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Effect of rhythmic exercise on aerobic performance variables of adolescence girls

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Abstract

This study was designed to investigate the effect of rhythmic exercise on aerobic performance of adolescence girls. To achieve the purpose of this study 40 high-school girls were randomly selected from I.H.M Girls Higher Secondary School, Avadi, Chennai. The subjects were randomly assigned to two equal groups (n=20). Group- I underwent rhythmic exercise (REG) and Group - II was acted as control group (CG). The training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of eight weeks. The control group was not given any sort of training except their routine work. The Aerobic performance variables were Vo₂max (Queens College Step Test) and Aerobic Capacity (5Mts Shuttle Test) The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result of Vo₂max and Aerobic Capacity improved significantly due to the Effect of Rhythmic Exercise with the limitations of (diet, climate, life style status and previous training the result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Rhythmic exercise significantly improved Vo₂ max and Aerobic capacity of adolescence girls.

Keywords: Rhythmic exercise, Vo₂ max and aerobic capacity

Introduction

Rhythmic exercises and rhythmic movements are innate in nature. Heart rate and respiratory frequencies are the reasons which makes these factors inseparable from human life. Physical activities are one of the important aspect of rhythmic movement which improve health and fitness. This kind of movements are multi- dimensional, like Bodily movements, Aesthetics and emotional.

'Calisthenics' is also a form of exercise consisting of a variety of simple often rhythmical movements, generally without using equipment or any kind of apparatus. They are intended to improve body strength and flexibility with movements such as bending, jumping swinging, twisting. Calisthenics when performed vigorously with variations can benefit both muscular and cardio-vascular fitness. In addition, it improves, psychomotor skills like balance and co-ordination.

The hypothesis argued in this paper is that Adolescence girls can significantly improve vo₂ max and aerobic capacity by combining rhythmic exercise program over a consecutive 8 week's period. Therefore, the objective of this study was to investigate the effects in the aerobic performance variables produced during 8 weeks of Rhythmic exercise among 20 Adolescence girls.

Methods

Experimental Approach to the Problem

In order to address the hypothesis presented herein, I selected, 40 Adolescence girls from IHM girls higher secondary school, Avadi Chennai.

The subjects were randomly assigned in to two equal groups, namely, Rhythmic exercise group (n=20) and control group (n=20). The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of eight weeks. The control group was not given any sort of training except their routine.

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Design

The evaluated Aerobic Performance variables were Vo2 Max and Aerobic Capacity was assessed by Queens College step test and the unit of measurement was in secs, Aerobic Capacity was assessed by 5mts shuttle run the unit of measurement was in meters. The variables were measured at baseline and after 8 weeks of Rhythmic exercise were examined.

Training Programme

The training programme lasted for 45 minutes for session in a day, 3 days in a week for a period of 8 week’s duration. These 45 minutes included 10 minutes warm up, Rhythmic Exercises for 25 minutes and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased

from 65% to 80% of work load. The volume of Rhythmic Exercise is prescribed based on the number of sets and repetitions. The Rhythmic exercise training is the length of the time each action is held for and the number action in total 3 days per weeks (Monday, Wednesday and Friday). The selected subjects underwent regular physical exercise on other 3 days (Tuesday, Thursday, and Saturday).

Statistical Analysis

The collected data on above said variables due to the effect of Rhythmic Exercise was statistically analyzed with ‘t’ test to find out the significant Improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P < 0.05)

Table I: Computation of T Ratio on selected aerobic performance variables on experimental group

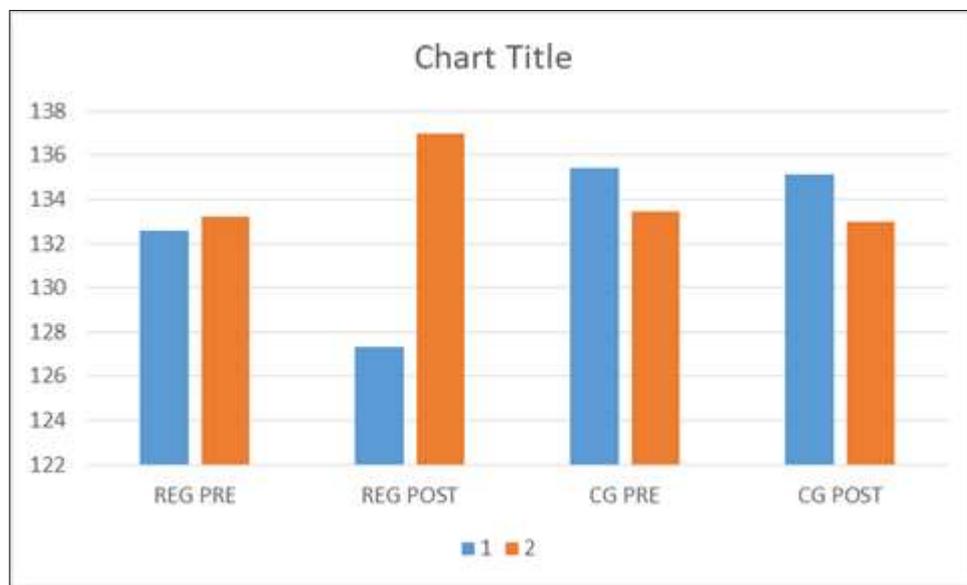
| Experimental Group | | | | | | |
|--------------------|-----------|--------|----|----------------|-----------------|---------|
| | | Mean | N | Std. Deviation | Std. Error Mean | T ratio |
| VO2 Max | Pre test | 132.60 | 20 | 15.31 | 0.56 | 9.34 |
| | Post test | 127.30 | 20 | 15.42 | | |
| Aerobic Capacity | Pre test | 133.20 | 20 | 10.82 | 0.53 | 7.08 |
| | Post test | 137.00 | 20 | 10.80 | | |

*significant level 0.05 level

Table II: Computation of T Ratio on selected aerobic performance variables on control group

| Control Group | | | | | | |
|------------------|-----------|--------|----|----------------|-----------------|---------|
| | | Mean | N | Std. Deviation | Std. Error Mean | T ratio |
| VO2 Max | Pre test | 135.40 | 20 | 14.98 | 0.63 | 0.47 |
| | Post test | 135.10 | 20 | 14.41 | | |
| Aerobic Capacity | Pre test | 133.45 | 20 | 10.40 | 0.27 | 0.89 |
| | Post test | 133.20 | 20 | 10.82 | | |

*significant level 0.05 level



| S. No | Variables | Reg Pre | Reg Post | CG Pre | CG Post |
|-------|------------------|---------|----------|--------|---------|
| 1 | VO2 Max | 132.6 | 127.3 | 135.4 | 135.1 |
| 2 | Aerobic Capacity | 133.2 | 137 | 133.45 | 133 |

Fig I: Bar diagram showing the mean value on selected aerobic performance variables of adolescence girls on experimental and control group

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on selected aerobic performance variables, namely vo2 max, aerobic capacity of experimental group. The obtained ‘t’ ratio on Vo2 max and aerobic capacity were 9.34, and 7.08 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance.

Since the obtained t values were greater than the table value it was found statistically significant.

Table II reveals the computation of mean, standard deviation and ‘t’ ratio on selected aerobic performance variables, namely vo2 max, aerobic capacity of experimental group. The obtained ‘t’ ratio on Vo2 max and aerobic capacity were 0.47,

and 0.89 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were lesser than the table value it was found statistically not significant.

Discussion and Findings

The present study experimented the effects of Rhythmic exercise improved the selected Aerobic performance variables of Adolescence girls. The results of this study indicated that Rhythmic exercise is more efficient to bring out desirable changes over the Vo₂ max and Aerobic capacity of Adolescence girls.

The finding of the present study had similarity with the findings of the investigators referred in this study.

McGawley *et al* (2012) conducted a test to assess the aerobic and anaerobic parameters during maximal exercise in young girls.

Ramirez (2012) investigated the effects of 8-week aerobic training program during physical education classes on aerobic fitness in adolescents. Provided, an intense session of extra session was given for a greater improvement in girls.

Chae (2010) ^[7] suggested that effects of structured exercise program on insulin resistance, inflammatory markers and physical fitness in obese Korean children.

George *et al*, (2005) examined the correlations between Aerobic capacity, pulmonary and cognitive functioning in the older women. Over-all the subjects expressed well-being on every occasion after the exercise program.

Conclusion

It was concluded that 8 weeks of Rhythmic exercises significantly improved the VO₂max and Aerobic Capacity of Adolescence girls. From the findings it is postulated that the Rhythmic exercise is suitable mode to bring out desirable changes on aerobic performance variables among adolescence girls.

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