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Effect of resistance training plyometric training and combined training on speed among kabaddi players

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Abstract

The purpose of the study was to find out the effect of resistance training plyometric training and combined training on speed among kabaddi players. 60 kabaddi players from Tuticorin district were selected randomly as subjects. The age of the subjects ranged from 16 to 21 years. The selected subjects were divided into three groups. Group I underwent resistance training, Group II underwent plyometric training and Group III underwent combined training. The experimental groups were training for five days a week up to six weeks. The resistance training plyometric training and combined training were selected as independent variable and the criterion variable speed was selected as dependent variables and the selected dependent variable speed was assessed by the 50 dash standardized test item. The experimental design selected for this study was pre and post test randomized design. The data were collected from each subject before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement and significant difference exist due to the effect of resistance training, plyometric training, and combined training on selected physical variable among kabaddi players.

Keywords: Resistance training, plyometric training, speed, kabaddi

Introduction

Plyometric exercise is a popular form of training used to improve athletic performance. It involves a stretch of the muscle tendon unit immediately followed by a shortening of the muscle unit. This process of muscle lengthening followed by rapid shortening during the stretch-shortening cycle (SSC) is integral to plyometric exercise. The SSC process significantly enhances the ability of the muscle-tendon unit to produce maximal force in the shortest amount of time. These benefits have prompted the use of plyometric exercise as a bridge between pure strength and sport-related power and speed (Chu 1983) [1].

Resistance training programs have traditionally focused on developing maximal strength in individual muscles, emphasizing one plane of motion. Because all muscles function eccentrically, isometrically, and concentrically in all three planes of motion at different speeds, training programs should be designed using a progressive approach that emphasizes the appropriate exercise selection, all muscle actions, and repetition tempos.

Kabaddi is basically an outdoor team game, played in the tropical countries of Asia. This indigenous game of India was adopted by other countries in Asia viz. Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka, Maldives, Malaysia and more recently by Japan and China. The excitement and thrill provided by the game has made it very popular and Kabaddi is rightly called the 'Game of the masses', since spectators totally involve themselves and give the players a great deal of encouragement.

Methodology

For this study sixty (N=60) men Kabaddi players from Tuticorin District, Tamilnadu India were randomly selected as subjects. Their age ranged from 16 to 21 years.

The subjects were divided at random into three groups of twenty each (n=20). Group-I underwent Resistance Training, Group-II underwent Plyometric Training, Group-III underwent Combined Resistance Training and Plyometric Training. All the subjects were thoroughly informed regarding the nature of the experimental methodology and the subjects consented to participate in this investigation.

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Experimental Design and Statistical Technique

The experimental design used in this study was random group design. The selected subjects were divided at random into three groups of twenty each (n=20). Group-I underwent Resistance Training, Group-II underwent Plyometric Training, and Group-III underwent Combined Resistance Training and Plyometric Training. Pretest data were collected two days before the training programme, and posttest data were collected immediately after six weeks of the training session.

Results and discussion

The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with dependent 't' test and Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, Scheffe's test was applied, as a post hoc test to determine which of the paired mean differences was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses. Table 1 presents per and post test means, standard deviations and dependent 't' test values on speed of experimental and control groups.

Table 1: Means, standard deviation and dependent 't' test values on speed among experimental groups

Tests	Resistance Training		Plyometric Training		Combined Training	
	Mean	SD	Mean	SD	Mean	SD
Pre Test	6.68	0.16	6.62	0.12	6.63	0.11
Post Test	6.32	0.20	6.09	0.15	5.83	0.11
T - Test	27.954		15.20		69.65	

*Significant at .05 level. The table value required at .05 level with df 19 is 2.09

From the table, the obtained t- test value of resistance training, plyometric training and combined training groups are 15.98, 19.00 and 15.07 respectively which are greater than tabulated t- value of 2.14 with df 19 at .05 level of

confidence. This means that the resistance training, plyometric training and combined training groups had effects on participants' speed.

Table 2: Analysis of covariance of experimental groups on speed

Adjusted Post Test Means							F ratio
Resistance training	Plyometric Training	Combined Training	Sources of variance	sum of square	df	Mean squares	
6.28	6.11	5.85	Between	1.87	2	0.93	91.76*
			within	0.57	57	0.01	

*Significant at .05 level. The table value required at .05 level with df 2 & 57 is 3.15.

The obtained F ratio value is 91.76, which is higher than the table value 3.15. With df 2 and 57 required for significance at .05 level. Since the value of F-ratio higher than the table value, it indicates that there was significant difference among the adjusted post test means Resistance Training, Plyometric Training, and Combined Training. To find out this of the three paired means had a significant difference.

Conclusions

From the analysis of the data, the following conclusion was drawn.

1. The Experimental groups namely, Resistance training, Plyometric training and combined Resistance and Plyometric training had significantly improved on Speed among district level Kabaddi players.
2. The combined group of resistance and plyometric training group had shown significant improvement on speed among district level Kabaddi players.

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