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Effects of Concurrent and Complex Training on Explosive power among Male Kabaddi players

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Abstract

The purpose of the study was to determine the effect of concurrent training and complex training on explosive power among male kabaddi players. To achieve the purpose of the present study, thirty six kabaddi players from various colleges of Bharathiar University, Coimbatore were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of twelve kabaddi players each. The study was formulated as a true random group design, consisting of a pre-test and post-test. The group I underwent concurrent training, group II underwent complex training and group III acted as a control group. The two experimental groups were participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. Explosive power was assessed by standing broad jump test. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Analysis of covariance (ANCOVA) was applied. Whenever the adjusted post-test means were found significant, the scheffe's post-hoc test was administer to find out the paired means difference. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study. The concurrent training and complex training group produced significant improvement on explosive power.

Keywords: Concurrent Training, Complex Training, Explosive Power, Kabaddi.

Introduction

Concurrent strength and endurance training is undertaken by numerous athletes in various sports in an effort to achieve adaptations specific to both forms of training. The research findings to date, investigating the neuromuscular adaptations and performance improvements associated with concurrent strength and endurance training (referred to as concurrent training) have produced inconsistent results. Some studies have shown that concurrent training inhibits the development of strength and power, but does not effect the development of aerobic fitness when compared to either mode of training alone. Other studies have shown that concurrent training has no inhibitory effect on the development of strength and endurance. Strength and endurance training regimes represent and induce distinctly different adaptive responses when performed individually. Typically, strength-training programmes involve large muscle group activation of high-resistance, low-repetition exercises to increase the force output ability of skeletal muscle (Sale et al, 1990). In contrast, endurance-training programmes utilize low-resistance, high-repetition exercises such as running or cycling to increase maximum O_2 uptake ($VO_{2\ max}$). Accordingly, the adaptive responses in skeletal muscle to strength and endurance training are different and sometimes opposite (Tanaka and Swenson, 1998).

Complex training as alternating bio-mechanically comparable high load weight training and plyometric exercises in the same workout. Complex training as various sets of groups/complexes of exercises performed in a manner in which several sets of a heavy resistance exercise are followed by sets of a lighter resistance exercise. These authors also mention the term contrast loading and define this as "the use of exercises of contrasting loads that is, alternating heavy and light exercises set for set" (Daniel et al. 2009).

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Methodology

The purpose of the study was to determine the effect of concurrent training and complex training on explosive power among male kabaddi players. To achieve the purpose of the present study, thirty six kabaddi players from various colleges of Bharathiar University, Coimbatore were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of twelve kabaddi players each. The study was formulated as a true random group design, consisting of a pre-test and post-

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Results

Table 1
Computation of Analysis of Covariance of Mean of Concurrent Training, Complex Training and Control Groups on Explosive power (CONTG, COMTG & CG)

	CONTG	COMTG	CG	Source of Variance	Sum of Squares	Df	Means Squares	F-ratio
Pre-Test Means	27.25	28.50	28.41	**BG**	11.722	2	5.861	1.50
				WG	128.167	33	3.884	
Post-Test Means	40.91	40.75	28.66	**BG**	1184.389	2	592.194	199.75*
				WG	97.833	33	2.965	
Adjusted Post-Test Means	40.93	40.74	28.66	**BG**	1165.434	2	582.717	190.68*
				WG	97.788	32	3.056	

Table I reveals that the indicated that the obtained 'F'-ratio for the pre-test means among the groups on explosive power were 27.25 for experimental group – I, 28.50 for experimental group – II and 28.41 for control group. The obtained 'F'-ratio 1.50 was lesser than the table 'F'-ratio 3.21. Hence the pre-test mean 'F'-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. The post-test means were 40.91 for experimental group – I, 40.75 for experimental group – II and 28.66 for control group. The obtained 'F'-ratio 199.75 was higher than the table 'F'-ratio 3.21. Hence the post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. The adjusted post-test means were 40.93 for experimental group – I, 40.74 experimental group – II and 28.66 for control group. The obtained 'F'-ratio 190.68 was higher than the table 'F'-ratio 3.22. Hence the adjusted post-test mean 'F'-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. It was concluded that there was a significant mean difference among concurrent training group, complex training group and control group, in developing explosive power of the kabaddi players.

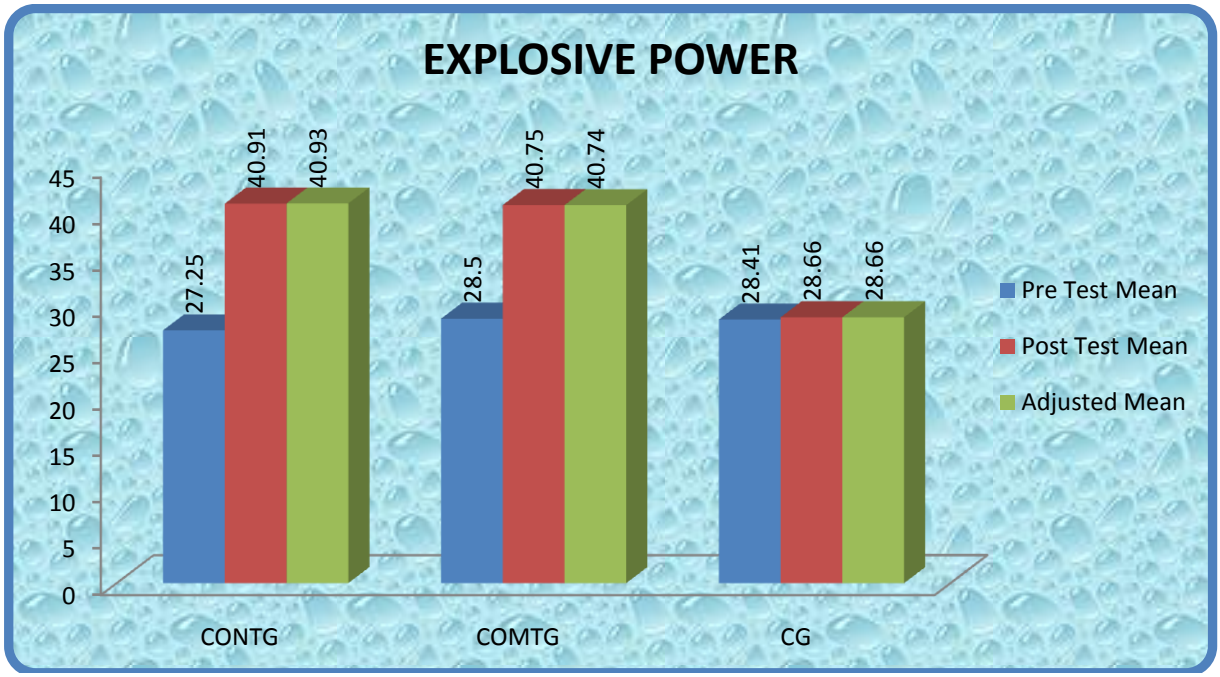
Table 2
The Scheffe's Test for the Differences between the Adjusted Post Test Means on Explosive power

Adjusted Post-test means			Mean Difference	Required CI
Concurrent Training	**Complex Training**	**Control Group**		
40.93	40.74	---	0.19	1.83
40.93	---	28.66	12.27*	
---	40.74	28.66	12.08*	

* Significant at 0.05 level of confidence

Table II shows the post hoc analysis obtained on adjusted post test means. The mean difference required for the confidential interval to be significant was 1.83. It was observed that the concurrent training group significantly improved explosive power better than the control group. The complex training group significantly improved explosive power better than the control group.

Figure I
Adjusted Post Test Differences of the Concurrent Training, Complex Training and Control Groups on Explosive power (CONTG, COMTG & CG)



Conclusions

1. The concurrent training group produced significant improvement on explosive power.
2. The complex training group produced significant improvement on explosive power.
3. In the control group the variable was failed to reach the significant level.

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