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Effect of Yogic Practices on Selected Physiological Variables among Obese College Boys

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Abstract: The purpose of this random group experimental study was to find out the effect of yogic practices on Body Mass Index (BMI) and Blood Pressure among obese college boys. For the investigation, Thirty (N=30) obese college boys among the population of 50 volunteers were selected randomly from Chennai between the age group of 18 to 28 years, and they were divided into two groups, I and II, with 15 subjects each. It was hypothesized that there would be significant differences among the obese college boys on Body Mass Index (BMI) and Blood Pressure. A preliminary test was taken for two Groups on Body Mass Index (BMI) and Blood Pressure before the start of the training program. Group I (Experimental Group) subjects were given Yogic practices six days a week for a total period of six weeks. Group II (Control Group), received no training. After the experimental period, the two groups were retested again on the same selected dependent variable. The application of t-test was used to find out the significant differences between the experimental group and the control group. The test of significance was fixed at a 0.05 level of confidence. The results of the study proved that the Experimental Group showed significant differences in Body Mass Index (BMI) and Blood Pressure with the Control Group due to Yogic practices among obese college boys. The hypothesis was accepted at a 0.05 level of confidence. Hence, it is concluded that Yogic practices are beneficial to college boys to maintain healthy Body Mass Index (BMI) and Blood Pressure.

Keywords: Yogic practices, Obese, Physiological variables, Body Mass Index, Blood Pressure

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Introduction

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is

defined as a person's weight in kilograms divided by the square of his height in meters (kg/m²). For adults, the WHO defines overweight and obesity as –(i) Overweight is a BMI greater than or equal to 25, and (ii) Obesity is a BMI greater than or

equal to 30.

BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals. Obesity is a condition characterized by the excessive accumulation and storage of fat in the body (Anheyer *et al.*, 2021). Obesity affects not just appearance but disease processes as well. Obesity usually results from a combination of causes and contributing factors, including genetics, family lifestyle, inactivity, unhealthy diet, medical problems, certain medications, social and economic issues, age, quitting smoking, and lack of sleep.

Yoga is essentially a spiritual discipline based on an extremely subtle science, which focuses on bringing harmony between mind and body. It is an art and science of healthy living. The word 'Yoga' is derived from the Sanskrit root 'Yuj,' meaning 'to join' or 'to yoke' or 'to unite.' As per Yogic scriptures, the practice of Yoga leads to the union of individual consciousness with that of Universal Consciousness, indicating a perfect harmony between the mind and body, Man and Nature.

Continuous yogic practices may improve flexibility, build muscle strength, perfect body posture, prevent cartilage and joint breakdown, protect the spine, better bone health, increase blood flow, drain lymph and boost immunity, drop blood pressure, regulate adrenal glands, lower blood sugar, helps to focus, relaxes internal organ system, improves body balance, maintains nervous system, releases tension in the limbs, helps to sleep deeper, gives lungs room to breathe, gives peace of mind, increases self-esteem, eases the pain, gives inner strength, helps keep you drug-free, builds awareness for transformation, uses sounds to soothe the sinuses, guides the body's healing in the mind's eye, keeps allergies and viruses at bay, supports your connective tissue, uses the placebo effect, to

affect change that may lead to a healthy lifestyle (Hruby and Hu, 2015). The major objectives of this study were to study the effect of yogic asana on parameters of obesity via weight reduction (there by reduction of BMI) and to study the effect of yogic asana on Blood pressure in obese college boys.

The present study would be significant in the following aspects:

- This study would be immensely beneficial to obese college boys in improving their physiological variables.
- This study would be significant in finding out the effect of yogic practices on selected physiological variables among obese college boys.
- This study would be useful to health counselors to prescribe suitable yogic practices for reducing obesity.
- This study would be helpful to many people to keep away from medications to make themselves fit and also to maintain one's physical health.
- This study would create significant health awareness among people, especially adult college boys.

It is hypothesized that there would be a significant improvement in selected physiological variables among obese college boys due to yogic practices.

Delimitations of the study are- (i) The study would be delimited only to the college boys doing their studies in Chennai city; (ii) The age of the subjects would range from 18 to 28 years only; (iii) The subjects would be only obese college boys; (iv) The dependent variable would be restricted to physiological variables; and (v) Duration of the training program will be six weeks only. Limitations of the study are- (i) The subjects under medical treatment will not be under control; (ii) The factors like environmental, climatic conditions, and socioeconomic stats are not to be taken into consideration; and (iii)

Table 1: Frequency distribution for pretest values of systolic blood pressure for experimental group I and control group II (Scores in mmHg)

Class Interval (CI)	Group I		Group II	
	Frequency	Percentage	Frequency	Percentage
121-125	-	-	-	-
126-130	5	33.33	1	6.67
131-135	4	26.67	5	33.33
136-140	6	40.00	9	60.00

Table 2: Frequency distribution for post-test values of systolic blood pressure for experimental group I and control group II

Class Interval (CI)	Group I		Group II	
	Frequency	Percentage	Frequency	Percentage
121-125	9	60	-	-
126-130	6	40.00	1	6.67
131-135	-	-	-	33.33
136-140	-	-	-	60.00

Table 3: Mean, standard deviation, and mean difference of the groups and the “t” test of the control group and the experimental group for systolic blood pressure(Scores in mmHg)

Group	Test	N	Mean	SD	MD	T
Control Group	Pre-Test	15	135.87	2.62	0.21	0.22
	Pos-Test	15	135.66	2.55		
Experimental Group	Pre-Test	15	134.13	3.52	10.60	9.93*
	Pos-Test	15	123.53	2.17		

*Significant; “t” ratio at 0.05 level of confidence for the degree of freedom (df) at 28=2.048

Certain factors like lifestyle, body structure, personal habits, and motivational factors are not to be taken into consideration for this study.

Materials and Methods

To achieve the purpose of the study, thirty obese college boys were selected randomly from Chennai between the age group of 18 to 28 years. Totally six weeks of training was given in yogic practices to the subjects. The subjects were assigned into two groups of twenty each (N=15). Group I underwent yogic practices for 6 weeks in addition to their routine program designed by the college curriculum, and Group II acted as control. The data collected from the two groups before and after the experimentation on dependent

variables were statistically analyzed by using T-test. In all the cases 0.05 level of significance was fixed (Cramer *et al.*, 2016).

Yogic Practices for Obesity:

The subjects were selected at random and were divided into two groups; Group I, which is the experimental group, was given Yogic practices at 6.00 to 6.40 h for 1-2 Weeks, 6.00 to 6:50 h for 3-4 Weeks and 6.00 to 7.00 h for 5-6 weeks and the Group II which is control group was not given any training. The following practices were given to Group I (Experimental group) subjects:

- I. Loosening Exercises
- II. Suryanamaskar

Table 4: Frequency distribution for pretest values of systolic blood pressure for experimental group I and control group II

Class Interval (CI)	Group I		Group II	
	Frequency	Percentage	Frequency	Percentage
75-80	-	-	-	-
81-85	-	-	-	-
86-90	3	20.00	-	-
91-95	11	73.33	14	93.33
96-100	1	6.67	1	6.67

Table 5: Frequency distribution for post-test values of systolic blood pressure for experimental group I and control group II (Scores in mmHg)

Class Interval (CI)	Group I		Group II	
	Frequency	Percentage	Frequency	Percentage
75-80	4	26.67	-	-
81-85	11	73.33	-	-
86-90	-	-	-	-
91-95	-	-	14	93.33
96-100	-	-	1	6.67

III. Asana-Ardhachakrasana, Ustrasana, Pawanmuktasana, Trikonasana, Naukasana, Dhanurasana

IV. Pranayama: Nadishodhana, Suryabhedana, Bhramari

V. Bandha

VI. Relaxation

Group II (Control Group) subjects were permitted to undergo their routine and normal lifestyle during the experiment without any specific training.

After six weeks, the two groups were retested again on the same selected dependent variables, such as Body Mass Index (BMI) and Blood Pressure, and scores were measured. A t-test was used to find out the significant differences between the experimental group and the control group. The test of significance was fixed at a 0.05 level of confidence.

Results and Discussion

The data on the variable collected from the two groups before and after the training period were statistically analyzed by using a t-test to determine the significant difference and the hypothesis was tested at a 0.05 level of confidence. These are shown in the Tables 1 to 5.

Table 1 shows the distribution of pre-test values of Systolic Blood Pressure for Experimental and Control groups before the training. The highest frequency for Group I is 40.00% at CI 136-140. The highest frequency for Group II of 60.00% at the CI of 136-140.

Table 2 illustrates the distribution of post-test values of Systolic Blood Pressure for Experimental and Control groups after the training. The highest frequency for Group I is 60.00%. 121-125 indicates significant Systolic Blood Pressure levels. The highest frequency for Group II is 60.00% at the interval of 136-140.

The obtained value (Table 3) of 9.93 of the Experimental group concerning the Systolic Blood Pressure levels was significantly higher than the required 't' value (2.048), and it is proven that there is a significant difference in the Systolic Blood Pressure levels of the Experimental group and no significance difference in the Systolic Blood Pressure levels of the Control group.

Table 4 shows the distribution of pretest values of Diastolic Blood Pressure for Experimental and Control groups before the training. The highest frequency for Group I is 73.33% at CI 91-95. The highest frequency for Group II is 93.33% at the CI of 91.95.

Table 5 shows the distribution of post-test values of Diastolic Blood Pressure for Experimental and Control groups after the training. The highest frequency for Group I is 73.33% in the interval of 81.85, indicating significant Diastolic Blood Pressure levels. The highest frequency for Group II was 93.33% at the interval of 91.95

Conclusion

The results of the study indicated that physiological variables such as systolic, diastolic blood pressure and Body Mass Index (BMI) were significantly decreased due to the six weeks of Yogic practices than the control group.

References

- Anheyer D, Koch AK, Thoms MS, Dobos G and Cramer H. (2021) Yoga in women with abdominal obesity – Do lifestyle factors mediate the effect? Secondary analysis of an RCT. *Complement Therap Med.* 60: 1 -5.
- Cramer H, Thoms MS, Anheyer D, Lauche R and Dobos G. (2016) Yoga in women with abdominal obesity-- a randomized controlled trial. *Deutsches Ärzteblatt Int.* 113(39): 645-652.
- Hruby A and Hu FB. (2015) The epidemiology of obesity: A big picture. *Pharmacoeconomics* 33(7): 673-689.