stojanovic, et al (1996).

Triphasic training is that all dynamic muscle actions consist of three phases: eccentric, isometric, and concentric Dietz and Peterson (2012). If only the concentric movement is trained, athletic movement and performance will be limited by the weaker eccentric and isometric movements. Therefore, the purpose of the triphasic phase is to individually develop and strengthen all three movements in order to create a strong link between the phases of dynamic movements and optimize performance Dietz and Peterson (2012). For Division III women's hockey players, only the lower body will be trained with triphasic means. There are three primary reasons for this. First, the fitness levels and work capacity of the athlete must be very high Dietz and Peterson (2012). Triphasic training is to train the nervous system Dietz and Peterson (2012). The nervous system encompasses the entire body, so by training the legs triphasicly, the athletes are also inducing similar neurological changes in their upper body, without the added stress Dietz and Peterson (2012).

A segment of time when the amount of training load are reduced before a competition in an attempt to peak performance at a target time (Thomas and Busso, 2005). A progressive, nonlinear reduction of the training load during a variables amount of time that is intended to reduce the physiological and psychological stress of daily training and optimize sport performance (Mujika and Padilla 2000). The taper period should last from 8 to 14 days and have a reduction in training volume and intensity (Bompa & Haff, 2009). For team sports, the training volume during the first taper microcycle should be reduced to obtain an unloading effect, and intensity should also be reduced to 50-60% of 1RM (Bompa & Haff, 2009). Volume and intensity should continue to be reduced during th

Methodology

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Table-I, Criterion Measures

S.No	Criterion measure	Test items	Unit of measurement
1	Arm strength	Dip trength	1/10th of a second
2	Explosive strength	vertical jump test	In centimeters
3	Explosive power	Seated medicine ball throw	In meters
4	Performance	Subjective rating	In points

TABLE – II, Descriptive Analysis of Strength Parameters and Performance Variables Among Experimental And Control Groups

S.No	Variables	Group	Pre-Test Mean	SD (±)	Post –Test Mean	SD (±)	Adjusted Mean
1	Arm strength	TPTWTG	27.28	0.22	30.67	1.15	30.65
		CG	27.44	0.30	29.30	1.36	29.33
2	Explosive strength	TPTWTG	55.48	0.28	60.48	0.29	60.50
		CG	55.40	0.24	58.37	2.69	58.36
3	Explosive power	TPTWTG	4.62	0.10	4.84	0.10	4.83
		CG	4.57	0.01	4.68	0.14	4.69
4	Performance	TPTWTG	5.66	0.27	6.11	0.01	6.11
		CG	5.52	0.01	5.87	0.30	5.87

TPTWTG = Triphasic training with tapering group CG= Control group

The tables-II the pre, post-test means, standard deviations and adjusted mean on arm strength, explosive strength, explosive power and performance of male volleyball players were numerical presented. The analysis of covariance on selected variables of triphasic training with tapering group and control group is presented in table – III

Table – III, Computation of Analysis of Covariance on Strength Parameters and Performance Variables Among Male Volleyball Players

S.No	Variables	Test	Sum of variance	Sum of squares	Df	Mean square	F ratio
1	Arm strength	Pre-test	B.G.	0.141	1	0.141	1.99*
			W.G.	1.552	22	0.071	
		Post-test	B.G.	11.144	1	11.144	7.01*
			W.G.	34.945	22	1.588	
		Adjusted means	B.S.	9.547	1	9.547	5.75*
			W.S.	34.809	21	1.658	
2	Explosive strength	Pre-test	B.G.	0.042	1	0.042	0.58
			W.G.	1.574	22	0.072	
		Post-test	B.G.	26.686	1	26.686	7.22*
			W.G.	81.062	22	3.685	



3	Explosive power	Adjusted means	B.S.	26.949	1	26.949	7.00*
			W.S.	80.731	21	3.844	
		Pre-test	B.G.	0.015	1	0.015	2.84
			W.G.	0.113	22	0.005	
		Post-test	B.G.	0.155	1	0.155	10.11*
			W.G.	0.337	22	0.015	
Adjusted means	B.S.	0.112	1	0.112	7.22*		
	W.S.	0.326	21	0.016			
4	Performance	Pre-test	B.G.	0.119	1	0.119	3.22
			W.G.	0.814	22	0.037	
		Post-test	B.G.	0.340	1	0.340	7.27*
			W.G.	1.027	22	0.047	
		Adjusted means	B.S.	0.289	1	0.289	5.91*
			W.S.	1.026	21	0.049	

*Significant at 0.05 level of confidences

(The table values required for significance at 0.05 level of confidence for 1 & 22 and 1 & 21 are 4.30 and 4.33 respectively).

In the table the results of analysis of covariance on arm strength, explosive strength, explosive power and performance. The obtained 'F' ratio of 1.99, 0.58, 2.84 and 3.22 for Pre-test means was less than the table value of 4.30 for df 1 and 22 required for significance at 0.05 level of confidence on arm strength, explosive strength, explosive power and performance. The obtained 'F' ratio of 7.01, 7.22, 10.11 and 7.27 for post-test means was greater than the table value of 4.30 for df 1 and 22 required for significance at 0.05 level of confidence on arm strength, explosive strength, explosive power and performance. The obtained 'F' ratio of 5.75, 7.00, 7.22 and 5.91 for adjusted post-test means was greater than the table value of 4.33 for df 1 and 21 required for significance at 0.05 level of confidence on arm strength, explosive strength, explosive power and performance. The result of the study indicated that there was a significant difference among the adjusted post test means of triphasic training with tapering group and control group on arm strength, leg strength, explosive strength and performance. And also triphasic training with tapering group showed significant improvement on arm strength, explosive strength, explosive power and performance compared to control group.

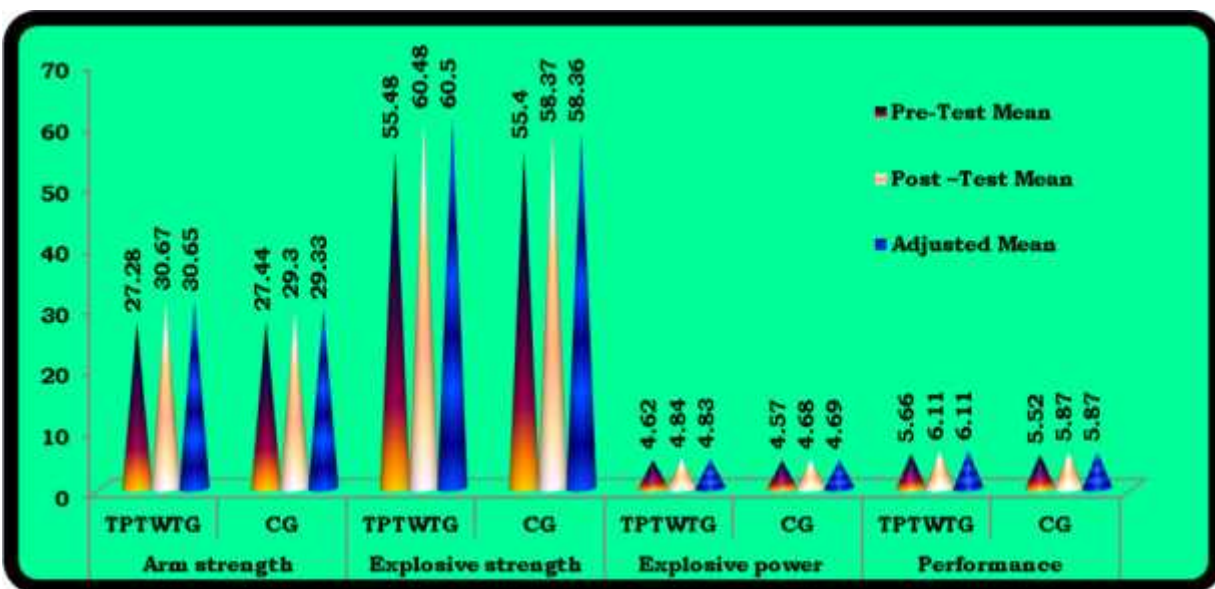


Figure-I The pre, post and adjusted means values of arm strength, explosive strength, explosive power and performance of both experimental and control groups are graphically represented in the figure-I

Discussion of findings



The results of the study indicate that the experimental group which underwent triphasic training with tapering had showed significant improved in the selected variables namely such as arm strength, explosive strength, explosive power and performance when compared to the control group. The control group did not show significant improvement in any of the selected variables. The past studies on selected strength parameters and performance reveals Coutts et al (2007), Zacharia, S.V., and Shelvam, P.V (2013). Jackson, Kaitlin (2015).

Conclusions

From the analysis of data, the following conclusions were drawn.

1. The experimental group volleyball players showed significant improvement in all the strength parameters of arm strength, explosive strength, explosive power and performance variable.
2. The control group volleyball ball players did not show significant improvement in any of selected variables.

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