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# Yoga in the management of Diabetes Mellitus

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## ABSTRACT

Diabetes mellitus is a chronic metabolic disorder in which the body is unable to make proper utilisation of glucose, resulting in the condition of hyperglycaemia. Excess glucose in the blood ultimately results in high levels of glucose being present in the urine (glycosuria). This increase the urine output, which leads to dehydration and increase thirst. India has the largest diabetic population in the world. Changes in eating habits, increasing weight and decreased physical activity are major factors leading to increased incidence of Diabetes. Lifestyle plays an important role in the development of Diabetes. *Yoga* offers natural and effective remedies without toxic side-effects, and with benefits that extend far beyond the physical. This system of *Yoga* is a simple, natural programme involving five main principles: proper exercise, proper breathing, proper relaxation, proper diet and positive thinking and meditation. It is a cost effective lifestyle intervention technique.

**Key words:** *Yoga*, Diabetes Mellitus, Diet and life style.

## INTRODUCTION

*Yoga* is a system of self-healing. According to the yogic philosophy, diseases are the result of faulty ways of living, bad habits lack of proper knowledge of things related to an individual's life and improper food. These factors disturb the equilibrium within the body. The diseases are thus the resultant state of a short or prolonged malfunctioning of the body system.<sup>[1]</sup>

### Therapeutic *Yoga* and its importance

Modern medical system has proved itself most effective in saving man from the fatal contagious and

infectious diseases. However, the rapidly increasing incidence of stress related ailments is posing a great challenge to the modern medical system. *Yoga* is not just a methodical system which helps man to attain spiritual growth, but has therapeutic applications also.<sup>[2]</sup>

Diabetes is a metabolic disease in which the primary problem is the defective utilization of sugar by the body. Dietary sugars and starch are broken down to glucose by process of digestion and this glucose is major fuel for the various processes, organs and cells of the body. Glucose metabolism is under the control of the hormone insulin, which is secreted by the Pancreas, a large gland behind the stomach. When this gland becomes stressed or exhausted the hormone insulin becomes deficient in quantity or sensitivity. As a result, the blood sugar level becomes high and uncontrolled.<sup>[3]</sup>

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### Types of diabetes mellitus

There are two broad types of diabetes mellitus

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**Type I** - Insulin dependent Diabetes Mellitus (IDDM) or juvenile onset - In this type diabetes the hormone insulin is completely or almost completely absent from the islets of Langerhans and plasma and insulin, treatment is essential. It is called Insulin dependent Diabetes Mellitus (IDDM) because of compulsory periodic insulin administration, to control the rise of blood glucose level. It can occur at any age, though it most commonly occurs during younger age.<sup>[4]</sup>

**Type II** - Non- insulin dependent Diabetes Mellitus (NIDDM) or maturity onset - This type of diabetes is much more common than juvenile onset and most often occurs in people who are over 40 and over weight since it occurs in the later stage in life. It is termed as maturity onset diabetes. In this condition of diabetes the hormone insulin is often present in present in plasma at near- normal or even above level and additional insulin is not required to sustain life and to maintain normal blood glucose level.<sup>[5]</sup> Patient with this type of diabetes produces little or excessive insulin in their Pancreas, it either is not enough for proper function or is not being produced quickly enough to influence glucose levels in the blood effectively. This happens probably due to defects in molecular machinery that mediates the action of insulin on its targets cells. That is why this diabetes is target cells. That is why this diabetes is called non-insulin dependent diabetes mellitus.<sup>[6],[7]</sup>

Among Type 1 Diabetic person there is no production of Insulin and can be controlled with *Yoga*, Among Type 2 Diabetic person there is production of Insulin but it is Lifestyle, Stress related one and can be effectively treated with *Yoga*. Daily *Yoga* practice provides a suitable management option for the Prevention and Control of Diabetes.

### **Yoga**

*Yoga* has an important role to play in the treatment of Diabetes. *Yoga* techniques affect body, internal organs, Endocrine glands, Brain, Mind and other factors concerning Body - Mind complex. Various *Yoga* techniques can be practiced effectively to reduce the weight and Diabetes achieves a normal healthy condition of body and mind.<sup>[8]</sup>

*Asanas* or body posture which provide stability and strength to the body, and many benefits like,<sup>[9]</sup>

- *Yoga* are especially useful to reduce the fats in various parts, especially forward bending, twisting and backward bending *Asanas* help to reduce the fats near abdomen, hips and other areas.
- Practice of *Asanas* improves functioning of internal organs, strengthening Heart, Lungs, Kidneys, Excretory and Reproductive organs.
- Rejuvenation or Regeneration of cells of Pancreas due to abdominal stretching during yoga, which may increases utilization and metabolism of glucose in peripheral tissues, liver and adipose tissue.
- These postures can lead to improvement in the sensitivity of beta cells of pancreas to the glucose signal and also improvement in Insulin sensitivity in turn can be due to cumulative effect of performing the posture.<sup>[10]</sup>

**Table 1: List of *Asanas* found in the diabetes<sup>[11]</sup>**

<b>Asanas</b>	<b>Benefits</b>
<i>Paschimottanasana</i>	Tones the abdominal pelvic organs. Reduces fatty deposits in the abdomen. Remove anxiety, anger and irritability. Calms the mind. It acts as a stress reliever.
<i>Padahastanasana</i>	Useful in the toning of the abdominal organs. Circulation of the blood throughout the body is improved. Once proper blood circulation, body cells will be supplied with enough nutrients and oxygen. Improved blood circulation will also help in keeping the hormone balance.

<i>Ardhamastyendrasana</i>	Massages abdominal organs, Simultaneously stretches the muscles on one side of back & abdomen.
<i>Bhujangasana</i>	It helps in giving a gentle massage to the internal organs and will stimulate the digestive system to function well. And useful in treating the symptoms of stress like fatigue, headache and weakness.
<i>Vajrasana</i>	Calms the mind and bring stability in mind.
<i>Savasana</i>	It relaxes whole body. Releases stress, fatigue, depression and tension. Calms the mind and improves mental health.
<i>Suryanamaskara</i>	Harmonizes the endocrinal system helping to remove any irregularities by directly massaging the relevant glands and improving their blood flow. Imbalance of the endocrinal system is often caused by mental tension. Surya Namaskara can help to remove or reduce this deeper cause of hormonal malfunction, especially if it is supplemented by other Yoga practices.

### Pranayama

There are 8 types of *Pranayama* mentioned in *Hatha Yoga*. One of the basic preparations for *Pranayama* is *Nadi Shodhana Pranayama* or alternate nostril breathing; this type is found useful in diabetes as Alternate nostril breathing has calming effect on nervous system, which reduces stress levels, helping in diabetes treatment. Also research has shown that

*Bhramari* and *Bhasrika Pranayama* help in diabetes. *Bhramari* has calming effect on mind, brain and nervous system. *Bhasrika Pranayama* is revitalizing *Pranayama*, which increases oxygen levels and reduces carbon dioxide levels in the blood. In *Bhasrika Pranayama*, the abdominal muscles and diaphragm are used which puts pressure on the internal organs. But before practicing these *Pranayama*, one must learn and practice deep breathing, fast breathing and alternate nostril breathing.<sup>[12]</sup>

### Meditation

Practice of meditation is especially useful in management of stress. Relaxed and Concentrated state of mind is the aim of any form of meditation which creates calming effect on nervous system, brings balance between Sympathetic and Parasympathetic nervous systems. Initially meditation may be difficult, and one can practice *Omkara* Chanting, concentration on breathing. Especially for diabetes, concentration on pancreas during the meditation practice has shown positive effects on sugar levels. One can even visualize the proper functioning of pancreas, proper insulin administration in the body can help in treatment of Diabetes.<sup>[13],[14]</sup>

### DISCUSSION

Lifestyle plays an important role in the development of Diabetes. *Yoga* has an important role to play in the treatment of Diabetes. *Yoga* techniques affect body, internal organs, Endocrine glands, Brain, Mind and other factors concerning Body-Mind complex. *Yoga* offers natural and effective remedies without toxic side-effects, and with benefits that extend far beyond the physical. This system of *Yoga* is a simple, natural programme involving five main principles; proper exercise, proper breathing, proper relaxation, proper diet and positive thinking and meditation. It is a cost effective lifestyle intervention technique. *Yoga* has influence over Body, Mind, Soul but medicine acts upon only target cells. *Yoga* is Non-Pharmacological intervention without any adverse drug reactions. Complete holistic wellbeing will be attained through *Yoga* only.

**CONCLUSION**

*Yoga* is not just a methodical system which helps man to attain spiritual growth, but has therapeutic applications also. Diabetes mellitus is a chronic metabolic disorder in which the body is unable to make proper utilization of glucose, resulting in the condition of hyperglycemia. Among Type 1 Diabetic person there is no production of Insulin and can be controlled with *Yoga*. But Type 2 Diabetes, it is Lifestyle, Stress related disorder it can be effectively treated with *Yoga*.

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