

DECODING THE YOGA ASANAS PRACTICE EFFECT ON DIABETES MELLITUS SUBJECTS

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KEYWORDS

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, Yoga

ABSTRACT

Background: Yoga, organized in India more than 5,000 years ago helps in harmonizing the body, mind, and emotions. Several benefits of yoga in terms of disease prevention have been well documented in literature. Yoga practice has shown promising results in glycemic index. Yoga requires little equipment and therefore is relatively inexpensive to maintain. After training people can practice at home. Lifestyle modification is required in Diabetes mellitus to control co-morbid condition.

Objective: The objective of study is to decipher the yoga asanas practice effect on Diabetes mellitus subjects.

To estimate blood glucose level and HbA1C in the individual at the beginning, after three and six-months practice of yoga, asanas.

Methodology- Survey of subjects who practice daily yoga and those who have Diabetes Mellitus since last five years in urban area of Kolhapur was carried out. Duration of the survey was from 2018-2019...

INTRODUCTION

Yoga, an ancient Indian practice, has showing promising results in glycemic control among patients with Type 2 diabetes mellitus (T2DM).¹ Yoga practice involves a physical activity component (postures/asana), and a relaxation component (meditation, shavasana). Yoga, with its focus on controlling breath, holding postures, and meditation, increases the practitioners' attention to body sensations and present moment experiences. Yoga is a form of therapy that aims to improve overall physical, mental and spiritual health. It is now being globally recognized as an alternative form of medicine, known as integrative medicine therapy. ^[2,3,4]

Methods:

Survey of individuals who practice daily yoga in Kolhapur urban area was carried out in year 2018-19. Out of 52 subjects 34 were male and 18 female subjects included in the study. The subjects from this study those having diabetes since last five years were selected for screening. These individuals were consuming their glucose lowering drugs. The individuals were consuming their glycemic lowering remedy such as metformin, sulfonylurea and pioglutazone as principal drugs. Inclusion criteria include adults age ≥ 20 years with T2DM for more than one year. HbA1c level of >6.5 individuals with serious co-morbid condition e.g. uncontrolled hypertension, heart failure, angina in past 8 months, asthma, stroke, bone, or joint problem limiting who have pregnancy are excluded.

Individuals who have engaged in other mindfulness based or stress management therapy in the past three months are excluded.

Estimation of fasting blood glucose level and HbA1C estimation in the diabetes mellitus patients done before starting study after 3 and 6 months of regular six days in week yoga practice by individual. Blood glucose level was estimated by GOD POD method. Estimation of HbA1C done by HPLC method.

Sample size calculated by considering prevalence data of pre-diabetic and diabetic subjects of 15 state study.⁵

Then individuals who screen eligible are scheduled for an in-person orientation visit where a study protocol described.

This was Observational study conducted after

Descriptive analysis was performed by MS-Excel. Activity can be assessed by 3 months,6 months ,3 months over the one year.

Following asanas were practiced during the period of study.

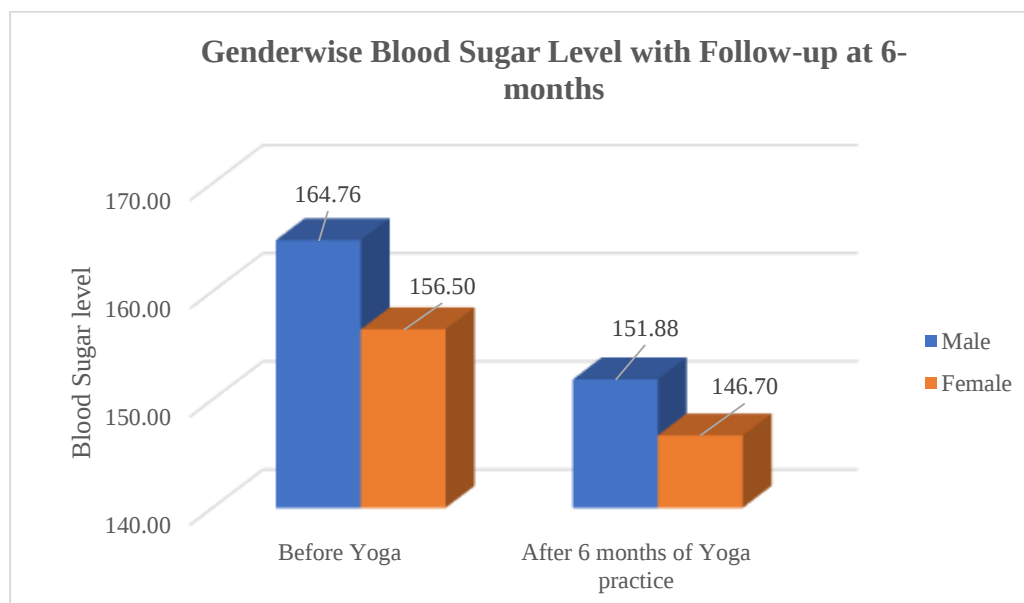
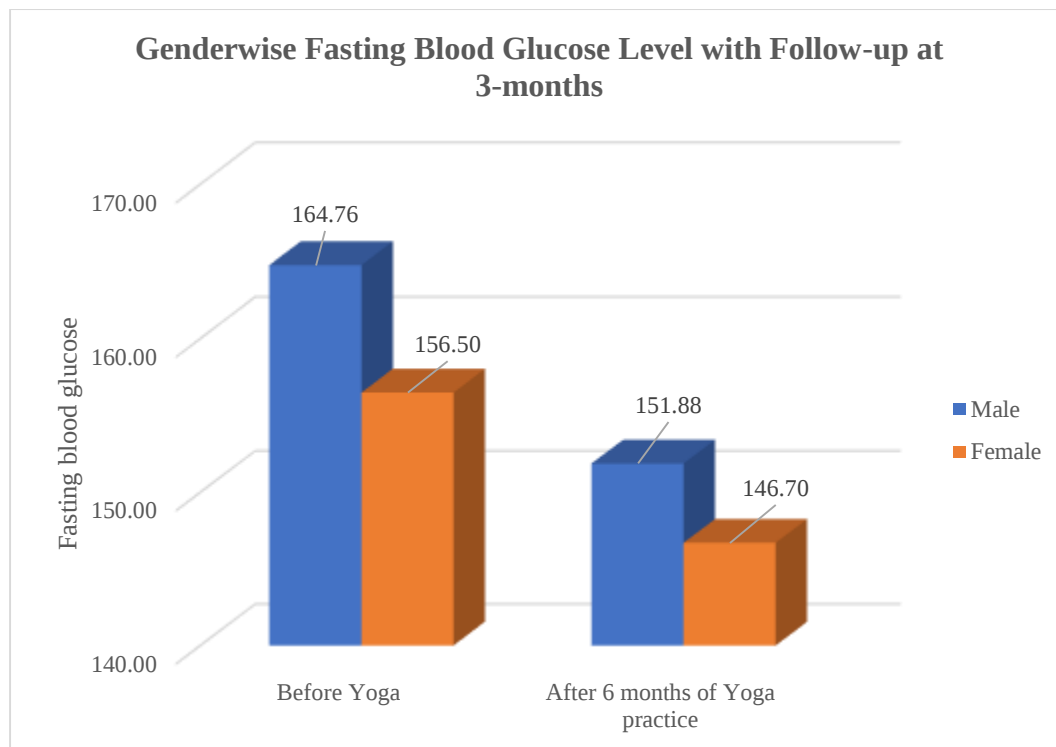
Table. Name and duration of Yoga asanas in study group

Sr.no.	Name	Duration
1	Ardhamachindrasan	30 S for each side
2	Vajrasana	30 S
3	Tadasana	15 counts for 2 min
4	Bujangasana	1 min
5	12 Surya namaskar i.e. one set	Two set
6	Anuloma villoma pranayama	4 to 5 min
7	Shavasana	10 to15 min

Results:

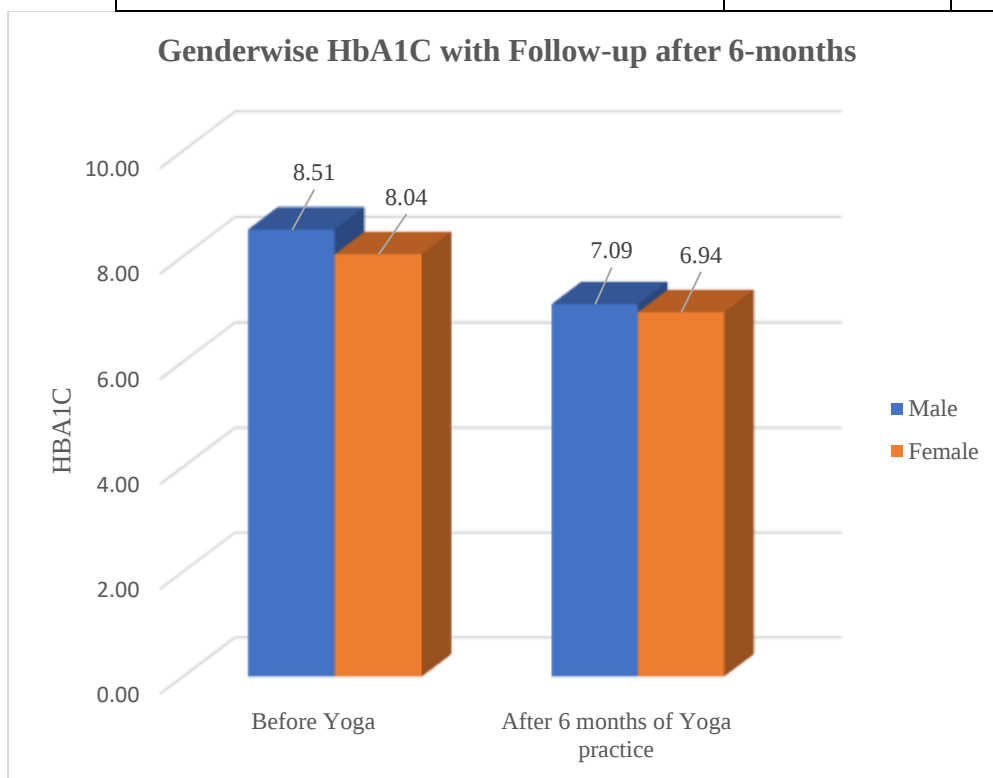
1. Analysis for 3 & 6 months

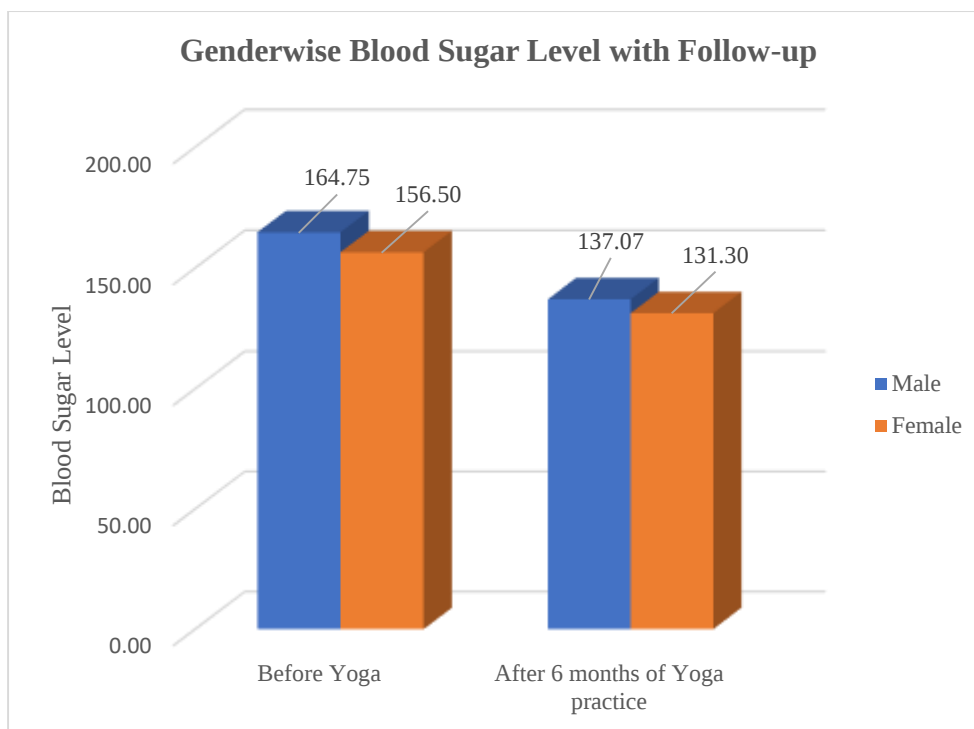
Parameter	Time Interval	Mean $\pm$ S.D.	P value
HbA1C	Before Yoga	8.42 $\pm$ 1.58	< 0.0001
	After 3 months of Yoga	7.77 $\pm$ 1.53	
	After 6 months of Yoga	7.06 $\pm$ 1.05	
Fasting Blood Sugar Level	Before Yoga	163.14 $\pm$ 18.22	< 0.0001
	After 3 months of Yoga	150.86 $\pm$ 19.18	
	After 6 months of Yoga	135.94 $\pm$ 22.82	



HbA1C	Male	Female
Before Yoga	8.51	8.04
After 6 months of Yoga practice	7.09	6.94

Fasting Blood Sugar Level (mg%)	Male	Female
Before Yoga	164.75	156.50
After 6 months of Yoga practice	137.07	131.30





Most of the yoga practicing subjects were between 40-49 years of age. The mean HbA1C level of subjects before practicing yoga asanas were high with compare to after practicing yoga 8.42 ± 1.58 , The mean glucose level before practicing yoga asanas were high with compare to after practicing yoga 163.14 ± 18.22 . Fasting glucose level and HbA1C level was checked after three and six months first time, then after every three months over the year

Discussion:

Yoga exhibits many health benefits, such as improving physical fitness, relaxation, and awareness of self. Various lifestyle disorders, including diabetes, can be effectively addressed by the practice of yoga, given acceptably high levels of adherence. Yoga practice improves an individual's discipline regarding food and exercise, thereby helping to modify patient-related reluctance that results in the underutilization of exercise as a treatment modality. Yoga also results in improvements in physical exercise, behavioral changes, and dietary practices, in addition to its effects on relaxation and stress management⁶. Contributions of a physically active lifestyle to enhancing health and preventing disease throughout the lifespan are well-documented.⁷ Yoga has also found positive impact on a variety of metabolic and lifestyle disorders like diabetes mellitus, cardiovascular disorders, asthma, and cancer.⁸ According to the 2002 National Health Interview Survey (NHIS), one-third of adults used some form of CAM.⁹ Significant reductions in fasting blood glucose were observed. significant effects favoring Yoga on reduction in HbA1C from baseline. There was a significant decrease in diabetes distress and improvement in quality of life.¹⁰

Surya namaskar is additional in our intervention. Which is not always found in Yoga interventions. It can help in the prevention of T2DM as it is considered a moderate-intensity activity and burns about 3.8 – 6.7 kcal/min.^{11,12}

Conclusion:

Diabetes is a chronic metabolic disease that adversely affects quality of life. Psychological stress and negative mood have a bidirectional effect in control of diabetes.¹³

It is suggested that psychoneuro-endocrine and immune mechanisms have holistic effects in diabetic control. Parasympathetic activation and the associated anti-stress mechanisms improve patients overall metabolic and psychological profiles, increase insulin sensitivity and improve glucose tolerance and lipid metabolism. Yoga practices such as cleaning processes, asanas, pranayama, meditation, Sury Namaskaras, mindfulness and relaxation are known to reduce blood glucose level and help in the management of comorbid disease conditions associated with T2DM.¹⁴

Every 1% reduction in Hemoglobin A1c decreases the risk of developing eye, renal and nerve disease by 40%.¹⁵

This study shows there is positive effect on the lowering HbA1c and blood glucose level. Asanas have positive effect on the controlling Diabetes mellitus. Additional studies are thus required for a better role of yoga on diabetes mellitus.