International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Effects of Twelve Week Aerobic Dance and Pranayama on Selected Motor Fitness and Psychological Variables of Teacher Education Trainees

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Abstract: ***The purpose of the study was to find out the effects of twelve week aerobic dance and pranayama on selected motor fitness and psychological variables of teacher education trainees. To fulfill the purpose of the study, sixty teacher education trainees from Thiagarajar College of Preceptors, Teppakulam, Madurai, Tamilnadu, India were selected as subjects and their age ranged between 21 and 23 years. They were divided into three equal groups of each twenty subjects. It was conducted by aerobic dance training and pranayama each namely aerobic dance training group, pranayama training group and control group. The group I aerobic dance group, group II pranayama training group underwent training for three days per week for twelve weeks and group III acted as control, who did not underwent any special training programme apart from their regular day today teacher education curriculum. The following motor fitness and psychological variables namely flexibility and anxiety were selected as criterion variables. The flexibility was assessed by scores in centimeters and anxiety was assessed by scores in numbers. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selection. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases 0.05 level of confidence was fixed to test the significance, which was considered as appropriate. The results of the study revealed that there was a significant difference between aerobic dance training group, pranayama training group and control group on selected criterion variables such as flexibility and anxiety and there was an improvement as per selected criterion variables namely flexibility and anxiety with respect to aerobic dance training and pranayama training.***

Keywords: Aerobic dance training, pranayama and psychological variables

1. Introduction

Physical activity represents a significant factor for the preservation of the health and abilities of the human body. The importance of regular exercise for the maintenance and improvement of health has been confirmed in many studies (Blair et al., 2004; Hu et al., 2001). The modern way of life and work is such that technological development has forced man to focus more on intellectual and less on physical activities, which leads to health impairment and impairment to the normal functioning of organs and systems of organs (Weineck, 2004). The health of people with a sedentary lifestyle is usually affected by a decrease in the function of the loco - motor, cardiovascular and respiratory systems. The modern way of life, which limits physical movements, leads to, especially in the case of people living in the city, an increase in cardiovascular diseases, diseases of the intestines, an increase in body weight, an increase in the BMI, an increase in body fat (Hass et al., 2001) and the high rate of obesity is one of the most serious health risk factors (Saris et al., 2003).

Aerobic exercise to music or dance aerobics was especially popular during the last few years of the 20th century, primarily among women. A characteristic of this kind of exercise is that all of the people who are participating in the exercise to music program realize certain movements in the same rhythm and tempo, activating different muscle groups at the same time. Aerobic dance exercises have typically been developed as an aerobic exercise to reduce body compositions as well as improve physical fitness and performance (Kimura & Hozumi, 2012).

Yoga training programs reduce the risk of pulmonary problems for women. An inactive life is one of the most important causes of pulmonary problems that is excessive increase in body weight. Pranayama helps in bringing conscious awareness to breathing and the reshaping of breathing habits and patterns. Thus, a yoga practitioner, through pranayama, can at some stage control other physiological functions and finally control manifestations of prana even outside the body (Bijlani, R. L., 2004). The purpose of the study was to find out the effects of twelve week aerobic dance and pranayama on selected motor fitness and psychological variables of teacher education trainees.

Bijlani, R. L. Understanding medical physiology.3rd Ed. New Delhi: Jaypee Brothersp, (2004), p.871 - 910.
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2. Methodology

The purpose of the study was to find out the effects of twelve week aerobic dance and pranayama on selected motor fitness and psychological variables of teacher education trainees. To fulfill the purpose of the study, sixty teacher education trainees from Thiagarajar College of Preceptors, Teppakulam, Madurai, Tamilnadu, India were selected as subjects and their age ranged between 21 and 23

years. They were divided into three equal groups of each twenty subjects. Each namely aerobic training group, pranayama training group and control group. The group I aerobic training group, group II pranayama training group underwent training for three days per week for twelve weeks and group III acted as control, who did not underwent any special training programme apart from their regular day today teacher education curriculum. The following motor fitness and psychological variables namely flexibility and anxiety were selected as criterion variables. The flexibility was assessed by scores in centimeters and anxiety was assessed by scores in numbers. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selection. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

Training Programme

During the training period, the subjects were selected at random and were assigned to three groups. Group I aerobic dance training, group II pranayama practice programme, for three days per week for twelve weeks. Every day the workout lasted for 45 to 60 minutes approximately including warming up and warming down periods. And group III who acted as control who were instructed not to participate in any strenuous physical exercises and specific training throughout the training period. However, they performed activities as per their curriculum. The subjects underwent the training program as per the schedules under the supervision of the researcher in the morning time. All the subjects involving in the training programs were questioned about their status throughout the training period. None of them reported injury. However, muscle soreness and fatigues were reported in the early weeks, which subsided later.

Statistical Analysis

The data were collected from three groups at prior to and after completion of the training period on selected criterion variables were statistically examined for significant difference if any, by applying analysis of covariance (ANCOVA). The Scheffe's post hoc test was also applied to know the significant difference between groups. The obtained 'F' ratio was also significant. In all cases 0.05 level of confidence was utilized to test the significance.

3. Results and Discussion

Table I: Analysis of covariance on flexibility of pre and post tests scores of pranayama, aerobics and control groups (Scores in centimeters)

	Pranayama Group	Aerobics Group	Control Group	Source of variance	Sum of squares	Df	Mean squares	'F' Value
Pre Test Mean	10.45	10.50	10.40	Between	0.10	2	0.05	0.06
				Within	46.75	57	0.82	
Post Test Mean	11.15	12.15	10.65	Between	23.33	2	11.67	11.95*
				Within	55.65	57	0.98	
Adjusted Post Test Mean	11.15	12.11	10.69	Between	20.92	2	10.46	23.58*
				Within	24.84	56	0.44	

(The table values required for significance at 0.05 level of confidence for 2 and 57 and 2 and 56 are 3.16 and 3.17 respectively). * *Significant at 0.05 level of confidence.*

Table - I shows that the pre - test means on flexibility of pranayama training group, aerobic dance training group and control group are 10.45, 10.50 and 10.40 respectively. The obtained 'F' ratio value 0.06 is less than the required table value 3.16 for 2 and 57 at 0.05 level of confidence on flexibility.

The post - test means on flexibility of pranayama training group, aerobic dance training group and control group are 11.15, 12.15 and 10.65 respectively. This obtained 'F' ratio value 11.95 is greater than the required table value 3.16 for 2 and 57 at 0.05 level of confidence on flexibility. The adjusted post - test means on flexibility of pranayama training group, aerobic dance training group and control group are 11.15, 12.11 and 10.69 respectively. This obtained 'F' ratio value 23.58 for adjusted post - test is greater than the required table value 3.17 for 1 and 56 at 0.05 level of confidence on flexibility.

The results of the study indicated that there was a significant difference among the adjusted post - test means of pranayama training group, aerobic dance training group and control group on flexibility. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's post hoc test was applied to find out the paired mean differences and it was presented in Table II.

Table II: The Scheffe's Test for the Differences between Paired Means on Flexibility (Scores in centimeters)

Means			Mean Difference	Required C. I
Pranayama	Aerobics	Control		
11.15	12.11	-	0.96*	0.53
11.15	-	10.69	0.46	0.53
-	12.11	10.69	1.42*	0.53

*Significant at 0.05 level of confidence

The table - II shows that the mean difference values between pranayama group and aerobic dance training group, pranayama training group and control group, aerobics training group and control group were 0.96, 0.46 and 1.42 respectively on flexibility. The results of this study showed that there was a significant difference between aerobic training group and pranayama training group and between pranayama training group and control group. The mean difference between aerobics training group and control group on flexibility is not significant differently.

Table III: Analysis of covariance on anxiety of pre and post tests scores of pranayama, aerobics and control groups (Scores in numbers)

	Pranayama Group	Aerobics Group	Control Group	Source of variance	Sum of squares	Df	Mean squares	'F'
Pre Test Mean	20.85	22.30	21.50	Between	21.10	2	10.55	3.10
				Within	193.75	57	3.40	
Post Test Mean	13.50	19.95	21.05	Between	665.43	2	332.72	92.11*
				Within	205.90	57	3.61	
Adjusted Post Test Mean	13.56	19.89	21.05	Between	615.00	2	307.50	84.19*
				Within	204.53	56	3.65	

(The table values required for significance at.05 level of confidence for 2 and 57 and 2 and 56 are 3.16 and 3.17 respectively).
* Significant at 0.05 level of confidence.

Table - III shows that the pre - test means on anxiety of pranayama training group, aerobic dance training group and control group are 20.85, 22.30 and 21.50 respectively. The obtained 'F' ratio value 3.10 is less than the required table value 3.16 for 2 and 57 at 0.05 level of confidence on anxiety.

The post - test means on anxiety of pranayama training group, aerobic dance training group and control group are 13.50, 19.95 and 21.05 respectively. This obtained 'F' ratio value 92.11 is greater than the required table value 3.16 for 2 and 57 at 0.05 level of confidence on anxiety. The adjusted post - test means on anxiety of pranayama training group, aerobic dance training group and control group are 13.56, 19.89 and 21.05 respectively. This obtained 'F' ratio value 84.19 for adjusted post - test is greater than the required table value 3.17 for 1 and 56 at 0.05 level of confidence on anxiety.

The results of the study indicated that there was a significant difference among the adjusted post - test means of pranayama training group, aerobic dance training group and control group on anxiety. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's post hoc test was applied to find out the paired mean differences and it was presented in Table - IV.

Table IV: The Scheffe's test for the differences between paired Means on anxiety (Scores in numbers)

Means			Mean Difference	Required C I
Pranayama	Aerobics	Control		
13.56	19.89	-	6.33*	1.52
13.56	-	21.05	7.50*	1.52
-	19.89	21.05	1.17	1.52

*Significant at 0.05 level of confidence

The table IV shows that the mean difference values between pranayama training group and aerobics dance group, pranayam training group and control group, aerobics training group and control group were 6.33, 7.50 and 1.17 respectively on anxiety. The results of this study showed that there was a significant difference between pranayama training group and aerobics dance training group and between pranayama group and control group; aerobic dance training group and control group on anxiety did not differ significantly.

4. Discussion on Findings

The primary purpose of the study was to find out the effects of twelve week aerobic dance training and pranayama on selected motor fitness and psychological variables of teacher education trainees. Based on the results we observed that twelve week aerobic dance training program and pranayama practice shows a significant improvement on flexibility and anxiety level of teacher education trainees. The finding of the present study had similarity with the findings of the investigators referred in this study. Schiffer, et al., (2009). Effects of aerobic dance and fitness programme on physiological and psychological performance in men and women. Watterson, (1984). The effects of aerobic dance on cardiovascular fitness. Practice of Pranayama, controls the limbic hypothalamus axis. This reduces the anxiety and reduces the high level of stress hormones present in the blood. Iyengar, (1998).

5. Conclusions

1) It was concluded that aerobic dance training group and pranayama groups were significantly improved on flexibility among the teacher education trainees.
2) It was concluded that aerobic dance training group and pranayama practice groups were significantly reduced on anxiety among the teacher education trainees.
3) It was concluded the aerobic dance training group was better than pranayama group on improving flexibility among teacher education trainees.
4) It was concluded that pranayama practice was better than aerobic dance training group in reducing anxiety among the teacher education trainees.

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