

A Study of Differential Effects of Aerobic Dance and Circuit Training Programs on Composite Physical Fitness of Overweight Urban School Girls

Puja AdhikaryGoswami* and Prof.Dr.Srikanta Mishra**

*Research Scholar, Baliapal College of Physical Education, Baliapal, Odisha, India.

**HOD, Baliapal College of Physical Education, Baliapal, Odisha, India.

Abstract

In the post covid situation physical fitness is the fore most criteria for development of immunity. In this context obesity is a great threat to our child. Aerobic dance and circuit training both are the gadget of physical fitness development but which one is better for children is unknown to us still now. Therefore, the researcher intends to investigate whether effect of aerobic dance or circuit training is better. Forty-five girl's students Kalitala Girls School and another 45 girl's students of Mission Girls High School age ranged from 13 years to 14 years were selected as subject for this study. AAHPERD youth physical fitness test were used for detection of physical fitness. The Circuit Training program was found to be most effective in securing and maintaining sound physical fitness level than that of aerobic dance training program.

Key Words: Aerobic, Circuit, Fitness, Immunity, Physical.

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I. Introduction:

In new normal situation physical fitness is the fore most criteria for development of immunity. Now, in our society obesity is a great threat to our child. Aerobic dance and circuit training both are the gadget of physical fitness development but which one is better for children is unknown to us still now. Therefore, the researcher intends to investigate whether effect of aerobic dance or circuit training is better. **Review of related Literature:** Alycia Fong Yen et. al. (2018) concluded that "Undertaking structured dance of any genre is equally and occasionally more effective than other types of structured exercise for improving a range of health outcome measures. Health practitioners can recommend structured dance as a safe and effective exercise alternative." [1], HeeJoungJoung et. al. (2019) stated that "Creative Dance and stretching may both benefit fitness and balance for older adults; however, Creative Dance may improve dynamic balance and mobility more than stretching. Therefore, Creative Dance may be a creative physical activity that contributes to successful aging." [2], AlidaEsmail et. al. (2020) established that "Dance/Movement Training may have a positive impact on cognition and physical functioning in older adults." [3] **Selection of Subject:** Ninety 7th and 8th grade obese girls of Kalitala Girls High School (n = 45) and Mission Girls High School (n = 45) out of each seventy 7th and 8th-grade obese girl's students of aforesaid schools of Bankura district, West Bengal, India were randomly selected as the subjects for the study. The mean age of the subjects was 13 years and 7 months, ranging from 13 to 14 years of age, which were recorded on the respective school's record. The health status and medical fitness of the subjects were ascertained in order to ensure the fitness ability of the students for growing through the experimental programs of the study. For experimental purpose total ninety subjects were sub-divided systematically on the basis of over-weight status into three equal groups (n = 30 in each group). The circuit training and aerobic dance programs were randomly assigned to two groups which were designated as experimental groups (named by Group A: Circuit Training Group and Group B: Aerobic Dance Group), who were imparted 12 weeks of circuit training and aerobic dance training programs respectively. On the other hand, the remaining group was designated as the Group C: Control Group.

Criterion Measures: Physical fitness were measured as per AAHPERD Youth Physical Fitness test manual Composite Physical Fitness of the subjects were assessed by adding Z values of each item of physical fitness of the respective subjects.

Design of the study: Experimental design with randomly selected subject experimental design was adopted.

Statistical Procedure: In respect to investigate the comparative effect of circuit training and aerobic dance program on composite physical fitness of 7th and 8th grade overweight girl's students, among two experimental and one control groups subjects, the analysis of co-variance statics was used. In case of existence of significant difference in analysis of covariance results is noticed, the post hoc test was applied in order to find out the

existence of significance of difference between paired adjusted final means. The level of significance was set at 0.05 level of confidence.

Training Protocol: Circuit Training Program: In circuit training program, the eight working stations were adopted, where following eight different types of health and skill-related physical fitness programs namely reaction ability, speed, agility, endurance, coordination, flexibility and power in eight working stations were exercised. STATION:1- Reaction time ability, STATION:2-50-yard dash, STATION:3-Shuttle Run, STATION:4- Push Ups, STATION: 5- Sit-Ups, STATION:6-Squat jump, STATION:7- Medium pace run with long steps, STATION:8- Dons and Baithaks. Prior to the commencement of circuit training program, 6 minutes warming up program was exercised. In initial stage of circuit training program in alternate working days (Mondays, Wednesdays and Fridays) of first two weeks, the eight different exercises in different eight working stations of the circuit were carried out for the duration of eight minutes and in each working day as per following training schedule. Further, in each after two weeks, one more repetition of circuit of same duration in each circuit was enhanced till the completion of last two weeks, in regard to total twelve weeks training programs. In between per circuit, six minutes' active rest were provided, thereby in last two weeks of training program, in all total 84 minutes' duration of time was exercised, where 48 minutes' duration of time was allotted for exercise in different stations in 6 repetitions of circuit and 6 minutes' duration of time was allotted for warming up and 30 minutes' duration of times was allotted for active rest (6 minutes' active rest in between circuit).**Aerobic Dance Training Program:** Aerobic dance training program was framed consisting of 8 different types of dancing items with music involving Speed of movement action time, muscular strength cardio respiratory and muscular endurance ,explosive strength, coordination exercises and flexibility movements along with suitable musical setup were adopted .Duration of each dancing items was adopted for 30 seconds with optimum intensity ,which was followed by 30 second jogging program before entering in the next dancing items as active rest. Till the complication of all selected 8 dancing items the same method was adopted. Before the commencement of aerobic dance training program, the duration of 6 minutes' warmup program was adopted. In initial stage of aerobic dance training program, (in alternate working days - Mondays, Wednesdays and Fridays) of first two weeks, the eight different dancing items were carried out one by one for the duration of eight minutes in each working day as per following training schedule. Further, in each after two weeks, one more repetition of same set of dancing items of same duration was enhanced till the completion of last two weeks, in regard to total twelve weeks training programs. In between per set of dancing program, 6 minutes' active rest was provided, thereby in last two weeks of training program, in all total 84 minutes' duration of time was exercised, where 48 minutes' duration of time was allotted to exercise 8 dancing items (1-minute time for each dancing items) per set for 6 repetitions and 6 minutes' duration of time was allotted for warming up and 30 minutes' duration of times was allotted for active rest (6 minutes' active rest in between set).

Table-1: Circuit Training program

Week	Duration of warm up	Frequency (no of sets)	Duration	Density	Total duration of work
1-2 weeks	6 min	1	8 min	-	14 min
3-4 weeks	6min	2	16 min	6 min	28 min
5-6 weeks	6 min	3	24 min	12 min	42 min
7-8 weeks	6 min	4	32 min	18 min	56 min
9-10 weeks	6 min	5	40 min	24 min	70 min
11-12 weeks	6 min	6	48 min	30 min	84 min

Table-2: Aerobic Dance Training Program

Week	Duration of warm up	Frequency (no. of sets)	Duration	Density	Total duration of work
1-2 weeks	6 min	1	8 min	-	14 min
3-4 weeks	6min	2	16 min	6 min	28 min
5-6 weeks	6 min	3	24 min	12 min	42 min
7-8 weeks	6 min	4	32 min	18 min	56 min
9-10 weeks	6 min	5	40 min	24 min	70 min
11-12 weeks	6 min	6	48 min	30 min	84 min

In order to find out the comparative effects of circuit training and aerobic dance training programs on composite physical fitness of 7th and 8th grade overweight school girls, the analysis of covariance statistics was used which is presented in Table 3 and Table 4.

Table -3: ANALYSIS OF COVARIANCE OF THE MEANS OF COMPOSITE PHYSICAL FITNESS OF TWO EXPERIMENTAL AND ONE CONTROL GROUP SUBJECTS BELONGING TO THE 7TH AND 8TH GRADE OVERWEIGHT SCHOOL GIRLS

Mean	Circuit Training	Aerobic Dance	Control Group	Sum of Square	DF	Mean Sum of Square	F-ratio
Pre Test	274.80	279.00	278.01	A 47.00 W 2256.00	2 87	23.72 25.92	0.913
Post Test	299.78	280.00	264.00	A 22614.0 W 137356.0	2 87	11307.0 1579.00	7.15
Adjusted Post Test	298.00	280.00	264.09	A 20968.40 W 20968.40	2 86	10484.0 1587.00	6.602

Table -4: DIFFERENCES OF PAIRED ADJUSTED FINAL MEANS IN COMPOSITE PHYSICAL FITNESS OF AEROBIC DANCE TRAINING GROUP, CIRCUIT TRAINING GROUP AND CONTROL GROUP SUBJECTS OF 7TH AND 8TH GRADE OVERWEIGHT SCHOOL GIRLS

Circuit Training Group	Aerobic Dance Training Group	Control Group	Mean Difference	Critical Difference
298.00	280.00	17.87	20.35
298.00	264.00	37.35	20.35
.....	280.00	264.00	19.85	20.35

II. Result and Discussion:

The result reveals that the circuit training program is found to be most effective in developing total physical fitness of overweight school girls than that of aerobic dance training program. The circuit training program is composed with the physical fitness components which is seemed to have direct impact in the development of total physical fitness of overweight school girls than that of the aerobic dance training program. The aerobic dance training program is also composed with physical fitness components, however it's impact on total physical fitness is found to be cooperatively less effective in developing total physical fitness of overweight school girls.

III. Conclusion:

The Circuit Training program is found to be most effective in securing and maintaining sound Physical fitness level than that of Aerobic dance training program.

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