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EFFECT OF PRANAYAMA AND AEROBIC EXERCISES ON INSPIRATORY RESERVE VOLUME OF SCHOOL BOYS

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Abstract

The purpose of the study was to find out the effect of pranayama and aerobic exercises on inspiratory reserve volume of school boys. To achieve this purpose the investigator has selected 30 school boys on random sampling technique from the Chevalliar Sellane School, Kalapet, Puducherry. The selected subjects were divided into three groups namely experimental group I & II and control group III. The training programme including pre test and post test session over a period of 12 weeks which was considered to be adequate time for the changes among selected variable. The training was given for six days in a week from 3.30 p.m to 4.30 p.m. The subjects of pranayama, aerobic training group and control group were tested on inspiratory reserve volume with wet spirometer. The data were collected from the three groups before and after the experimental period and analysed by the analyses of variance (ANOVA) and analyses of covariance (ANCOVA) to find out the significant difference. The level of significance was fixed at 0.05 levels. If the 'F' value for the final test is significant, scheffe's post hoc test was used to find out the significant mean difference between the groups. The experimental groups showed significant improvement on inspiratory reserve volume than the control group. The aerobic exercises group showed better improvement on inspiratory reserve volume than the pranayama group.

Keyword: Pranayama, Aerobic exercise, Inspiratory Reserve Volume.

Introduction

Patanjali has said that one develops concentration and clarity of thought by practicing Pranayama. It helps in increasing the mental and physical powers of endurance. It is the path to deeper relaxation and meditation and is a scientific method of controlling breath. It provides complete relaxation to the nervous system. It provides relief from pain caused by the compression of nerve endings. It helps in increasing oxygen supply to the brain which in turn helps controlling the mind. It is the only means of supplying our bodies and its various organs with oxygen which is vital for our health. Breathing is one of the ways to get rid of waste products and toxins from our body. Aerobic literally means "living in air", and refers to the use of oxygen to adequately meet energy during work. The purpose of the study was to find out the effect of pranayama and aerobic exercise on inspiratory reserve volume of school boys.

Methodology

To achieve this purpose the investigator has selected 30 school boys on random sampling technique from the Chevalliar Sellane School, Kalapet, Puducherry. The selected subjects were divided into three groups namely experimental group I & II and control group III. The training programme including pre test and post test session over a period of 12 weeks which was considered to be adequate time for the changes among selected variable. The training was given for six days in a week from 3.30 p.m to 4.30 p.m. The subjects of pranayama, aerobic training group and control group were tested on inspiratory reserve volume with wet spirometer. The data were collected from the three groups before and after the experimental period and analysed by the analyses of variance (ANOVA) and analyses of covariance (ANCOVA) to find out the significant difference. The level of significance was fixed at 0.05 levels. If the ‘F’ value for the final test is significant, scheffe’s post hoc test was used to find out the significant mean difference between the groups.

Results and Discussions

Table I

Descriptive Analysis of Inspiratory Reserve Volume (IRV) of all the Groups among School Boys

Sl.No	Pranayama Group		Aerobic Exercises Group		Control Group	
	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
1	417.18	688.80	418.20	655.67	420.37	420.43

The above table explains the pre-test and post-test means for all the groups.

Table II

Computation of ANOVA of Experimental Group and Control Group of Inspiratory Reserve Volume (IRV)

Variables	Means	Source of Variance	DF	Sum of Square	Mean Squares	F
Inspiratory Reserve Volume	Initial	Between groups	2	1166.66	583.33	0.04
		Within groups	27	398500.00	14759.25	
	Final	Between groups	2	408166.66	204083.33	12.23*
		Within groups	27	450250.00	16675.92	

From the table II, it can be seen that the computed "f" ratio of 0.04 inspiratory reserve volume for the initial test means among the experimental group and control group were insignificant (P>0.01) at 0.05 level of confidence; it clearly indicated that the random assignment of groups were quite successful. Further it revealed that the calculated "f" ratio of 12.23 inspiratory reserve volume for the test means among the experimental and the control groups were significant (P>0.01) at 0.05level of confidence. This showed that the treatment of pranayama and aerobic practice have made significant difference in the mean values among the groups.

Table III

Computation of ANCOVA of Experimental Group and Control Group of Inspiratory Reserve Volume (IRV)

Variables	Source of Variance	Sum of Squares	DF	Mean Squares	F
Inspiratory Reserve Volume	Between groups	427779.88	2	213889.9	21.12*
	Within groups	263226.16	26	10124.08	

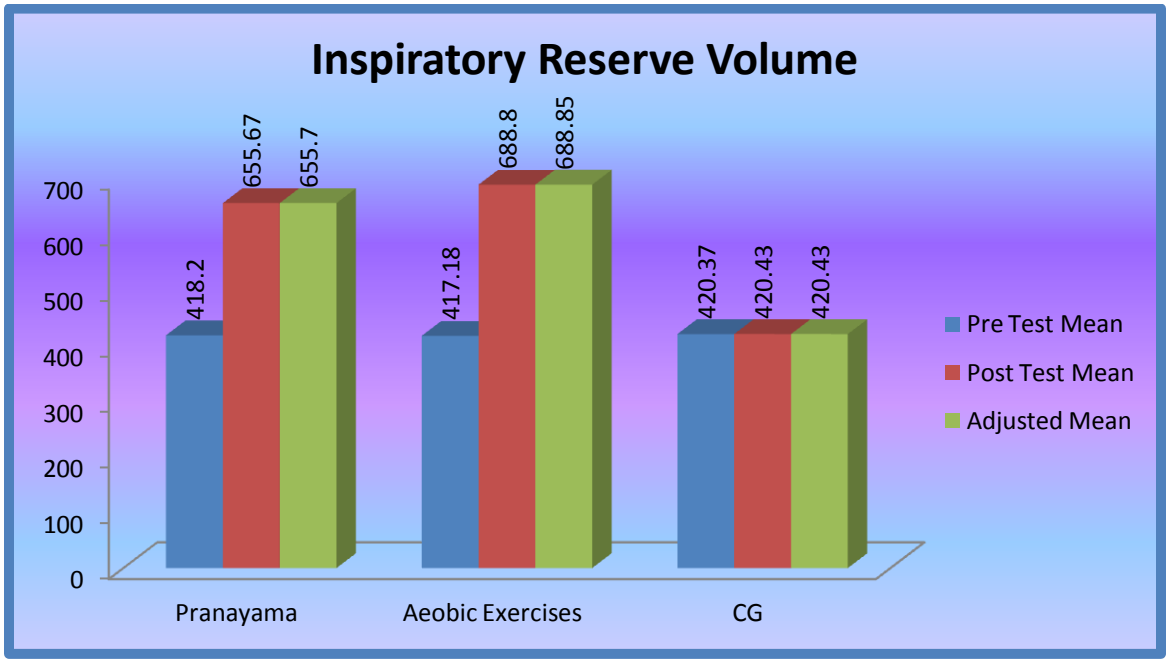
As the primary aim of analysis of covariance, the adjusting the initial means with final means and testing there adjusted means was done. ”F” ratio obtained from testing the adjusted means of 21.12 was high in compare with the required table f ratio of 3.36 at 0.05level There is a significant difference among the three groups on Inspiratory reserve volume. Since ‘F’ value for the final test is significant, scheffe’s post hoc test was applied to find out the significant mean difference between the groups.

Table IV

Scheffe’s Post Hoc Test

Mean Values			Mean Difference	Level of Significant
Pranayama	Aerobic	Control		
655.70	688.85	-	33.14	116.82
655.70	-	420.43	268.42*	
-	688.85	420.43	235.27*	

Fig:1. Shows the mean values of Inspiratory Reserve Volume of all the Groups



Discussions and Findings

The result of the study supported to the pulmonary function variables in favor of pranayama and aerobic exercise training groups. The pranayama is the practice of breathing exercise with scientific thee phases namely puraka (inhalation), Kumbhaka (holding the air in the lungs) and rechaka (exhalation) in a progressive manner works on the breathing mechanism centrally and the effect spread to the periphery too. As like Aerobic exercise training also mainly the Lungs, Intercostals muscles, diapharm and ribs are highly exercised during the aerobic exercise. So, the result of the study in favour of pranayama and aerobic training group. Thus it enhances the Inspiratory reserve Volume among the school boys significantly. The following conclusions were made,

1. The experimental groups showed significant improvement on inspiratory reserve volume than the control group.
2. The aerobic exercises group showed better improvement on inspiratory reserve volume than the pranayama group.

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