



## EFFECT OF FARTLEK TRAINING ON SELECTED PHYSIOLOGICAL PARAMETERS AMONG COLLEGE MALE ATHLETES

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**Abstract:** The study was proposed to examine the effect of fartlek training on cardiorespiratory endurance, breathe holding time, and pulse rate. To achieve this purpose of the study, thirty male students of SMSS Government Boys Higher Secondary School, Shengottai, were randomly selected, in the age group of fourteen to sixteen years. The selected subjects were divided into two groups. Group I underwent fartlek training programme for twelve weeks and they designated as experimental group. Group II is the control group, which does not undergo any type of systematic training programme during the period of study. The study was restricted to the appraisal of cardiorespiratory endurance, breathe holding time, and resting pulse rate prior to and after experimentation. The pre and post test data of both the groups thus collected were statistically examined by applying analysis of covariance. The outcome of the study demonstrates that statistically significant improvement on cardiorespiratory endurance, while breathe holding time and resting pulse rate were not evolved. It implies that undergoing fartlek training programme confined to this study is worthy enough to enhance cardiorespiratory endurance, but not on breathe holding time and resting pulse rate.

**Keywords:** *Fartlek training, endurance, breathe holding, pulse rate.*

### Introduction

Physical fitness is nowadays considered as one of the most important health markers in childhood [1]. Accordingly, in the past decades numerous countries have been promoting physical fitness improvement among young people in diverse ways. In many circumstances, schools have been considered the best setting in which children with low fitness levels can be identified and a healthy lifestyle can be promoted [1]. Schools are mainly attempting to improve the students physical fitness through physical activity programs that are intended to improve the health-related physical fitness components namely strength and cardiovascular endurance. It is known that planning long-term fitness



programs is the best way to improve these components [2]. However, these long term fitness programmes cannot last during school physical education classes, as many curricular contents must be developed during academic year. Consequently, short-term programs in school setting needs to find that could be effective for the increment of fitness. One of the methodologies that meet these criteria could be the fartlek training. Fartlek, developed in the 1930's, comes from the Swedish for 'Speed Play' and combines continuous and interval training. Fartlek allows the athlete to run whatever distance and speed they wish, varying the intensity, and occasionally running at high intensity levels. This type of training stresses both the aerobic and anaerobic energy pathways. The fartlek training effectively reduces the time devoted to training while allowing each person requires a different type and level of physical condition and as a result different type of fitness training or conditioning is required for different people. Moreover, it permits a greater locomotor engagement time, which is an essential requirement for healthy life. Besides, it has multilevel effects on fitness, especially in beginners.

Paleolithic pattern of subsistence pursuit and celebration, demanding a high level of fitness and consisting of various forms of physical activity, defined human life. Physical fitness is a matter of fundamental importance to the well being of every individual. It is the development of a body to a state or condition, which permits the performance of given amount of physical effort of the muscular, respiratory and circulatory system, and is coordinated with the activity of central nervous system. Thereby, it is worthwhile to have an understanding of the facts with regard to the nature of influence that fartlek training possesses on selected physiological parameters. Hence, the primary focus of this study is to examine the effect of fartlek training on cardiorespiratory endurance, breathe holding time, and pulse rate.

### **Methodology**

For the purpose of the study, thirty male students of SMSS Government Boys Higher Secondary School, Shengottai, were randomly selected, in the age group of fourteen to sixteen years. The selected subjects were divided into two groups. Group I underwent fartlek training programme for twelve weeks and they designated as experimental group. Group II is the control group, which does not undergo any type of systematic training programme during the period of study. The study was restricted to the appraisal of cardiorespiratory endurance, breathe holding time, and resting pulse rate prior to and immediately after the twelve weeks of fartlek training programme on the subjects considered in this study. The variables considered in this study were assessed using Cooper's 12 minute run/walk test, quill, and digital sphygmomanometer by adopting standardized procedures.

The pretest-posttest non-equivalent groups quasi-experimental research design was considered involving purposive sampling. The data thus collected were statistically examined by applying analysis of covariance to find out the significant improvement if any. In all the cases level of confidence was fixed at 0.05 for significance.



The subjects underwent fartlek training programme for three days a week for twelve weeks. The subjects were asked to perform all the prescribed number of repetition and sets as prescribed in the schedule. The details of work period, repetitions, recovery between repetitions, sets and recovery between sets were been presented in Table 1. The training load was increased once in two weeks and the number of repetition, work interval and rest interval for each set of weeks has been allotted as follows.

**Table 1: Training Schedule**

Week	Warm up	Work Period	No. of Repetitions	Active Recovery Period between Repetitions	No. of Sets	Recovery between Sets	Warm down
I & II	10 min	25	7	120 sec decreases with 20 sec	3	2 min	10 min
III & IV	10 min	25	7	90 sec decreases with 15 sec	3	2 min	10 min
V & VI	10 min	30	7	120 sec decreases with 20 sec	3	2½ min	10 min
VII & VIII	10 min	30	7	90 sec decreases with 15 sec	3	2½ min	10 min
IX & X	10 min	35	7	120 sec decreases with 20 sec	3	3 min	10 min
XI & XII	10 min	35	7	90 sec decreases with 15 sec	3	3 min	10 min

## Results

The data on cardiorespiratory endurance, breathe holding time, and resting pulse rate of both experimental and control groups were graphically illustrated in Figure 1 to 3.

Figure 1: Graphical representation of data on cardiorespiratory endurance

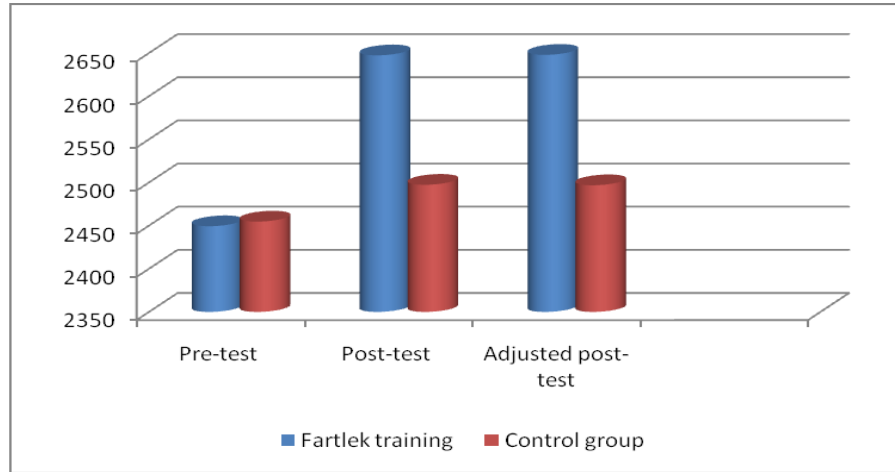


Figure 2: Graphical representation of data on breathe hold time

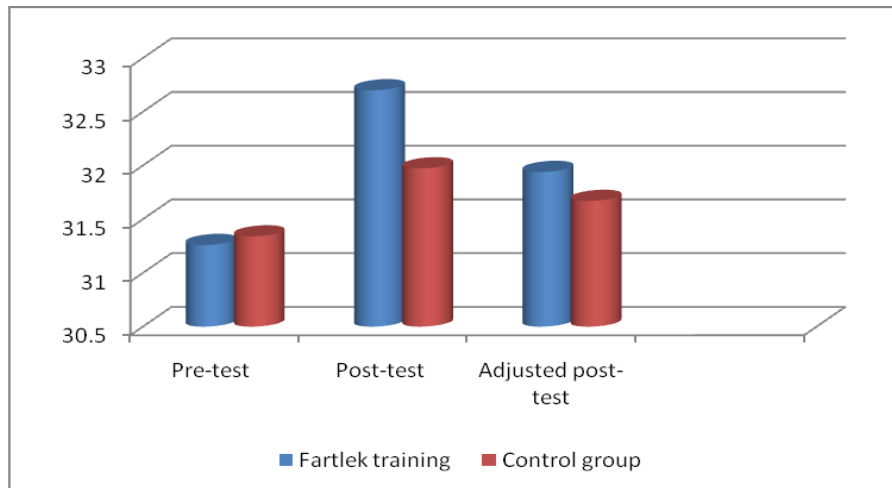
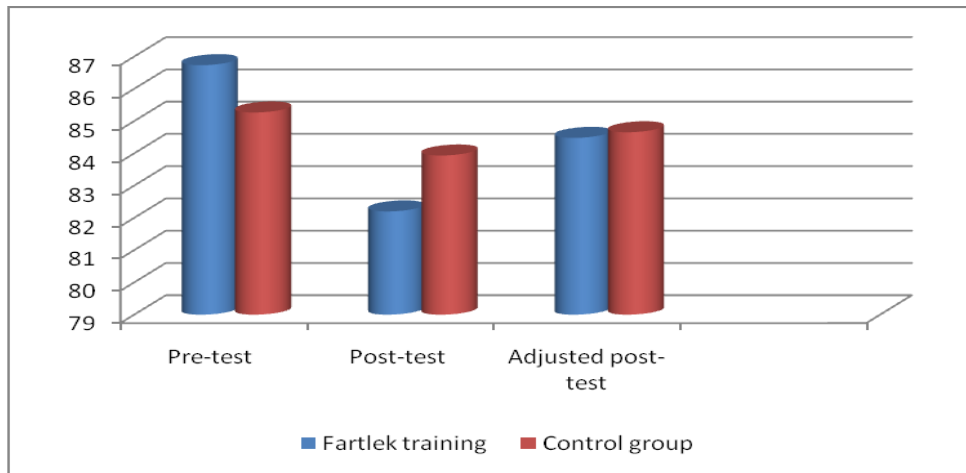


Figure 3: Graphical representation of data on resting pulse rate



The analysis of covariance on cardiorespiratory endurance breathe hold time and resting pulse rate of fartlek training group and control group were statistically examined and presented in Table 2.

**Table 2: Analysis of Covariance on Cardiorespiratory Endurance, Breathe Hold Time and Resting Pulse Rate of Fartlek Training and Control Groups**

Adjusted Post-Test Mean	Source of variance	Sum of Squares	Degrees of freedom	Mean squares	Obtained 'F' ratio
Cardiorespiratory Endurance	Between	171153	1	171153	31.460
	Within	146890	27	5440	
Breathe Hold Time	Between	4.652	1	4.652	38.510
	Within	3.261	27	0.121	
Resting Pulse Rate	Between	54.126	1	54.126	42.859
	Within	34.098	27	1.263	

The table value for significance at 0.05 level of confidence with degrees of freedom 1 and 27 is 4.21 and degree of freedom 1 and 28 is 4.20.



The adjusted post-test means on cardiorespiratory endurance, breathe holding time, and resting pulse rate of fartlek training group are 2647.89, 31.94 and 84.48 respectively. Whereas, the adjusted post-test means on cardiorespiratory endurance, breathe holding time, and resting pulse rate of control group are 2496.78, 31.67 and 84.65 respectively. The obtained 'F' ratio value of 31.460, 38.51, and 42.859 of adjusted post-test data on cardiorespiratory endurance, breathe holding time, and resting pulse rate are greater than the table value of 4.21 required for significance at 0.05 level of confidence with degrees of freedom 1 and 27.

The results of the study showed that there was significant difference on cardiorespiratory endurance, breathe holding time, and resting pulse rate among the adjusted post-test means of fartlek training group and control group. This shows that fartlek training had significant impact on cardiorespiratory endurance of the subjects. Previous studies of some [3-6] confirmed a significant improvement on cardiorespiratory fitness. The findings of Bagavad Geetha *et al.* (2014) [7] supports the existence of difference in breathe hold time between athletes and non-athletes, and the effects on heart rate are more pronounced after higher intensity training [8].

### **Conclusions**

The outcome of the study demonstrates that statistically significant improvement on cardiorespiratory endurance, breathe holding time, and resting pulse rate were noted. It implies that undergoing twelve weeks of fartlek training programme is worthy enough to bring about positive changes on selected physiological parameters.



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