



## INTERACTION OF YOGA WITH BLOOD PRESSURE

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### Abstract

The purpose of the present study was to investigate the effect of yoga training program on blood pressure. Total 15 female subjects who were studying in Tikaram Degree College, Aligarh, were randomly selected for this study. Their age ranged in between 18-25 years. Resting Blood Pressure of female students was selected for this study. Significant differences were observed in the pre and post experiment means of resting blood pressure of training group. It was concluded that yoga training caused significant change in the Resting Systolic Blood Pressure.

**Keynotes:** Yoga, Blood, Systolic and Diastolic Blood Pressure

### Introduction

Yoga derives its philosophy from Indian metaphysical beliefs. The word yoga comes from the Sanskrit language and means union or merger. The ultimate aim of this philosophy is to strike a balance between mind and body and attain self-enlightenment. To achieve this, yoga uses movement, breath, posture, relaxation and meditation in order to establish a healthy, lively and balanced approach to life. Though the exact origins of Yoga are unknown but Yoga is considered to be the oldest physical discipline in existence. Yoga, thus, symbolizes balance in every area of life. In the earlier times, the rationale of the Yoga postures and breathing exercises was to bring stability and relaxation so that practitioners

could prepare for the rigors of meditation, sitting still and alert for long periods of time. In modern context also yoga can play an important role in maintaining a fine balance between work and healthy mind.

Blood Pressure (BP) is also a well-known fitness parameter for the physiological fitness of a player. It is well known that a hall mark of heart failure is adverse changes in autonomic function. Elevated blood pressure is a powerful predictor of congestive heart failure and other Cardiovascular Disease (CVD) outcomes. Pal, Pravati (2014). High blood pressure (BP) is one of the most important modifiable risk factors for cardiovascular diseases, which accounts for one in every eight deaths worldwide. It has been predicted that, by 2020, there would be 111% increase in cardiovascular deaths in India. Hypertension, especially in elderly is a strong risk factor for cardiovascular mortality and morbidity. Oxidative stress has been implicated as one of the underlying cause of hypertension. Yoga has been found to control hypertension in the elderly, but the underlying benefits of mechanism in relation to oxidative stress regulation remains unclear.

### Methodology

The purpose of the present study was to investigate the effect of three months of yoga training on the resting blood pressure of female participants. For the purpose this study



fifteen (N=15) female students were selected randomly from Tikaram Degree College, Aligarh. U.P. India. Their age was between 18 to 25 years. These subjects participated voluntarily in this programme and before the start, they were examined by the physician to ascertain that they were free from any medical problem and were fit enough to undertake the yoga training programme for a period of three months.

#### Training Programme

The training session was of consisted of 60 minutes every day, for 6 days a week for three months. Every training session was of loosening exercises of 08 minutes, 40 minutes of main course and 05 minutes of meditation. The yogic exercise was of standing postures, sitting postures, both supine & proline postures, kriyas, pranayama and meditation with gradually increased frequency and duration from its initial to final stage.

#### Collection of data and administration of Tests

In order to acquaint the subjects with the specific purpose of the research being conducted, all the subjects were assembled in the athletic track of Tikaram Degree College, Aligarh. All the necessary information pertaining to the requirement of the experimental procedure was imparted to them. To make the research findings more authentic, positive attitude towards investigation was emphasized.

The data for the physiological responses of college girls was obtained with the help of Omron HEM- 7120 Automatic Digital Blood Pressure Monitor supplied by Galaxy Informatics (India). The Blood Pressure was recorded in mm of hg. The data on blood pressure were taken prior to the experimental programme at resting condition. Pre-test data was collected two days before the commencement of the training program and

post-test data was collected after the training procedure.

#### Blood Pressure

Procedure: Blood Pressure of each subject was recorded in the morning session. Before recording the Blood Pressure, the subjects were instructed to remain lying for five minutes. The pressure cuff was wrapped snugly around the above the elbow. The elbow was placed at such a position that the pressure cuff was at the same height as the heart. Hands were relaxed with palm facing up. The start/stop button was pressed. All elements displayed '888' in 3 seconds. The moment the Measuring Blood Pressure symbol flashed on the display, the air pressure automatically pumped up to 195 mmHg. Then it automatically started decreasing in order to detect blood pressure. The detected systolic and diastolic pressure lasted on the display screen for one minute. No movement and talking were permitted in the midst of taking Blood Pressure measurements. Scoring: Blood Pressure (both systolic and diastolic) was recorded in mm of Hg. For analysis of the data, Mean and SD were computed. The data was analysed using SPSS version 21. Paired t-test was applied to find the significant difference between pre and post experimental means. For testing the hypothesis the level of significance was set at .05 level of significance.



## Data Analysis

TABLE - 1  
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE AND POST  
TEST PERFORMANCE OF SYSTOLIC BLOOD PRESSURE

Test	Mean	SD	SE Mean	DM	SE MD	"t" ratio
Pre test	119.80	5.57	1.43	6.40	2.20	2.91*
Post test	113.40	6.96	1.79			

\*Significant at 0.05 level 't'  $t_{0.05(14)} = 2.042$

Table-1 reveals the descriptive analysis of yoga training group on Systolic Blood Pressure. In this the yoga group pre test shows value of mean and standard deviation ( $119.80 \pm 5.57$ ) respectively. The yoga group post test shows value of mean and standard deviation ( $113.40 \pm 6.96$ ) respectively.

It is evident from Table-1 that there was a significant difference between the means of pre and post test in Systolic Blood Pressure of yoga group. The mean difference was calculated as 6.40 and standard error of difference was 2.20 since the obtained value of paired 't' (2.91\*) was higher than the tabulated value of 't' (2.042) which was required to be significant at (14) degree of freedom with 0.05 level of significance.

TABLE - 2  
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE AND POST  
TEST PERFORMANCE OF DIASTOLIC BLOOD PRESSURE

Test	Mean	SD	SE Mean	DM	SE MD	"t" ratio
Pre test	82.67	4.51	1.16	.933	.643	1.45
Post test	81.73	3.76	.973			

\*Significant at 0.05 level 't'  $t_{0.05(14)} = 2.042$

Table-2 reveals the descriptive analysis of yoga training group on pre and post test in Diastolic Blood Pressure. In this the yoga group pre test shows value of mean and standard deviation ( $82.67 \pm 4.51$ ) respectively.

The yoga group post test shows value of mean and standard deviation ( $81.73 \pm 3.67$ ) respectively.

It is evident from Table-2 that there was an insignificant difference between the means of pre and post test in Diastolic Blood Pressure of yoga group. The mean difference was calculated as .933 and standard error of difference was .643 since the obtained value of paired 't' (1.45) was lower than the tabulated value of 't' (2.042) which was required to be significant at (14) degree of freedom with 0.05 level of significance.

## Discussion of Findings

The statistical analyses showed significant difference in pre and post test means of resting systolic blood pressure of yogic group after the treatments. However there was no significant effect of yoga training program on resting diastolic blood pressure of female participants. The present study was supported by the study of P. Satyanarayana et. al., (2013) they determine the effect of yoga training on male (with or without CAD) subjects. A course in yoga was given to all the subjects for 1.5 Hours six days in week for twenty four weeks. Systolic and diastolic blood pressure was analysed before and after 6-months of yoga practice. These results suggest that there is a significant reduction in blood pressure in the total cohort with yoga. They further concluded that yoga appears to control blood pressure of CAD patients. Indranil Manna, (2021) also aimed to see the influence of yogic asana on subcutaneous adipose tissue and cardiopulmonary functions of adolescent girls. The yoga group followed a yoga training of 60 min/day, 6 days/week for 12 weeks with no yoga training in the control group. The 12 weeks of yogic training showed reduction in systolic blood pressure (SBP).



Regular practice of yogic asana helps to enhance the cardiopulmonary fitness of adolescent girls, which may reduce the expenses toward medication and increase the productivity.

### Conclusion

- It is concluded that three months of yogic training produced beneficial effects upon resting systolic blood pressure of college girls.
- It is also concluded that three months of yogic training did not produced any beneficial effects upon resting diastolic blood pressure of college girls.

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