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Effect of fartlek circuit and parcourse training on agility cardiovascular endurance and resting heart rate among college softball players

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Abstract
The purpose of the study was to find out the effect of fartlek, circuit and parcourse training on agility, cardio vascular endurance and resting heart rate among college softball players. Forty women softball players aged between 18 to 22 years were selected randomly. They were divided into four groups (three experimental and one control group). Fartlek, circuit, and parcourse training are the experimental groups. All the three experimental groups were given training for 12 weeks and control group were not allowed to participate in any training programme. The subjects were tested for dependent variables such as agility, cardio vascular endurance and resting heart rate; at the beginning (pre-test); in middle (6 weeks - mid-test) and after the training (12 weeks- post-test). The data were analysed by applying ANOVA and ANCOVA. The result reveals significant changes in dependent variables such as agility, cardio vascular endurance and resting heart rate as result of fartlek, circuit and par-course training.

Keywords: Parcourse training, fartlek, softball players

Introduction

"It's not how hard you train; it's how smart you train" (O' Donnell)

In the past, the concept of training was limited to competitive sports. However, in recent years, athletic training has become a normal part of an active way of life and today athletic training belongs to the life style of all generations (Hohman, Lames and Letzelter, 2002) [5]. The purpose of training is first to reveal the genetic potential without causing damage (Tulloh, 1998) [6]. Training is necessary for two basic reasons that, to provide the knowledge and skills to use the performance appraisal system well (Maclean, 2001) [7]. The response to specific types of training can vary considerably from athlete to athlete. For example, one youth may develop muscle mass after weight training while another may not. Generally speaking, however the effects of training are highly predictable if coaches use training methods properly (Green and Pate, 1977) [4].

Fartlek, a Swedish term that means "speed play," is a form of interval or speed training that can be effective in improving your speed and endurance. Fartlek running involves varying your pace throughout your run, alternating between fast segments and slow jogging. Unlike traditional interval training that involves specific timed or measured segments, fartlek's are more unstructured. Work-rest intervals can be based on how the body feels. With fartlek training, you can experiment with pace and endurance, and can experience changes of pace. Benefit of fartlek training is that it doesn't have to be done on a track and can be done on all types of terrains - roads, trails, lakes/rivers or even hills.

Parcourse is a French term and par-course in English mean mid way obstacle in course of training. Parcourse is a training technique that combines continuous training with exercise done at stations along the course (Williams, 1984). It involves jogging a short distance from station to station and performing a designed exercise at a station, according to guidance and direction on a board located at that station. It consists of series of stations set up over 1 to 2.5-mile path and 18 to 24 stations (Padmanbhan, K. 2000). Circuit training consists of certain exercises or activities that are performed in sequence or in a circuit.

There are usually six to ten stations in a circuit. Circuit preparation is an amalgamation of high intensity aerobics and resistance preparation designed to be easy to follow and intention fat loss, muscle building and heart fitness. An exercise "circuit" is one finishing point of all prescribed exercise in the program. When one circuit is absolute, one begins the first exercises again for another circuit. Conventionally, the time between exercises in circuit training is short, often with rapid movements to the next exercise.

Method

In this study the effect of fartlek circuit and Parcourse training on selected physical and physiological variables among college softball players. For this purpose, forty women softball players of Catholicate College; Pathanamthitta of age group 18 to 22 years (Mean 19.8 years); height 156 to 172 cm (Mean 162.3 cm) and weight 49.5 Kg. to 69 Kg. (Mean 54.9 Kg.). The criterion variables selected for the study are agility, cardio vascular endurance and resting heart rate and were assessed by the following standardized test items such as: shuttle run test, standing broad jump test and sit up test respectively. Forty women softball players were randomly divided into four groups of ten subjects each. Group I underwent fartlek training, group II underwent Parcourse training group III underwent combined fartlek and parcourse training and group IV acted as control group. The training schedule was for a period of 12 weeks. The data collected were analysed by one-way repeated measures; one way analysis of variance (ANOVA) with repeated measures for the variables in order to determine the significant differences if any among the group (pre, mid, post- test). Whenever the F - ratio was found to be significant, the analysis of covariance (ANCOVA) was used in order to find which group is superior among the groups. In all the cases 0.05 level was fixed as a significant level.

Analysis of the data and result of the study

The data of agility, cardio vascular endurance and resting heart rate before and after the training of experimental and control groups were analysed and is presented in the following tables.

Agility

Table 1.1: One way repeated measure anova on agility of experimental and control groups

Group	Source of Variance	Sum of Squares	d.f	Mean Squares	F-ratio
Fartlek group	Test (Between)	0.034	2	0.017	11.82*
	Error	0.063	28	0.002	
Circuit	Test (Between)	0.303	2	0.152	4.59*
	Error	1.750	28	.062	
Parcourse group	Test (Between)	0.251	2	0.125	28.83*
	Error	1.970	28	0.070	
Control group	Test (Between)	0.001	2	0.000	0.00
	Error	0.002	28	7.142	

*Significant at 0.05 level of confidence.

Table 1.1 reveals that all the three experimental groups had shown significant improvement in agility within the group. The obtained one way repeated measure ANOVA **(**F- ratio) values are 11.82, 4.59 & 28.83 of, fartlek, circuit and parcourse training groups respectively are higher than the table value 2 and 18 is 0.051387.

Table 1.2: Analysis of covariance of experimental and control groups on agility

Adjusted Post test Mean				Source of variance	Sum of squares	d.f	Mean squares	F - ratio
Fartlek group	Circuit group	Parcourse group	Control group					
9.456	9.544	9.368	9.685	Between	2.19	3	0.73	8.43*
				Error	3.03	35	0.08657	

*Significant at 0.05 level of confidence.

Table 1.2 reveals that all the three experimental groups had shown significant improvement in agility among the groups. The obtained ANCOVA (F- ratio) value 8.43 which is higher than the table value of 3 and 75 is 0.11678.

Explosive power

Table 2.1: One way repeated measure anova on explosive power of experimental and control groups

Group	Source of variance	Sum of squares	d. f	Mean squares	F-ratio
Fartlek group	Test (Between)	911.517	2	455.758	46.179*
	Error	769.817	18	9.869	
Circuit	Test (Between)	3274.117	2	1637.058	109.335*
	Error	1167.883	18	14.973	
Parcourse group	Test (Between)	7321.650	2	3660.825	259.189*
	Error	1101.683	18	14.124	
Control group	Test (Between)	11.450	2	5.725	1.311
	Error	340.550	18	4.366	

*Significant at 0.05 level of confidence.

Table 2.1 reveals that all the three experimental groups had shown significant improvement in Explosive power within the group. The obtained one-way repeated measure ANOVA **(**F-ratio) values are 46.18, 109.34 & 259.34 of Parcourse, circuit and combination training group respectively are higher than the table value 2 and 18 is 0.051387.

Table 2.2: Analysis of covariance of experimental and control groups on explosive power

Adjusted post-test mean				Source of variance	Sum of squares	d. f	Mean squares	F -ratio
Fartlek group	Circuit group	Parcourse group	Control group					
246.204	252.018	258.170	238.658	Between	8298.89	3	2766.298	26.571*
				Error	3644.00	35	104.11	

*Significant at 0.05 level of confidence

Table 2.2 reveals that all the three experimental had shown significant improvement in Explosive power among the groups. The obtained ANCOVA (F- ratio) value 26.571 which is higher than the table value of 3 and 35 is 0.11678.

Strength

Table 3.1: One way repeated measure anova on resting heart rate of experimental and control groups

Group	Source of Variance	Sum of Squares	D.F	Mean Squares	F-ratio
Fartlek group	Test (Between)	10.067	2	5.033	14.055*
	Error	27.933	18	0.358	
Circuit group	Test (Between)	63.217	2	31.608	108.213*
	Error	22.783	18	0.292	
Parcourse group	Test (Between)	234.017	2	117.008	185.062*
	Error	49.317	18	0.632	
Control group	Test (Between)	0.517	2	0.258	0.424
	Error	47.483	18	0.609	

*Significant at 0.05 level of confidence.

Table 3.1 reveals that all the three experimental groups had shown significant improvement in Explosive power within the group. The obtained one way repeated measure ANOVA **(**F-ratio) values are 14.05, 108.21 & 185.06 of Parcourse, circuit and combination training groups respectively are higher than the table value 2 and 18 is 0.051387.

Table 3.2: Analysis of covariance of experimental and control groups on resting heart rate

Adjusted Post test Mean				Source of variance	Sum of squares	D.F	Mean squares	F – ratio
Fartlek group	Circuit group	Parcourse group	Control group					
26.256	27.349	28.953	25.418	Between	279.526	3	93.175	16.326*
				Error	199.772	35	5.707	

*Significant at 0.05 level of confidence

Table 3.2 reveals that all the three experimental had shown significant improvement in Explosive power among the groups. The obtained ANCOVA (F- ratio) value 16.326 which is higher than the table value of 3 and 35 is 0.11678.

Discussion of findings

1. There are significant changes in all the subjects of experimental groups; due to the experimental training programme in the training schedule. From the tables it is clear that all dependent variables such as agility, cardio vascular endurance and resting heart rate significant changes were noticed within the group and among the groups.
2. Among the three experimental group, combined training group (fartlek and Parcourse) showed better improvement in all dependent variables. Isolated Parcourse training group showed better improvement in all dependent variables than isolated fartlek training group.

Conclusions

On the basis of the findings it was concluded that:-

1. Combined training group (fartlek and Parcourse) showed better significant improvement than isolated fartlek and Parcourse in all dependent variables such as agility, cardio vascular endurance and resting heart rate.
2. Isolated Parcourse training group showed better significant improvement than isolated fartlek in all dependent variables such as agility, cardio vascular endurance and resting heart rate.

References

1. William Prentice. Fitness for college and life, Saint Louis: Mosby Publishing, 1994.
2. Padmanabhan K. Effect of circuit training and Parcourse training on physical and physiological variables. Unpublished Doctorial Thesis, Alagappa University, Karaikudi, 2000.
3. Dietrich Harre. Principles of Sports Training, Berlin: Sportverlag, 1982.
4. Green LS, Pate RR. Training for Yong Distance Runners, Champaign, IL: Human Kinetics, 1997.
5. Hohmann A, Lames M, Letzlter M. Introduction to the Science of Training; New Studies in Athletics. 2002; 16(3):105-106.
6. Tulloh B. the role of Cross- Country in the development of a Runner; New Studies in Athletics. 1998; 13(4):9-11.
7. Maclean J. Performance Apprisal for Sports and Recreation Managers; Champaign, IL: Human Kinetics, 2001.