EFFECTIVENESS OF FARTLEK TRAINING ON MAXIMUM OXYGEN CONSUMPTION AND RESTING PULSE RATE

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ABSTRACT
The rationale of this study was to appraise the outcome of the twelve weeks of supervised fartlek training programme on selected physiological parameters. For this purpose twelve male athletes from Dr. S. Ramadoss Arts and Science College, Virudhachalam, in the age group of 20 to 22 years took part in the study. The selected subjects were subjected to twelve weeks of fartlek training programme. The selected criterion variables namely: maximum oxygen consumption and resting pulse rate were assessed using standard tests and procedures, prior to and subsequent to the training regimen. The pretest and posttest data collected on criterion variables were statistically examined by applying ‘t’ test to find out the significant difference if any. The analysis of data revealed that twelve weeks of fartlek training programme significantly improved maximum oxygen consumption and resting pulse rate. These findings propose that the experimental variable has the significant influence in improving the selected criterion variables.

Keywords: Fartlek training, maximum oxygen consumption, pulse rate

Introduction
Sportsmen and women must participate in year round conditioning programs to have the utmost efficiency, consistent improvement and balanced abilities. For that they must put their bodies under a certain amount of stress to increase physical capabilities. Physical exercise is extremely important for maintaining physical fitness including healthy weight; building and maintaining healthy bones, muscles, and joints; promoting physiological well-being; and strengthening the immune system. To improve or maintain a desired level of physiological fitness, there is a need to constantly administer an adequate training intensity while exercising.

There are several marked adaptations associated with the regular performance of endurance training. Aerobic endurance training produces increases in VO$_2$ max (Rosiello, Mahler & Ward, 1987; Holloszy & Coyle, 1984; Hickson et al. 1981). Phenomenal progress registered in performance in different sports disciplines is attributable to several factors, the most important of which include better training methods. Fartlek training is one of the effective means to improve cardiovascular fitness.

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. To know the
efficacy of fartlek training and its significant contribution to one’s level of fitness, it was decided to take up this study. It hypothesized that fartlek training may have significant impact on selected physiological parameters.

**Methodology**

**Subjects and Variables**

For the purpose of this study, twelve male athletes from Dr. S. Ramadoss Arts and Science College, Virudhachalam, in the age group of 20 – 22 years were selected, with their consent. All of them were healthy, nonsmoking and with a negative medical history. The selected criterion variables namely: maximum oxygen consumption and resting pulse rate were assessed using standard tests and procedures, before and after the training regimen. The instruments used for testing the dependent variables were standard and reliable as they were purchased from the reputed companies.

**Training Protocol**

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, number of repetitions and sets, recovery between repetitions and sets were been presented in Table I. The training load was increased once in two weeks.

**Table I**

| 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 |

**Statistical Procedure**

The data collected on maximum oxygen consumption and resting pulse rate among college male athletes prior to and after experimentation was statistically examined for significant differences, if any, by applying the dependant ‘t’ test with the help of SPSS package. In determining the
significance of ‘t’ ratio the confidence interval was fixed at 0.05, which is considered appropriate enough for the study.

Results

| Test | Mean | SD    | DM  | Std Error of DM | ‘t’ ratio |
|------|------|-------|-----|-----------------|-----------|
| Pre  | 3.1714 | 0.1923 | 0.4353 | 0.0560 | 7.770 |
| Post | 3.6067 | 0.0902 |       |        |         |

The obtained ‘t’ ratio of 7.770 on maximum oxygen consumption was greater than the required table value 2.201 for significance with df of 11 at 0.05 level of confidence. The results of the study showed that there is a significant difference existing between pretest and posttest data collected on maximum oxygen consumption. From this result, it is being inferred that the fartlek training has a statistically significant influence on maximum oxygen consumption.

Table 3 Computation of Pretest and Posttest Data on Resting Pulse Rate

| Test | Mean | SD    | DM  | Std Error of DM | ‘t’ ratio |
|------|------|-------|-----|-----------------|-----------|
| Pre  | 80.00 | 5.01  | 5.25 | 0.88            | 5.965     |
| Post | 74.75 | 5.46  |       |        |           |

The obtained ‘t’ ratio of 5.965 on resting pulse rate was greater than the required table value 2.201 for significance with df of 11 at 0.05 level of confidence. The results of the study showed that there was a significant difference existing between pretest and posttest data collected on resting pulse rate. It is being inferred that the fartlek training has a statistically significant influence on resting pulse rate.

Discussions

It appears that regular participation in physical exercises initiate a disruption in systemic homoeostasis, which is followed by an adaptive phase results in the betterment of the performance of cardiorespiratory endurance, and a reduction in resting pulse rate, which might be due to the progressive loading of intensity.

The literature thoroughly supports the evidence that exercise intensity is directly related to the change in VO$_{2\text{max}}$ (Gossard et al., 1986). Higher doses of aerobic exercise produce greater increases in VO$_{2\text{max}}$, although these improvements are not proportionately greater. Regular
participation in aerobic exercise often results in a decrease in resting heart rate (Katona et al. 1982; Smith et al. 1989).

Conclusions
The result of this study demonstrates that fartlek training has significant influence in improving the maximum oxygen consumption and resting pulse rate.

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