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## THE EFFECTIVENESS OF YOGASANAS, PRANAYAMA AND MEDITATION ON SELECTED PHYSIOLOGICAL VARIABLES OF STATE LEVEL PISTOL SHOOTING PLAYERS

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### ABSTRACT

Yoga is a discipline that seers and saints have been practicing since ancient times to bring flexibility to the spine and joints to keep the muscles of the body pliable and youthful, increase circulation in arteries and strengthen internal organs. The present study was undertaken on 120 subjects to evaluate effectiveness of yogasanas ,Pranayama and Meditation on systolic blood pressure, diastolic blood pressure of state level pistol shooters, aged between 14 to 19 years, from Gurukul of Haryana State, who were willing to participate in the program were recruited. The study shows that there is significant decrease in systolic & diastolic blood pressure of state level pistol shooting players.

### INTRODUCTION:

Shooting is a sport that requires a high degree of concentration, experts believe that yoga might help shooters improve their mental and physical abilities. To succeed in shooting, one must be very focused and maintain excellent bodily balance when aiming. Shooting Academy in kaithal, Haryana has many young shooters. They have discovered the benefits of yoga and have begun regularly practicing it as a result of the association between yoga and shooting that many experts who make it a habit or norm to do yoga before going shooting. Deepak kumar, a yoga teacher, has been visiting to the school every other day to examine how Yoga has impacted the shooters. He has now adapted the Yogic exercises to the sport's specific needs. Deepak has devised a training plan for shooters that incorporates yoga



exercises and breathing techniques. Pranayama, Tadasana, and Uttanpadasana are the main points of emphasis he has made. It is important to maintain bodily equilibrium when doing Pranayama, since Tadasana guarantees that this is always possible. Asanas like uttanpadasana help to build and tone the muscles in the abdomen, hips and back. According to him, breathing exercises help shooters regulate their minds and bodies when they are on the range, as well.

## **BLOOD PRESSURE:**

Blood Pressure is actually the force of pressure which the blood is exerting against the walls of the blood vessels in which it is contained.

There are two types of Arteriol Blood Pressure:

- I. Systolic Blood Pressure
- II. Diastolic Blood Pressure

### **(I). Systolic Blood Pressure :**

When the left ventricle of heart pumps the blood and which pressure exist in the blood vessels is called Systolic Blood Pressure.

### **(II). Diastolic Blood Pressure :**

When the left ventricle of heart relaxed and at the same time the pressure exist in the blood vessels is called Diastolic Blood Pressure.

#### **Normal Blood Pressure Range (in mm. Hg.)**

<b>Sr. No.</b>	<b>Age Group</b>	<b>DBP</b>	<b>SBP</b>
1.	In infancy the blood pressure is	50	70 to 90
2.	In Childhood	60	80 to 100
3.	During the Adolescent period	60	80 to 100
4.	In Young Adult	60 to 70	110 to 125
5.	As age advances it is increased	80 to 90	130 to 150

## **METHOD**

This study will evaluate effect of yogasanas ,Pranayama and Meditation on systolic blood pressure, diastolic blood pressure of state level pistol shooting players. The practice of



yoga in this study intends:-

To increase physiological well being.

The present study was undertaken on 120 subjects to evaluate the effectiveness of yogasanas, Pranayama and Meditation on selected physiological variables of state level pistol shooting players, aged between 14 to 19 years, from Gurukul of Haryana State, who were willing to participate in the program were recruited. All subjects underwent sessions of yogasanas ,Pranayama and Meditation training from 4.45pm to 7.00 pm which were suitable for them. The subjects were instructed to practice once a day and at the end of training all parameters were measured & recorded.

### **TOOL USED**

The investigator has used the standardized electronic sphygmomanometer, to collect the data of the study.

### **DATA COLLECTION**

Focusing nature and objectives of present study researcher approached Gurukul, District Kaithal ,Haryana State and after securing permission prepared basic data for matching and group formation. Thus, two groups of 60 no. of subjects were formed. As per the details provided above, specific conditioning exercises were administered to experimental group. The data collection was done on two stages, First pre-test, and second post-test data of both groups i.e the experimental group E YOG & control group i.e. Group C CONTROL. Data was Collected through electronic instruments on Physiological variables. Similarly before start training pre-test data was recorded and final data was taken after completion of training programme.

### **STATISTICAL TECHNIQUES**

The data would have been no utility unless it is analyzed and interpreted by statistical techniques. Analysis of data meant, studying the tabulated material in order to determine inherent facts and meaning to fulfill the need of research problem. This practice included breaking up off complex factors into simpler parts and putting them in new arrangements for the purpose of the investigation. Statistical techniques like Mean score, Standard Deviation, t-ratio, paired t-test have been used. Thus, pre-test and post-test data was treated for proper analysis and interpretation.

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In this case t-test was best suited, and two samples were related. Hence, researcher applied paired t- test to check pre-tests data and post-test data analysis in Experimental Group E YOG and Control Group C Control.

## ADMINISTRATION OF THE TESTS

**INSTRUMENT:-** Standardized Electronic Sphygmomanometer.

### Procedure:-

Subjects ask to relax in a bed in supine position then instrument was placed on the right hand of the subject. An inflatable rubber bag (cuff)connected to the standardized electronic sphygmomanometer and click the button. After a few minute the reading of Systolic blood pressure and Diastolic blood pressure appears on the screen and of the sphygmomanometer and recorded all about data of the various variables individual accordingly.

### Data Analysis & Results of the study.

#### A. Pre-test findings

Both the study groups were compared at the time of recruitment for all the selected parameters. The results of the pre-test were as follows :

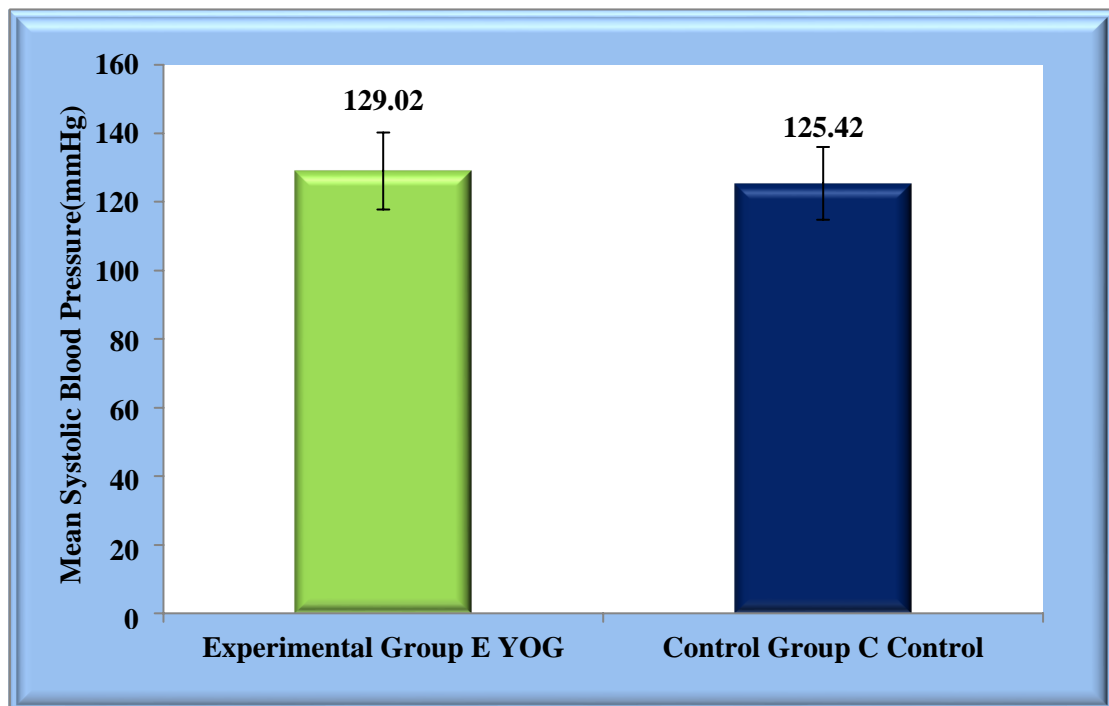


Figure 1 : Mean Systolic Blood Pressure of players in Pre-test

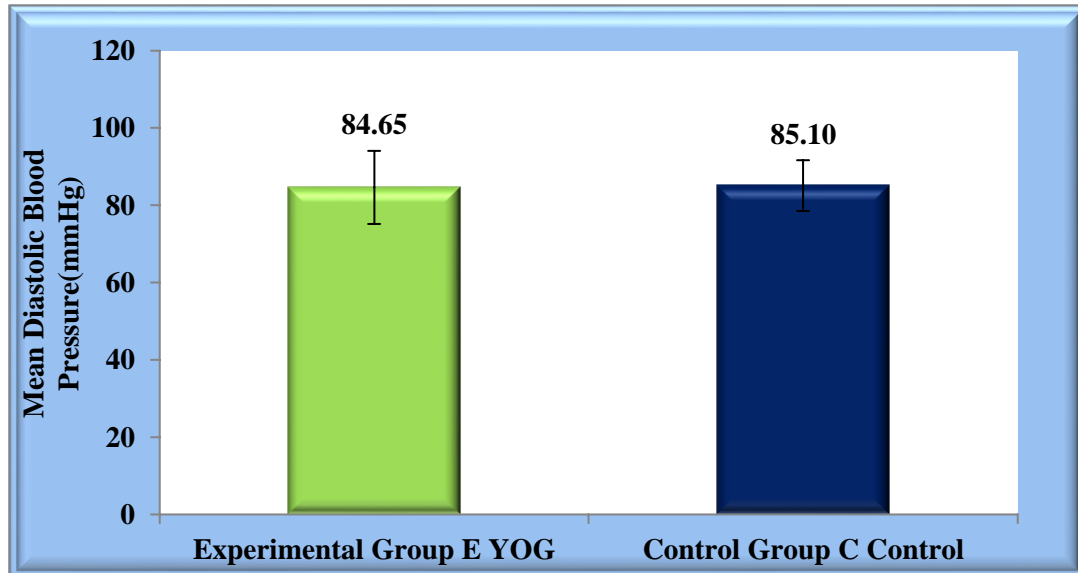
Mean systolic Blood pressure of players during pre-test has been shown in Figure 1. Average SBP(Systolic Blood Pressure) of Experimental Group E YOG(129.02) was seen higher than Group C Control(125.42).

**Table 1 : Systolic Blood Pressure of players in pre-test**

Group	N	Mean	Std. Deviation	Mean difference	t	p-value
Experimental Group E YOG	60	129.02	11.23	3.600	1.804	0.074NS
Group C Control	60	125.42	10.61			

NS - Non Significant( $p > 0.05$ )

In Table 1, the mean difference(3.600) between Experimental Group E YOG and Group C Control was seen non-significantly( $t 1.804, p 0.074; p > 0.05$ ) varying. Thus both the groups were found homogenous in terms of systolic blood pressure among players prior to training.



**Figure 2 : Mean Diastolic Blood Pressure of players in Pre-test**

The Figure 2 here shows average diastolic pressure of shooting players before intervention. i.e before providing any training. Mean DBP(Diastolic Blood Pressure) of Group C Control(85.10) come out to be a little more than Experimental GroupE YOG(84.65).

**Table 2 : Diastolic Blood Pressure of players in pre-test**

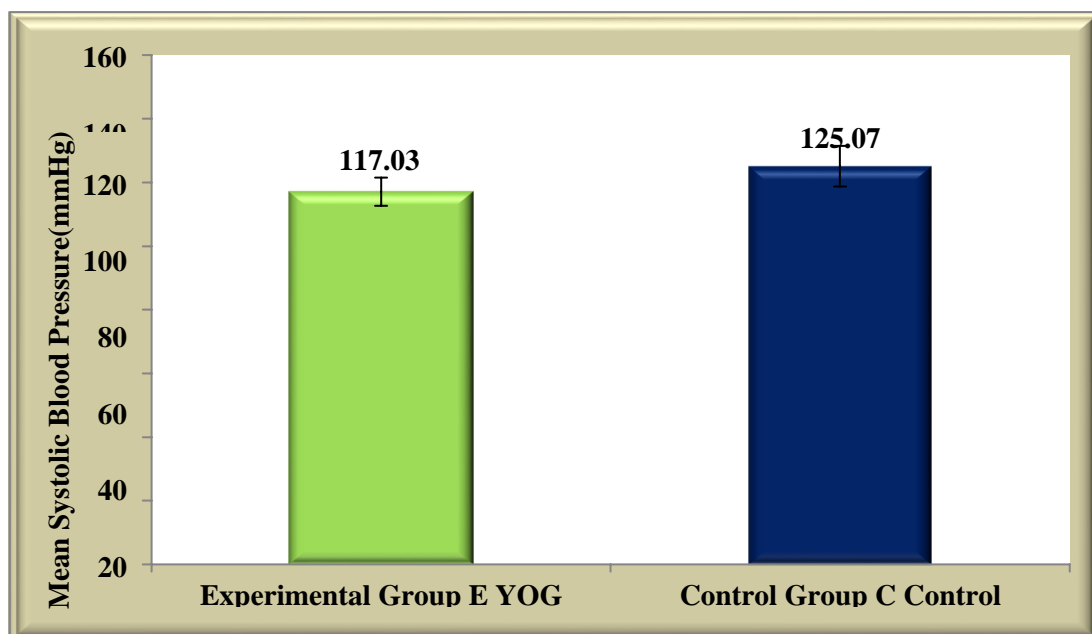
Group	N	Mean	Std. Deviation	Mean difference	t	p-value
Experimental Group E YOG	60	84.65	9.45	-0.450	-0.303	0.763 <sup>NS</sup>
Group C Control	60	85.10	6.57			

NS - Non Significant( $p > 0.05$ )

The results in Table 2 showed that the Diastolic Blood Pressure of Group C Control was non-significantly( $t 0.303, p 0.763; p > 0.05$ ) higher than experimental Group E YOG group of shooting players. The pre-test results were showing homogeneity between groups regarding Diastolic Blood Pressure.

**B. POST-TEST FINDINGS**

The Experimental Group E YOG shooting players were given training based on combination of Yoga asana, Pranayam & Meditation. To see the after training effect both the groups were again compared after as post-test for all selected parameters.



**Figure 3 : Mean Systolic Blood Pressure of players in Post-test**

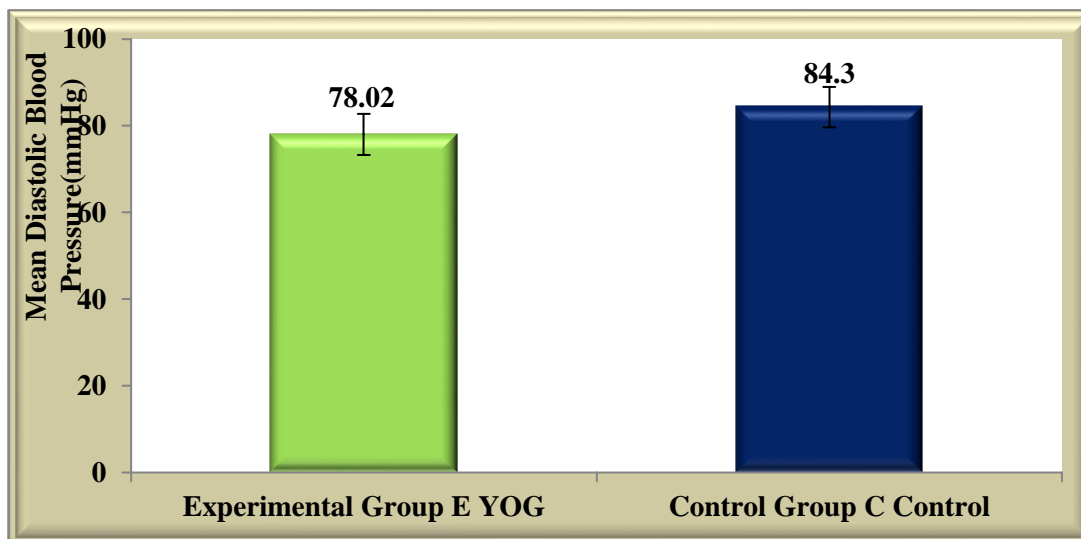
The post-test results in Figure 3 showed that mean Systolic Blood Pressure of Group C Control(125.07) was higher than Experimental Group E YOG (117.03).

**Table 3: Systolic Blood Pressure of players in post-test**

Group	N	Mean	Std. Deviation	Mean difference	T	p-value
Experimental Group E YOG	60	117.03	4.44	-8.033	-8.004	0.000 <sup>S</sup>
Group C Control	60	125.07	6.38			

S - Significant(p < 0.001)

It is evident from Table 3 that as a result of training the average Systolic Blood Pressure of shooting players was lesser compared to Group C Control. The Mean difference(8.033) between the two groups was calculated to be statistically highly significant(t 8.004, p 0.000 ; p<0.001).



**Figure 4: Mean Diastolic Blood Pressure of players in Post-test**

Here Figure 4 showed that Diastolic Blood Pressure of Experimental Group E YOG(78.02) was lesser than Group C Control(84.30) in post-test.

**Table 4 : Diastolic Blood Pressure of players in post-test**

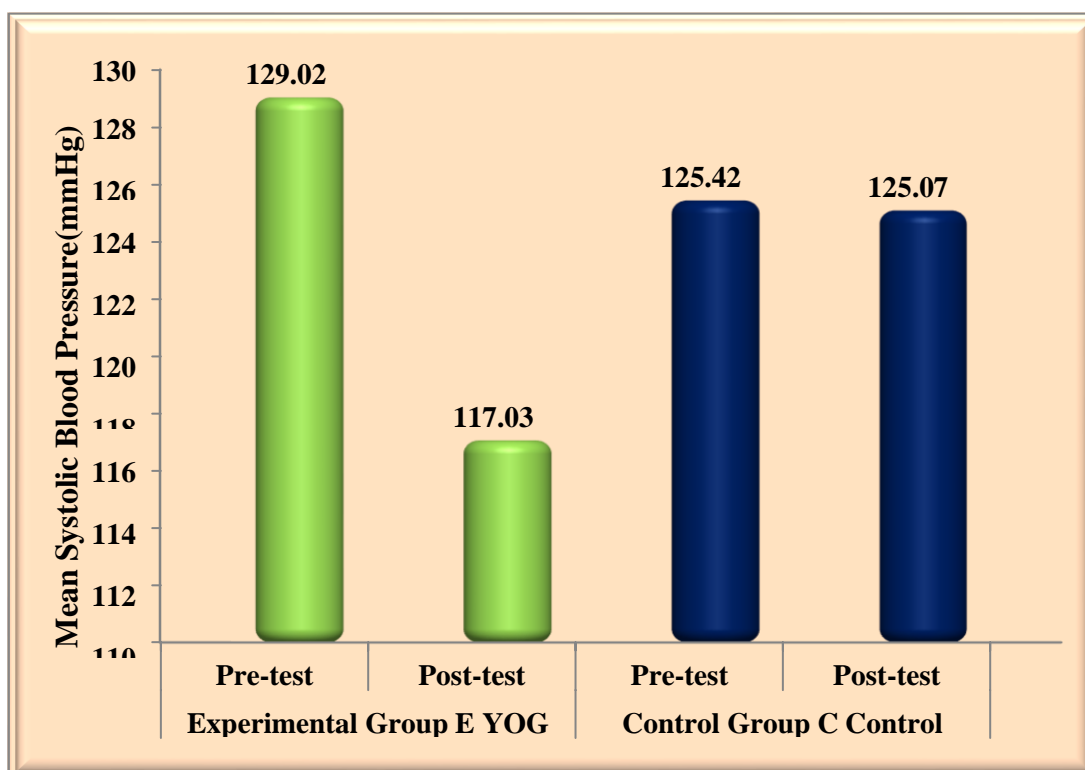
Group	N	Mean	Std. Deviation	Mean difference	t	p-value
Experimental Group E YOG	60	78.02	4.74	-6.283	-7.315	0.000 <sup>S</sup>
Group C Control	60	84.30	4.66			

S - Significant(p < 0.001)

Diastolic Blood Pressure of players in post-test is shown in Table 4. The results revealed that training helped Experimental Group E YOG to control the diastolic blood pressure of players lesser than Group C Control significantly (t 7.315, p 0.000 ; p<0.001).

**C. IMPACT OF TRAINING**

In this section the researcher had attempted to assess the impact of training and compare Experimental Group E YOG and Group C Control.





**Figure 5 : Mean change in Systolic Blood Pressure of players**

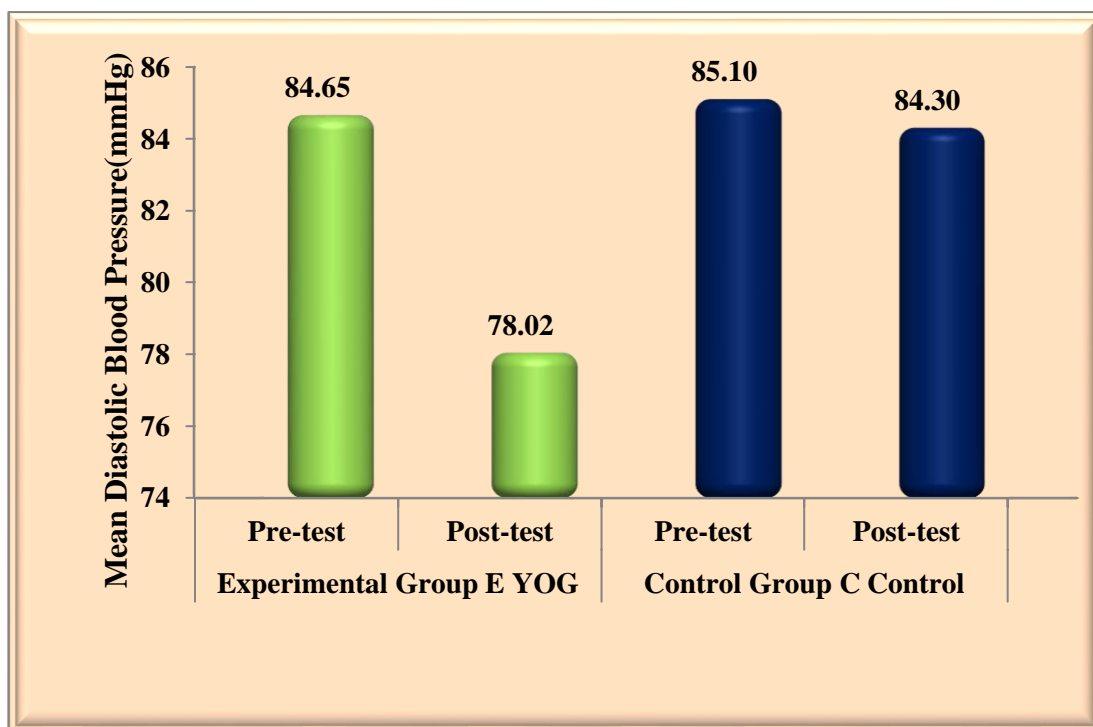
From Figure 5, it can be concluded that mean systolic blood pressure of Experimental Group E YOG decreased by Pranayama during post-test(117.03) which was observed higher in pre-test(129.02). Whereas slight decrease could be noticed in Group C Control from 125.42 in pre-test to 125.07 in post-test.

**Table 5 : Mean Systolic Blood Pressure among players from both groups**

Group	Test	Mean	Std. Deviation	Mean difference	t	p-value
Experimental Group E YOG	Pre-test	129.02	11.23	11.983	8.905	0.000 <sup>S</sup>
	Post-test	117.03	4.44			
Group C Control	Pre-test	125.42	10.61	0.350	0.236	0.814 <sup>NS</sup>
	Post-test	125.07	6.38			

**S- Significant(p<0.001) NS-Non Significant(p>0.05)**

As shown in Table 5 the pre-test and post test mean comparison was highly significant(t 8.905, p 0.000 ; p<0.001) in the case of Experimental Group E YOG but on the other hand non-significant for Group C Control(t 0.236, p 0.814; p>0.05).



**Figure 6 : Mean change in Diastolic Blood Pressure of players**

Figure 6 represents Diastolic Blood Pressure of both groups in pre and post test. The average Diastolic Blood Pressure of Experimental Group E YOG group was showed significant decline in post-test(78.02). While on the other hand negligible decrease was noticed in Group C Control (84.30).

**Table 6 : Mean Diastolic Blood Pressure among players from both groups**

Group	Test	Mean	Std. Deviation	Mean difference	t	p-value
Experimental Group E YOG	Pre-test	84.65	9.45	6.633	4.966	0.000 <sup>S</sup>
	Post-test	78.02	4.74			
Group Control C	Pre-test	85.10	6.57	0.800	.961	0.341 <sup>NS</sup>
	Post-test	84.30	4.66			

S- Significant(p<0.001) NS-Non Significant(p>0.05)



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The above Table 6 represents change in Diastolic Blood pressure during pre-test and post-test. Major deterioration up to 78.02 was observed in Diastolic Blood Pressure of Experimental Group E YOG due to Pranayama training. While it decreased 85.10 to 84.30 in Group C Control after 3 months.

## DISCUSSION

### (a) Pre-Test Results :

1. From the Table I, it is clear that there is no significant difference ( $p > 0.05$ ) between Systolic Blood Pressure of Experimental Group E YOG & Control Group C Control.
2. The results in Table II, showed that there is no significant difference ( $p > 0.05$ ) in Diastolic Blood Pressure between Experimental Group E YOG and Control Group C Control.

### (b) Post-Test Results:

3. From the Table III, it is concluded that there is significant difference ( $p < 0.001$ ) in Systolic Blood Pressure among Experimental Group E YOG and Control Group C Control.
4. The result shown in Table IV, is that there is significant difference ( $p < 0.001$ ) in Diastolic Blood Pressure among Experimental Group E YOG and Control Group C Control.

### (c) Impact of Training :

**In this section the researcher had attempted to assess the impact of training and compare Experimental Group E YOG and Control Group C Control.**

5. From the Table V, it can be concluded that the mean comparison between pre-test and post-test in Systolic Blood Pressure is highly significant ( $p < 0.001$ ) in case of



Experimental Group E YOG but on the other hand Non-significant( $p>0.05$ )for Control Group C Control.

6. The results shown in Table VI, it is clear that there is significantly decline in pre-test and post-test in Diastolic Blood Pressure of Experimental Group E YOG in post-test, while on the other hand negligible decrease is noticed in Control Group C Control.

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