

EFFECT OF PARCOURSE TRAINING ON SELECTED STRENGTH AND ENDURANCE PARAMETERS OF FOOTBALL PLAYERS

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ABSTRACT

The purpose of this study was to examine the effect of eight weeks of parcourse training in enhancing the strength and endurance parameters. For this purpose 30 football players, aged 18 to 22 years took part in the study. Subjects were randomly assigned to either parcourse training (n=15) or control (n=15) group. The training regimen lasted for eight weeks. The selected dependent variables were assessed using standard tests and procedures, before and after the training regimen. Analysis of covariance was used to determine the significant difference existing between pre test and post test on selected dependent variables. These results suggest that parcourse training has the significant influence on improving the selected dependent variables.

Key Words: *Parcourse training, Strength and endurance parameters*

INTRODUCTION

Football is widely accepted as one of the most popular sports in the world, with a growing number of soccer enthusiasts and players world-wide. Football is perhaps the most demanding of all sports. In the modern game (at any level) football training and conditioning is essential. Few sports are played on as large a playing field, lasting as long and without regular rest periods. Players cover 8-12km during a match, consisting of 24% walking, 36% jogging, 20% coursing, 11% sprinting, 7% moving backwards and 2% moving whilst in possession of the ball. Football players posses excellent endurance with VO_2 max reported to range between 55 and 70 ml/kg/min in elite performers. The game is played at an average intensity close to the lactate threshold - approximately 80-90% of maximum heart rate.

The parcourse was originally designed for outdoor interval training to accommodate broad scale community or group fitness. It is also an excellent decorative enhancement with its natural timber form construction. The individual exercise stations are usually installed at fixed intervals, several hundred feet apart in a linear or looping circuit so that participants can walk or jog from one station to the next where they can perform a variety of designated exercises involving stretching, balance, agility, and strength.

The par course can be a nice change of pace for diehard fitness enthusiasts too. It offers a challenging workout that can easily be intensified to different degrees of difficulty by simply progressing more quickly from one station to the next, increasing the number or repetitions at each station, or wearing "spats" (or other weighted wear) while performing the par course circuit. Even performing the course backwards can add a different dimension. To know the efficacy of parcourse training and its significant contribution to football players level of fitness, it was decided to take up this study.

METHODOLOGY

Subjects and Variables

For the purpose of this study, thirty football specialization students from the department of physical education, Scott Christian College, Nagercoil in the age group of 18 to 22 years were recruited, with their consent. The selected subjects were randomly assigned to both the parcourse training and control groups of 15 each. The selected dependent variables were assessed using standard tests and procedures, before and after the eight weeks of training regimen.

Training Protocol

The experimental group subjects underwent parcourse training programme for three days a week for eight weeks. In the parcourse training regimens, a series of eight exercise stations were formed in a standard 400 meters track. The subjects moved from one station to another, by jogging. The number of repetition for each exercises varied from ten to sixteen. The number of circuits varied between two-and-three for eight weeks, with a recovery interval of five minutes was given between circuits. The number of repetition was progressively increased once in two weeks.

Experimental Design and Statistical Procedure

The experimental design used for the study was random group design involving thirty subjects, who were divided at random into two groups such parcourse training group and control group of fifteen each. The data collected from the two groups prior to and after experimentation on selected strength, and endurance parameters were statistically examined for significant differences, if any, by applying the analysis

of covariance (ANCOVA) with the help of SPSS package. In determining the significance of 'F' ratio the confidence interval was fixed at 0.05 level.

RESULTS

The descriptive analysis of data collected on selected strength and endurance parameters before and after eight weeks of parcourse training is presented in table-I.

Table I: Computation of Mean and Standard Deviation on Selected Strength and Endurance Parameters

Variables	Groups	Pretest		Posttest	
		$\bar{x}$	σ	$\bar{x}$	σ
Leg strength	Experimental	91.53	4.43	103.86	3.02
	Control	92.26	4.87	94.13	3.68
Muscular Strength	Experimental	34.20	3.28	41.33	2.49
	Control	32.67	6.37	33.13	4.643
Cardio respiratory endurance	Experimental	2449.33	115.17	2647.33	84.55
	Control	2454.67	93.42	2497.33	65.63

The data collected from the parcourse training and control groups prior to and after experimentation on leg strength, muscular strength and cardio respiratory endurance were statistically examined for significant differences, if any, by applying the analysis of covariance (ANCOVA) with the help of SPSS package and it is presented in table-II.

Table II: Analysis of Covariance on Selected Strength and Endurance Parameters of parcourse Training and Control Groups

Variables	Groups	Adjusted Mean	SoV	Sum of Squares	df	Mean Square	'F' ratio
Leg strength	Experimental	104.26	B	223.72	1	223.72	79.33*
	Control	93.96	W	76.18	27	2.82	
Muscular Strength	Experimental	38.73	B	223.72	1	223.72	89.39*
	Control	32.88	W	67.57	27	2.503	
Cardio respiratory endurance	Experimental	2618.66	B	171153.3	1	171153.3	31.46
	Control	2487.33	W	146890.3	27	5440.38	

Required table value for significance at 0.05 level of confidence for df of 1 and 27 is 4.21

* Significant at 0.05 level.

The findings of the study shows that significant difference existing between parcourse training and control group on leg strength, muscular strength and cardio respiratory endurance since the obtained 'F' ratio of 79.33, 89.39 and 31.46 respectively are greater than the required table value of 4.21 for significance at 0.05 level of confidence for df of 1 and 27.

DISCUSSIONS

The literature thoroughly supports the evidence that a higher dose of parcourse training produces greater increases in strength and power parameters. Studies have shown improvement in aerobic capacity from participation in circuit training (Kass & Castriotta, 1994; Peterson, Miller, Quinney, & Wenger, 1988). Kaikkonen and others(2000) observed significant improvement on cardiovascular and muscular fitness due to the effect of a 12-week low resistance circuit weight training. Gettman and others (1978) conducted a study to determine the changes elicited by circuit weight training and running (RN) programs conducted 3 days per week for 20 weeks. The results of the present study are also in line with the previous observation that heavy-resistance circuit

training may be an effective training strategy for the promotion of both strength and cardiovascular adaptations. Athletes involved in rowing, kayaking, tennis or football can improve sport performance with circuit training (Zatsiorsky and Kraemer, 2006). It was concluded that the parcourse training program was most specific in improving strength and changing body composition and aerobic capacity. Hence, it is suggested that to improve or maintain a desired level of physical fitness, there is a need to constantly administer an adequate training intensity while exercising. Parcourse training is one of the effective means to improve all round physical and cardiovascular fitness of football players.

CONCLUSIONS

The result of this study demonstrated that, parcourse training with repeated bouts of a combination of physical exercise has significant impact on leg strength, muscular strength and cardio respiratory endurance of football players.

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