



# ROLE OF YOGIC PRACTICES IN DIABETES MELLITUS: A REVIEW

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## ABSTRACT

Diabetes is now one of the most common non-communicable diseases globally. It is the fourth or fifth leading cause of death in most developed countries and there is substantial evidence that it is epidemic in many low and middle income countries. Complications of diabetes include coronary artery and peripheral vascular disease, stroke, diabetic neuropathy, amputations, renal failure and blindness this results in increase disability and reduced life expectancy. The available treatment modalities only limited to life style modifications, hypoglycemics, hypolipidemics, antioxidants, insulin analogues etc. but they are not safe and costlier too so now modern diabetologist look towards the natural, cost effective alternative methods and medicines to prevent the disease burden. Indian ancient sacred science Yoga could be one better alternative which is free to all and include certain postural and breathing practices. Yoga is a means of balancing and harmonizing the body, mind and emotions. This is done through the practice of asana, pranayama, mudra, bandha, shatkarma and meditation, and must be achieved before union can take place with the higher reality. By incorporating yogic practices the life of diabetic patient can reduce the medicine load also prevent the body from later complication of Diabetes. This present review mainly concerned with the applicability of yoga in diabetic patients and its scientific role on the body.

**KEYWORDS:** Diabetes, complications, alternative methods, yoga.

### Introduction:

Diabetes mellitus (or diabetes) is a Group of metabolic diseases in which there are high blood sugar levels over a prolonged period and it affects your body's ability to use the energy found in food. Continuous high blood sugar in blood produces the symptoms like polyuria (frequent urination), polydipsia (increased thirst), and polyphagia (increased hunger)[1]. All types of diabetes mellitus share similar symptoms and complications at advanced stages. Hyperglycemia itself can lead to dehydration and ketoacidosis. Longer-term complications include cardiovascular disease, chronic renal failure, retinal damage which can lead to blindness, nerve damage which can lead to erectile dysfunction, gangrene with risk of amputation.[2]

Diabetes is certain to be one of the most challenging health problems in the 21st century. Diabetes will remain one of the greatest challenges to health care systems around the world for many years to come[3]. According to the International Diabetes Federation, 61.3 million people in India had diabetes in 2011. That figure is projected to rise to 101.2 million by 2030. IDF data reveal that India has more diabetes than the United States. In fact, India is ranked second in the world in diabetes prevalence, just behind China[4]

Treatments for diabetes can include many elements. Conventional allopathic treatments and alternative treatments. Alternative treatments category encompasses a variety of disciplines that include everything from diet and exercise to mental conditioning and lifestyle changes. Examples include Ayurveda, Yoga, siddha, Unani acupuncture, Homeopathy, biofeedback, aromatherapy, relaxation, and many others[5]. The Conventional allopathic treatments not only costly but also exerts lot of undesirable side effects on mind and body and on the other hand alternative treatment such as Yoga, Ayurveda etc. requires very low cost also it devoid undesirable and harmful side effects on long term use[6]. The main focus of this article towards the Yoga practices which not only prevent diabetes but also minimizes the long term complication without any cost[7,8].

Yoga is the science of right living and, as such, is intended to be incorporated in daily life. It works on all aspects of the person: the physical, vital, mental, emotional, psychic and spiritual. The word yoga means 'unity' or 'oneness' means to unite, combine, harmonize or integrate and is derived from the Sanskrit word yj, which means 'to join'. This unity or joining is described in spiritual terms as the union of the individual consciousness with the universal consciousness[9]. A truly yogic approach is inherently an integrative approach, harmonizing body, prana, senses, mind and consciousness. It cannot be reduced to the body alone. A yogic approach to healing is not a specialization or a side-line technique but requires a synthesis of all levels and aspects of healing. That is why classical Yoga has an eightfold approach from life-style practices and values through asana, pranayama to samadhi. If we reduce Yoga to asana, we are not practicing Yoga or an integrative approach but falling into the same trap of mainly focusing on the outer material reality and losing track of the inner reality of prana, mind and consciousness[10].

### Yoga and Diabetes:

Several studies have confirmed the usefulness of yoga in the control of diabetes mellitus. Fasting and postprandial blood glucose levels came down significantly.

Good glycaemic status can be maintained for long periods of time. There was a lowering of drug requirement and the incidence of acute complications like infection and ketosis was significantly reduced. There were significant changes in the insulin kinetics and those of counter-regulatory hormones like cortisol. There was a decrease in free fatty acids. There was an increase in lean body mass and decrease in body fat percentage[11]. The number of insulin receptors was also increased. There was an improvement in insulin sensitivity and decline in insulin resistance. There are some specific asanas which are more beneficial for diabetes mellitus are Naukasana, Bhujangasana, Halasana, Vajrasana, Yogamudra, Shalabhasana, Dhanurasana, Ardha Matsyendrasana, Shavasana, Makarasana and Surya Namaskara.

### General benefits of Yogic Practices:

The practice of Yoga as a whole gives a great number of benefits which are following:

1. Yoga ideally done facing the early morning sun, helps our body to soak in its benefits — sun rays are a rich source of vitamin D and helps to strengthen our bones and also helps to clear our vision.
2. This asana, apart from improving one's posture, also gives a proper workout to the body and so helps in losing unwanted flab.
3. Regular practice of this asana can also help you lose the excess belly fat.
4. The postures of asanas stretches our muscles and makes our body very flexible.
5. The moves and postures of the asana help all our internal organs function better the various poses regulates our blood flow, benefits the digestive system and makes it more efficient.
6. It helps combat insomnia as it relaxes the body and calms the mind.
7. It reduces anxiety and restlessness and enhances our strength and vitality.

### Scientific role of Yoga in Diabetes patients:

- a) Yoga significantly decreases in fasting blood sugar and postprandial blood sugar level in diabetic patients.[12]
- b) A significant decrease in Glycosylated haemoglobin (HbA1c) level also be noted in in patients.[11]
- c) Autonomic nervous system generally involved in diabetic patients but by practicing yoga, a positive impact also noted on autonomic function of body. [12]
- d) Regular practice of yoga significantly decreases the oxidative stress of the body which plays a key role in insulin resistance and complication in diabetes patients [13][14][22].
- e) Yoga also improves the lipid profile in diabetic patients which plays sup-

portive role in its complications. This results in reduction of weight, BMI and waist hip ratio. [15][16]

- f) Yoga pacifies mental stress and produce calmness in the mind of diabetic patients.[17]
- g) Yogic practices significantly reduces complication by improving BMI, waist hip ratio, median fasting insulin, blood glucose level, Interlukin(IL-6) level in diabetic patients [17][18][19][20]
- h) In addition to reduction in IL-6, there was a reduction in the level of neopterin, which is an indirect measure of interferon gamma (IFN- $\gamma$ ). The change in neopterin levels were significantly and positively correlated with change in body weight and IL-6. Both IL-6 and IFN- $\gamma$  directly related with insulin resistance, diabetes, and its complications [21][23]

#### Conclusion:

Yoga is a ancient and sacred science of india which positively modulates body and mind of a person. Regular Yoga practice helps in reduction of weight, BMI, waist hip ratio, blood sugar and lipid level, Inflammatory markers (IL-6, IFN- $\gamma$  etc.) in diabetic patients. Yoga can be considered as very safe, cost effective and natural alternative therapy for diabetic patients. Yoga can be considered as adjuvant therapy for the diabetic patients which reduces the medicine load from the country also strengthen nations economy for the better future of mankind.

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