

# EFFECT OF VARIED MODES OF YOGIC PRACTICES ON SELECTED PHYSIOLOGICAL VARIABLES AMONG OBESE SCHOOL GIRLS

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## Abstract

The purpose of the study was to find out the effect of varied modes of yogic practices on selected physiological variables among obese school girls. To achieve the purpose of the present study, 570 girls in the age group of 14 to 17, studying in schools were selected as subjects, by using purposive sampling method. Initially the height and weight of girls were measured and the body mass index was calculated. Based on the BMI of selected subjects (N= 570) the subjects on or above 25 were further screened and totally 79 students were found as obese girls. Among the selected subjects (N = 79, BMI<25) 60 subjects were randomly assigned into three groups 20 subjects each. The experimental group I underwent the training of asanas group (AG), the experimental group II underwent the training of suryanamaskar group (SNG). The group III used as control group (CG) and keep off from any form of physical training all the two experimental groups were treated with their respective training for about 3 days a week for 12 weeks of training period. In the present study, pre-post randomized experiment design was adopted. The three groups were statistically analysed by using analysis of covariance (ANCOVA). In case of significance of mean difference was observed on the criterion measure, as a post – hoc test, the Scheffe's test was applied to find out which pair of group is high among the others. The asana group has showed better performance on resting heart rate, systolic blood pressure and diastolic blood pressure than the other two groups. The suryanamaskar group also showed better performance on breath holding time than the control group.

**Key words:** Asana, Suryanamaskar, Obese.

## Introduction

Modern medicine as well as yoga has scientific basis and universal outlook. It is gratifying that science has started studying the effects of yogic techniques, while yoga has started using modern technology and scientific methods. Scientific research has shown that yogic techniques produce consistent and beneficial physiological changes. A few weeks of disciplined yoga practice can lead to improvement in many physical and physiological functions. Obesity is a chronic state of being overweight. It's a life threatening condition and

current research has shown that obesity is the leading cause for the increased health threats those persons of the developed world. What worse is the over two third of the industrialized worlds population is suffering from obesity and that's putting them in greater health dangers. Everyone desires good health and it is the ultimate objective of all those who want happiness in life. (Astrup, 2001). Through varies modes of yogic practices the society can overcome the physiological conditions that are required for day to day life especially the school going girls. Having this thirst, the present study was carried out with the purpose to find out the effect of varied modes of yogic practices on selected physiological variables among obese school girls.

## Methodology

To achieve the purpose of the present study, 570 girls in the age group of 14 to 17, studying in schools were selected as subjects, by using purposive sampling method. Initially the height and weight of girls were measured and the body mass index was calculated. Based on the BMI of selected subjects (N= 570) the subjects on or above 25 were further screened and totally 79 students were found as obese girls. Thus the obese girls were selected as subjects finally for the present study.

**Table – I**

Sl. No	Physiological Variables	Test	Units
1	Resting Heart Rate	Stethoscope	In beats/minutes
2	Systolic Blood Pressure	Sphygmomanometer	In mm/Hg
3	Diastolic Blood Pressure		
4	Breath Holding Time	Stop watch	In seconds

In the present study, pre-post randomized experiment design was adopted as it was considered as appropriate for the purpose of finding the effect of varied modes of yogic practices on selected

physiological variables among obese school girls. For this, from the selected subjects (N = 79, BMI<25) 60 subjects were randomly assigned into three groups 20 subjects each. Of the three groups, two groups were used for experimental purpose and one for control group. The experimental group I underwent the training of asanas group (AG), the experimental group II underwent the training of suryanamaskar group (SNG). The group III used as control group (CG) and keep off from any form of physical training all the two experimental groups were treated with their respective training for about 3 days a week for 12 weeks of training period. Thus the experiment

design for the present study was done. The three groups were statistically analysed by using analysis of covariance (ANCOVA). In case of significance of mean difference was observed on the criterion measure, as a post – hoc test, the Scheffe's test was applied to find out which pair of group is high among the others.

### Results and Discussion

The detailed procedure of analysis of data and interpretation were given below,

**Table-II**  
**Summary of Descriptive Statistics on Selected Physiological Variables among Obese School Girls**

Sl.No	Variables	AG		SNG		CG	
		Pre test (Mean and S.D)	Post test (Mean and S.D)	Pre test (Mean and S.D)	Post test (Mean and S.D)	Pre test (Mean and S.D)	Post test (Mean and S.D)
1	Resting Heart Rate	75.95 ± 1.14	71.60 ± 0.59	75.95 ± 1.31	72.15 ± 0.74	75.55 ± 0.94	75.45 ± 1.43
2	Systolic Blood Pressure	128.60 ± 3.56	120.05 ± 0.68	129.95 ± 1.60	120.10 ± 0.71	128.55 ± 2.18	129.10 ± 1.55
3	Diastolic Blood Pressure	85.25 ± 0.96	79.85 ± 0.58	85.10 ± 0.85	80.00 ± 0.79	85.45 ± 0.88	85.50 ± 0.94
4	Breath Holding Time	26.30 ± 0.91	33.10 ± 1.41	26.25 ± 1.19	32.80 ± 1.48	32.75 ± 1.13	32.85 ± 1.11

AG = Asana Group SNG = Suryanamaskar Group CG = Control Group

The table II shows that the pre and post test means and standard deviation of three groups on selected physiological variables among obese school girls.

**Table - III**  
**Analysis of Variance of Pre Test Scores on Selected Physiological variables among Obese School Girls**

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Resting Heart Rate	BG	2.13	2	1.06	0.81
		WG	74.85	57	1.31	
2	Systolic Blood Pressure	BG	25.23	2	12.61	1.88
		WG	380.70	57	6.67	
3	Diastolic Blood Pressure	BG	1.23	2	0.61	0.75
		WG	46.50	57	0.81	
4	Breath Holding Time	BG	1.03	2	0.51	0.43
		WG	67.55	57	1.18	

\* P < 0.05 Table F, df (2,57) (0.05) = 3.15

In table III, the results of analysis of variance of pre test scores on resting heart rate (0.81), systolic blood pressure (1.88), diastolic blood pressure (0.75) and breath holding time (0.43) were

lesser than the table value of 3.15 indicating that it was not significant for the degrees of freedom (2,57) at 0.05 level of confidence indicating that the random sampling was successful.

**Table-IV**  
**Analysis of Variance of Post Test Scores on Selected Physiological Variables among Obese School Girls**

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Resting Heart Rate	BG	173.43	2	86.71	87.79*
		WG	56.30	57	0.98	
2	Systolic Blood Pressure	BG	1086.03	2	543.01	479.50*
		WG	64.55	57	1.13	
3	Diastolic Blood Pressure	BG	414.63	2	207.31	332.40*
		WG	35.55	57	0.62	
4	Breath Holding Time	BG	559.03	2	279.51	153.64*
		WG	103.70	57	1.81	

\* P < 0.05 Table F, df (2,57) (0.05) = 3.15

In table IV, the results of analysis of variance of post test scores on resting heart rate (87.79), systolic blood pressure (479.50), diastolic blood pressure (332.40) and breath holding time

(153.64) were greater than the table value of 3.15 indicating that it was significant for the degrees of freedom (2,57) at 0.05 level of confidence.

**Table-V**  
**Analysis of Covariance of Adjusted Post Test Scores on Selected Physiological Variables among Obese School Girls**

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Resting heart rate	BG	166.63	2	83.31	83.22*
		WG	56.06	56	1.00	
2	Resting systolic blood pressure	BG	1064.34	2	532.17	462.76*
		WG	64.39	56	1.15	
3	Resting diastolic blood pressure	BG	405.85	2	202.93	319.67*
		WG	35.54	56	0.63	
4	Breath holding time	BG	557.15	2	278.57	150.67*
		WG	103.53	56	1.84	

\* P < 0.05 Table F, df (2,56) (0.05) = 3.16

In table V, the results of analysis of covariance of adjusted post test scores on resting heart rate (83.22), systolic blood pressure (462.76), resting diastolic blood pressure (319.67) and breath

holding time (150.67) were greater than the table value of 3.16 indicating that it was significant for the degrees of freedom (2,56) at 0.05 level of confidence.

**Table-VI**

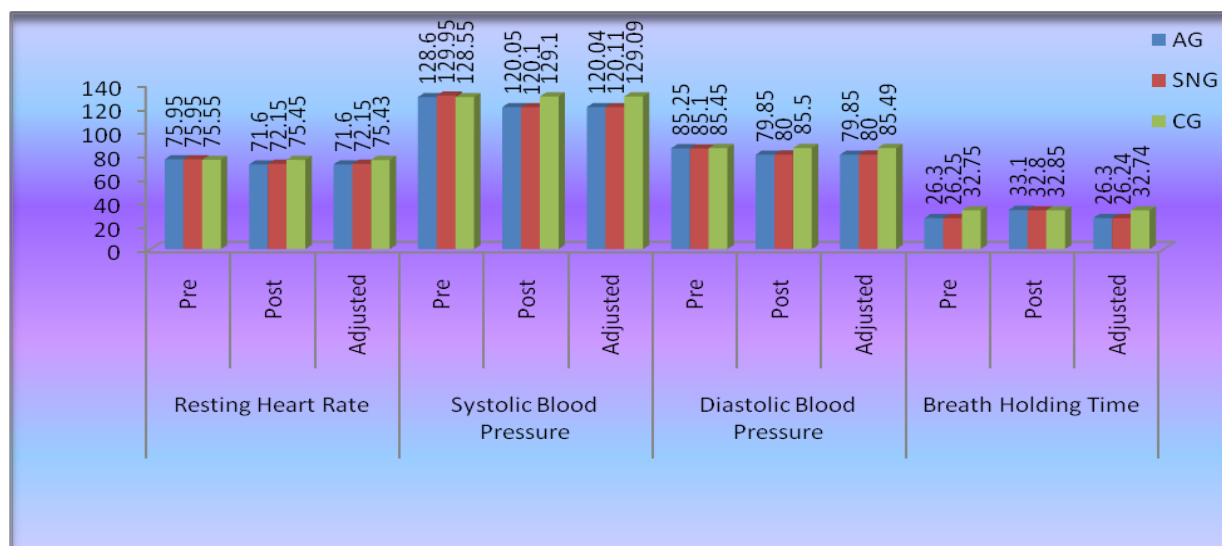
**Scheffe’s Post-Hoc Test for the Selected Physiological variables among Obese School Girls**

Sl.No	Variables	Adjusted Means			Mean Difference	CI Value
		AG	SNG	CG		
1	Resting Heart Rate	71.60	72.15	-----	0.55	0.79
		71.60	-----	75.43	3.83*	
		-----	72.15	75.43	3.28*	
2	Systolic Blood Pressure	120.04	120.11	-----	0.07	0.85
		120.04	-----	129.09	9.05*	
		-----	120.11	129.09	8.98*	
3	Diastolic Blood Pressure	79.85	80.00	-----	0.15	0.63
		79.85	-----	85.49	5.64*	
		-----	80.00	85.49	5.49*	
4	Breath Holding Time	26.30	26.24	-----	0.06	1.07
		26.30	-----	32.74	6.44*	
		-----	26.24	32.74	6.50*	

From the table VI it can be seen that the mean differences between asanas and control groups, suryanamaskar and control group of resting heart rate (3.83, 3.28), systolic blood pressure (9.05, 8.98), diastolic blood pressure (5.64, 5.49) and breath holding time (6.44, 6.50) respectively, were greater than the confidential interval value (0.79, 0.85, 0.63, 1.07) respectively, which was significant at 0.05 level

of confidence. The mean differences between asana and suryanamaskar groups of resting heart rate (0.55), systolic blood pressure (0.07), diastolic blood pressure (0.15) and breath holding time (0.06) respectively, were lesser than the confidential interval value (0.79, 0.85, 0.63, 1.07) which was insignificant at 0.05 level of confidence.

**Figure-I Shows the Mean Values of Experimental and Control Group on Selected Physiological Variables among Obese School Girls**



### Conclusions

In the light of the study undertaken with certain limitations imposed by the experimental conditions, the following conclusions were drawn.

- The result of the study reveals that there was a significant improvement in the experimental groups on selected variables when compared to the control group after the completion of twelve weeks of different packages of yogic exercises.
- The asana group has showed better performance on resting heart rate, systolic blood pressure and diastolic blood pressure than the other two groups.
- The suryanamaskar group also showed better performance on breath holding time than the control group.

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