



ISOLATED AND COMBINED EFFECT OF AEROBIC DANCE AND RESISTANCE BASED INDIGENOUS PHYSICAL ACTIVITY ON EXPLOSIVE POWER OF ADOLESCENT BOYS

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Abstract

Dance is an art, and as the expressive entity of creative movement is vital to the development of the total individual. Aerobic dance is essential to a healthy Explosive power. Briefly, aerobic dance is an activity that can be sustained for an extended period of time without building an oxygen debt in the muscles. It is a type of dance that overloads the heart and lungs and causes them to work harder than they do when a person is at rest. Aerobic literally means "with air". The main purpose of the study was to analyze the effect of aerobic dance on improving physiological and motor qualities. To achieve the purpose of the study 80 students were selected randomly from different colleges of Mysore district. Their age ranged from 15 to 18 years. The selected students participated in aerobic dance program for four days a week for 12 weeks. Data were collected on Explosive power before and after the training periods. The data thus collected was subject to t-test to check the significance. The level of significance was set to 0.05. The results of the study showed a significant effect of aerobic dance in improving the selected variable of explosive power.

Keywords: Aerobic dance, Explosive power, Adolescent boys.

INTRODUCTION

Aerobic exercise (also known as cardio) is physical exercise of low to high intensity that depends primarily on the aerobic energy-generating process.^[1] Aerobic literally means "relating to, involving, or requiring free oxygen",^[2] and refers to the use of oxygen to adequately meet energy demands during exercise via aerobic metabolism. Generally, light-to-moderate intensity activities that are sufficiently supported by aerobic metabolism can be performed for extended periods of time. When practiced in this way, examples of cardiovascular/aerobic exercise are medium to long distance running/jogging, swimming, cycling, and walking, according to the first extensive research on aerobic exercise, conducted in the 1960s on over 5,000 U.S. Air Force personnel by Dr. Kenneth H. Cooper.

Initially during increased exertion, muscle glycogen is broken down to produce glucose, which undergoes glycolysis producing pyruvate which then reacts with oxygen (Krebs cycle, Chemiosmosis) to produce carbon dioxide and water and releases energy. If there is a shortage of oxygen (anaerobic exercise, explosive movements), carbohydrate is consumed more rapidly because the pyruvate ferments into lactate. If the intensity of the exercise exceeds the rate with which the cardiovascular system can supply muscles with oxygen, it results in buildup of lactate and quickly makes it impossible to continue the exercise. Unpleasant effects of lactate buildup initially include the burning sensation

in the muscles, and may eventually include nausea and even vomiting if the exercise is continued without allowing lactate to clear from the bloodstream.

As glycogen levels in the muscle begin to fall, glucose is released into the bloodstream by the liver, and fat metabolism is increased so that it can fuel the aerobic pathways. Aerobic exercise may be fueled by glycogen reserves, fat reserves, or a combination of both, depending on the intensity. Prolonged moderate-level aerobic exercise at 65% VO₂ max (the heart rate of 150 bpm for a 30-year-old human) results in the maximum contribution of fat to the total energy expenditure. At this level, fat may contribute 40% to 60% of total, depending on the duration of the exercise. Vigorous exercise above 75% VO₂max (160 bpm) primarily burns glycogen.

OBJECTIVES OF THE STUDY

The main purpose of the present study is to know the effect of aerobic dance and resistance based indigenous physical activity on explosive power of adolescent boys.

HYPOTHESES

It is hypothesised that the practice of aerobic dance and resistance based indigenous physical activity on explosive power of adolescent boys.

METHODOLOGY

The present study is to identify impact of

Aerobic dance and resistance based indigenous physical activity on Explosive Power of Adolescent boys. To accomplish reason for the investigation 80 subjects were selected randomly from different colleges of Mysore district as subjects. The selected students participated in aerobic dance program for four days a week for 12 weeks. Their age was ranged from 15 to 18 years. The Test groups are Experimental gathering – I (N=20) experiences Aerobics Training Group (ADTG), Experimental gathering – II (N=20) experiences Resistance Based Indigenous Physical Activity Training Group (RIPTG), Experimental gathering – III (N=20) experiences Combined Aerobics Dance and Resistance

Based Indigenous Physical Activity Training Group (CADRIPTG) and lastly control gathering (N=20) do not do any Aerobic dance and resistance based indigenous physical activity is called as Control Group (CG). The trial bunches took interest in regard for preparing the plan for the time of 12 weeks, three option days in seven days. The investigation parameters including Explosive Power likewise breaks down. The information is examined by utilizing "t" proportion to discover the mean contrast from pre test to post test. Investigation of co change and Scheffe's post hoc test.

ANALYSIS OF DATA AND INTERPRETATION

TABLE-1
THE TABULATION VALUES SHOWS THE MEAN LOSSES / GAINS BETWEEN PRE AND POST TEST
VALUES OF AEROBICS DANCE TRAINING GROUP ON EXPLOSIVE
POWER OF ADOLESCENT BOYS

Components	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Explosive Power in Kilograms	Pre-Test	22.550	2.543	0.267	2.975	11.112*
	Post- Test	25.525	2.347			

*Significance at 0.05 levels (2.09)

Table 1 displays the results of 't' value of Explosive Power (11.112). The obtained tabulated t value is 2.09 which is statistically significant. It is found that the value is statistically significant at 0.05 level of

confidence. It is observed that there is the mean significant improvement in Explosive Power ($2.975p < 0.05$).

TABLE-2
THE TABULATION VALUES SHOWS THE MEAN LOSSES / GAINS BETWEEN PRE AND POST TEST
VALUES OF RESISTANCE BASED INDIGENOUS PHYSICAL ACTIVITY TRAINING GROUP ON
EXPLOSIVE POWER OF ADOLESCENT BOYS

Components	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Explosive Power in Kilograms	Pre-Test	22.050	2.064	0.232	1.850	7.955*
	Post- Test	23.900	1.916			

*Significance at 0.05 levels (2.09)

Table 2 displays the results of 't' value of Explosive Power (7.955). The obtained value is higher than the tabulated t value of 2.09 which is statistically

significant. It is observed that there is the mean significant improvement in Explosive Power ($1.850p < 0.05$).

TABLE-3
THE TABULATION VALUES SHOWS THE MEAN LOSSES / GAINS BETWEEN PRE AND POST TEST
VALUES OF COMBINED AEROBICS DANCE AND RESISTANCE BASED INDIGENOUS PHYSICAL
ACTIVITY TRAINING GROUP ON EXPLOSIVE POWER OF ADOLESCENT BOYS

Components	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Explosive Power in Kilograms	Pre-Test	22.100	2.593	0.354	5.250	14.810*
	Post- Test	27.350	2.539			

*Significance at 0.05 levels (2.09)

Table 3 displays the results of 't' value of Explosive Power (14.810). The obtained 't' value tabulated t value is 2.09 statistically significant. It is

observed that there is the mean significant improvement in Explosive Power ($5.250p < 0.05$).

TABLE-4
THE TABULATION VALUES SHOWS THE MEAN LOSSES / GAINS BETWEEN PRE AND POST TEST
VALUES OF CONTROL GROUP ON EXPLOSIVE POWER OF ADOLESCENT BOYS

Components	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Explosive Power in Kilograms	Pre-Test	22.250	2.149	0.081	0.150	1.831
	Post- Test	22.400	2.303			

*Significance at 0.05 levels (2.09)

Table 4 displays the results of 't' value of Explosive Power (1.831). The obtained tabulated t value

is 2.09 which is statistically insignificant.

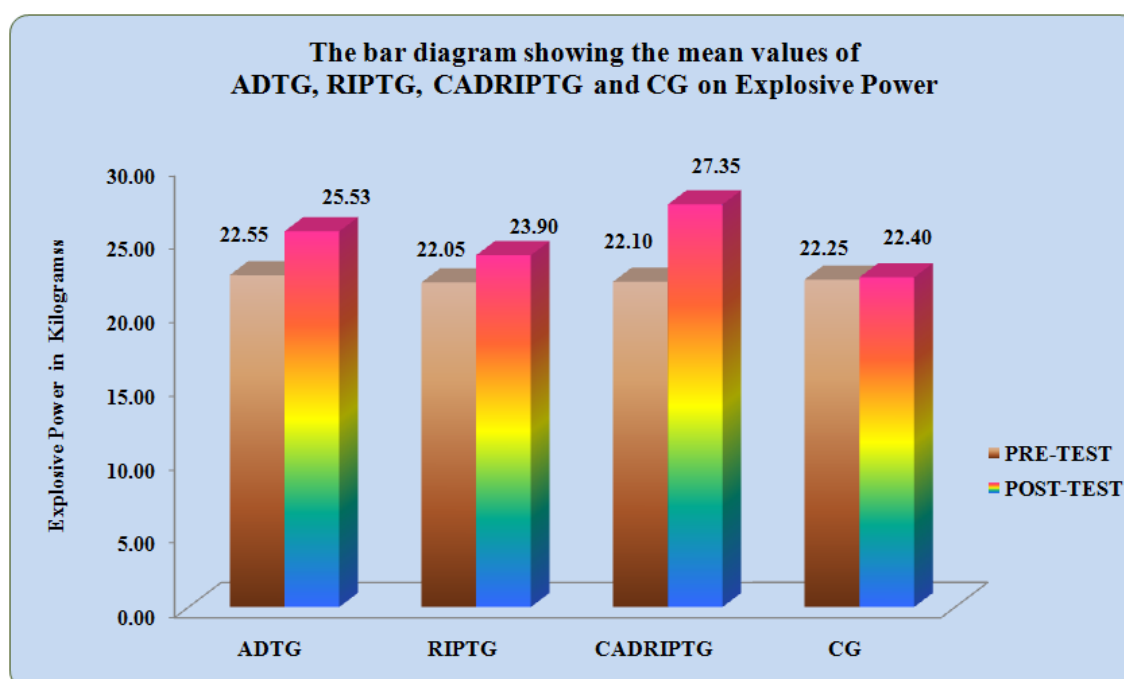


FIGURE-1

TABLE-5
ANALYSIS OF VARIANCE ON PRE - TEST MEAN VALUES AMONG THE ADTG, RIPTG, CADRIPTG AND CG ON EXPLOSIVE POWER OF ADOLESCENT BOYS

Components	Source Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Kilograms	Between	3.037	3	1.012	0.183	0.907
	Within	419.450	76	5.519		

*Significance at 0.05 levels (3.16)

Table 4 views the obtained 'F' value for the ADTG, RIPTG, CADRIPTG and CG on Explosive Power (0.183). The obtained tabulated f value is 3.16 which has statistically not significant differences at the

95 % confidential level and the degrees of freedom (3, 76). It is found that it statistically shows insignificant difference. So the treatment is successful.

TABLE-6
ANALYSIS OF VARIANCE ON POST - TEST MEAN VALUES AMONG THE ADTG, RIPTG, CADRIPTG AND CG ON EXPLOSIVE POWER OF ADOLESCENT BOYS

Components	Source Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Kilograms	Between	271.959	3	90.653	17.316	.000
	Within	397.888	76	5.235		

*Significance at 0.05 levels (3.16)

Table 6 views that the obtained 'F' value for the ADTG, RIPTG, CADRIPTG and CG on Explosive Power (17.316). The obtained tabulated f value is 3.16 which has statistically not significant differences at the 95 %

confidential level and the degrees of freedom (3, 76). It is found that it statistically shows insignificant difference. So the treatment is successful.

TABLE-7
ANALYSIS OF CO-VARIANCE ON PRE AND POST TEST MEAN VALUES AMONG THE ADTG, RIPTG, CADRIPTG AND CG ON SELECTED PHYSIOLOGICAL AND MOTOR FITNESS COMPONENTS OF ADOLESCENT BOYS

Components	Source Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Kilograms	Between	273.676	3	91.225	76.399	.000
	Within	89.555	75	1.194		

*Significance at 0.05 levels (3.16)

Table 7 views that the obtained 'F' value for the ADTG, RIPTG, CADRIPTG and CG on Explosive Power (76.399). The obtained tabulated f value is 3.16

which has statistically significant differences at the 95 % confidential level and the degrees of freedom (3, 75). It is found that statistically shows significant difference.

TABLE-8
THE SCHEFFE'S POST HOC TEST FOR THE DIFFERENCES BETWEEN ADJUSTED POST TEST MEANS OF ADTG, RIPTG, CADRIPTG AND CG ON EXPLOSIVE POWER

ADTG	RIPTG	CADRIPTG	CG	Mean Differences	Confidence Interval Value
25.257	24.061	---	---	1.196	0.974
25.257	---	27.468	---	2.211	0.974
25.257	---	---	22.389	2.868	0.974
---	24.061	27.468	---	3.407	0.974
---	24.061	---	22.389	1.672	0.974
---	---	27.468	22.389	5.079	0.974

* Significant at 0.05 level of confidence

Table 8 shows the adjusted post hoc test mean values of ADTG group, RIPTG group, CADRIPTG group and CG. The mean difference required for the confidential interval to be significant and the value is 0.974. In Comparing the ADTG group and RIPTG group, the mean difference between the two groups is 1.196. Hence ADTG group shows better improvement on Explosive Power. In Comparing the ADTG group and CADRIPTG group, the mean difference between the two groups is 2.211. Hence CADRIPTG group shows better improvement on Explosive Power. In comparing the ADTG group and CG, the mean difference between the two groups is 2.868. Hence ADTG group shows

better improvement on Explosive Power. In Comparing the RIPTG group and CADRIPTG group, the mean difference between the two groups is 3.407. Hence CADRIPTG group shows better improvement on Explosive Power. In comparing RIPTG group and CG, the mean difference between the two groups is 1.672. Hence RIPTG group shows better improvement on Explosive Power. In comparing CADRIPTG group and CG, the mean difference between the two groups is 5.079. Hence, CADRIPTG group shows better improvement on Explosive Power. Finally CADRIPTG group shows better improvement than the ADTG group, RIPTG group and CG on Explosive Power.

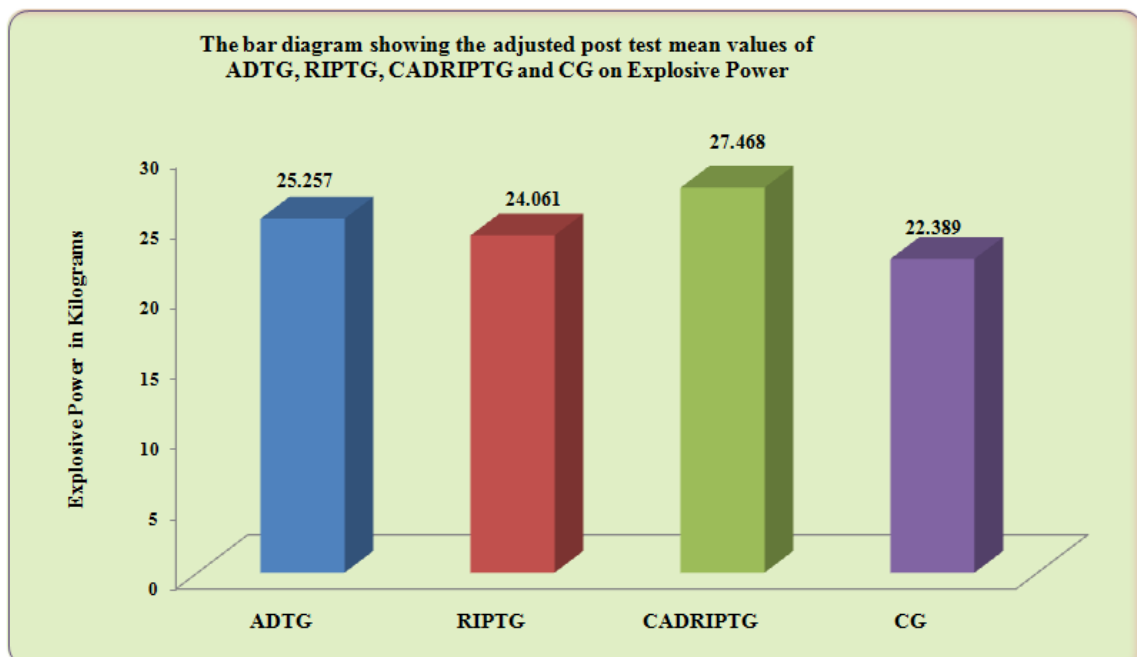


FIGURE 2

DISCUSSION ON PRESENT STUDY

This study confirms that there is improvement in Explosive Power among Effects of Aerobic dance and resistance based indigenous physical activity of adolescent boys.

DISCUSSION OF THE STUDY

In analyzing the Explosive Power for three different training groups in Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training, over the period of twelve weeks of training, the obtained results favor that the Adolescent boys who practiced with the Aerobics Training Group on Explosive Power have good result. The obtained results display similar effect among the other two training modules after the completion of 12 weeks of training period. The results on Explosive Power are discussed below. This study confirms that improvement in selected isolated and combined effect of aerobic dance and resistance based indigenous physical activity on the development of Explosive Power among Aerobics Training Group, Resistance Based Indigenous Physical Activity Training Group, Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group and Control group of adolescent boys.

The Explosive Power increased in the Aerobics Training Group from pre test (22.550 ± 2.543) to post test (25.525 ± 2.347); Resistance Based Indigenous Physical Activity Training Group from pre test (22.050 ± 2.064) to post test (23.900 ± 1.916); Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training group from pre test (22.100 ± 2.593) to post test (27.350 ± 2.539) and Control group from pre test (22.250 ± 2.149) to post test (22.400 ± 2.303). The Explosive Power significantly showed improvement from pre test to post test in the three Treatment groups and there was no change in control group. Aerobic dance and resistance based indigenous physical activity significantly show improvement on the Explosive Power from pre test to post test. The present study demonstrates that an increase in Explosive Power of 13.19%, 8.39%, 23.76% and 0.67% is estimated with Standing Broad Jump test for the Aerobics Training Group, Resistance Based Indigenous Physical Activity Training Group, Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group and Control group respectively. The Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group significantly show improvement in the Explosive Power by 23.76% better than the ADTG 13.19%, RIPTG 8.39% and control group 0.67%. The Aerobics Training Group shows improvement in the Explosive Power by 13.19% better than the RIPTG 8.39% and control group 0.67%. The Resistance Based Indigenous Physical Activity Training Group shows improvement in the Explosive Power by 8.39% better than the control group 0.67%.

RESULT OF THE STUDY

1. The present study shows that the Aerobics Training Group significantly improves Explosive Power of Adolescent boys.
2. The present study shows the Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power of Adolescent boys.
3. The present study shows the Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power of Adolescent boys.
4. The present study shows that the Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power better than the Aerobics Training Group, Resistance Based Indigenous Physical Activity Training Group and control group of Adolescent boys.
5. The present study shows that the Aerobics Training Group significantly improves Explosive Power better than the Resistance Based Indigenous Physical Activity Training Group and control group of Adolescent boys.
6. The present study shows that the Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power better than the control group of Adolescent boys.

CONCLUSION

1. It is concluded that Aerobics Training Group significantly improves Explosive Power of Adolescent boys.
2. It is concluded that Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power of Adolescent boys.
3. It is concluded that Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power of Adolescent boys.
4. It is concluded that Combined Aerobics Dance and Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power better than the Aerobics Training Group, Resistance Based Indigenous Physical Activity Training Group and control group of Adolescent boys.
5. It is concluded that Aerobics Training Group significantly improves Explosive Power better than the Resistance Based Indigenous Physical Activity Training Group and control group of Adolescent boys.
6. It is concluded that the Resistance Based Indigenous Physical Activity Training Group significantly improves Explosive Power better than the control group of Adolescent boys.

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