



## Effect of Yogasanas And Pranayama on Cardio Respiratory Variables of College Youths

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### ABSTRACT

The purpose of the study is to investigate the role of asanas and pranayama on Cardio respiratory variables of College Youths. The subjects for this study were thirty male B.P.Ed students of Seva Bharati Mahavidyalaya, Kapgari, Jhargram, paschim medinipur. The subjects were equally divided into three groups namely two experimental and one control groups. The two experimental treatments were assigned at random to two groups i.e. one for Asanas and another for Pranayama and the third group served as control. The treatment Schedule was prepared for ten weeks. The experimental treatments were employed for 30 minutes a day in five days a week for ten weeks duration. Pre and post-test data of all the subjects from three groups were collected before and after the experimental treatment period of 8 weeks. Following variables were selected for the purpose of this study: Sub maximal Heart Rate and VO2 Max. The data was analyzed by employing analysis of covariance at the 0.05 level of significance. The result of the study indicates that practice of both Asanas and Pranayama had significant effect on Sub maximal Heart Rate and VO2 Max of the subject.

**KEYWORDS :** Cardio respiratory variables, Asanas and Pranayama.

**Introduction-** Asanas are the static posture accredited with values of promoting physical fitness. Element of exertion with characteristics other physical exercises is eliminated in the system of asanas. Asanas have been classified into meditative and cultural poses. The aim of cultural poses is to produce a state of physiological balance in the human body so that it can possess the best organic vigour. Yogic Asanas help in the prevention and cure of many physical diseases, especially those of the digestive tract by regulating the secretion of various duct and ductless gland. Apart from all these yoga is an extremely economic practice.

Pranayama is an art and has techniques to make the respiratory organs to move and expand intentionally, rhythmically and intensively. It consists of long, sustained subtle flow of inhalation, exhalation and retention of breath. Puraka stimulates the system, rechaka throws out vitiated air and toxins; kumbhaka distributes the energy throughout the body. The movements include horizontal of the lungs and the ribcage. This disciplined breathing helps the mind to concentrate and enables the practitioner to attain robust health and longevity.

The word Kapalbhathi consist of two words, kapal meaning skull (here, skull includes all the organs under the skull too) and bhathi means shining, illuminating. Bhathi is light or splendor but it also means perception and knowledge. The scientific word published on this practice is related to the composition of alveolar air, breath holding time and urinary output as influenced by this practice. Kapalbhathi is a technique of incessant abdominal breathing included in the practices of yoga. The Kapalbhathi impulsive force is applied with Greater Magnitude while the stroke time is very small.

**Objective of the study:** To study the role of asanas and pranayama

on Cardio respiratory variables of College Youths.

**Hypothesis:** It was hypothesized that there will be significant changes in the Sub maximal Heart Rate and VO2 Max. of the subject after the training of ten weeks.

**Methodology:** Thirty under graduate B.P.Ed male subjects were selected randomly from Seva Bharati Mahavidyalaya, Kapgari, Paschim Medinipur, W.B. Their age ranged from 19-25 years. Two experimental Groups (N=10 in each), namely Asanas (G1) and kapalbhathi (G2). The two experimental treatments were assigned at random to two groups i.e. one for Asanas and another for Kapalbhathi and the third group served as control. The treatment Schedule was prepared for eight weeks. The practice schedule includes 12 asanas for asanas group and the only one pranayama chosen for the study was Kapalbhathi for the pranayama group. However, the pranayama group performed anuloma- viloma at the outlets and bouts of the kapalbhathi were practiced with relaxation between each bout. The experimental treatments were employed for 30 minutes a day in five days a week for the period of ten weeks. The third group served as control groups (G3). Cardio respiratory Variables chosen for the study were Sub- maximal heart rate and VO2 Max. Standard test and measurement procedures were adopted to collect data for the study. Pre and post test data of all the subjects from three groups were collected before and after the experimental period of ten weeks. The data was analyzed by employing analysis of covariance at the 0.05 level of significance.

**Finding:** In order to identify the significant differences among three groups on selected variables, collected pre and post data were analyzed using the analysis of covariance. The findings of the study are as follows:

**Table -1 Analysis of covariance for Sub Maximal Heart Rate**

	Asanas	kapalbhathi	Control	S.V	df	SS	Mss	F-Ratio
INITIAL	163.000	155.429	159.714	Among Gr	2	201.812	0100.906	2.095
				Within Gr	18	867.125	48.174	
FINAL	159.143	152.286	159.143	Among Gr	2	219.438	109.719	1.650
				Within Gr	18	1197.125	66.507	
ADJUSTED	155.030	154.777	158.784	Among Gr	2	47.469	23.735	5.224*
				Within Gr	17	77.232	4.543	

**F (2,17) =3.59**

**F (2,18) = 3.55**

**\*Significant at 0.05 levels.**

The table-1 of analysis of covariance for Sub Maximal heart rate of Asanas and Kapalbhathi and control group indicated in significant F-ratio of 2.095 and 1.650 for the initial and final test of means respectively. However, the F-ratio for the adjusted final test mean reveal a value of 5.224 which was significant as it was greater than the F-value of 3.59 required for significant at 0.05 level. This indicates that there was significant difference from the adjusted final means of Asanas, Kapalbhathi and control groups in the Sub Maximal heart rate.

**PAIRED ADJUSTED FINAL MEAN AND DIFFERENCE BETWEEN MEANS OF THREE DIFFERENT GROUPS OF SUB MAXIMAL HEART RATE**

**Table-2**

MEAN			MEAN DIFFERENCE	CRITICAL DIFFERENCE
ASANA	KAPALBHATHI	CONTROL		
155.030	154.777		0.253	3.049
155.030		158.764	3.734*	3.049
	154.777	158.764	3.987*	3.049

Table-2 indicates that the difference between the paired adjusted final means of Asanas, Kapalbhathi and control groups in Sub maximal heart rate indicated significant value of 3.734\* and 3.987\* which emphasis greater mean gain observed for Asanas, Kapalbhathi and control groups Bhastrika group as compared to the control group.

**Table -3 Analysis of covariance for VO2 Max.**

	Asana	Kapalbhathi	Control	S.V	df	SS	Mss	F - Ratio
INITIAL	3.149	3.293	3.210	Among Gr	2	0.073	0.037	2.035
				Within Gr	18	0.325	0.018	
FINAL	3.223	3.354	3.203	Among Gr	2	0.095	0.047	1.992
				Within Gr	18	0.428	0.024	
ADJUSTED	3.299	3.280	3.211	Among Gr	2	0.028	0.014	8.643*
				Within Gr	17	0.028	0.002	

**F (2, 17) =3.59      F (2, 18) =3.55      \*Significant at 0.05 levels.**

The table-3 of analysis of covariance for VO2 Max. of Asanas, Kapalbhathi and control group indicated insignificant F-ratio of 2.035 and 1.992 for the initial test and final test of means respectively. However, the F-ratio for the adjusted final test mean reveal a value of 8.643\* which was significant as it was greater than the F-value of 3.59 required for significant at 0.05 level. This indicates that there were significant differences from adjusted final means of Asana, Kapalbhathi and control groups in the VO2 Max.

**PAIRED ADJUSTED FINAL MEAN AND DIFFERENCE BETWEEN MEANS OF THREE DIFFERENT GROUPS OF VO2 Max:**

**Table-4**

MEAN			MEAN DIFFERENCE	CRITICAL DIFFERENCE
Asana	Kapalbhathi	Control		
3.299	3.280		0.019	0.06
3.299		3.211	0.088*	0.06
	3.280	3.211	0.069*	0.06

Table-4 indicates that the difference between the paired adjusted final means of Asanas, Kapalbhathi and control group in VO2 Max. indicated significant value of 0.088 and 0.069\* which emphasis greater mean gain observed for Asanas and Kapalbhathi group as compared to the control group.

**Conclusion:**

On the basis of result of the study following conclusions are drawn:

Both Asanas and Kapalbhathi Pranayama had significant contributing role over the Sub Maximal Heart rate of subjects as a result of ten weeks yogic training.

The effect of eight weeks practice of Asanas and Kapalbhathi Pranayama was significant enough to bring about the change in the VO2 Max.

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