Impact of Yogic Practices on Blood Pressure and BMI among School Girls

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Abstract

The purpose of the study is to find out the influence of Impact of yogic practices on selected physiological variables among School Girls. To achieve this purpose of the study, forty five School girls studying in Govt. Girls Hr. Sec. School, Ckekkanurani, Madurai. Tamil Nadu, India were randomly selected as subjects. The age of the subjects were ranged between 14 to 17 years. The selected subjects were divided in to three equal groups of fifteen School Girls each. Group I underwent yogic practices package I and Group II underwent yogic practices package II for five days per week for twelve weeks. Group III acted as control group that did not participate in any special training programme apart from their regular activities. The following factors such as blood pressure ate and body mass index were selected as dependent variables. All the subjects of the three groups were tested on selected criterion variables at prior to and immediately after the training programme. The concepts of dependent 't' test was employed to find out the significant improvement due to the impact of training programmes on all the selected criterion variables. The magnitude of improvement (MI) was also calculated to find out the percentage of improvements of all criterion variables separately. The analysis of covariance (ANCOVA) was also used to analyse the significant difference, if, any among the groups. Since three groups were compared whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test was used to find out the paired mean differences. The level of significance to test the 'F' ratio obtained by the analysis of covariance was fixed at .05 level of confidence which was considered as an appropriate. In testing post test mean difference among the three groups statistically significant on variables of blood pressure and BMI. In testing the post adjusted mean among the three groups also predicts the above result.

Keywords: Yogic Packages, Blood Pressure and BMI, School Girls

Introduction

Yoga is a way of life. It is predominantly concerned with maintaining a state of equanimity at all costs. All yoga schools of thought emphasize the importance of the mind remaining calm, because as the saying goes, only when the water is still can you see through it. Yoga Darshan or Yoga Philosophy also happens to be a valid discipline of Indian metaphysics (Brahma Vidya). It is the result of human wisdom and insight on physiology, psychology, ethics and spirituality collected together and practiced over thousands of years for the well being of humanity. The basic idea of yoga is to unite the atma or individual soul with the paramatma or the Universal Soul. According to Yoga philosophy, by cleansing one's mind and controlling one's thought processes one can return to that primeval state, when the individual self was nothing but a part of the Divine Self. This is the sense encapsulated in the term samadhi. The aim of the yogi is to be able to perceive the world in its true light and to accept that truth in its entirety.

As well as being fun for children, learning yoga develops self-discipline and can enhance their physical and mental health. Asanas are good for developing coordination and help to improve concentration and memory. Regular practice can enable young people to keep their natural flexibility for many years. It can help teenagers to keep their youthful flexibility and give them the inner strength to say no to negative influences. Older people often find that gentle yoga exercises allow them to retain mobility and may relieve problems such as arthritis and poor circulation. During pregnancy, yoga promotes good health in both mother and unborn child. Yoga asanas lessen the effects of such problems as overweight, backache, and depression. Most women who practice yoga find that it can make labor easier and shorter. Although some asanas have to be modified during pregnancy, their essence is perfectly suited to this time of expanded self-awareness. Pregnancy is also a very good time for meditation.

Methodology

The purpose of the study is to find out the Impact of yogic practices on selected physiological variables among School Girls. To achieve this purpose of the study, forty-five School Girls studying in Govt. Girls Hr. Sec. School, Ckekkanurani, Madurai. Tamil Nadu, India were randomly selected as subjects. The age of the subjects were ranged between 14 to 17 years. These elected subjects were divided in to three equal groups of fifteen School Girls each. Group I underwent yogic practices package I and Group II underwent yogic practices

package II for five days per week for twelve weeks. Group III acted as control group that did not participate in any special training programme apart from their regular activities. The following factors such as blood pressure and body mass index were selected as dependent variables. All the subjects of the three groups were tested on selected criterion variables at prior to and immediately after the training programme. The concepts of dependent „t" test was employed to find out the significant improvement due to the influence of training programmes on all the selected criterion variables. The magnitude of improvement (MI) was also calculated to find out the percentage of improvements of all criterion variables separately. The analysis of covariance (ANCOVA) was also used to analyse the significant difference, if, any among the groups. Since three groups were compared whenever the obtained „F" ratio for adjusted post-test was found to be significant, the Scheffe"s test was used to find out the paired mean differences. The level of significance to test the „F" ratio obtained by the analysis of covariance was fixed at .05 level of confidence which was considered as an appropriate.

Analysis of the Data

The influence of independent variables on each of the criterion variables is analyzed and presented below.

Body Mass Index

The results of the dependent 't'-test on the data obtained for Body mass index of the subjects in the pre-test and post-test of the experimental and control groups have been analysed and presented in Table-1.1

Table – 1.1

The Summary of Mean and Dependent 't' - Test for the Pre and Post Tests on Body Mass Index of Yogic Practices Package I, Yogic Practices Package II and Control Groups

	YPPI	YPPII	CG
Pre-test mean	28.40	28.48	28.37
Post-test mean	27.50	27.48	28.34
't'-test	7.62*	9.91*	0.29

Magnitude of Improvement	3.16%	3.47%	0.10%

**** Significant at .05 level.***

(Body mass index Scores inkg/m^2)

(Table value required for significance at .05 level for 't'-test with df 14 is 2.14)

From table1.1 the dependent 't' test values, on body mass index performance between the pre and post test means of yogic practices package I group and yogic practices package II group are 7.62 and 9.91 respectively. Since the obtained 't'-test values of the experimental groups are greater than the table value 2.14 with df 14 at 0.05 level of confidence it is concluded that yogic practices package I group, yogic practices package II group had registered significant reduction on the performance of body mass index and in case of control group the obtained 't' value 0.29 is failed to reach the significant level.

From the table it is also observed that the magnitude of improvement (MI) of body mass index due to the influence of yogic practices package I group, yogic practices package II group and control group are 3.16%, 3.47% and 0.10% respectively. It indicates that the yogic practices package II group had registered better percentage of reduction in body mass index.

The analysis of covariance (ANCOVA) on body mass index of yogic practices package I group, yogic practices package II group and control group have beenanalysed and presented in table -1.2

Table – 1.2

Analysis of Covariance on Body Mass Index ofYogic Practices Package I, Yogic Practices Package II and Control Groups

Adjusted Post-test Means			**Source of Variance**	**Sum of Squares**	**df**	**Mean Squares**	**'F' ratio**
YPPI	**YPPII**	**CG**					
27.50	27.47	28.35	BG	7.33	2	3.67	28.45*
			WG	5.28	41	0.12	

**** Significant at.05 level of confidence***

(The table value required for Significant at .05 level with df 2 and 41 is 3.23)

Table1.2 shows that the adjusted post test mean value of body mass index for yogic practices package I group, yogic practices package II group and control group are 27.50, 27.47 and 28.35 respectively. The obtained F-ratio of 28.45 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at .05 level of confidence.

The results of the study indicates that there are significant differences among the adjusted post test means of yogic practices package I group, yogic practices package II group and control group on the development of body mass index.

To determine which of the paired means had a significant difference, Scheffe's test was applied as post hoc test and the results are presented in table1.3

Table–1.3

The Scheffe's Test for the Differences Between the Adjusted Post Test Paired Means on Body Mass Index

Adjusted Post-test means			**Mean Difference**	**Confidence Interval**
YPPI	**YPPII**	**CG**		
27.50	--	28.35	0.85*	0.32
--	27.47	28.35	0.88*	0.32
27.50	27.47	--	0.03	0.32

**** Significant at.05 level of confidence***

Table 1.3 shows that the mean difference values between yogic practices package I and yogic practices package II groups; yogic practices package Iand control groups; yogic practices package II and control group are 0.85 and 0.88 respectively on body mass index which are greater than the confidence interval value 0.32 at 0.05 level of confidence. The mean difference between yogic practices package I and yogic practices package II group is 0.03 which is lesser than the confidence interval value 0.32 at 0.05 level of confidence. The results of the study showed that there was significant difference between yogic practices package I and control groups; yogic practices package II and control group on body mass index

The mean values of yogic practices package I group, yogic practices package II group and control group on body mass index are graphically represented in the figure -1.1

The adjusted post test mean values of yogic practices package I group, yogic practices package II group and control group on body mass index are graphically represented in the figure -1.1

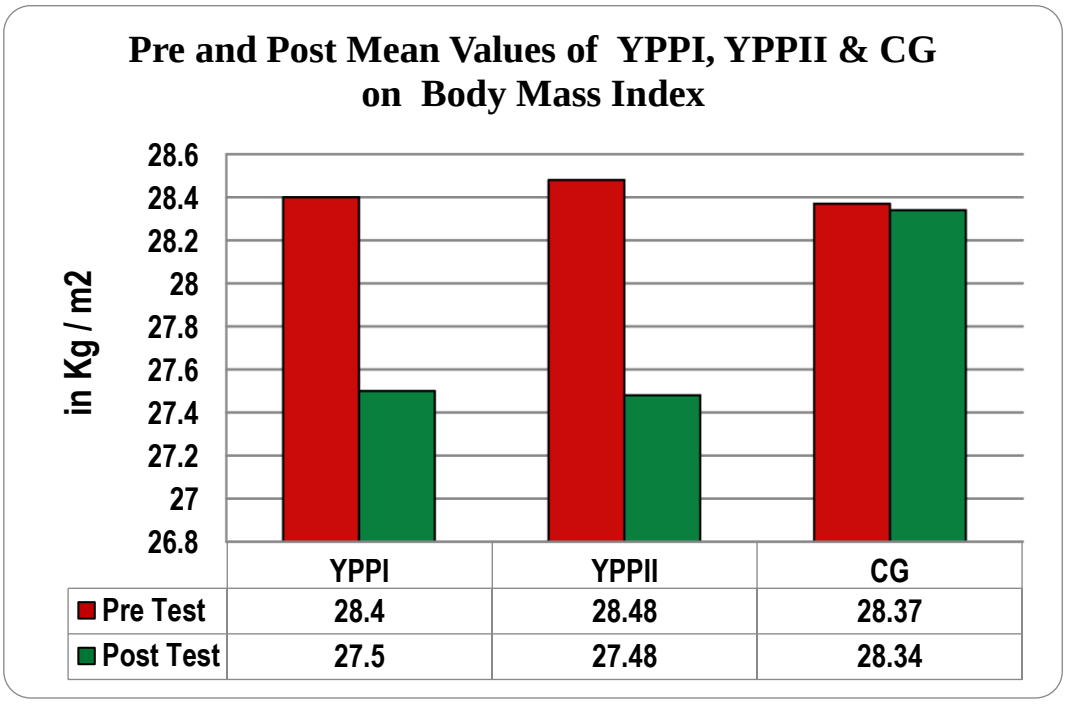
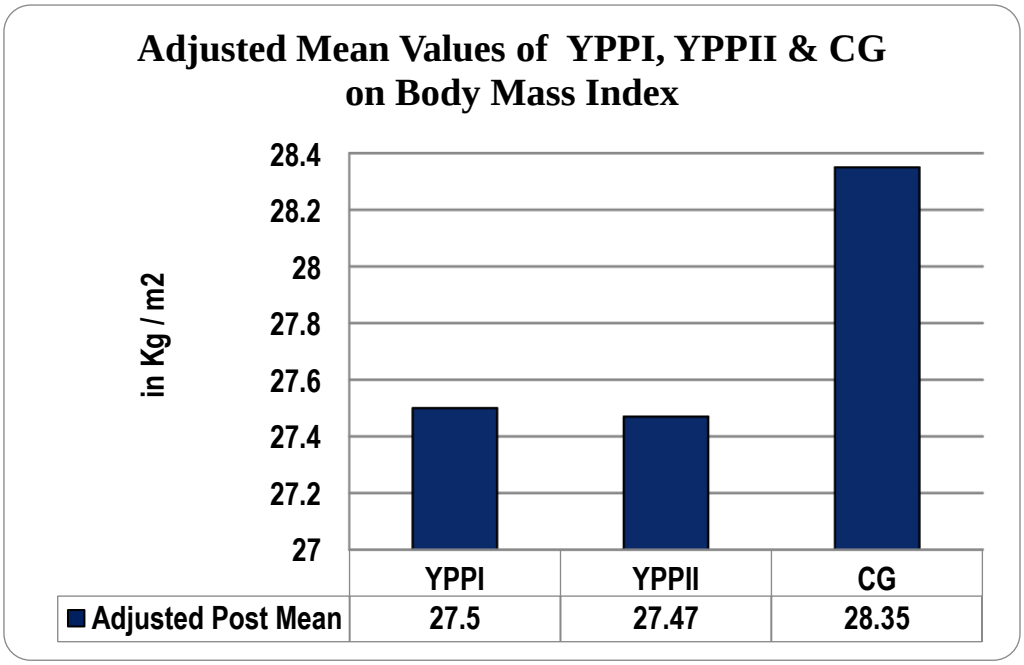


Figure-1.1 Mean Values of Yogic Practices Package I, Yogic Practices Package II and Control Groups on Body Mass Index



Figure–1.2The Adjusted Post Tests Mean Values of Yogic Practices Package I, Yogic Practices Package II and Control Groups on Body Mass Index

Systolic Blood Pressure

The results of the dependent 't'-test on the data obtained for systolic blood pressure of the subjects in the pre-test and post-test of the experimental and control groups have been analysed and presented in Table1.4

Table – 1.4

The Summary of Meanand Dependent 't' - Test for the Pre and Post Tests on Systolic Blood Pressure of Yogic Practices Package I, Yogic Practices Package IIand Control Groups

	YPPI	YPPII	CG
Pre-test mean	127.33	126.86	127.00
Post-test mean	123.80	123.00	126.73
't'-test	8.56*	7.13*	0.57
Magnitude of Improvement	2.77%	3.04%	0.20%

**** Significant at .05 level.***

(**Systolic blood pressure Scores inmmhg**)

(Table value required for significance at .05 level for 't'-test with df 14 is 2.14)

From table1.4 the dependent 't' test values, on systolic blood pressure performance between the pre and post test means of yogic practices package I group and yogic practices package II group are 8.56 and 7.13 respectively. Since the obtained 't'-test values of the experimental groups are greater than the table value 2.14 with df 14 at 0.05 level of confidence it is concluded that yogic practices package I group, yogic practices package II group had registered significant reduction on the performance of systolic blood pressure and in case of control group the obtained 't' value 0.57 is failed to reach the significant level.

From the table it is also observed that the magnitude of improvement (MI) of systolic blood pressure due to the influence of yogic practices package I group, yogic practices package II group and control group are 2.77%, 3.04% and 0.20% respectively. It indicates that the yogic practices package II group had registered better percentage of reduction in systolic blood pressure.

The analysis of covariance (ANCOVA) on systolic blood pressure of yogic practices package I group, yogic practices package II group and control group have been analysed and presented in table -1.5

Table – 1.5

Analysis of Covariance on Systolic Blood Pressure of Yogic Practices Package I, Yogic Practices Package II and Control Groups

Adjusted Post-test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' ratio
YPPI	YPPII	CG					
123.75	123.03	126.74	BG	116.11	2	58.05	43.75*
			WG	54.40	41	1.327	

**** Significant at.05 level of confidence***

(The table value required for Significant at .05 level with df 2 and 41 is 3.23)

Table1.5 shows that the adjusted post test mean value of systolic blood pressure for yogic practices package I group, yogic practices package II group and control group are 123.75, 123.03 and 126.74 respectively. The obtained F-ratio of 43.75 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at .05 level of confidence.

The results of the study indicates that there are significant differences among the adjusted post test means of yogic practices package I group, yogic practices package II group and control group on the reduction of systolic blood pressure.

To determine which of the paired means had a significant difference, Scheffe's test was applied as post hoc test and the results are presented in table1.6

Table–1.6

The Scheffe's Test for the Differences Between the Adjusted Post Test Paired Means on Systolic Blood Pressure

Adjusted Post-test means			Mean Difference	Confidence Interval
YPPI	YPPII	CG		
123.75	--	126.74	2.99*	1.06
--	123.03	126.74	3.71*	1.06
123.75	123.03	--	0.72	1.06

**** Significant at.05 level of confidence***

Table 4.9 shows that the mean difference values between yogic practices package I and control groups; yogic practices package II and control group are 2.99 and 3.71 respectively on systolic blood pressure which are greater than the confidence interval value 1.06 at 0.05 level of confidence. The mean difference between yogic practices package I and yogic practices package II group is 0.72 which is lesser than the confidence interval value 1.06 at 0.05 level of confidence. The results of the study showed that there was significant difference between yogic practices package I and control groups; yogic practices package II and control group on systolic blood pressure. The mean values of yogic practices package I group, yogic practices package II group and control group on systolic blood pressure are graphically represented in the figure

The adjusted post test mean values of yogic practices package I group, yogic practices package II group and control group on systolic blood pressure are graphically represented in the figure -4.6.

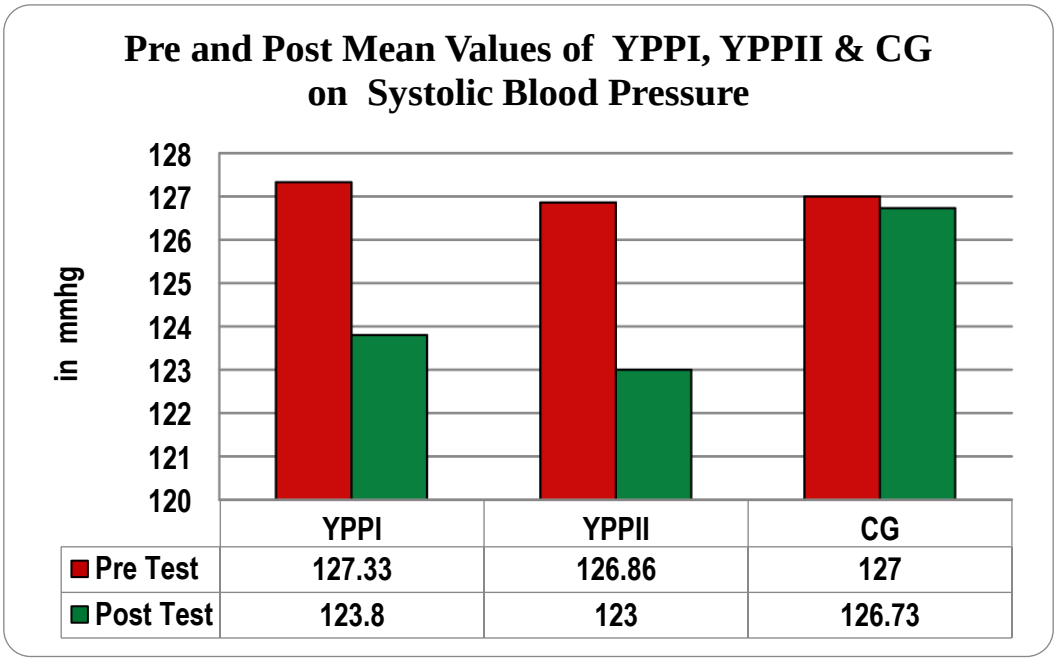
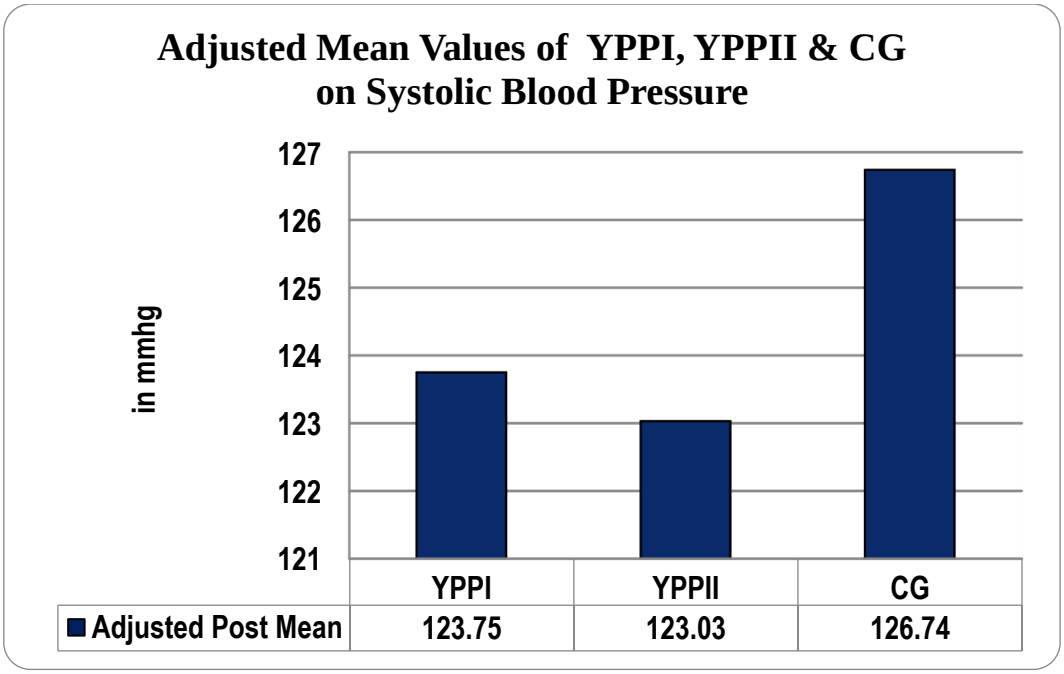


Figure-1.3 Mean Values ofYogic Practices Package I, Yogic Practices Package II and Control Groups on Systolic Blood Pressure



Figure–1.4The Adjusted Post Tests Mean Values of Yogic Practices Package I, Yogic Practices Package II and Control Groups on Systolic Blood Pressure

Diastolic blood pressure

The results of the dependent 't'-test on the data obtained for diastolic blood pressure of the subjects in the pre-test and post-test of the experimental and control groups have been analysed and presented in Table-1.7

Table – 1.7

The Summary of Meanand Dependent 't' - Test for the Pre and Post Tests on Diastolic blood pressureofYogic Practices Package I, Yogic PracticesPackage IIand Control Groups

	YPPI	YPPII	CG
Pre-test mean	87.46	87.80	87.13
Post-test mean	84.60	84.00	86.80
't'-test	4.90*	10.33*	0.77
Magnitude of Improvement	3.27%	4.32%	0.37%

**** Significant at .05 level.***

(Diastolic blood pressure Scores inmmhg)

(Table value required for significance at .05 level for 't'-test with df 14 is 2.14)

From table1.7 the dependent 't' test values, on diastolic blood pressure performance between the pre and post test means of yogic practices package I group and yogic practices package II group are 4.90 and 10.33 respectively. Since the obtained 't'-test values of the experimental groups are greater than the table value 2.14 with df 14 at 0.05 level of confidence it is concluded that yogic practices package I group, yogic practices package II group had registered significant reduction on the performance of diastolic blood pressure and in case of control group the obtained 't' value 0.77 is failed to reach the significant level.

From the table it is also observed that the magnitude of improvement (MI) of diastolic blood pressure due to the influence of yogic practices package I group, yogic practices package II group and control group are 3.27%, 4.32% and 0.37% respectively. It indicates that the yogic practices package II group had registered better percentage of reduction in diastolic blood pressure.

The analysis of covariance (ANCOVA) on diastolic blood pressure of yogic practices package I group, yogic practices package II group and control group have been analysed and presented in table -1.8.

Table – 1.8

Analysis of Covariance on Diastolic Blood Pressure of Yogic Practices Package I, Yogic Practices Package II and Control Groups

Adjusted Post-test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' ratio
YPPI	YPPII	CG					
84.60	83.95	86.84	BG	66.60	2	33.30	17.84*
			WG	76.50	41	1.86	

**** Significant at.05 level of confidence***

(The table value required for Significant at .05 level with df 2 and 41 is 3.23)

Table1.8 shows that the adjusted post test mean value of diastolic blood pressure for yogic practices package I group, yogic practices package II group and control group are 84.60, 83.95 and 86.84 respectively. The obtained F-ratio of 17.84 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at .05 level of confidence.

The results of the study indicates that there are significant differences among the adjusted post test means of yogic practices package I group, yogic practices package II group and control group on the development of diastolic blood pressure.

To determine which of the paired means had a significant difference, Scheffe's test was applied as post hoc test and the results are presented in table1.9

Table–1.9

The Scheffe's Test for the Differences Between the Adjusted Post Test Paired Means on Diastolic Blood Pressure

Adjusted Post-test means			Mean Difference	Confidence Interval
YPPI	YPPII	CG		
84.60	--	86.84	2.24*	1.26
--	83.95	86.84	2.89*	1.26
84.60	83.95	--	0.65	1.26

**** Significant at.05 level of confidence***

Table1.9 shows that the mean difference values between yogic practices package I and control groups; yogic practices package II and control group are 2.24 and 2.89 respectively on diastolic blood pressure which are greater than the confidence interval value 1.26 at 0.05 level of confidence. The mean difference between yogic practices package I and yogic practices package II group is 0.65 which is lesser than the confidence interval value 1.26 at 0.05 level of confidence.

The results of the study showed that there was significant difference between yogic practices package I and control groups; yogic practices package II and control group on diastolic blood pressure. The mean values of yogic practices package I group, yogic practices package II group and control group on diastolic blood pressure are graphically represented in the figure

The adjusted post test mean values of yogic practices package I group, yogic practices package II group and control group on diastolic blood pressure are graphically represented in the figure -1.5.

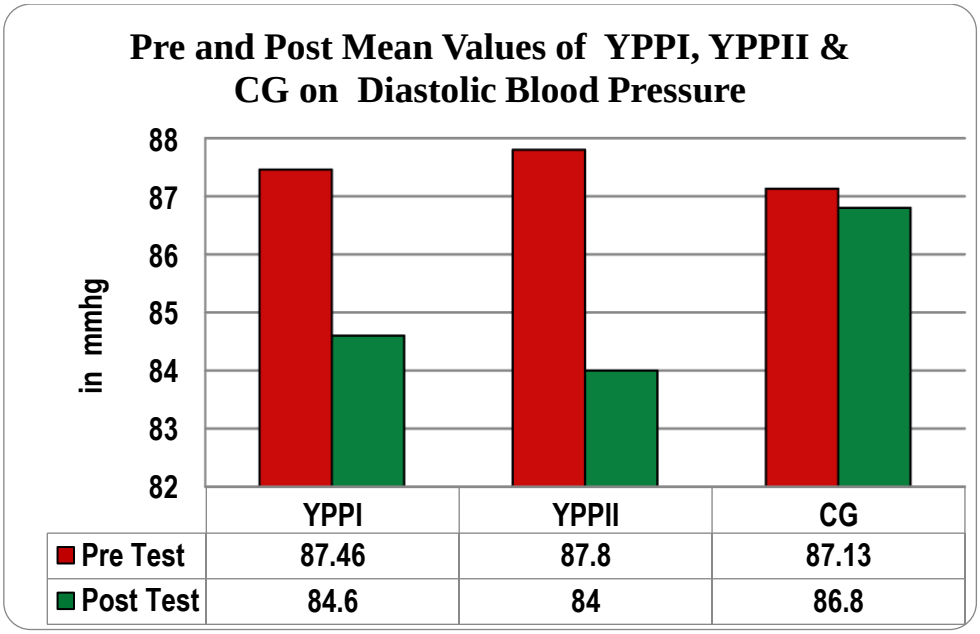
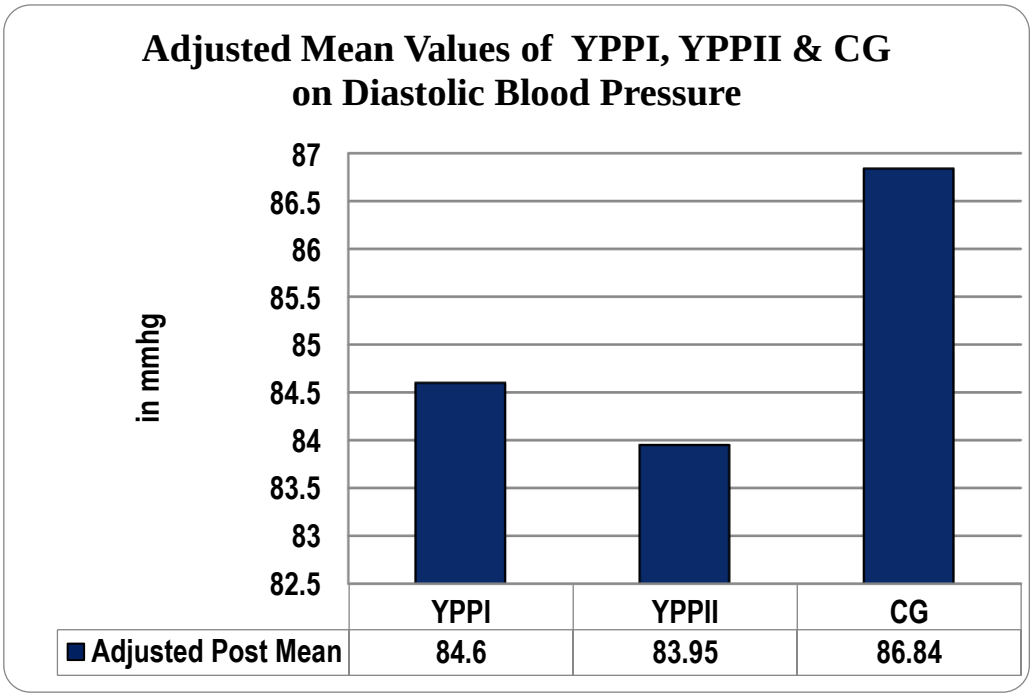


Figure-1.5 Mean Values of Yogic Practices Package I,Yogic Practices Package II and Control Groups on Diastolic Blood Pressure



Figure–1.6The Adjusted Post Tests Mean Values of Yogic Practices Package I, Yogic Practices Package II and Control Groups on Diastolic Blood Pressure

Results

1. The yogic practices packages I significantly improved the selected physiological variables. The't' values of the selected variables have reached the significant level.

2. The yogic practices packages II significantly improved the selected physiological variables. The't' values of the selected variables have reached the significant level.
3. In the control group the obtained't' value on all the variables were failed to reach the significant level.
4. The significant mean difference does not exist among all the three groups in the pre-test on blood pressure and BMI.
5. In testing post-test mean difference among the three groups statistically significant on variables of blood pressure and BMI. In testing the post adjusted mean among the three g