

ISOLATED AND COMBINED EFFECT OF AEROBIC AND PILATES EXERCISE ON CARDIOVASCULAR ENDURANCE AMONG ADOLESCENT BOYS

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Abstract

The present investigation was under taken to study the isolated and combined effect of aerobic and pilates exercise on cardiovascular endurance among adolescent boys. To achieve the purpose of this study, sixty adolescent school boys were selected as subjects at random from MAJPM Higher Secondary School, Raniganj, Pratapgarh (U.P.). Their age ranged from 14 to 17 years. The subjects were divided into three experimental group and one control group, each group consist of 15 subjects. Experimental group I undergone aerobic exercise, Experimental group II undergone pilates exercise, Experimental group III undergone combined exercise for the period of twelve weeks. The control group IV did not participate or involved any specific training programme other than their regular physical activities programme as per their school curriculum. 9 minutes run/walk test was used to find out the cardiovascular endurance. The data were collected before and after the training programme and analysed by analysis of covariance. The result of the study shows that aerobic exercise, pilates exercise and combined exercise were statistically significant at 0.05 level when compared with the control group.

Keywords: Aerobic Exercise, Pilates Exercise and Cardiovascular Endurance.

Introduction

Aerobics refers to variety of exercises that stimulate heart and lung activity for a time period sufficiently long to provide beneficial changes in the body. Running, Cycling and jogging but these are typical aerobic exercises. The main objective of an aerobic exercise program is to increase the maximum amount of oxygen that the body can process within a given time.

Pilates exercise is an exercise system that focuses on building strength without bulk, improves flexibility and agility, and helps to prevent and rehabilitates injury. Pilates involves a series of controlled movements that engage both your body and mind. It was initially created for rehabilitation, but was later adopted by dancers and athletes and is now utilized by millions. The primary focus is on awareness of the spine, proper breathing, core strength, flexibility and alignment. The outcome of Pilates training is a balanced body which is strong, supple, toned and healthy.

Material and Methods

To achieve the purpose of this study, sixty adolescent school boys were selected as subjects at random from MAJPM

Higher Secondary School, Raniganj, Pratapgarh (U.P.). Their age ranged from 14 to 17 years. The subjects were divided into three experimental group and one control group, each group consist of 15 subjects. Experimental group I undergone aerobic exercise, Experimental group II undergone pilates exercise, Experimental group III undergone combined exercise for the period of twelve weeks. The control group IV did not participate or involved any specific training programme other than their regular physical activities programme as per their school curriculum. 9 minutes run/walk test was used to find out the cardiovascular endurance. The data were collected before and after the training programme and analysed by analysis of covariance. The result of the study shows that aerobic exercise, pilates exercise and combined exercise were statistically significant at 0.05 level when compared with the control group.

Data Analysis

The standardized protocol was used to collect the relevant data which were statistically analysed by using analysis of covariance. In case of mean difference being significant, scheffe's test was applied to find out the paired mean differences among the groups on cardiovascular endurance.

Results

TABLE-I
ANALYSIS OF COVARIANCE FOR PRE TEST AND POST TEST DATA ON
CARDIOVASCULAR ENDURANCE OF EXPERIMENTAL
GROUPS AND CONTROL GROUP

	Source of Variance	Sum of Squares	df	Mean Sum Square	'F' ratio
Pre test	Between	2380.00	3	793.33	0.132
	Within	336453.33	56	6008.10	
Post test	Between	207046.67	3	69015.56	11.18*
	Within	345786.67	56	6174.76	
Adjusted Post test	Between	207325.07	3	69108.36	58.93*
	Within	64504.66	55	1172.81	

*Significant at 0.05 level of significance $f_{(0.05)(3, 56)} = 2.77$

In the table I, the analysis of covariance for cardiovascular endurance (9 minutes run/walk test) showed that the resultant for 'F' ratio of 0.132 was not significant in case of pre test means indicating that the initial mean difference among the groups were not significant. The post test means and the

differences between the adjusted final means yielded the 'F' ratio of 11.18 and 58.93 respectively and were found significant. The 'F' ratio, needed for significance at 0.05 level of significance is 2.77.

As the difference between the post-test means and the adjusted final means for four groups were found significant. Scheffe's post hoc test was applied to find out the differences between the paired adjusted final means were most significant. Differences between the paired adjusted final means of cardiovascular endurance are shown in table II.

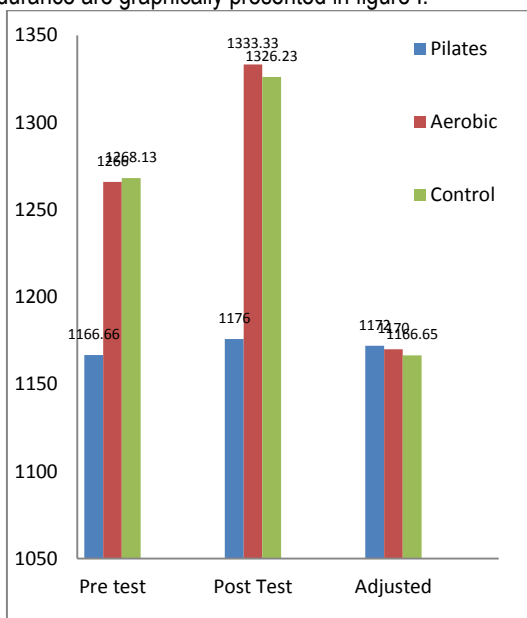
TABLE-II
LSD POST HOC TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED MEANS OF GROUPS

Control Group	Aerobic Group	Pilates Group	Combined Group	Mean Difference
1166.65	1326.23			159.58*
1166.65		1268.13		101.48*
1166.65			1285.56	118.91*
	1326.23	1268.13		58.10*
	1326.23		1285.56	40.67*
		1268.13	1285.56	17.43

*Significant at 0.05 level of significance

The table II, shows that the mean difference of aerobic exercise group and control group, pilates exercise group and control group, combined exercise group and control group, aerobic exercise group and pilates exercise group and aerobic exercise group and combined exercise group were found to be significant. It is also noted that pilates exercise group and combined exercise group not showed significant difference in cardiovascular endurance.

The pre test, post test and adjusted post test means valued of aerobic exercise group, pilates exercise group, combined exercise group and control group on cardiovascular endurance are graphically presented in figure I.



Discussion

The findings of the study on cardiovascular endurance reveal that the experimental groups namely aerobic exercise group, pilates exercise group and combined exercise group had significantly improved after the training. Besides, the result of the study indicated that there was a significant difference between the aerobic exercise group and pilates exercise group and aerobic exercise group and combined exercise group. At the same time there was no significant difference was existed between pilates exercise group and combined exercise group. The above finding was observed and made by the following studies. Alpert (1990) analyzed the Aerobics enhances cardiovascular fitness and agility before and after the 8 weeks training programme and found significant. Shiv & Abhilash, (2012) analyzed the Effect of Yogasanas and Pilates Exercise on Flexibility and Cardiovascular Endurance and found significant.

Conclusion

In summary, the results of this investigation indicate that all the three experimental groups significantly improved the cardiovascular endurance. More specifically, Aerobic exercise group is better than the Pilates exercise and combined exercise and there is no significant difference between pilates exercise and combined exercise.

References

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