

# EFFECT OF VARIED YOGIC PRACTICES ON SELECTED BIO-CHEMICAL VARIABLES AMONG TYPE II DIABETIC MIDDLE AGED MEN

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## ABSTRACT

The purpose of random group experimental study was to find out the effect of varied yogic practices on selected Bio-chemical variables among middle aged men Type II Diabetic patients. It was hypothesized that there would be significant difference in Bio-chemical variables such as Fasting Blood Sugar and Post Prandial Blood Sugar among middle aged men Type II Diabetic patients due to the influence of varied yogic practices (Kendra school of Yoga & Bihar school of Yoga) than the control group. It was also hypothesized that there would be significant difference on selected Bio-chemical variables among middle aged men Type II Diabetic patients between Kendra school of Yoga and Bihar school of Yoga. To achieve the purpose of the study, 45 middle aged men Type II Diabetic patients from Karaikudi city, Sivagangai district and the age between 30 to 40 years were selected randomly into two experimental groups (Kendra school of Yoga & Bihar school of Yoga) and one control group of 15 subjects each. Experimental groups Kendra school of yoga and Bihar school of yoga underwent yoga practices for 8 weeks, six days a week for a maximum of one hour in the morning. The control group was kept in active rest. The following type II diabetic, Bio-chemical variables (Fasting Blood Sugar and Post Prandial Blood Sugar) were selected dependent variables. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme. The data collected from the groups before and after the training period were statistically analyzed by using Analysis of co-variance (ANCOVA). Scheffe's Post hoc test was carried out to determine the paired mean difference and the hypotheses were tested at 0.05 level of confidence. The result of the study showed that the Bio-chemical variables Fasting Blood Sugar and Post Prandial Blood Sugar shows the significant difference. Hence the hypothesis was accepted at 0.05 level of confidence. The conclusion was that the varied yogic practices help to decrease Fasting Blood Sugar and Post Prandial Blood Sugar among aged men Type II Diabetic patients.

Key words: Yoga, Type II Diabetic, Blood Sugar.

## INTRODUCTION

Diabetes mellitus (DM), commonly referred to as diabetes, is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. As of 2014, an estimated 387 million people have diabetes worldwide, with type 2 diabetes making up about 90% of the cases. This is equal to 8.3% of the adult population, with equal rates in both women and men. In the years 2012 to 2014, diabetes is estimated to have resulted in 1.5 to 4.9 million deaths per year. Diabetes at least doubles the risk of death. India has more diabetics than any other country in the world, according to the International Diabetes Foundation, although more recent data suggest that China has even more. The disease affects more than 62 million Indians, which is more than 7.1% of India's Adult Population. An estimate shows that nearly 1 million Indians die due to Diabetes every year. The average age on onset is 42.5 years.

Prevention and treatment involves a healthy diet, physical exercise, not using tobacco and being a normal body weight. Blood pressure control and proper foot care are also important for people with the disease.

Yoga can be a meaningful and enjoyable alternative to traditional forms of exercise such as aerobics or aquatic exercise with important health benefits. Yoga can play an important role in reducing blood glucose level.

## STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of varied yogic practices on selected Bio-chemical variables among Type II diabetic middle aged men.

## HYPOTHESIS

It was hypothesized that there would be significant difference in Bio-chemical variables such as Fasting Blood Sugar and Post Prandial Blood Sugar among middle aged men Type II Diabetic patients due to varied yogic practices than the control group.

It was also hypothesized that there would be significant difference on selected Bio-chemical variables among middle aged men Type II Diabetic patients between varied yogic practices (Kendra school of Yoga & Bihar school of Yoga).

## METHODOLOGY

To fulfill the goal of the random group experimental study, 45 middle aged men suffering with Type II Diabetics were selected at random at Karaikudi City, Sivagangai District. The age of the subjects was ranged between 30 to 40 years. The subjects were assigned into two experimental group and one control group with 15 subjects each. First experimental group 'A' was involved in Kendra school of Yoga practices for 8 weeks, Group 'B' was involved in Bihar school of Yoga practices for 8 weeks and the Control Group 'C' kept in active rest.

Yogic practices given to the Group 'A' treated with Suryanamaskar, Asana, Pranayama, Meditation and yogic practices given to the Group 'B' treated with Pawanmuktasana series, Suryanamaskar, Asana & Pranayama and Meditation.

## DATA ANALYSIS

The data pertaining to the variables collected from three groups before and after the training period were statistically analyzed by using Analysis of Co-variance (ANCOVA) to determine the significant difference and tested at 0.05 level of confidence.

## RESULT AND DISCUSSION

The Fasting Blood Sugar was measured through Lab Test. The Table I shows the variance of Fasting Blood Sugar among Group A, Group B and Group C of Type II diabetic men.

TABLE – I

### ANALYSIS OF CO-VARIANCE OF THE MEANS OF TWO EXPERIMENTAL GROUPS AND THE CONTROL GROUP IN FASTING BLOOD SUGAR (mg/dl)

	Kendra school of yoga	Bihar school of yoga	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F-Ratio
Pre Test Mean	141.850	147.200	136.650	Between	1113.1	2	556.55	1.41
				Within	22480.3	57	394.3912	
Post Test Mean	129.850	117.000	139.550	Between	5118.10	2	2559.05	6.68*
				Within	21815.50	57	382.7281	
Adjusted Post Test Mean	129.89	112.26	144.25	Between	9786.119	2	4893.059	71.76*
				Within	3818.005	56	68.17866	
Mean Difference	12.00	30.20	2.90					

\*Significant at 0.05 level of confidence.

Table F ratio at 0.05 level of confidence for 2 and 57 (df) = 3.18, 2 and 56 (df) = 3.18

The obtained F-ratio values were greater than the table value, it indicates that there was significant difference among the post test and adjusted post test means of the varied yogic practices.

**TABLE – II**  
**SCHEFFE’S POST-HOC TEST FOR FASTING BLOOD SUGAR (mg/dl)**

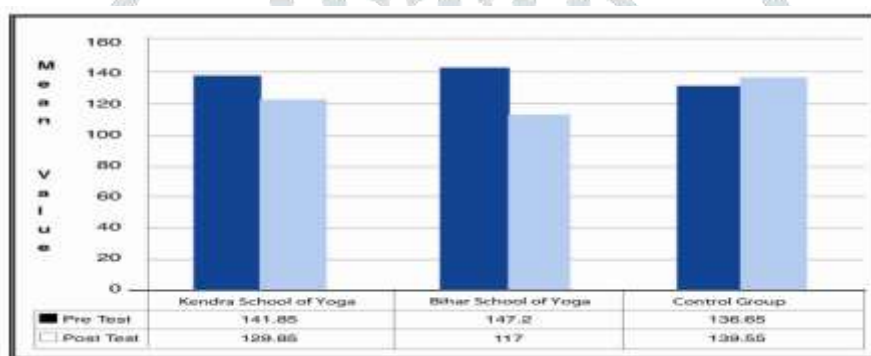
MEANS			Mean difference	Required C.I
GROUP-A	GROUP-B	CONTROL		
129.89	112.26		17.63*	7.57670324
129.89		144.25	14.35*	7.57670324
	11.26	144.25	31.99*	7.57670324

**\*Significant at 0.05 level of confidence.**

The multiple mean comparisons shown in Table – II proved that there existed significant differences between the adjusted means of Group A and Group C, Group B and Group C. There was significant difference between Group A and Group B.

The ordered adjusted means on Fasting Blood Sugar were presented through bar diagram for better understanding of the results of this study in Figure-I.

**BAR DIAGRAM SHOWING THE MEAN DIFFERENCE AMONG YOGIC PRACTICES, PHYSICAL EXERCISES AND CONTROL GROUP ON FASTING BLOOD SUGAR (mg/dl)**



The Table – II shows that Scheffe’s confidence interval values of Fasting Blood Sugar among Group A, Group B and Group C of Type II diabetic men.

From the Table – II it is clear that the mean value of Group A, Group B and Group C of diabetic men were 129.89, 112.26 and 144.25 respectively.

The mean difference between Group A and Group B, Group A and Group C, Group B and Group C were 17.63, 14.35 and 31.99 respectively. The required Scheffe’s confidence interval to be significant at 0.05 level was 7.57 and the difference between Group A, Group B and Group C of Type II diabetic men were greater than required confidence interval and hence it is significant.

The Post Prandial Blood Sugar was measured through Lab Test. The Table III shows the variance of Post Prandial Blood Sugar among Group A, Group B and Group C of Type II diabetic men.

**TABLE – III**  
**ANALYSIS OF CO-VARIANCE OF THE MEANS OF TWO EXPERIMENTAL GROUPS AND**  
**THE CONTROL GROUP IN POST PRANDIAL BLOOD SUGAR (mg/dl)**

	Kendra school of yoga	Bihar school of yoga	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F-Ratio
Pre Test Mean	216.650	239.200	211.950	Between	8487.7	2	4243.85	2.31
				Within	104470.7	57	1832.819	
Post Test Mean	191.750	187.150	222.200	Between	14512.43	2	7256.217	3.67*
				Within	112468.9	57	1973.149	
Adjusted Post Test Mean	197.05	172.36	231.69	Between	33389.52	2	16694.76	31.70*
				Within	29485.04	56	526.5186	
Mean Difference	24.90	52.05	10.25					

**\*Significant at 0.05 level of confidence.**

Table F ratio at 0.05 level of confidence for 2 and 57 (df) = 3.18, 2 and 56 (df) = 3.18

The obtained F value on pre test scores 2.31 was lesser than the required F value of 3.18 to be significant at 0.05 level. This proved that there was no significant difference between the groups a pre test and post test and the randomization at the pre test was equal.

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value 3.67 was greater than the required F value of 3.18. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the group's adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 31.70 was greater than the required F value of 3.18. This proved that there was a significant difference among the means due to six weeks of Yogic practices on Bio-chemical variable, Post Prandial Blood Sugar.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table-IV.

**TABLE – IV**  
**SCHEFFE'S POST-HOC TEST FOR FASTING BLOOD SUGAR (mg/dl)**

MEANS			Mean difference	Required C.I
KENDRA SCHOOL OF YOGA	BIHAR SCHOOL OF YOGA	CONTROL		
197.05	172.36		24.69*	21.05537
197.05		231.69	34.63*	21.05537
	172.36	231.69	59.33*	21.05537

**\*Significant at 0.05 level of confidence.**

The multiple mean comparisons shown in Table-IV proved that there existed significant differences between the adjusted means of Group A and Group C, Group B and Group C. There was significant difference between Group A and Group B.

The ordered adjusted means on Post Prandial Blood Sugar were presented through bar diagram for better understanding of the results of this study in Figure-II.



## BARDIAGRAM SHOWING THE MEAN DIFFERENCE AMONG YOGIC PRACTICES, PHYSICAL EXERCISES AND CONTROL GROUP ON POST PRANDIAL BLOOD SUGAR (mg/dl)

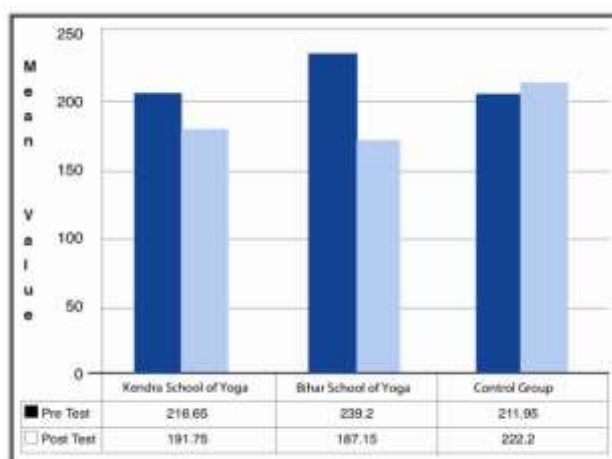


Fig. 77

The Table - IV shows that Scheffe's confidence interval values of Post Prandial Blood Sugar among Group A, Group B and Group C of Type II diabetic men.

From the Table - IV it is clear that mean value of Group A, Group B and Group C of Type II diabetic men were 197.05, 172.36 and 231.69 respectively.

The mean difference between Group A and Group B, Group A and Group C, Group B and Group C were 24.69, 34.63 and 59.33 respectively. The required Scheffe's confidence interval to be significant at 0.05 level was 21.05 and the difference between Group A, Group B and Group C of Type II diabetic men were greater than required confidence interval and hence it is significant at 0.05 level of confidence. In both cases, the hypotheses were accepted at 0.05 level of confidence.

The above results were substantiated by the experts such as Malhotra V, et.al. (2007) and Rother, KI (2007).

### CONCLUSION

It was proved that varied yogic practices showed a significant decrease on Fasting Blood Sugar and Post Prandial Blood Sugar men suffering with type II diabetics than the Control group.

It was proved that Group B yogic practices are effective than Group A yogic practices in selected Bio-chemical variables among Type II diabetic middle age men.

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