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Research article

EFFECT OF CONCURRENT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES OF UNIVERSITY MEN

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Abstract

To achieve the purpose of the present study (N=30) men players were randomly selected from Tamil Nadu Physical Education and Sports University, Chennai, Tamil Nadu. Their age ranged from 22 to 25 years. They were assigned to two group namely experimental group-I with (n=15) boys concurrent training 12 weeks 5 days a week and other group-II with (n=15) acted as control group. Both the groups were tested on physical fitness variables elastic strength and cardio respiratory endurance. The selected criterion variables were measured by elastic strength – bunny hops, and cardio respiratory endurance – 12 minute run/walk test. The prior and after test data collected were treated with dependent 't' test. The level of confidence was fixed at 0.05. The study results showed significant improvement on experimental group of selected criterion variables of elastic strength, and cardio respiratory endurance of university men players. The control group did not show any significant improvement.

***Key Words**: Concurrent Training, Elastic power, Cardio Respiratory Endurance*

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INTRODUCTION

Sports training is a scientifically based and pedagogically organized process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition. Simultaneously training for adaptations associated with resistance and endurance training (RT & ET), otherwise known as concurrent training (CT), is widely debated by fitness professionals and strength coaches alike. CT has been criticized due to the potential for chronic overreaching, as well as the competing adaptations associated when performing RT and ET, concurrently. However if programmed carefully, CT can produce a lean and sculpted physique, while obtaining a high level of fitness as measured by health aspects as well as athletic parameters. Therefore, the purpose of this article is to elucidate the ways in which the adaptations associated with both RT and ET can be maximized when training concurrently **(Hickson RC 1980).** Elastic strength is the ability to exert force quickly and to overcome resistance with high speed of muscle action. High level of elastic strength requires good combination and coordination of high speed and strength of muscle action. The purpose of study was to find out effect of concurrent training on selected physical fitness variables of college men players.

METHODS AND MATERIALS

To achieve the purpose of the present study (N=30) university men players were randomly selected from Tamil Nadu Physical Education and Sports University*, Chennai*,, Tamil Nadu. Their age ranged from 22 to 25 years. They were assigned to two groups namely experimental group-I with (n=15) boys concurrent training 12 weeks 5 days a week and other group-II (n=15) as control group. Both the groups were tested on physical fitness variables elastic strength, and cardio respiratory endurance. The selected criterion variables measured by elastic strength – bunny hops and cardio respiratory endurance – 12 minute run/walk test. The prior and after test data were collected treated with dependent 't' test. The level of confidence was fixed at 0.05.

TRAINING PROGRAM

Variable	Training goal		
	Strength	Power	Endurance
Load (% of 1RM)	90–80	60–45	60–40
Reps per set	1–5	1–5	13–60
Sets per exercise	4–7	3–5	2–4
Rest between sets (mins)	2–6	2–6	1–2
Duration (seconds per set)	5–10	4–8	80–150
Speed per rep (% of max)	60–100	90–100	60–80
Training sessions per week	3–6	3–6	8–14

Resistance training

Components	Weeks											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Intensity	40	40	45	50	55	60	65	70	75	80	85	90
Repetitions	12 to 10	12 to 10	10 to 8	10 to 8	8 to 10	8 to 10	6 to 8	6 to 8	4 to 6	4 to 6	2 to 4	2 to 4
Sets	2	2	2	2	3	3	3	3	4	4	4	4

The following resistance exercises were used for resistance training group and performed with progressive method, squat, bench press, push press, over head press, standing half raise, biceps curl, front squat, incline press, upright row and triceps extension exercises. The intensity ranged from 40% to 90% of 1 RM.

Endurance Training (Max H.R – Age)

Components	Weeks											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Intensity	50	50	55	55	60	60	65	65	70	70	75	75
Repetitions	12 to 10	12 to 10	10 to 8	10 to 8	8 to 10	8 to 10	6 to 8	6 to 8	4 to 6	4 to 6	2 to 4	2 to 4
Sets	2	2	2	2	3	3	3	3	4	4	4	4

The training consists of resistance with endurance training alternate days give the training to subjects.

RESULTS

TABLE - I

COMPUTATION OF 'T' TEST ON ELASTIC STRENGTH OF UNIVERSITY MEN PLAYERS EXPERIMENTAL AND CONTROL GROUPS

Variable	Group	Test	Mean	S.D	D.M	σ DM	't'
Elastic strength	Experimental group	Pre Test	9.49	0.17	1.03	0.15	6.86*
		Post Test	10.52	0.63			
	Control Group	Pre Test	9.39	0.23	0.053	0.048	1.10
		Post Test	9.44	0.17			

*Significant

Level of significant was fixed at 0.05 with df 15 table value 2.14

Table - I indicates that the experimental group pre and post test mean values are 9.49 and 10.52 and standard deviation values are 0.17 and 0.63 and obtained't' is 6.86 which is greater than table value 2.14 with df 14. And control group mean values are 9.39 and 9.44 and standard deviation 0.23 and 0.17. The results of 't' value 1.10 is lesser than table value 2.14. The finding of the study indicates that experimental group significant improvement on elastic strength due to the effect of concurrent training on university men players.

FIGURE-1
MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUPS OF ELASTIC STRENGTH OF UNIVERSITY MEN PLAYERS

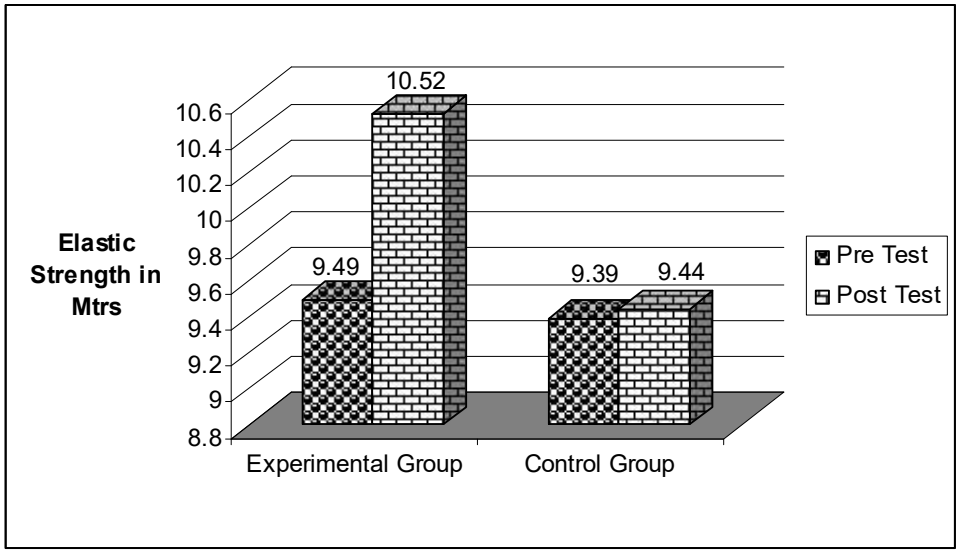


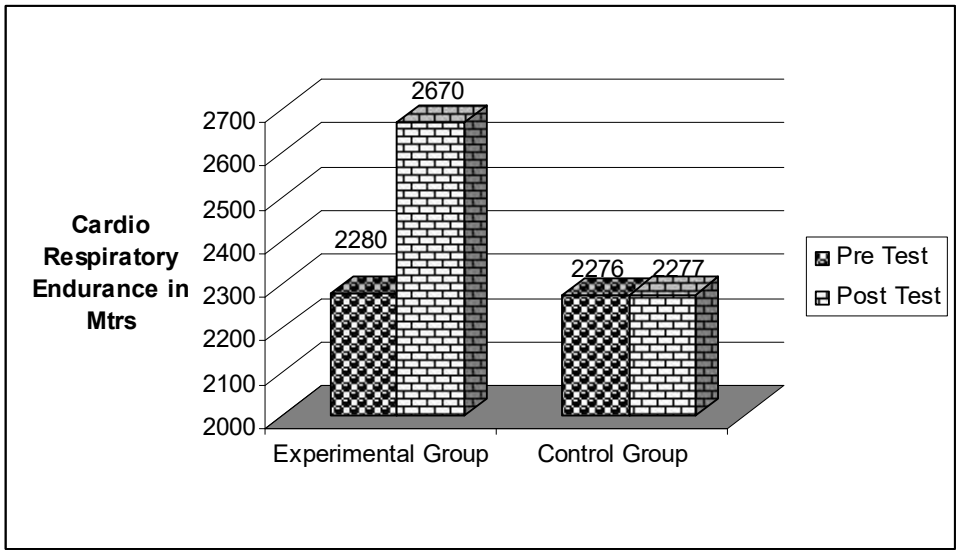
TABLE - II
COMPUTATION OF 'T' TEST ON CARDIO RESPIRATORY ENDURANCE OF EXPERIMENTAL AND CONTROL GROUPS

Variable	Group	Test	Mean	S.D	D.M	σ DM	't'
Cardio Respiratory Endurance	Experimental group	Pre Test	2280	64.0	390	33.75	11.55*
		Post Test	2670	107.9			
	Control Group	Pre Test	2276	64.18	1.0	0.66	1.51
		Post Test	2277	63.15			

*Significant
Level of significant was fixed at 0.05 with df 15 table value 2.14

Table-II indicates that the experimental group pre and post test mean values are 2280 and 2670 and standard deviation values are 64 and 107.9 and obtained 't' is 11.55 which is greater than table value 2.14 with df 14. And control group mean values are 2276 and 2277 and standard deviation 64.18 and 63.15 The results of the study 't' value 1.51 is lesser than table value 2.14. The finding indicates that experimental group had significant improvement on cardio respiratory endurance due to the effect of concurrent training on university men players.

FIGURE-2
MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUPS OF CARDIO RESPIRATORY ENDURANCE OF UNIVERSITY MEN PLAYERS



DISCUSSION ON FINDINGS

The results of the study show that experimental group had significant improvement on elastic strength and cardio respiratory endurance of university men players due to effect of concurrent training. The results of the study is in consent with other resistance training are more ideal to improve jumping ability **(Hoff J, Gran A, and Helgerud J 2002) and (Millet et al., 2002)** . Several investigations involving adults suggest that combining resistance with endurance training may be useful for enhancing muscular performance **(Mikkola et al., 2007& Lanao-Esteve et al., 2002).** From the results of the present study and literature, it is concluded that the dependent variable elastic strength and cardio respiratory endurance significantly improved due to the influence of concurrent training (**Aagaard P and Anderson J.2010 & Paavolainen et al., 1999)**.

CONCLUSIONS

1. The experimental group had significant improvement on elastic strength and cardio respiratory endurance due to concurrent training of university men players.
2. There is significant difference between experimental and control groups of elastic strength and cardio respiratory endurance due to concurrent training of university men players.

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