ANALYSIS OF PARCOURSE TRAINING IMPACT ON SELECTED BIO-MOTOR ABILITIES OF UNIVERSITY KABADDI PLAYERS

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ABSTRACT

The purpose of this study was to examine the effect of eight weeks of supervised parcourse training on enhancing the bio-motor abilities of university kabaddi players. For this purpose 16 male university kabaddi players, aged 18 to 22 years took part in the study. Subjects were randomly assigned to either parcourse training (n=8) or control (n=8) 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 pretest and posttest on selected dependent variables. These results suggest that parcourse training has the significant influence on improving the selected dependent variables.

Key Words: Parcourse training, bio-motor abilities and kabaddi players

INTRODUCTION

The training programmes that develop performance related fitness is very different from those that develop health-related fitness. For both elite and recreational athletes, proper training optimizes race performance, but also decreases the likelihood for injury, prevents over-training and provides greater satisfaction. The importance given to training by today's elite and recreational athletes striving for their personal best performance has demanded research on how best to train for a given event. Scientists of exercise physiology have responded to these needs, and numerous academic journals have been published on optimal training practices and on practices detrimental to improved performance.

Parcourse consists of a path or course equipped with obstacles or stations distributed along its length for exercising the human body to promote good health. The course is designed to promote physical fitness training in the style attributed to Georges Hébert. In general, fitness trails can be natural or manmade, located in areas such as forest, transportation rights-of-way, parks, or urban settings. Equipment exists to provide specific forms of physiological exercise, and can consist of natural features including climbable rocks, trees, and river embankments, or manufactured products (*stepping posts, chin-up and climbing bars*) designed to provide similar physical challenges. The degree of difficulty of a course is determined by terrain slope, trail surface (*dirt, grass, gravel, etc*.), obstacle height (*walls*) or length (*crawls*) and other features. Urban parcourses tend to be flat, to permit participation by the elderly, and to accommodate cyclists, runners, skaters and walking. The new concept of an outdoor gym, containing traditional gym equipment specifically designed for outdoor use, is also considered to be a development of the parcourse.

The parcourse was originally designed for outdoor interval training to accommodate broadscale community or group fitness. 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 kabaddi player's level of fitness, it was decided to take up this study.

METHODOLOGY

Subjects and Variables

For the purpose of this study, sixteen male university kabaddi players from the Department of Physical Education, Annamalai University 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. The dependent variables and tests used are presented in table-I.

Table I: Dependent Variables and Test

S. No.	Dependent Variables	Instrument / Test / Method / Formula	Unit of Measurement
1.	Leg Strength	Leg Dynamometer	Kilograms
2.	Anaerobic power	Margariya Kalaman anaerobic power test	kg/m/sec
3.	Muscular Strength	Bent Knee sit-ups	Numbers

Training Protocol

The experimental group subjects underwent parcourse training progamme for three days a week for eight weeks. In the parcourse training regimens, a serious 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.

Statistical Procedure

The data collected from the two groups prior to and after experimentation on selected bio-motor abilities 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 bio-motor abilities before and after eight weeks of parcourse training is presented in table-II.

Table II: Computation of Mean and Standard Deviation on Selected Bio-Motor Abilities

Variables	Groups	Pretest		Posttest	
		Mean	Standard Deviation	Mean	Standard Deviation
Leg strength	Experimental	97.61	6.31	102.46	5.24
	Control	95.38	4.57	94.87	3.97
Anaerobic power	Experimental	87.73	2.64	91.49	1.89
	Control	86.53	1.25	86.64	1.36
Muscular Strength	Experimental	32.72	3.57	38.26	3.84
	Control	30.58	2.86	31.04	4.39

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

Table III: Analysis of Covariance on Selected Bio-Motor Abilities of parcourse Training and Control Groups

Variables	Groups	Adjusted Mean	SoV	Sum of Squares	df	Mean Square	'F' ratio
Leg strength	Experimental	101.38	B	236.48	1	236.48	35.03*
	Control	95.14	W	87.74	13	6.75	
Anaerobic power	Experimental	90.68	B	6.79	1	6.79	7.15*
	Control	86.62	W	12.36	13	0.95	
Muscular Strength Endurance	Experimental	37.85	B	215.47	1	215.47	29.08*
	Control	30.92	W	96.27	13	7.41	

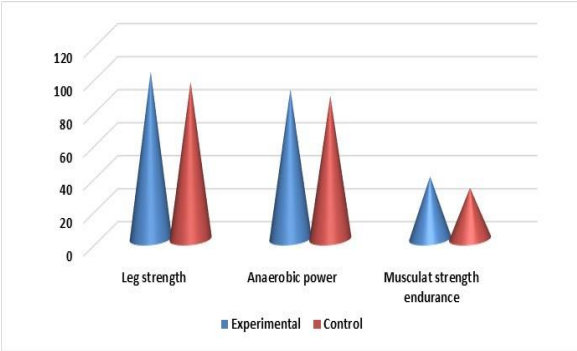
Required table value for significance at 0.05 level of confidence for df of 1 and 13 is 4.67

** Significant at 0.05 level.*

The findings of the study shows that significant difference existing between the adjusted post test means of parcourse training and control group on leg strength, anaerobic power, muscular strength endurance since the obtained 'F' ratio of 35.03, 7.15 and 29.08respectively were greater than the required

table value of 4.67 for significance at 0.05 level of confidence for df of 1 and 13. It reveals that due to the effect of parcourse training the selected bio-motor abilities of the kabaddi players have significantly improved.

Figure-I: Diagram Showing the Adjusted Post Test Mean Values Experimental and Control Groups on Selected Bio-Motor Abilities



DISCUSSIONS

The literature thoroughly supports the evidence that a higher dose of parcourse training produces greater increases in strength and power parameters. The results of the present study are also in line with the observation by Alcaraz et al., (2008) that heavy-resistance circuit training may be an effective training strategy for the promotion of both strength and cardiovascular adaptations. Studies have shown improvement in aerobic capacity from participation in circuit training (Kass & Castriotta, 1994; Peterson, Miller, Quinney & Wenger, 1988). Kaikkonen et al., (2000) observed significant improvement on cardiovascular and muscular fitness due to the effect of a 12-week low resistance circuit weight training. Gettman et al., (1978) concluded that the circuit weight 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 kabaddi 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, anaerobic power and muscular strength endurance of university kabaddi players.

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