

EFFECT OF SELECTED YOGASANAS ON DIABETES AMONG ENGINEERING COLLEGE WOMEN FACULTY OF HYDERABAD**Dr.R.Rajeswari*****Assistant Professor, Department of Physical Education
Chaitanya Bharathi Institute of Technology, Hyderabad****DOI : 10.48047/IJFANS/V10/ISS9/22****ABSTRACT**

The purpose of this study is to analyze the effect of Yogasanas on diabetes of engineering college women faculty. Hence 40 subjects were randomly selected whose age range between 35 to 50 years and based on their mean random blood sugar level grouped into two, control group and experimental group. Pre tests were conducted for all the subjects on selected physiological and biochemical variables such as systolic blood pressure, diastolic blood pressure, postprandial blood glucose and fasting blood sugar. The experimental group underwent yogasanas for twelve weeks. After the experimental period, the post tests were conducted on the same dependent variables. The difference between initial and final scores was considered as the effect of respective treatment. To test statistical significance, ANCOVA was used. In all cases 0.05 level was fixed to test the hypothesis of this study.

Key Words: systolic blood pressure, diastolic blood pressure, postprandial blood glucose and fasting blood sugar

In 2019, diabetes was the ninth leading cause of death with an estimated 1.5 million deaths directly caused by diabetes. A healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent or delay the onset of type2 diabetes. The purpose of this study is to analyze the effect of Yogasanas on diabetes of engineering college women faculty.

LIMITATIONS OF THE STUDY

The study was limited in the following way:-

1. The psychological and mental balance of the subjects was not measured in the study.
2. The previous history of the subjects was not considered.
3. Regular activities pertaining to their day to day routine were not taken into account.
4. The researcher did not consider humidity, temperature and other environmental conditions.
5. The physical fitness level was not evaluated through physical fitness tests.

DELIMITATIONS OF THE STUDY

The study was delimited as follows:-

1. The study was conducted only to women faculty working in engineering colleges of Hyderabad.
2. The subjects were ranged in the age group of 35 to 50 years.
3. Only 40 women faculty volunteer were selected and they were allotted to two groups by mean random blood sugar level.
4. The effect of yogasanas on diabetics was measured through physiological variables, systolic blood pressure and diastolic blood pressure, for this study.
5. The effect of yogasanas on diabetics was measured through biochemical variables, fasting blood sugar and postprandial sugar for this study..
6. The interventional programmes 12 weeks yogasanas for experimental group was considered as independent variables for this study.

SELECTION OF SUBJECTS

To select engineering college women faculty of Hyderabad region on diabetics, the investigator administered a brief questionnaire among women faculty on their health status and presence of diabetics. The questionnaire was administered among 200 engineering women faculty. Based on the survey, women faculty undergoing for diabetics treatment were identified. From such women faculty, 40 subjects were randomly selected for this study. The age group of the subjects was between 35 to 50 years. They were preliminarily assessed of their blood sugar through standard tests and medical reports of them were verified. The selected subjects were assigned into two different groups based on their mean random blood sugar level. Equated groups design was used with thirty subjects in each group, namely control group, experimental group.

Dependent Variables

Biochemical Variables

1. Fasting Blood Sugar
2. Postprandial Blood Sugar

Physiological variables

1. Systolic Blood Pressure
2. Diastolic Blood Pressure

Independent Variables

1. Twelve Weeks Yogic Practices

EXPERIMENTAL DESIGN

Randomly selected forty women diabetic engineering women faculty in the age group of 35 to 50 were grouped into two based on their mean random blood sugar level. Thus, equated groups design was used with twenty subjects in each group, namely control group, experimental group. Pre tests were conducted for all the subjects on selected physiological and biochemical variables such as systolic blood pressure, diastolic blood pressure, postprandial blood glucose and

fasting blood sugar. This formed initial scores of the subjects. The experimental group underwent yogasanas for twelve weeks. After the experimental period, the post tests were conducted on the above said dependent variables which formed final scores of the subjects. The difference between initial and final scores was considered as the effect of respective treatment. To test statistical significance, ANCOVA was used. In all cases 0.05 level was fixed to test the hypothesis of this study.

CRITERION MEASURES

1. Systolic and diastolic blood pressures were measured through sphygmomanometer.
2. Biochemical variables postprandial blood glucose and fasting glucose were determined through blood samples analyzed through laboratory.

YOGASANAS

In order to give scientific yogic training to the subjects, the investigator selected asanas for warm up, asanas for practice, pranayama for breath holding and cleansing and savasana for relaxation.

Each session lasted for 50 minutes consisting of 5 minutes warm up in the form of loosening exercises, followed by ten asanas lasting for 30 minutes (10 x 3 minutes), 10 minutes pranayama and 5 minutes relaxation in the form of savasana..

Loosening exercises were given to the subjects as warm up, any ten of the following asanas Padmasana, Dhanurasana, Bhujangasana, Yoga Mudra, Paschimotanasana, Adhra Chakrasana, Ardha Paasantmuktasana, Vajrasana, Trikonasana, Padahastasana, Halasana, Salabasana, were given to the subjects as yagasana practices, Any two of the three pranayamas Nadi Sodhana Pranayama, Kapalabhati Pranayama and Sheetal Pranayama were given to the subjects. As a relaxation asana, savasana was asked to be practiced for 10 minutes.

RESULTS ON SYSTOLIC BLOOD PRESSURE

The initial and final means on experimental group and control group on Systolic Blood Pressure among engineering college women faculty and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table I.

Table I

ANALYSIS OF COVARIANCE RESULTS ON EFFECT OF YOGASANAS ON DIABETES VARIABLE SYSTOLIC BLOOD PRESSURE

	EXPERIMENTAL GROUP	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED

Pre Test Mean	145.00	146.00	Between	15.00	1	15.00	0.15
			Within	5670.00	58	97.76	
Post Test Mean	135.83	147.00	Between	1870.42	1	1870.42	37.61*
			Within	2884.17	58	49.73	
Adjusted Post Test Mean	136.14	146.69	Between	1664.10	1	1664.10	134.52*
			Within	705.11	57	12.37	
Mean Diff	-9.17	1.00					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01 .

* Significant

The pre test mean on experimental group was 145.00, and control group was 146.00 and the obtained F value was 0.15, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

The comparison of post test means, experimental group 135.83 and control group 147.00 proved to be significant at 0.05 level as the obtained F value 37.61 was greater than the required table F value of 4.01 to be significant at 0.05 level.

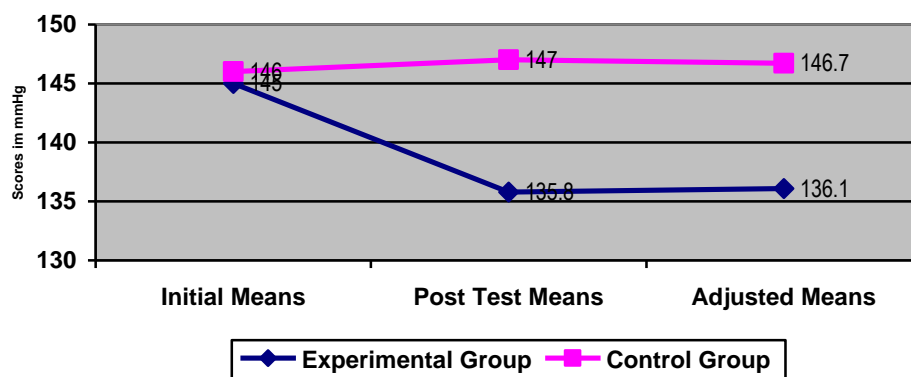
Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 134.52 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Systolic Blood Pressure -9.17 was due to Yogic practices given to engineering college women faculty, and the difference was found to be significant at 0.05 level.

The initial, post and adjusted means values of experimental and control group on Systolic Blood Pressure is presented in Figure I for better understanding of the results of this study.

Figure I

Bar Diagram Showing Initial, Final and Adjusted Means on Systolic Blood Pressure of Experimental and Control Groups



DISCUSSIONS

The results presented in Table I proved that the Systolic Blood Pressure has not been significantly improved among control group as they do not underwent Yogic Practices. However, the twelve weeks Yogic practices given to the experimental group significantly improved Systolic Blood Pressure among diabetic engineering college women faculty. The statistical mean difference between initial test and final test of experimental group stood at -9.17 and control group stood at 1.00. The adjusted mean taking into consideration of initial and final means on Systolic Blood Pressure among experimental group was 136.14 and control group was 146.69 and showed favorable effects on yogic practices group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 134.52 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Thus, it was proved that Yogic practices was significantly better than control group in favorably influencing Systolic Blood Pressure thereby manage diabetics of the engineering college women faculty.

Due to twelve weeks of yogic practices systolic blood pressure induced to alter systolic blood pressure significantly compared to control group. As the subjects began to do the physical exertion in the form of experimental treatment, there was increased blood circulation, which resulted in reduced pulse rate. With the additional aerobic power, the systolic pressure began to stabilize. Hence, there was reduction in systolic blood pressure.

RESULTS ON DIASTOLIC BLOOD PRESSURE

The initial and final means on experimental group and control group on Diastolic Blood Pressure among engineering college women faculty and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table II.

Table II

ANALYSIS OF COVARIANCE RESULTS ON EFFECT OF YOGASANAS ON DIABETES VARIABLE DIASTOLIC BLOOD PRESSURE

	EXPERIMENTAL GROUP	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED F
Pre Test Mean	92.93	93.67	Between	8.07	1	8.07	0.31
			Within	1494.53	58	25.77	
Post Test Mean	88.50	95.17	Between	666.67	1	666.67	46.49*
			Within	831.67	58	14.34	
Adjusted Post Test Mean	88.58	95.08	Between	630.92	1	630.92	47.50*
			Within	757.17	57	13.28	
Mean Diff	-4.43	1.50					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01 .

* Significant

The pre test mean on experimental group was 92.93, and control group was 93.67 and the obtained F value was 0.31, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

The comparison of post test means, experimental group 88.50 and control group 95.17 proved to be significant at 0.05 level as the obtained F value 46.49 was greater than the required table F value of 4.01 to be significant at 0.05 level.

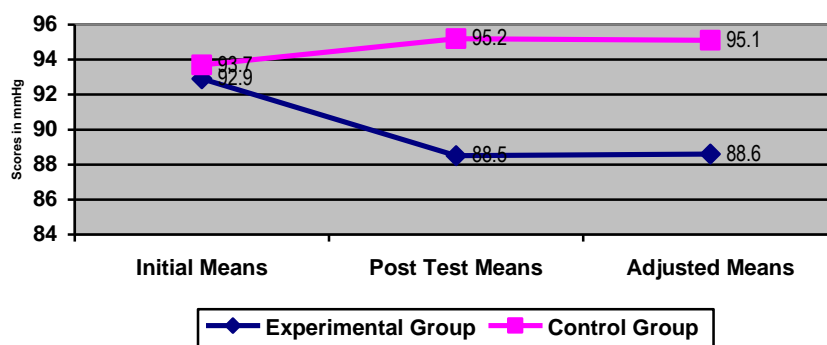
Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 47.50 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Diastolic Blood Pressure -4.43 was due to Yogic practices given to engineering college women faculty, and the difference was found to be significant at 0.05 level.

The initial, post and adjusted means values of experimental and control group on Diastolic Blood Pressure is presented in Figure II for better understanding of the results of this study.

Figure II

Bar Diagram Showing Initial, Final and Adjusted Means on Diastolic Blood Pressure of Experimental and Control Groups



DISCUSSIONS

The results presented in Table II proved that the Diastolic Blood Pressure has not been significantly improved among control group as they do not undergo Yogic Practices. However, the twelve weeks Yogic practices given to the experimental group significantly improved Diastolic Blood Pressure among diabetic engineering college women faculty. The statistical mean difference between initial test and final test of experimental group stood at -4.43 and control group stood at 1.50. The adjusted mean taking into consideration of initial and final means on Diastolic Blood Pressure among experimental group was 88.58 and control group was 95.08 and showed favorable effects on yogic practices group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 47.50 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Thus, it was proved that Yogic practices was significantly better than control group in favorably influencing Diastolic Blood Pressure thereby managing diabetics of the engineering college women faculty.

Due to twelve weeks of yogic practices systolic blood pressure induced to alter diastolic blood pressure significantly compared to control group. As the subjects began to do the physical exertion in the form of experimental treatments, there was increased blood circulation, which resulted in reduced pulse rate. With the additional aerobic power, the diastolic pressure began to stabilize. Hence, there was reduction in diastolic blood pressure. The findings proved that the twelve weeks yogic practices significantly reduced diastolic blood pressure. .

RESULTS ON FASTING SUGAR

The initial and final means on experimental group and control group on Fasting Sugar among engineering college women faculty and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table III.

Table III

ANALYSIS OF COVARIANCE RESULTS ON EFFECT OF YOGASANAS ON DIABETES VARIABLE FASTING SUGAR

	EXPERIMENTAL GROUP	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED F
Pre Test Mean	133.37	134.23	Between	11.27	1	11.27	0.56
			Within	1176.33	58	20.28	
Post Test Mean	129.37	133.60	Between	268.82	1	268.82	15.87*
			Within	982.17	58	16.93	
Adjusted Post Test Mean	129.75	133.22	Between	179.46	1	179.46	124.06*
			Within	82.45	57	1.45	
Mean Diff	-4.00	-0.63					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01 .

* Significant

The pre test mean on experimental group was 133.37, and control group was 134.23 and the obtained F value was 0.56, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

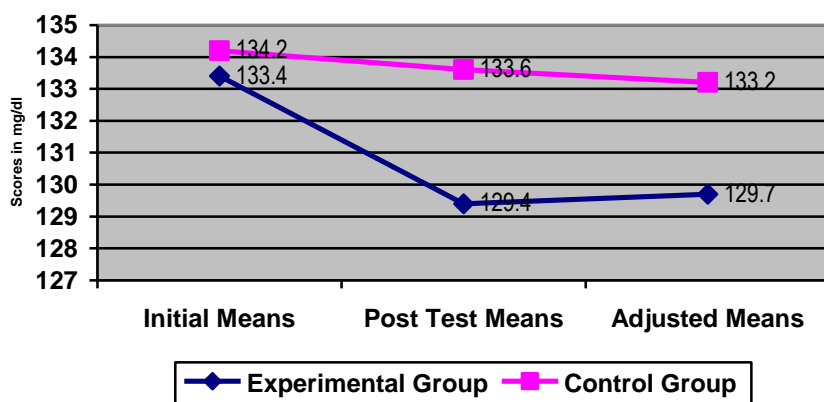
The comparison of post test means, experimental group 129.37 and control group 133.60 proved to be significant at 0.05 level as the obtained F value 15.87 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 124.06 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Fasting Sugar -4.00 was due to Yogic practices given to engineering college women faculty, and the difference was found to be significant at 0.05 level.

The initial, post and adjusted means values of experimental and control group on Fasting Sugar is presented in Figure III for better understanding of the results of this study.

Figure III
Bar Diagram Showing Initial, Final and Adjusted Means on Fasting Sugar of Experimental and Control Groups



DISCUSSIONS

The results presented in Table III proved that the Fasting Sugar has not been significantly improved among control group as they do not undergo Yogic Practices. However, the twelve weeks Yogic practices given to the experimental group significantly improved Fasting Sugar among engineering college women faculty. The statistical mean difference between initial test and final test of experimental group stood at -4.00 and control group stood at -0.63. The adjusted mean taking into consideration of initial and final means on Fasting Sugar among experimental group was 129.75 and control group was 133.22 and showed favorable effects on yogic practices group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 124.06 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Thus, it was proved that Yogic practices was significantly better than control group in favourably influencing Fasting Sugar in managing diabetics of the engineering college women faculty.

RESULTS ON POSTPARANDIAL SUGAR

The initial and final means on experimental group and control group on Postparandial Sugar among engineering college women faculty and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table IV.

Table IV

ANALYSIS OF COVARIANCE RESULTS ON EFFECT OF YOGASANAS ON DIABETES VARIABLE POSTPARANDIAL SUGAR

	EXPERIMENTAL	CONTROL	SOURCE	SUM OF	DF	MEAN	OBTAINED
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	GROUP		OF VARIANCE	SQUARES		SQUARES	F
Pre Test Mean	227.80	224.97	Between	120.42	1	120.42	1.75
			Within	3987.77	58	68.75	
Post Test Mean	219.80	224.47	Between	326.67	1	326.67	5.12*
			Within	3700.27	58	63.80	
Adjusted Post Test Mean	218.45	225.82	Between	790.03	1	790.03	558.78*
			Within	80.59	57	1.41	
Mean Diff	-8.00	-0.50					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01 .

* Significant

The pre test mean on experimental group was 227.80, and control group was 224.97 and the obtained F value was 1.75, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

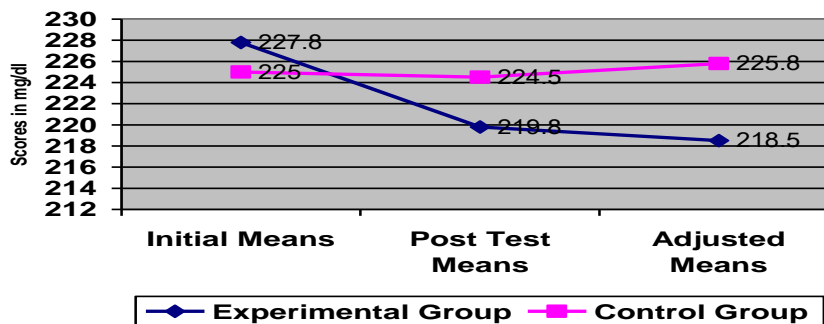
The comparison of post test means, experimental group 219.80 and control group 224.47 proved to be significant at 0.05 level as the obtained F value 5.12 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 558.78 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Post Parandial Sugar -8.00 was due to Yogic practices given to engineering college women faculty, and the difference was found to be significant at 0.05 level.

The initial, post and adjusted means values of experimental and control group on Post Parandial Sugar is presented in Figure IV for better understanding of the results of this study.

Figure IV
Bar Diagram Showing Initial, Final and Adjusted Means on Postparandial Sugar of Experimental and Control Groups



DISCUSSIONS

The results presented in Table IV proved that the Post Parandial Sugar has not been significantly improved among control group as they do not undergone Yogic Practices. However, the twelve weeks Yogic practices given to the experimental group significantly altered Post Parandial Sugar among diabetic engineering college women faculty. The statistical mean difference between initial test and final test of experimental group stood at -8.00 and control group stood at -0.50. The adjusted mean taking into consideration of initial and final means on Post Parandial Sugar among experimental group was 218.45 and control group was 225.82 and showed favorable effects on yogic practices group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 558.78 was greater than the required table F value of 4.01 to be significant at 0.05 level.

Thus, it was proved that Yogic practices was significantly better than control group in favorably influencing post parandial Sugar in managing diabetics of the engineering college women faculty.

CONCLUSIONS

Within the limitations and delimitations of the study, the following conclusions were drawn.

1. The effect of selected yogasanas on diabetics among engineering college women faculty was tested through physiological variable, systolic blood pressure and it was concluded that selected yogasanas beneficially altered systolic blood pressure and the reduction was statistically significant.
2. The effect of selected yogasanas on diabetics among engineering college women faculty was tested through physiological variable, diastolic blood pressure and it was concluded that selected yogasanas beneficially altered diastolic blood pressure and the reduction was statistically significant.
3. The effect of selected yogasanas on diabetics among engineering college women faculty was tested through biochemical variable, fasting sugar and it was concluded that selected yogasanas beneficially altered fasting sugar and the reduction was statistically significant.

4. The effect of selected yogasanas on diabetics among engineering college women faculty was tested through biochemical variable, post prandial sugar and it was concluded that selected yogasanas beneficially altered post prandial sugar and the reduction was statistically significant.

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