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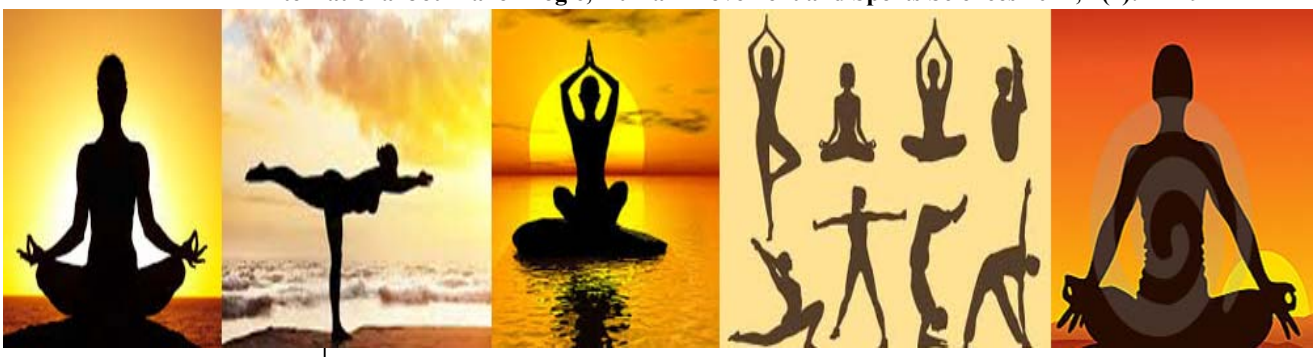

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Effect of aerobic dance and pranayama on selected physiological variables

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Abstract
The purpose of this investigation was to study the effect of aerobic dance and pranayama on selected physiological variables. The sources of the data were the students of Mahatma Jyotiba fule Mahavidyalaya Amravati. For the present study 60 male subjects were selected randomly from Mahatma Jyotiba fule Mahavidyalaya Amravati. The age group of the subjects ranged between 18 to 20 years. For the present study researcher uses the pulse rate stop watch to measure in beats/minutes and vital capacity to measure Micro spirometer, Disposable cardboard moth pieces, sprit and cotton used and is measured in liters. The selected subjects were randomly divided into three groups, aerobic dance experimental groups (A) pranayama experimental groups (B) and control group (C). The experimental group under goes 6 weeks training programme, for 6 days in a week, for 45minuts per day, under the supervision of the guide. The control group does not undergo any specific training during the period of six week programme. The data were analyzed by applying t-test to determine the significant difference between the pre-test and post-test means of all the three groups viz. Experimental Group-A training in aerobic dance, Experimental Group-B training in pranayama and Control Group-C separately. For testing hypothesis the level of significance was set at 0.05, which was considered to be adequate for the purpose of the study. Results: There was significant difference in pulse rate, forced vital capacity (FVC), forced rxpiratory volume in first second (FEV1) and pulse rate and peak expiratory flow rate (PEFR) between pre and post test in aerobic dance group-(A) and pranayama experimental group-(B) are significant. But control group-(C) in all four variables are not significant.

Keywords: Aerobic Dance, Pranayama, Physiological Variables.

Introduction
Aerobic is a new work, but not a new Idea (Jackson, 1985). The old concept of calisthenics or physical jerk was essentially the same. Both involve various exercises which are not too energetic, but when repeated many times they result in an excellent form of aerobic training which improves flexibility as well as aerobic fitness. In other words aerobics is a progressive physical conditioning programme that stimulates cardio-respiratory activity for a time period sufficiently long to produce beneficial changes in the body. Walking, jogging, running, swimming, cycling, rope-skipping, dancing, ball games and racket games, etc. are aerobic exercises. They are classified as aerobic activities because they work the larger muscles in the body, particularly those in the lower limbs. They can also be done fairly continuously or repetitively and at a reasonably high intensity using up large amount of oxygen and energy. Such activities are particularly useful for improving and maintaining cardio respiratory endurance fitness or aerobic fitness. They are generally considered to be the most important activities for everyone irrespective of age, sex, level of health, fitness and socio-economic status. This is the most effective exercise for reduction of obesity. Aerobic exercises are usually the most highly recommended for all the exercises, and are suitable for all including patients with cardio-vascular problems.
Aerobic exercise is essential to healthy cardio vascular fitness. Briefly, aerobic exercises are the activity that can be sustained for an extended period of time without building an oxygen deficiency in the muscle. It is the type of exercises that overloads the heart and lungs and causes them to work harder than that do when person is at rest. Any exercise or activity that elevates the heart rate to one hundred and twenty beats per minute for athlete twelve minutes is said to be aerobic (Creggaing, 1984).

According to Mitchell and Dalc, (1980) aerobic refers to a variety of activities like walking, jogging and running for a measured time. These produce beneficial changes in the body, especially the action of the lungs, heart and blood circulation.

Aerobic exercise, also known as cardio-vascular exercise, is any activity that is sustained for a long period of time, that is rhythmic and that affects large muscle groups. Aerobic exercise impacts the cardio-vascular and circulatory system and makes your heart stronger and more efficient. Aerobics, step classes, water aerobics and swimming are examples of aerobic exercises involving the use of some type of equipment. Specific kinds of equipment that can be used specifically for aerobic exercises include treadmills, elliptical machines, bicycles and jump ropes. Also, active sports like football, soccer, basketball, hockey and such are great for aerobic exercises. Aerobic exercises can also be done without the use of equipment. Many people who do not have gym memberships or who do not want to purchase any kind of equipment engage in this option for aerobic exercise. Once again, aerobic exercises include activities that last for a long period of time with a high heart rate.

Jogging and running long distances are the most common forms of aerobic exercise that can be done without any kind of equipment. Another example of aerobic exercise, which is an alternative to jogging and running that many people actually find enjoyable the fun, and dancing. Specific kinds of dance include jazz, tap, hip hop and others.

Pranayama

Pranayam is a highly sophisticated procedure of Yoga, where by one achieves a total control over the vital force which governs the proper functioning of body's life process. Pranayam helps to tone-up the most vital activities of the body, such as respiratory system, cardio-vascular system. In addition, it strengthens the body immunity which is extremely important for maintaining the quality of life and healthy living.

The concept of pranayama is often mistaken for deep breathing. In the later situation, movement of breath is fast and forceful. There is no time for the cells to get soaked in the inhaled oxygen. In pranayama, the movements are so slow that there is adequate time for every alveoli to soak in oxygen. 1) The respiratory system is geared to aerate the internal atmosphere; 2) The venous return is much better due to phasic changes in breathing. The pulmonary vascular bed relaxes to accommodate more inflow of oxygen and blood. Better diffusion of gases occurs; 3) Elasticity of the lungs and the entire respiratory tract is maintained to a ripe old age; 4) The hemoglobin/oxygen saturation is enhanced during kumbhaka, as there is enough time for saturation; 5) The vital capacity, inspiratory volumes are increased. The dead space is reduced. The residual volume is decreased as more complete exhalation is performed; 6) The alveoli are exercised, which promotes excellent excretion of toxins and gases; 7) Due to more efficient changes in blood gases, proper maintenance of pH is achieved. This is the most important requisite, for better cellular function; 8) The ventilation of sinuses is made excellent, promoting good drainage and 9) The healthy movement of diaphragm massages the abdominal organs, improving their blood supply and aiding the venous drainage to the thoracic, cavity.

Methodology

In this chapter procedure for source of data, selection of subjects, criterion measures collection of data have been described.

Source of Data

The sources of the data were the students of Mahatma Jyotiba fule Mahavidyalaya Amravati.

Selection of Subjects

For the present study 60 male subjects were selected randomly from Mahatma Jyotiba fule Mahavidyalaya Amravati. The age group of the subjects ranged between 18 to 20 years.

Criterion measures

For the present study researcher uses the following units for measuring physiological variables:

i) **Pulse Rate:** To measure the pulse rate stop watch is used and is measured in beats/minutes.
ii) **Vital Capacity:** To measure Micro spirometer, Disposable cardboard moth pieces, sprit and cotton used and is measured in liters.

Sampling procedure

The purpose of this study was find out the effect of aerobic dance and pranayama on physiological variables among boys. To facilitate the study, 60 boys were randomly selected in the age group of 18 to 20 years. The selected subjects were randomly divided into three groups, aerobic dance experimental groups (A), pranayama experimental groups (B) and control group (C). The experimental group under goes 6 weeks training programme, for 6 days in a week, for 45minuts per day, under the supervision of the guide. The control group does not undergo any specific training during the period of six week programme. The control group did not participate in any activity aerobic-dance exercise and pranayama program during the eight-week period.

Collection of Data

To find out the effect of aerobic dance and pranayama on physiological variables the data were collected after administering test items on selected variables before and after the training programme of six week. The aerobic activity included the exercise of the whole body. Exercise was done in tune to the music. The aerobic programme included warm-up, workout (aerobic dance) and cool down sessions for a duration of 45 minutes. The pranayama programme included the pranava, Nadishuddi and Savitri Pranayama training for 45 minutes daily, for 6 days a week.

Statistical analysis

The data were analyzed by applying t-test to determine the significant difference between the pre-test and post-test means of all the three groups viz. Experimental Group-A training in aerobic dance, Experimental Group-B training in pranayama and Control Group-C separately.

Results and discussion

Table 1: Summary of Mean, Standard Deviation and T-Ratio of Pulse Rate and Vital Capacity of Experimental Group-A, Experimental Group-B and Control Group-C

Variable	Group	Test	Mean	SD	SE	MD	Ot	df	Tt
PR	A	Pre	69.60	1.14	0.391	1.400	3.583*	38	2.02
		Post	68.20	1.32					
	B	Pre	69.20	2.55	0.736	1.550	2.106*	38	2.02
		Post	67.65	2.08					
	C	Pre	70.70	2.36	0.643	0.250	0.389	38	2.02
		Post	70.95	1.64					
FVC	A	Pre	2.73	0.45	0.141	0.437	3.108*	38	2.02
		Post	3.17	0.44					
	B	Pre	2.82	0.47	0.134	0.355	2.655*	38	2.02
		Post	3.18	0.37					
	C	Pre	2.82	0.47	0.148	0.071	0.475	38	2.02
		Post	2.89	0.47					
FEV1	A	Pre	2.70	0.41	0.141	0.445	3.159*	38	2.02
		Post	3.15	0.48					
	B	Pre	2.77	0.48	0.154	0.344	2.234*	38	2.02
		Post	3.12	0.49					
	C	Pre	2.77	0.48	0.156	0.192	1.229	38	2.02
		Post	2.97	0.51					
PEFR	A	Pre	333.70	60.74	21.263	49.900	2.347*	38	2.02
		Post	383.60	73.16					
	B	Pre	346.35	56.61	17.998	37.950	2.109*	38	2.02
		Post	384.30	57.21					
	C	Pre	352.35	48.26	16.266	17.300	1.064	38	2.02
		Post	335.05	54.43					

**Aerobic Dance Experimental Groups=(A), Pranayama Experimental Group= (B) Control Group= (C), Pulse Rate= (PR), Forced Vital Capacity =(FVC), Forced Rxpiratory Volume in First Second= (FEV1) and Peak Expiratory Flow Rate=(PEFR).

Table-1: reveals that the significant difference in pulse rate between pre and post test in all three groups. The obtained 't' value of Group (A) 3.583, Group (B) 2.106 and Group (C) 0.389 in that Group (A) and Group (B) are significant but Group (C) is not significant to the table value of 2.02 with 38 degree of freedom.

Table-1: shows that the significant difference in forced vital capacity (FVC) between pre and post test in all three groups. The obtained 't' value of Group (A) 3.108, Group (B) 2.655 and Group (C) 0.475 in that Group (A) and Group (B) are significant but Group (C) is not significant to the table value of 2.02 with 38 degree of freedom.

Table-1: reveals that the significant difference in forced rxpiratory volume in first second (FEV1) between pre and post test in all three groups. The obtained 't' value of Group (A) 3.159, Group (B) 2.234 and Group (C) 1.229 in that Group (A) and Group (B) are significant but Group (C) is not significant to the table value of 2.02 with 38 degree of freedom.

Table-1: shows that the significant difference in peak expiratory flow rate (PEFR) between pre and post test in all three groups. The obtained 't' value of Group (A) 2.347, Group (B) 2.109 and Group (C) 1.064 in that Group (A) and Group (B) are significant but Group (C) is not significant to the table value of 2.02 with 38 degree of freedom.

Conclusion

On the basis of the result drawn with the mentioned methodology the following conclusion were soughed out.

There was significant difference in pulse rate between pre and post test in aerobic dance group-(A)and pranayama experimental group-(B), in forced vital capacity (FVC) between pre and post test in aerobic dance group-(A)and pranayama experimental group-(B), in forced rxpiratory volume in first second (FEV1) between pre and post test aerobic dance group-(A) and pranayama experimental group-(B) and in peak expiratory flow rate (PEFR) between pre and post test in aerobic dance group-(A) and pranayama experimental group-(B) are significant. But control group-(C) in all four variables are not significant.

Hence we concluded that the aerobic and pranayama exercise programs for school, college students can be best designed to delay the onset of fatigue and improve the mechanical efficiency of Lung and heart.

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