

## Effect of Naturopathy and Yoga Intervention on Patients with Type II Diabetes Mellitus

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### Abstract

**Background and Objectives:** A major part of Diabetes burden (75%) will be borne by developing countries and India will be having the dubious honour of being host to the maximum number of diabetics numbering about 57 millions. Complementary and Alternative Medicine (CAM) modalities are found to be effective in the management of Diabetes Mellitus type 2. While Naturopathy and Yoga is a part of CAM which is used in the management of Diabetes Mellitus type 2, the scientific literature to support its' judicious usage is inadequate. Hence the present study evaluated the effect of Naturopathy and Yoga on the Fasting blood glucose (FBG) and postprandial blood glucose (PPBG) levels in patients with Type 2 Diabetes Mellitus.

**Methods:** Subjects were recruited from the Yoga and Naturopathy Hospital, Shanthivana, Dharmastala, Karnataka. Two Hundred patients diagnosed for Diabetes Mellitus type 2 were screened. One Hundred subjects were recruited for the single pre-post design study, selected based on the inclusion and exclusion criteria. Subjects were assessed for FBG and PPPG levels before and after 10 days of intervention.

**Results:** The results suggested the significant changes in the levels of FBG and PPBG with the  $p < 0.001$ .

**Interpretation & Conclusion:** Naturopathy and Yoga is one of the major treatment modality in controlling type II Diabetes Mellitus.

**KEYWORDS:** Type II Diabetes mellitus; Complimentary & Alternative Medicine; Yoga ; Naturopathy

### INTRODUCTION

The prevalence of Type 2 Diabetes Mellitus (T2DM) is projected to rise from 171 million in 2000 to 366 million in 2030 (Wild, Roglic, Green, Sicree, & King, 2004). T2DM is a

costly, complex, chronic disease that is expected to increase in prevalence in the coming decades (“Economic costs of diabetes in the U.S. in 2007.,” 2008). The estimated annual cost of diabetes-related medical expenses was \$132 billion in 2002, accounting for more than 12 per cent of the U.S. health care budget(Hogan, Dall, & Nikolov, 2003). A major part of Diabetes burden (75%) will be borne by developing countries(Arora MM, Chander Y, Rai R,2000) and India has the second largest number (>61 million) of individuals with T2DM in the world and this is expected to nearly double by 2030(Brussels, 2011).

The prevalence of risk factors for diabetic complications, such as hypertension, obesity, and physical inactivity are also high. In 2007 67.0% of United States adults with diabetes reported having hypertension, 83.5% were overweight or obese, and 38.2% reported 0 being physically inactive. Cardiovascular complications are the leading cause of morbidity and mortality among patients with T2DM, and cardiovascular disease (CVD) risk is 2 to 8 fold higher in the diabetic population than it is in non-diabetic individuals of a similar age, sex and ethnicity(Haffner, Lehto, Rönnemaa, Pyörälä, & Laakso, 1998)(Brun et al., 2000). Furthermore, macro vascular complications are the largest contributor to the direct and indirect costs of diabetes (“Economic costs of diabetes in the U.S. In 2007.,” 2008). Micro albuminuria and retinopathy are indicators of micro vascular dysfunction, and both predict a poorer outcome in patients with diabetes(Rajala, Pajunpää, Koskela, & Keinänen-Kiukaanniemi, 2000)(Klein, Klein, Moss, & Cruickshanks, 1999).

Complementary and alternative medicine (CAM) may offer novel approaches to address lifestyle,behaviour change for prevention and control of chronic diseases such as T2DM.

Naturopathic medicine is of greatest interest as it is a whole-system of CAM most closely resembling conventional primary care in scope of practice, but with greater delivery of healthy lifestyle counselling(Bradley et al., 2009). According to observational studies, healthy lifestyle interventions are routine in naturopathic clinical care for T2DM ,with diet, physical activity, and stress management counselling incorporated into the majority of clinical encounters (80– 100%)(Bradley & Oberg, 2006)(Bradley & Oberg, 2006). Care provided by Naturopathic Doctors (ND) is a particularly promising form of CAM practice for diabetes, because the ND training emphasizes assessment and understanding of medical risk, intensive dietary and lifestyle counselling, and the routine laboratory testing necessary for on-going management(Bradley & Oberg, 2006; Bradley et al., 2011; Oberg, Bradley, Allen, & McCrory, 2011).

In a survey conducted in United States, approximately 48% of individuals with diabetes reported using CAM. Several CAM modalities like naturopathy, acupuncture, therapeutic massage, reflexology, dietetics etc. are found to be effective in the management of T2DM( Donald Garrow, Leonard Egede E, 2006). Retrospective observational studies also suggest ND care reduces risk for T2DM and hypertension, including improved glucose control and reduced blood pressure, respectively(Ellen seber,2000).

Hence the present study is planned to find the effect of 10 days Naturopathy and Yoga on Type II Diabetes Mellitus.

## **AIM AND OBJECTIVES**

### **AIM**

- To study the effect of Naturopathy and Yoga on patients with T2DM.

### **OBJECTIVES**

- To study the effect of Naturopathy and Yoga on Type 2 Diabetes patients with:
  - Fasting Blood Glucose
  - Post Prandial Blood Glucose

## **MATERIALS AND METHODS**

**Subjects:** A total of two hundred patients who admitted 10 days Naturopathy and Yoga Hospital, were screened to obtain hundred participants for the study. They were recruited from Nature cure and Yoga therapy Hospital, Shanthivana, Dharmastala.

### **Inclusion Criteria:**

- Diagnosed subjects of type 2 Diabetes Mellitus, who are on oral hypoglycaemic drugs for the past two years.
- Above the age of 35 years and below the age of 85 years.
- Both genders were included.

### **Exclusion criteria:**

- Uncontrolled type 2 Diabetes Mellitus.
- Type 2 Diabetes Mellitus who are on Insulin therapy.
- Diabetes associated with systemic complications.

The signed consent forms were obtained from all subjects for their participation.

**Setting:** Study conducted in the Yoga and Nature cure Hospital, Shanthivana, Dharmastala, Karnataka. The study was approved by the Institutional ethics committee.

**Study Design:** The study adopts a pre-post design. The institutional ethical committee approval was obtained for conducting the study. Subjects were assessed on Day 1 and Day 10 during which they received Yoga practice, Naturopathic treatment and Diet therapy.



	<ul style="list-style-type: none"> <li>• Ardhakatichakrasana</li> </ul>
<i>Supine Asanas</i>	<ul style="list-style-type: none"> <li>• uttitapadasana,</li> <li>• Pavanamuktasana,</li> <li>• Navasana,</li> <li>• Shavasana</li> </ul>
QRT	Quick Relaxation Technique
<i>Prone Asanas</i>	<ul style="list-style-type: none"> <li>• Bhujangasana,</li> <li>• Dhanurasana,</li> <li>• Naukasana,</li> <li>• Shalabasana</li> </ul>
<i>Sitting Asanas</i>	<ul style="list-style-type: none"> <li>• Vajrasana,</li> <li>• Vakrasana,</li> <li>• ArdhaMatsyendrasana,</li> <li>• Yoga mudrasana</li> </ul>
DRT	Deep Relaxation Technique

**Yoga based stress management:**

<b>Pranayamas</b>	Nadishodana, Surya bedhana, Kapalabhati, Brahmari
<b>Meditation</b>	Omkaara meditation

**Naturopathy based diet plan:**

7:30 am	Bitter gourd juice (200 ml)
9:00am	Ragigangi (250 ml)
12:00 noon	Kichadi + boiled vegetables+ buttermilk (50 ml) + papaya (200 gms) + methi powder (1-2 tsp)

2:00pm	Knolkhol juice (200 ml)
4:00pm	Barley water (200 ml)
7:00pm	2 roti + boiled vegetables + papaya (200 gms) + soup (150 ml) + methi powder (1-2 tsp)
9:00pm (If necessary)	Fruit (Apple)

**Naturopathy Treatments:**

Steam bath (10 min), Full body oil Massage(45 min), Sauna bath(10 min), under water massage(20 min), Cold hip bath(20 min), Gastro Hepatic pack(20 min), neutral immersion bath(20 min), cold circular jet(20 min), douche(20 min).

**Data Analysis:**

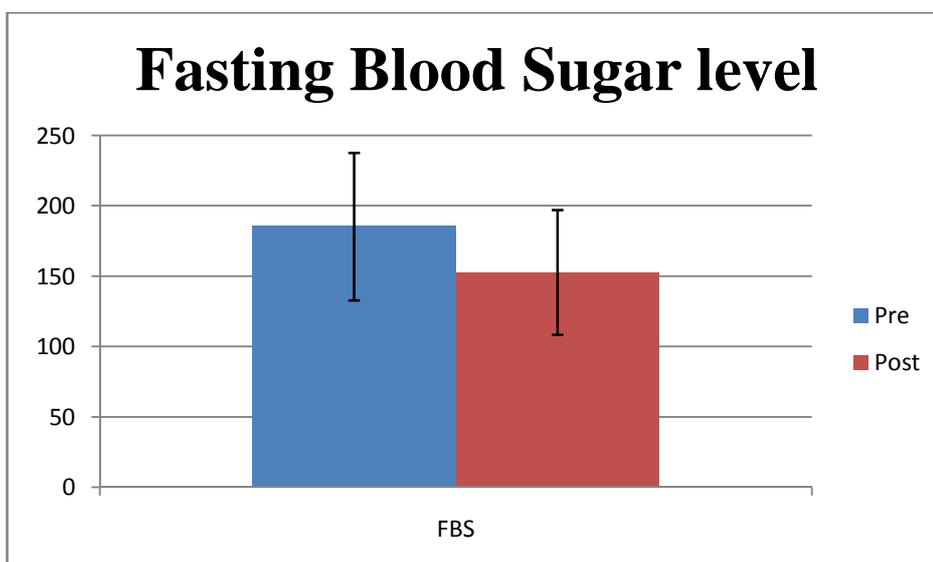
The present study was conducted to assess the effect of Naturopathy & Yoga in reducing Fasting blood glucose level and postprandial blood glucose values. The results were analysed by using SPSS (16.0).

**RESULTS**

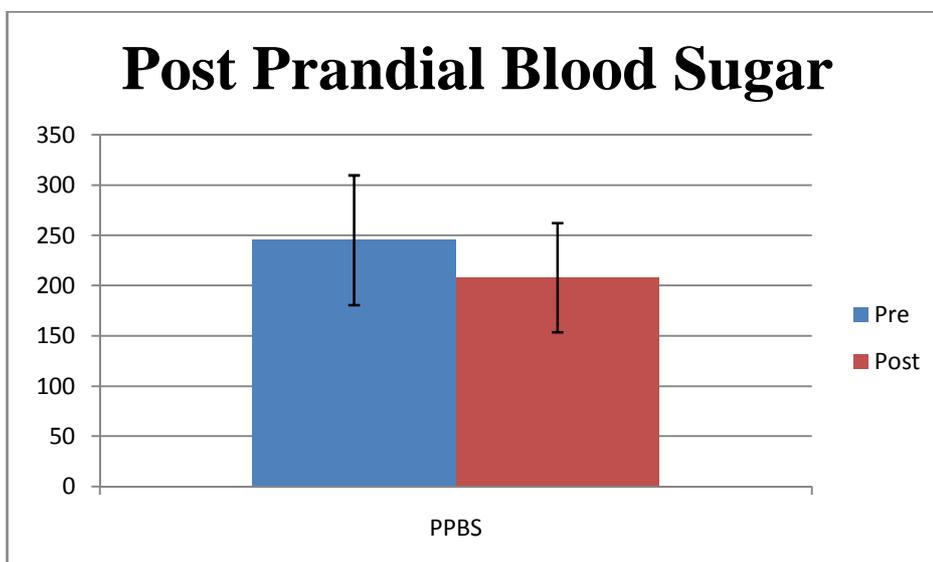
The present study was conducted to assess the effect of Naturopathy & Yoga in reducing Fasting blood glucose level and postprandial blood glucose values.

The alpha level of statistical significance was set at  $p < 0.05$ . Both FBG and PPBG levels showed significant reduction at the end of the intervention.

**Fig. 1 Mean pre-post intervention of FBG**



**Fig. 2 Mean pre-post intervention of PPBG**



## DISCUSSIONS

The study result shows that FBG and PPBG have significantly reduced subsequent to the intervention. The Naturopathy and Yoga intervention facilitates better clinical outcomes in the management of T2DM.

Previous studies have shown decrease in the levels of FPG, PPPG and HbA1c by the intervention of Yoga, Diet and Naturopathic intervention. A clinical study has shown that the Naturopathic care to people with T2DM significantly improved glycemic control, increased self-monitoring of blood glucose, improved diet, increased physical activity, greater self-efficacy, improved mood and reduced problem areas in diabetes (Bradley et al., 2012). Another study demonstrates the modifications in risk-factors that occur with long-term naturopathic care for T2DM with notable percentages of patients achieving improvements in glucose levels as measured by HbA1c and blood pressure measures (Bradley et al., 2009).

A retrospective study suggests Naturopathic medicine is a philosophy-based, complete medical system. This description of naturopathic care can serve other health professionals in their referral recommendations. Naturopathic care for diabetes at this representative academic facility remains mostly adjunctive, although physicians possess the training and skills necessary to participate as primary care providers.

The naturopathic treatment approach frequently includes important dietary and lifestyle recommendations included in current medical treatment guidelines for diabetes, hypertension, and hyperlipidaemia, although improvements can be made on the precision of recommendations (Bradley & Oberg, 2006).

The present study also suggested the similar results of the previous study that the Naturopathy and Yoga intervention reduces both Fasting blood glucose level and Post-prandial glucose levels.

#### **Limitation of the study:**

- There is no control group in the study.
- Compared to other intervention based studies, the duration of this study is considerably short.
- The study was limited to a fixed period of intervention. Post intervention follow up was not done which is critical in evaluating a non-pharmacological therapy in the management of a chronic disease like T2DM.

#### **CONCLUSION**

The present study suggested that Naturopathy and Yoga intervention has reduced significantly the levels of FBG and PPBG in patients with Type II Diabetes Mellitus. The Naturopathy and Yoga intervention is the main stream of management in treating Type II Diabetes Mellitus.

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