

# Diabetes Mellitus And Naturopathy And Yoga Intervention

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Diabetes mellitus is a one of the metabolic diseases characterized by hyperglycemia resulting from defects in insulin production, action of insulin, or both. The chronic hyperglycemia of diabetes is associated with dysfunction, damage and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels.<sup>1</sup>

India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively in 2000. <sup>2</sup> According to Wild et al. the prevalence of diabetes is predicted to double globally from year 2000, 171 million to 366 million in 2030 with a maximum increase in India.<sup>3</sup>

In India the aetiology of diabetes is multifactorial and includes genetic factors coupled with environmental influences such as obesity associated with rising living standards, steady urban migration, food habits and lifestyle changes.<sup>4</sup>

Results from the Diabetes Prevention Program showed that a 7% weight loss in the 1<sup>st</sup> year by increased physical activity (150 min of brisk walking per week) reduced the 4-year incidence of type 2 diabetes by 58% in men and women with impaired glucose tolerance and was twice as effective as metformin therapy.<sup>[5]</sup> Moreover, improvement in fasting blood glucose (FBG) is directly related to the amount of weight lost.<sup>[6]</sup> Moderate weight loss may not show much glycemic control improvement in all obese patients who have diabetes.<sup>[7]</sup> However, patients with long-standing disease or severe pancreatic  $\beta$ -cell dysfunction are not as responsive to weight loss as those with less extensive disease. Guidelines and recommendations suggest 150 min of moderate aerobic exercise (50%–70% of maximum heart rate) or 75 min of intense vigorous- exercise or a combination of both over at least 3 days in a week for glycemic control.<sup>[8,9]</sup>

Several components in naturopathic intervention such as bland diets, calorie restriction (fasting), massage, yoga, physical exercise, and hot baths are independently known to help in weight reduction and bring glycemic control.<sup>10</sup>

## CASE REPORT

A patient named Mr.Punith C, aged 35 years visited SDM Yoga and nature cure hospital, Shantivana with a complaint of type 2 diabetes mellitus, overweight and hypercholesterolemia since 5 months. Patient is under oral hypoglycemic drugs since 5 months.

Patient was taking following medication before admission  
Tab. Remo 500mg 1-0-1

Tab. Reclide SR 60mg 1-0-1

Tab.Rosuvas 10 mg 0-0-1

The patient was asked to stop oral hypoglycemic drugs during the stay in hospital for 10 days.

Patient has positive family history of Diabetes mellitus from parents.

Vital data of the patient was recorded both pre and post. Routine hematology (Hemoglobin, RBC, and WBC) and urine investigations are done and all are under within limits. Diabetic profile was checked on admission and after completion of the course of treatment and reports was compared.

## TREATMENT PROTOCOL

Days	Morning Treatment	Afternoon Treatment
Day 1	Steam bath	Neutral under water massage
Day 2	Enema, Full body massage	Gastrohepatic pack
Day 3	Sauna bath	Neutral hip bath
Day 4	Full mud bath	Neutral spinal spray
Day 5	Deluxe hydro massage	Neutral douche to whole body
Day 6	Salt glow oil massage	Gastrohepatic pack
Day 7	Powder massage	Neutral immersion bath
Day 8	Ganji turmeric bath	Whirl pool bath

Day 9	Neutral under water massage	Cold circular jet
Day 10	Reclining steam bath	Gastrohepatic pack

Table 1

DIET PROTOCOL

	7:30 AM	9 AM	11 AM	2PM	4PM	6.30 PM
Day 1	Ashgou rd juice	Ragi ganji	Boiled vegetables+ Kichdi+ papaya+ Butter milk with methi powder	Knol khol juice	Cucumber and sprouts	Boiled vegetables+ Chapathi+P apaya+ Buttermilk with methi powder
Day 2	Ashgou rd juice	Ragi ganji	Raw vegetable salad+ sprouts+ papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Raw vegetable salad+ sprouts+ papaya + Buttermilk with methi powder
Day 3	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 4	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 5	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 6	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 7	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 8	Ashgou rd juice	Ragi ganji	Papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Papaya + Buttermilk with methi powder
Day 9	Ashgou rd juice	Ragi ganji	Raw vegetable salad+ sprouts+ papaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Raw vegetable salad+ sprouts+ papaya + Buttermilk with methi powder
Day 10	Ashgou rd juice	Ragi ganji	Boiled vegetable+ Millet rice+ pappaya + Buttermilk with methi powder	Knol khol juice	Cucumber and sprouts	Boiled vegetables+ Chapathi+P apaya+ Buttermilk with methi powder

Table 2

YOGA PROTOCOL

- ✓ Loosening exercises
- ✓ Suryanamaskara 12 rounds
- ✓ Asanas
- ✓ Breathing exercises

- ✓ Relaxation techniques

RESULT

It was found that there were reduction in fasting blood sugar level and post prandial blood sugar level after the completion of 10 days of treatment and patient did not experience any adverse effects.

LABORATORY REPORTS

	Fasting blood sugar	Post prandial blood sugar level
Before Treatment	169 mg/dl	174 mg/dl
After Treatment	84 mg/dl	98 mg/dl

Table 3

DISCUSSION

In the present case study its observed that there is significant improvement in diabetic profile after 10 days naturopathic and yogic interventions. A high-fiber, low-carbohydrate, and nonketogenic diet helps to improve insulin sensitivity and reduce resistance in overweight and obese populations.

Fasting and decreased insulin levels improves insulin resistance significantly.[11] Salt restricted diet helps in weight reduction and brings better glycemic control. In addition to this, hot baths, yoga, fruit and vegetable diets, and active lifestyle brings anti-inflammatory effects that helps in glycemic control.[12,13]

Therefore, using interventions that reduce weight and bring glycemic control is required to mitigate this risk. Naturopathy and yoga-based intervention gives better glycemic control that could also reduce risk for cardiovascular diseases.

CONCLUSION

Naturopathy and yoga interventions can be practiced as home remedy for weight control as well as for glycemic control. It is one of the standard regimen all kind of chronic non-inflammatory diseases.

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