

Comparative Study of The Effect of Yoga Therapy and Herb in the Management of Diabetes Mellitus



Medical Science

KEYWORDS : Yoga Therapy, Methi, Blood glucose level

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ABSTRACT

Research study entitled "Comparative Study of the Effect of Yoga Therapy and Herb in the Management of Diabetes Mellitus" has been conducted under the guidance of Dr. K. Krishna Sharma, Chairman, Department of Human Consciousness and Yogic Sciences, Mangalore University. People suffering from Diabetes Mellitus between the age group 40- 60 years were selected randomly from the KSRP 7th Parade Asaigoli, Mangalore. A 45-day long practical sessions were conducted, with a total of 10 subjects treated as Group I i.e., Experimental group. Another 10 subjects were selected for Group II Experimental group and another 10 subjects were selected for control group. The group I was given with selected yogic practices for one hour daily and suggested to take one teaspoon of Methi Powder in the morning with Empty stomach. The experimental group was progressively introduced to the selected yogic practices decided by Dr. K. Krishna Sharma. The Experimental group II was advised to take one teaspoon of Methi Powder in the Morning with empty stomach and not given any yogic practice. The control group was not given any of the above. The initial and final readings were taken for three groups by testing Glucose Tolerance Test before and after the study. Similarly BP, BMI were also measured. The results of various tests were analyzed through students 't' test and have been compared with the three groups. After Yoga therapy, the experimental group I showed a significant reduction in Blood Glucose level at a level of significance p value <0.05 with p-value 0.03978 for FBS and 0.00705* for Blood Sugar Level after 100grams of glucose in 1/2hour, p=0.00322 for 1 hour, p=0.00189 for 1&1/2 hour, p=0.00325 for 2 hour. Similarly significant results can be observed in the case of Systolic (p=2.53E-06), Diastolic (p=0.001153) Blood Pressure, Weight (p=0.003618) and BMI (p=0.005103). There was significant change in FBS in Experimental Group II also and there was no significant change in Control group. This depicts that the regular practice of the selected yogic techniques with Methi helped to bring down Blood glucose level and improve the activity level in the experimental group I subjects*

INTRODUCTION

Disease exists when health does not. Good health results from right diet, adequate exercise and a mind, which is stress free. The dramatic changes in our life style, sedentary way of working, wrong dietary habits, lack of exercise, smoking and alcoholism leading to many psychological and psychosomatic problems.

Diabetes Mellitus is a common disease and one of the leading causes of death in the world. Humankind knows it from time immemorial. Acharya Sushruta, a well-known Indian Physician lived around 500 A.D. described the disease as "Madhumeha" (passing honey urine) with the symptoms of thirst, foul breath and voracious appetite. It is also described as a disease of abnormal carbohydrate metabolism due to a disturbance in the relationship between glucose in the blood and insulin. It is characterized by high blood sugar levels and excretion of sugar in urine, and is associated with a fair number of complications-vascular, renal, neurological and many others.

An effective method that can be applied for the reduction of High Blood Sugar Level i.e., Diabetes Mellitus is Yoga. Yogic practices with their unique characteristics have an important impact on the physical and mental stability. Yoga offers a largely unexplored, widely available resource for the management of stress-related ailments like Diabetes Mellitus. Several human intervention trials demonstrated that the antidiabetic effects of fenugreek (Methi) seeds ameliorate most metabolic symptoms associated with type-1 and type-2 diabetes in both humans and relevant animal models by reducing serum glucose and improving glucose tolerance. Therefore, this study has been conducted to test the effect of Yoga along with Methi and to compare the ef-

fect of Yoga and Methi in the management of Diabetes Mellitus.

OBJECTIVE OF THE STUDY

- To find out the impact of selected yogic practices with Methi on blood sugar level of patients with Diabetes Mellitus under the age group 40-60.

HYPOTHESES

- There is no significant difference between pre and post blood sugar level.
- There is no significant change in pre and post BP & BMI levels.

VARIABLES

Independent Variable: Selected Yogic practices
Dependent Variable: Blood Sugar level.

MATERIALS AND METHODS

The present research study was conducted to assess the effect of selected yogic practices on the subjects suffering from Diabetes Mellitus of the age between 40-60. There were 30 volunteers with Diabetes Mellitus out of which 25 were taking medication, and the remaining were on diet control alone. Subjects were allocated to two Experimental and one Control groups and they were comparatively new to yogic practices. The Control group continued with normal medication only. The Experimental Group I in addition to normal medication, one teaspoon of Methi powder was offered empty stomach in morning and six yoga classes per week at the KSRP 7th Parade, Asaigoli, Konaje, Mangalore. The Experimental group II in addition to normal medication, one teaspoon of Methi powder was offered in empty stomach in the morning. The Experimental group

I was subjected to an experimental treatment in which a set of twenty-one yogic practices were conducted. This practical session had a standard sequence of selected Asanas, Pranayamas, Mudras and Relaxation Techniques, taking appropriate precautions for patients with Hypertension or back pain. A Paired "t" test was employed in the study to analyze the significance of the result statistically.

PARAMETERS

1. Glucose Tolerance Test ;
2. Blood Pressure;
3. Weight
4. Body Mass Index

YOGIC INTERVENTION

The following Yogic practices were given to Experimental group I for over a period of 45 days.

Swastikasana, Vajrasana, Suptavajrasana, Tadasana I & II, Trikonasana, Parshvakonasana, Paschimottanasana, Purvottanasana, Pavanamuktasana, Bhujangasana, Shalabhasana, Dhanurasana, Janusirshasana, Bharadwajasana, Viparitarani, Uttanapadasana, Ujjayi, Anuloma-Viloma, Bhastrika, Shavasana.

RESULTS

All the subjects under the Research study were tested before and after 45 days of yoga training which consisted of 60 minutes of practice in a day. The result

showed an overall improvement in Blood sugar, blood pressure and BMI level in Experimental group I. In general we can analyze the result as follows:

- As far as Fasting Blood Sugar is concerned, 10 out of 10 subjects of Experimental group I showed a reduction in Fasting blood glucose.
- The blood sugar after 100 grams of glucose was also found reduced in 10 subjects out of 10 of Experimental group I.
- Almost all the subjects of Experimental Group I whose blood pressure was more than the normal showed reduction, and the weight & BMI also decreased in overweight subjects.

STATISTICAL ANALYSIS

A Paired "t" test was applied for each parameter and found out the value for each group viz, Experimental I & II and Control. The results of "t" test are as follows.

SL NO	VARIABLES	MEAN		S.D.		't' value	p value	Sig
		Pre	Post	Pre	Post			
Blood Sugar								
1	FBS	126.1	95.9	64.38	29.39	1.97594	0.03978	S
After 100gms of Glucose								
2	½ Hour	184.8	139.8	64.35	18.62	3.03589	0.00705	S
3	1 Hour	216.7	152.3	62.73	15.34	3.52601	0.00322	S
4	1 & 1/2 Hour	224.9	130.6	82.60	30.80	3.86917	0.00189	S
5	2 Hour	240.1	123.9	104.89	33.72	3.52075	0.00325	S
Blood Pressure								
6	SBP	149.8	125	7.39	5.09	9.59221	2.53X10 ⁰⁶	S
7	DBP	86.2	80.4	5.12	4.29	-4.2004	0.001153	S
Weight								
8	Weight	72.53	70.25	8.21	7.25	3.90023	0.003618	S
Body Mass Index								
9	BMI	25.37	24.58	3.23	2.71	3.67652	0.005103	S

TABLE - I : Result of Statistical Analysis of Experimental Group I

TABLE: II : Result of Statistical Analysis of Experimental Group II

SL NO	VARIABLES	MEAN		S.D.		't' value	p value	Sig
		Pre	Post	Pre	Post			
Blood Sugar								
1	FBS	133.1	122.2	24.44	25.11	2.57800	0.01489	S
After 100gms of Glucose								
2	½ Hour	194.9	179.1	43.56	41.33	5.89924	0.00011	S
3	1 Hour	238.6	207.5	55.49	58.75	2.60082	0.01435	S
4	1&1/2 Hour	235.1	207.6	79.64	74.00	1.50562	0.08321	NS
5	2 Hour	222.2	207.3	76.35	79.52	3.71354	0.00240	S
Blood Pressure								
6	SBP	144.6	143	10.20	8.86	1.03664	0.32695	NS
7	DBP	83.2	82.8	5.83	5.35	0.51449	0.61930	NS
Weight								
8	Weight	66.52	66.13	6.95	6.73	1.52463	0.16168	NS
Body Mass Index								
9	BMI	23.72	23.58	2.28	2.23	1.53527	0.15908	NS

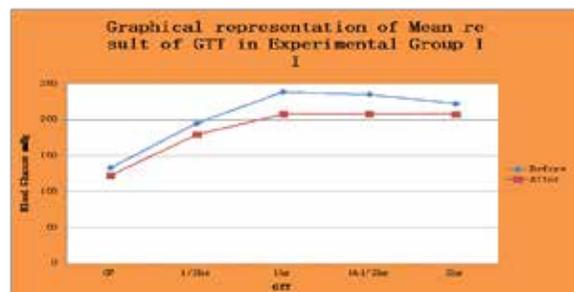
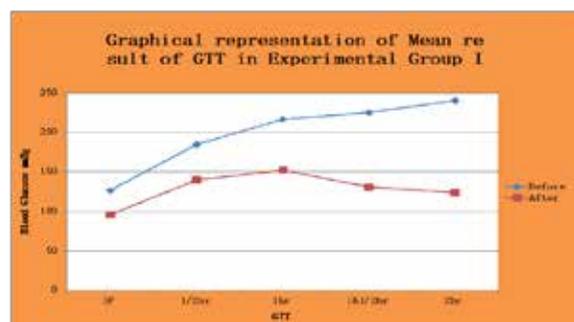
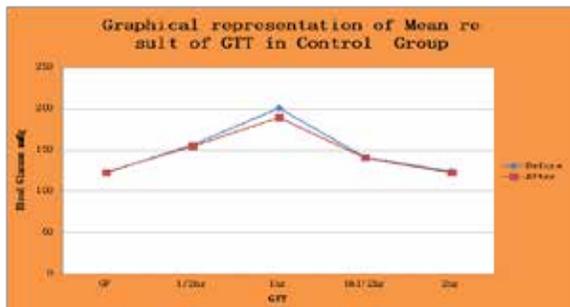


Table3

SL NO	VARIABLES	MEAN		S.D.		't' value	p value	Sig
		Pre	Post	Pre	Post			
Blood Sugar								
1	FBS	122.6	123	6.82	13.51	-0.154	0.88093	NS
After 100gms of Glucose								
2	½ Hour	156.4	154.5	23.45	26.98	0.712	0.49450	NS
3	1 Hour	200.5	189.3	49.68	48.81	2.39779	0.04004	S
4	1 & 1/2 Hour	140.8	140.3	33.09	34.62	0.28948	0.77877	NS
5	2 Hour	124.3	122.6	20.34	22.26	1.18221	0.26741	NS
Blood Pressure								
6	SBP	149.2	149.2	5.27	5.27	0.5	1	NS

7	DBP	82.6	83.2	4.12	5.43	-0.7579	0.4678	NS
Weight								
8	Weight	65.59	65.6	3.27	3.19	-0.0576	0.95529	NS
Body Mass Index								
9	BMI	23.86	23.86	0.92	0.79	-0.0160	0.98754	NS



DISCUSSION

The present research study reveals that the concerned variables of Diabetes Mellitus have been rationalized in terms of the hypotheses that the Experimental group I will outperform the control group due to 45 days of yogic interventions. The results could best depict that there is significant reduction at a level of significance $p < 0.05$ in Fasting Blood Sugar with $p = 0.03978^*$. After 100 grams of glucose Blood Sugar at 0.00705^* , 0.00322^* , 0.00189^* , 0.00325^* level of significance for 1/2 hour, 1 hour, 1.5 and 2 hours respectively. In the case of Blood Pressure both Systolic and Diastolic gained a far better p-values i.e., 2.53×10^{-66} and 0.001153^* respectively. In the same way the Experimental group I gained a significant reduction in BMI ($p = 0.005103$) & Weight ($p = 0.003618$).

Compared to experimental group I and II, the control group has not shown any significant changes after the study. Hence, the three ways interaction between Group X, Yoga reveals that the Experimental group has been benefited more in terms of various variables are concerned. The rationale for the yogic treatment could be offered in the following manner. The Yoga therapy can use as an aid to improve glucose homeostasis in NIDDM patients (Robin Monro et al, 1992).¹ Yogic practices attain steadiness of body and mind, a feeling of lightness, suppleness and psycho-physical poise (Rama et al 1976).² The Asanas tones up the muscles, helps in removing the disease and purifies the internal and external organs. Perhaps Asanas like Janusirsasana, Pascimottanasana, Marichasana, Ardhamatsyendrasana etc., stimulate and tones up the pancreas, strengthening the abdominal muscles and improving the digestive system. The Pranayamas are extremely beneficial to the proper functioning of blood circulatory system as it brings oxygen and energy to every cell, cleans the organism and expels the toxins. The relaxation techniques like Yoganidra found to be best for relaxation and rest. It wards off fatigue, increase mental repose, tones up nervous system and highly beneficial for those who suffer from sleeplessness and head ache. Surwit and Feingloss (1983)³ reported that relaxation training leads improved glucose tolerance in NIDDM patients without affecting insulin sensitivity or glucose-stimulated insulin secretory activity.

By analyzing the result of the present study, we can clearly say that the effect of yoga is more effective in the management of diabetes mellitus. It works still more than the medicine because of its effect, which is more subtle, which cannot be achieved through medicine. Therefore, it is evident that the yogic treatment is powerful than other medicinal treatments because it works on both psycho-physiological functions.

It is evident from the above result that all the 10 patients responded to the treatment positively. But the variation of the rate of success could be depended on the regularity of the practice, lifestyle, dietary change and the chronicity of the disease. Thus, we can say that Yoga therapy is fully fruitful for those who adhere to the regular practice. The disease responds to the therapy with encouraging results.

CONCLUSION

The result obtained from the present Research study can be concluded as below:

1. Yogic treatment will work more efficiently than other medicinal treatments in the management of Diabetes Mellitus.
2. Regular practice of selected yogic techniques along with methi can work as a therapeutic tool for the treatment of Diabetes Mellitus by bringing down the elevated blood glucose level.

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