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Training outcomes of yogic practices and aerobic dance on selected health related physical fitness variables among Tamil Nadu female artistic gymnasts

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Abstract
The purpose of the study was to find out the effect of selected yogic practices and aerobic dance on health-related physical fitness variables among women artistic gymnasts. Forty-five students were selected from various schools in Tiruchirapalli, Tamilnadu. The age of the subjects ranged from 14 to 17 years. The selected subjects were divided in to two experimental groups by random. Group-I underwent yogic practices in selected asanas and pranayama for a period of six weeks; Group II underwent aerobic dance practice and group III acted as a control group for three alternate days in a week for a period of six weeks. The dependent variables selected for this study were cardio vascular endurance, flexibility, muscular strength/endurance and body composition. The dependent variables namely cardio vascular endurance measured by cooper's 1- mile run/walk test, flexibility measured by sit and reach test, muscular strength/endurance measured by bent knee sit ups and body composition measured by skin fold calliper. The data were collected from each subject before and after the training period and statistically analyzed by using dependent 't' test and analysis of co variance (ANCOVA). It was found that aerobic dance group was found to be better in improving cardio vascular and muscular strength/endurance when compared to the yogic practices group. Yogic practices group was found to be better in improving flexibility when compared to the aerobic dance group. Both yogic practices and aerobic dance groups were developed the body composition equally.

Keywords: Yogic practices, aerobic dance, health related physical fitness, flexibility and body composition

Introduction

Yoga has hoary past. The importance for the spiritual attainment has been recognized throughout the ages by all the systems of Indian philosophy [1]. There is no doubt that the essence of yoga has been considered in the spiritual upliftment of man [2]. One may question as to how then yoga is related to the physical education and whether yoga will not be pulled down from its highest pedestal in doing this. It is necessary, therefore, to clear the concepts of yoga and physical education first [3].

The word 'Aerobics' is a common terminology primarily used to refer specifically to synchronized systematic movements of one's body [4]. During the last decade women wanted to get the benefit of the aerobic workout and hence associate with jogging and searched for other way of exercises besides disliking running by themselves [5]. This spawned in past aerobics enthusiasm. Aerobics combined with an aerobic workout allowing them to enjoy and thus keep them exercising long enough to improve their aerobic capacity [6].

Fitness improves general health and it is essential for full and vigorous living [7]. The physical fitness over a long span examination of the same reflects the status of health [8]. Physical examination assesses the growth pattern and functional efficiency of the body in terms of strength, cardiovascular endurance, flexibility, speed agility, balance and neuro muscular-coordination [9].

Literally translated in Greek Gymnastics means "to exercise naked" however, most people recognize gymnastics is a physically demanding sport filled with intricate tricks and impressive stunts performed with style and grace by both genders [10]. Through men and women have the chance to showcase several skills during performances, women's gymnastics composed of several different events [11]. The sport Gymnastics is a complex combination that involves physical strength, flexibility, power, agility, coordination, grace, balance and control [12].

Methodology

To achieve the purpose of the study forty-five students were selected from various Schools in and around Tiruchirappalli, Tamil Nadu. The age of the subjects ranged from 14 to 17 years. The selected subjects were divided into two experimental groups and one control group by random. During the training period experimental groups underwent their respective training program in addition to their regular program of the course study. Group I underwent yogic practices in selected asanas and pranayama; Group II underwent aerobic dance for three alternative days in a week for a period of six weeks. The duration of training session was between 45 to 60 minutes approximately, including warming up and cooling down. Group III acted as a control group they do not have any specific training. The dependent variables selected for this study were cardio vascular endurance, flexibility, muscular endurance/strength and body composition. The dependent variables namely cardio vascular endurance measured by Cooper's 1- mile run/walk test, flexibility measured by sit and reach test, muscular strength/endurance measured by bent knee sit ups and body composition measured by skin fold calliper.

All subjects involved in this study were carefully monitored throughout the training program to be away from injuries.

They were questioned about their health status throughout the training program. None of them reported any injuries. However, muscle soreness appeared in the earlier period of the training program and was reduced in due course. The training program scheduled with the duration and load was based on the
results of the pilot study. The training program schedule was presented in table – 1.

Table 1: Training Schedule for Yogic Practices and Aerobic Dance

Days	Duration	Yogic Practices	Aerobic Dance
Monday Wednesday Friday	1st & 2nd Weeks	10mts-Stretching 20mts- Asanas 10mts- Ujjayi Pranayama 10mts-Relaxation	10mts-Warm- up 35mts-Low Impact Aerobic Dance 5mts - Relaxation
Monday Wednesday Friday	3rd & 4th Weeks	10mts-Stretching 25mts- Asanas 15mts- Ujjayi Pranayama 10mts-Relaxation	10mts-Warm- up 40mts- High Impact Aerobic Dance 5mts - Relaxation
Monday Wednesday Friday	5th & 6th Weeks	10mts-Stretching 25mts- Asanas 15mts- Ujjayi Pranayama 10mts-Relaxation	10mts-Warm- up 45mts- Step Aerobic Dance 5mts - Relaxation

Results and Discussion

The influence of independent variables on each criterion variables were analyzed and presented below. The mean and dependent 't' test values on selected health related Physical fitness of yogic practices, aerobic dance and control groups have been analyzed in table – 2.

Table 2: Summary of Mean and Dependent 't' Test for the Pre-Test and Post Test on Selected Variables of Experimental and Control Groups

Variables	Mean	Yogic Practices Group	Aerobic Training Group	Control Group
Cardio Vascular Endurance	Pre-test Mean	450.50 ± 9.70	449.60 ± 6.91	442.80 ± 6.82
	Post test mean	427.33 ± 7.53	403.83 ± 7.03	446.20 ± 7.31
	't' test	10.23*	2.44*	1.03
Muscular Endurance	Pre-test Mean	24.16 ± 1.65	24.08 ± 2.66	25.00 ± 3.24
	Post test mean	26.64 ± 2.13	28.12 ± 2.61	24.96 ± 3.44
	't' test	6.957*	19.81*	0.125
Flexibility	Pre-test Mean	25.76 ± 1.92	25.20 ± 2.75	25.72 ± 3.19
	Post test mean	29.72 ± 2.64	27.40 ± 3.11	25.76 ± 3.14
	't' test	10.23*	11.00*	0.137
Body composition	Pre-test Mean	26.28 ± 0.51	26.31 ± 0.30	26.59 ± 1.14
	Post test mean	24.70 ± 0.16	24.32 ± 0.30	26.52 ± 1.14
	't' test	13.50*	14.77*	1.23

*Significant at.05 level. The table value required for 0.5 level of significance with df 24 is 2.06

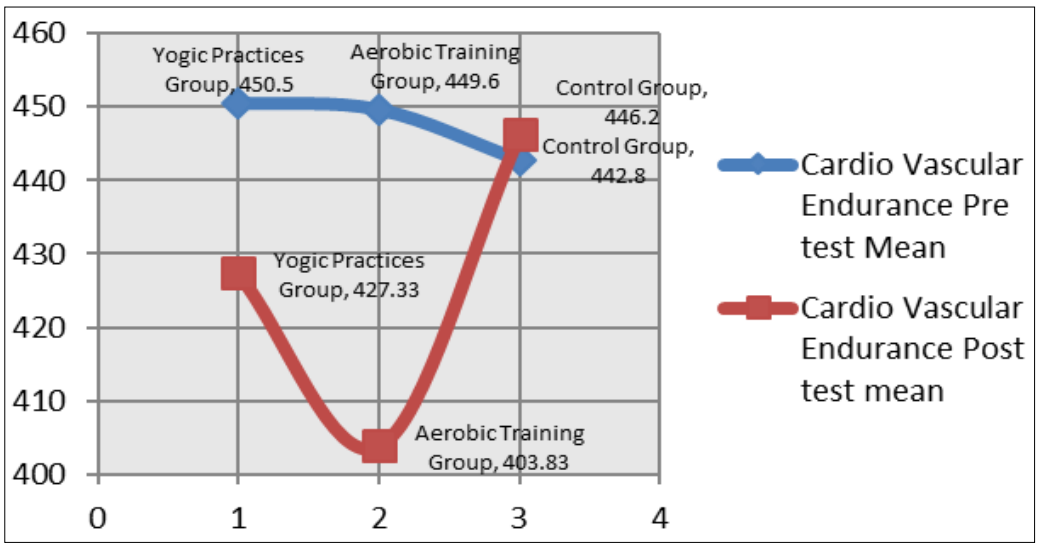

Fig 1: Graphical Representation of the Mean Value of Pre and Post-Test Measures of Cardio Vascular Endurance Across Different Training Groups

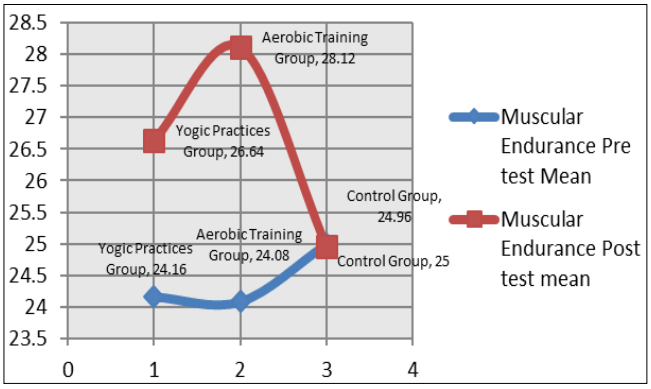

Fig 2: Graphical Representation of the Mean Value of Pre and Post-Test Measures of Muscular Endurance Across Different Training Groups

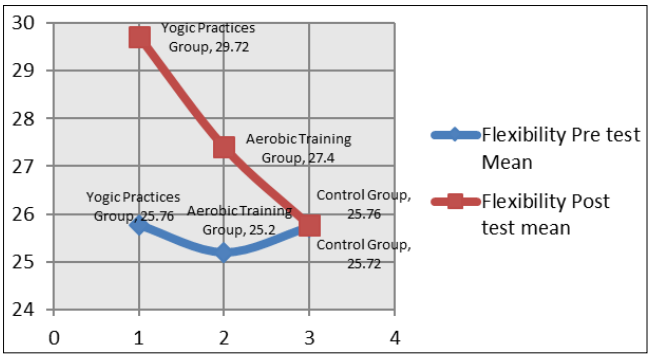

Fig 3: Graphical Representation of the Mean Value of Pre and Post-Test Measures of Flexibility Across Different Training Groups

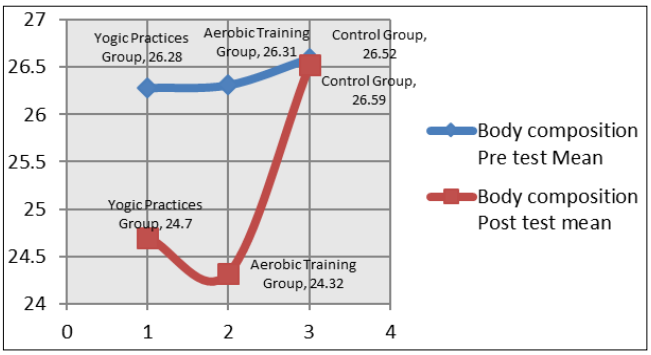

Fig 4: Graphical Representation of the Mean Value of Pre and Post-Test Measures of Body Composition Across Different Training Groups

The obtained 't' ratio value of experimental groups is higher than the table value and it is understood that both yogic practice and aerobic dance had significantly improved the performance of selected criterion variables. Since the obtained 't' ratio value of experimental groups are greater than the value. Graphical Representation of the Mean Values of Pre and Post-test were presented in figure 1-4.

Conclusions

From the analysis of the above data, the following conclusions were drawn.

- There was significant difference among yogic practices and aerobic dance group in improving the selected dependent variables such as cardio vascular endurance, muscular strength/endurance, flexibility and body composition.
- Aerobic dance group was found to be better in improving cardiovascular endurance and muscular endurance/strength when compared to the yogic practices group.
- Yogic practices group was found to be better in improving flexibility when compared to the aerobic dance group.
- Both yogic practices and aerobic dance groups were developed the body composition equally.
- Control group did not show any improve on dependent variables.

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