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Effects of aerobic exercises, and meditation on vital capacity variable of school children

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Abstract
Aerobic exercise is the cardiovascular activity that involves prolonged activity of large muscles without stopping. Aerobic exercises burns one's fat and keeps one's metabolism rate high even after the activity is over. Just after 15 minutes of the exercise one's glycogen burn's off producing glucose, which then uses oxygen to generate energy by burning fat. Though very latter research's have been conducted to establish its effectiveness, there is a growing belief that certain type of music tend to stimulate a person to a higher performance level. This seems to be consistent with the observation that rock music and marching music tend to elicit movement on the part of any listeners. Singher (1972) stated that the exercise records seem to be widely used in schools as a means of stimulating students to keep up with the pace and perhaps perform a maximum of activity with a minimum of conscious pairs.

Keywords: effects of aerobic exercises, and meditation on vital capacity variable of school children

Introduction
The rhythm of the music should guide the performer in his movement while his arousal level should be brought to an optimum level for learning skills. If this optimum situation is created, it is reasonable to expect that the student will learn faster and easier new skills than in a situation without music, which are according to the discussed research outcomes, cannot be considered an optimal situation. Here music helps the students to recognize rhythmic patterns in sports activities for improving fundamental skills such as walking, jumping and running. Weinberg and Gould (1995) stated that the aerobic exercise is a physical activity that increases the activity of pulmonary and cardio-vascular systems. During aerobic exercise, the body uses and transports oxygen to the working muscles to maintain the activity. Aerobic exercise includes such activities as brisk walking, running, swimming, step aerobics, cycling, and aerobic dance, cross country, skiing and rowing. Bucher (1985) stated that Aerobic exercises are any physical activity that requires your heart rate to reach at least sixty percent of your maximal heart rate for an extended period of time. Anaerobic dance program contributes to physical fitness by providing aerobic exercise and improving cardio respiratory endurances, strength, flexibility and muscular endurance. Jackson (1987) stated that aerobic exercises depends upon the continuous action of a number of groups of muscles over a period of time, they get fitter than you are able to get from longer periods out of your muscles. The process of increasing aerobic fitness involves increasing the rate at which blood can be carried from the lungs to the exercising muscles.

Benefits of Aerobic Exercises
- The heart operates more efficiently/ and becomes stronger.
- It helps to control weight.
- Decreases the risk in developing diabetes, heart diseases and obesity.
- There is an augment in good cholesterol and reduction in bad cholesterol.
- It augments endorphins.

Concentration Meditation
Concentration is the heart of all the types of meditation, but in some of the techniques, focus is predominantly on building concentration. Why is concentration so important? This is because, in order to gain the fruits of meditation, one needs to train the mind to concentrate and focus on an object or nothingness that is to cut all distractions. This allows one's mind to be calm and awaken beyond thought elaboration and even beyond one's sense of self. Once the view of awareness, is heal one can use it for one's wellness and for the greater good. It is more correct to say that it affects positively all the beings, including self.

Statement of the Problem
The purpose of the study was to find out the "Effects of Aerobic Exercise and Meditation on Physiological Variables of School Children".
- Effect of Aerobic Exercises on Physiological development of school children.
- The researcher wanted to find out the effect of Meditation training on the Physical fitness development.
- The researcher wanted to find out the effect of Meditation training on the Physiological development.

Delimitations of the study
- For the purpose of the study, 120 female subjects in the age group ranging from 14 to 16 years were randomly selected.
- The duration of the experimental period was Restricted to Sixteen weeks. The number of sessions per week for the Experimental group was confined to six.

Limitations of the study
- The daily routine work of the subjects influenced Results, hence this was considered as limitation.
- The climatic conditions at the time of conducting the test influenced the performance of the Subjects was considered as limitation.

Hypothesis

The following are the hypothesis of the present study.

- It was hypothesized that the Aerobic Exercises, Meditation and combined training improved the following Physiological Variables of school children
- In studying the individualized effects, it was hypothesized that Aerobic Exercises may have significant improvement over the period of Sixteen weeks training on Vital Capacity, Resting pulse rate, of school children.

Significance of the study

- The Result of this study helps Physical Education teachers, coaches and trainer to make use of Aerobic Exercises, Meditation and combined training to improve the Physical, Physiological and Psychological Variables of the subjects.
- This study threw light on the level of Physical, Physiological and Psychological Variables of the subjects.
- This study provided useful and productive suggestions for the enhancement of Physical, Physiological and Psychological Variables of the subjects.

Definition of the terms

Vital Capacity

Vital capacity is operationally defined as the maximum amount of air that can be inspired and expired in one maximal inspiration and expiration and measured in liters/min (sarada, *et al*., 2004).

Methodology

The procedure adopted in the present research work is related to the selection of subjects, selection of variables, training procedures, experimental design, selection of tests, orientation of the subjects, Pilot study, collection of data, administration of the tests and statistical technique involved in the study.

Selection of Subjects

The Purpose of the study was to find out the "Effects of Aerobic Exercises and Meditation on Physiological Variables of School Children" To achieve this purpose 120 Female subjects in the age group ranging from 14 to 16 years studying in Shantiniketan High School, Vijayapura, Karnataka State were selected randomly and subjects were divided into four equal groups of thirty each known as Experimental group I Aerobic training Experimental group II Meditation training Experimental group III Combined training IV and Control group.

Selection of variables

The investigator reviewed through the available relevant related literature and discussed with the experts in the field and also discussed with the research guide before selection of variables for the present research work.

Independent Variables

Aerobic exercises

Concentration Meditation

Dependent Variables

Physiological Variables

- Vital capacity

Selection of Tests

The test items were selected for this study after thorough review of literature as well as consultation with experts, Physical Education Professionals, and also Research Supervisor. The selection tests and the criterion variables are presented in the Following table.

Collection of Data

The Researcher also desired to know the Specific and combined Effects of Aerobic Exercises and Meditation on Physiological Variables development. For the purpose of the study the researcher selected 120 subjects for the study. Pre-test was administered and recorded. Then the Researcher was given 16 weeks training on Aerobic exercises, meditation and combined. The post-test was administrated soon after the 16 weeks training. The Researcher compared the pre and post-test Results. The post-test Results indicated significant development in Physical, Physiological and Psychological variables.

Physiological variables

Vital capacity

Purpose

- To measure vital capacity

Equipments

Spirometer

Procedure

The vital capacity of the subject was determined by the Spirometer in sitting position. The subject was allowed to inspire the maximum amount of air voluntarily and then the subject was asked to blow into the Spirometer to the maximum extent. The vital capacity of the subject was obtained from the movement of circular volume indicator which was set at '0' before the vital capacity measure was taken. The result was calculated in milliliter.

Scoring

- Vital capacity of the subject was recorded as indicated in the dial of the Spirometer Abdominal

Table 1: Pre-test and post test and adjusted post-test scores on vital capacity in the experimental group and control group

VC	Group	Mean	SD	SV	SS	Df	MS	F	P
Pretest Anova	G1	630.0000	36.19869	BG	833.333	3	277.778	.165	.20
	G2	636.6667	45.35936	WG	195833.333	116	1688.218		
	G3	635.0000	45.76929	T	196666.667	119			
	G4	631.6667	35.91977						
Posttest Anova	G1	766.6667	59.20935	BG	969729.167	3	323243.056	114.289	.000
	G2	875.0000	56.85735	WG	328083.333	116	2828.305		
	G3	703.3333	57.13465	T	1297812.500	119			
	G4	630.0000	36.19869						

VC	Group	Mean	SD	SV	SS	Df	MS	F	P
Adj. post ANOVA	G1	766.6667	59.20935	BG	947663.079	3	315887.693	165.138	.000
	G2	875.0000	56.85735	WG	219979.929	115	1912.869		
	G3	703.3333	57.13465	T	1167643.01	118			
	G4	630.0000	36.19869						

** Significant at 0.05 level table value 2.76

- Table 1. Indicates that the AM ± SD Pre-test vital capacity scores of G1, G2, G3 and G4 are 630.00±36.198, 636.666±,45.359 635.00±45.769 and 631.66±35.919 respectively. The AM ± SD Post-test vital capacity scores of G1, G2, G3 and G4 are 799.666± 59.2093, 875.00± 56.857, 703.33±57.134 and 630.00±36.198 respectively.
- The AM ± SD adjusted Post-test vital capacity scores of G1, G2, G3 and G4 are 766.666± 59.209, 875.00± 56.857, 703.33± 57.134 and 630.00 ± 36.198 respectively, it can be inferred that there do not exist any significant mean differences in the pre-test vital capacity scores of Experimental and Control groups(F= 1.651,P> 0.05).
- That means all the groups have same pretest mean vital capacity scores and therefore the groups can be equable for their final scores.
- There do exist significant mean difference in the post-test vital capacity scores of Experimental and Control groups (F= 66.327, P < 0.05). Further, if the effect due to initial pre-test scores was eliminated, the adjusted post-test mean vital capacity scores also showed significant difference among various groups (F= 67.430,P < 0.05).
- Since ANCOVA showed significant difference in vital capacity among various groups, Scheffe's post hoc pair-wise comparisons has been carried out. The details are shown in table 2.

Table 2: Data and test of significance of scheffes post hoc pair-wise comparison vital capacity

Group	Group2	MD	P
G1	G2	-103.380(*)	.000
G1	G3	67.048(*)	.000
G1	G4	137.905(*)	.000
G2	G3	170.428(*)	.000
G2	G4	241.285(*)	.000
G3	G4	70.857(*)	.000

** Significant 0.05 level

G1 Aerobic group G2 Mediation group

G3 Combined group G4 Control group

Table 2 it is seen that after Scheffe's test all the Experimental groups showed statistically significant difference compared to the Control group with respect to vital capacity and the same as displayed in the figure 1.

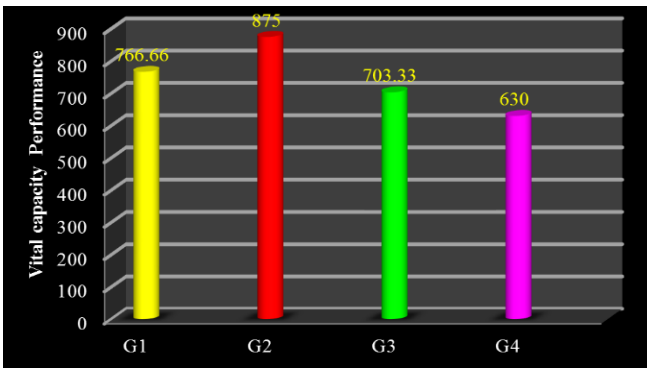

Fig 1: Comparative bar chart of adjusted post-test scores on vital capacity in the experimental group and control group

Figure 1 the above figure indicates that vital capacity performance improvement significantly over the 16 weeks training period Aerobic, Meditation and Combined training groups; however, the difference among the three groups were significant. The Aerobic training group significantly improvement vital capacity performance after 16 weeks training period. The Meditation training groups improvement vital capacity performance after 16 week training period. The Combined training groups also produce improvement Meditation training group and Control group. However Control group did not produce any significant improvement on vital capacity.

Conclusion

Based on the findings the following conclusions were drawn from the present study. Sixteen weeks of Aerobic training has shown significant improvement on Physical, Physiological and psychological performance variable of the subjects. Meditation training has shown significant improvement on Physical, Physiological and Psychological performance variable of the subjects.

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