The Study On The Effect Of Three Month Yoga Practice On Type 2 Diabetes Patients.

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Abstract

The aim of the study was to evaluate the effect of Three Month yoga intervention in diabetic patients and to evaluate the respective changes in FBS, PPBS, HBA1C through Laboratory blood tests. To make the Diabetes Mellitus patients to get aware and have confident on yoga module and to understand the effect of Yoga in type II Diabetes Mellitus patients while fasting and post prandial are the objectives of the study.

All the 102 subjects underwent an intervention (yoga) for the duration of 90 days in SDM supervised by a SRF. They were no adverse effects reported during or after the intervention period (after 90 days).in this study the diabetic patients who underwent yoga and changes showed decrease in FBS (P = 0.005) and PPBS (P = 0.013)in their blood levels after the intervention period when compared with baseline and these values are highly significant respectively where as there is not much significant difference in case of HB1AC(P = 0.004) .

In the present study which has underwent in SDM on 56 members suffering with type 2 diabetes mellitus age group between 30 to 70 has involved and they are exposed to do yoga and which includes specific asana, yogic practices, meditation, for 11 day during the intervention has shown a significant improvements in their readings FBS, PPBS, HBAC which taken before and after the intervention periods .

Keywords: Yoga, Diabetes, Mellitus, Blood sugar, Asana, Insulin, Glucagon, Fasting, Diet.

Introduction

Diabetes Mellitus is a disorder due to change life style, an imbalance in handling the energy system of the body, a glucose load.[1]

The values for blood glucose levels are: fasting blood glucose 80-100 mg% is normal; 100-120% is pre-diabetes and more than 120 is diabetes. Similarly the values for blood glucose levels after breakfast 130-160mg% are normal and more than 180 mg% is diabetes.[2]

The diabetes that occurs at a young age which is due to less insulin production in the body is called type I and that which is the result of early aging is called type II diabetes[3]

Carbohydrates are the readily usable sources of energy which are converted into glucose in the intestine during the process of digestion. The glucose is then absorbed into the blood stream, taken to liver and transported through the blood to the cells.[4]

If the glucose lend increases beyond 20 mg% mere insulin is released that reduces blood glucose levels, when it goes down the glucagon releases it from the liver and restores normal glucagon has many friends, the stress hormones, which assist in increasing the glucose levels during stress[5]

Literature Review

A study was done to explore the feasibility of researching community based yoga classes in Type 2 Diabetes. The research design used in this study was exploratory randomized controlled trial. It was done on 59 people with Type 2 Diabetes in London who were divided into experimental group and control group. The parameter measured was HbA1c. It was concluded that there was only a small decrease in HbA1c level in the experimental group. But there were no changes in the control group. [6]

[1]American Diabetes Association.Diagnosis and classification of diabetes mellitus.Diabetes care. 2014 Jan 1;37(Supplement 1):S81-90.

[2]DeFronzo RA, Gunnarsson R, Björkman O, Olsson M, Wahren J. Effects of insulin on peripheral and splanchnic glucose metabolism in noninsulin-dependent (type II) diabetes mellitus. Journal of Clinical Investigation. 1985 Jul;76(1):149.

[3]El Habib Hani DA, Chèvre JC, Durand E, Stanojevic V, Dina C, Habener JF, Froguel P. Defective mutations in the insulin promoter factor-1 (IPF-1) gene in late-onset type 2 diabetes mellitus. Journal of Clinical Investigation. 1999 Nov 1;104(9):R41.

[4]Amiel S. Glucose counter-regulation in health and disease: current concepts in hypoglycaemia recognition and response. QJM: An International Journal of Medicine. 1991 Sep 1;80(3):707-27.

[5]Hall JA. Thyroid Hormone and Insulin Metabolic Actions on Energy and Glucose Homeostasis.Harvard University; 2014.

[6]Skoro-Kondza L, Tai SS, Gadelrab R, Drincevic D, Greenhalgh T. Community based yoga classes for type 2 diabetes: an exploratory randomised controlled trial. BMC health services research. 2009 Feb 19;9(1):33.

A study using pre-post design was conducted to study the impact of yoga on some of biochemical indicators of risk for cardiovascular disease and diabetes mellitus. It was conducted on 98 subjects. The variables measured were fasting plasma glucose and serum lipoprotein profile. It was concluded that there a short lifestyle modification and stress management education program leads to favorable metabolic effects. [7]

A pre-post design study was conducted to examine the effect of yoga practice on clinical and psychological outcomes in subjects with Type 2 Diabetes. This was conducted on 35 individuals. The study concluded that with yoga practice for the individuals with Type 2 Diabetes the BMI and anxiety had reduced and well being of the individuals had improved. [8]

A study was done to study the potential of yoga therapy as an aid to the management of NIDDM. It was a Randomized Controlled Trail study. It was done on 21 patients with NIDDM. They were divided into yoga group and control group. The parameters measured were Fasting Blood Glucose (FBG) and located Hemoglobin (HbA1c). The study concluded that both FBG and HbA1c improved in the yoga group when compared to the control group. [9]

A randomized control study was conducted to assess the feasibility of yoga program for adults who are at high risk of Type 2 Diabetes. This study was cone on 23 adults. They were randomly assigned to yoga group and educational group. The study concluded that a yoga program would be a possible risk reduction option for adults at risk of Type 2 Diabetes. It was also concluded that yoga is an approach for reducing the cardio metabolic risk factors and increasing exercise self-efficacy. [10]

Experimental study was done to evaluate the effect of Yoga-Nidra on blood glucose level in diabetic patients. It was done on 41 middle aged type 2 diabetes patients who were hypoglycemic. They were divided into two

[7]Bijlani RL, Vempati RP, Yadav RK, Ray RB, Gupta V, Sharma R, Mehta N, Mahapatra SC. A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. Journal of Alternative & Complementary Medicine. 2005 Apr 1;11(2):267-74.

[8]Kosuri M, Sridhar GR. Yoga practice in diabetes improves physical and psychological outcomes. Metabolic syndrome and related disorders. 2009 Dec 1;7(6):515-8.

[9]Monroe R, Power J, Kumar A, Nagarathna R. Yoga therapy for NIDDM: a controlled trial.

[10]Yang K, Bernardo LM, Sereika SM, Conroy MB, Balk J, Burke LE. Utilization of 3-month yoga program for adults at high risk for type 2 diabetes: a pilot study. Evidence-Based Complementary and Alternative Medicine. 2011 Jan 9;2011.

groups. The paremeters were FBS and PPBS. The study has concluded that there is significant decrease in the blood glucose level of diabetic patients with yoga-nidra. [11]

An experimental study was done to examine the role of pranayama and yoga asanas on P300 latency and amplitude in Type 2 diabetic patients. It was done on 60 patients with type 2 diabetes. They were divided into two groups namely the experimental group and control group. The study concluded that yoga therapy can be used along with conventional medical therapy for improving the brain functions in people with type 2 diabetes. [12]

Results & Conclusion

The following table gives a clear picture about the results of the study. From the table one can easily infer that the value of the Fasting Blood Sugar (FBS) before the intervention is 131.28 while that of the Post Prandial Blood Sugar (PPBS) is 172.75 and that of Mean Blood Glucose is 152.4. One can also infer from the table that value of Fasting Blood Sugar (FBS) after the intervention is 110.7 while that of the Post Prandial Blood Sugar (PPBS) is 140.59 and that of Mean Blood Glucose is 131.37.

If we try to find out the percentage change in the value of Fasting Blood Sugar (FBS), it is -15.67% which is very significant while that of Post Prandial Blood Sugar(PPBS) is -18.62% which is also very significant and that of Mean Blood Glucose is -13.79% which is also very significant.

Variables	**Pre**	**Post**	**% change**	**P value**
FBS	131.28	110.7	-15.6764	<0.001
PPBS	172.75	140.59	-18.6165	<0.001
Mean Blood Glucose	152.4	131.37	-13.7992	<0.001

In the present study which has underwent in SDM on 56 members suffering with type 2 diabetes mellitus age group between 30 to 70 has involved and they are exposed to do yoga and which includes specific asana,

[11]Amita S, Prabhakar S, Manoj I, Harminder S, Pavan T. Effect of yoga-nidra on blood glucose level in diabetic patients.

[12]Kyizom T, Singh S, Singh KP, Tandon OP, Kumar R. Effect of pranayama & yoga-asana on cognitive brain functions in type 2 diabetes-P3 event related evoked potential (ERP).

yogic practices, meditation, for 90 day during the intervention has shown a significant improvements in their readings FBS, PPBS, HBAC which taken before and after the intervention periods

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