

## CRITICAL ANALYSIS REGARDING ROLE OF YOGA IN THE MANAGEMENT OF DIABETES MELLITUS AS COMORBIDITY CONDITION DURING COVID 19 PANDEMIC

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### ABSTRACT

Diabetes mellitus is clinical syndrome characterized by an increase in plasma bloodglucose (Hyperglycemia).<sup>[1]</sup> People with diabetes mellitus are high risk group of co-morbidity condition in COVID-19 along with hypertension, lung diseases and cardiovascular diseases. WHO declared COVID-19 a pandemic on 11th March 2020. Sedentary lifestyle and unhealthy dietary patterns are the major risk factors for various lifestyle disorders including diabetes mellitus. Diabetes has recently been identified by as one of the refractory diseases for which satisfactory treatment is not available in modern science that is why yoga practice is essential to control bloodsugar level, also to maintain physical, mental, emotional, spiritual well being.<sup>[2]</sup> Yoga is an integrated system of traditional medicine which aims at development

of physical and mental health culminating into positive thinking, happiness, and peace although there are many types of Yoga, *Hath-yoga* is most commonly practiced. *Hath-yoga* includes physical postures (*Asanas*), breathing exercises (*Pranayama*) and meditation (concentration techniques). Certain *yoga asanas* if practiced regularly are known to have beneficial effect on human body. These *yoga* practices might be interacting with various Somato-neuro-endocrine mechanisms to have therapeutic effects.

**KEYWORDS:** Diabetes mellitus, Covid-19, *Yoga*, *Hath-Yoga*, Lifestyle disorder.

## INTRODUCTION

Ayurveda is most ancient and traditional system of medicine in India. Ayurveda deals with whole life of human being starting from birth to end of the life because Ayurveda is not only the science of medicine but also describe the art of living. According to *Acharya Charaka* life is a combination of body, senses, mind and soul.<sup>[3]</sup> Main aim of *Ayurvedic* science is health of well being and treatment of deceased one.<sup>[4]</sup>

Yoga is not only physical postures but a discipline to improve or develop one's inherent power in a balanced manner.<sup>[5]</sup> *Maharshi Patanjali* "The Father of Yoga" has compiled various aspects of yoga systematically in his "*Yoga-Sutras*" In which yoga is defined as "*chitta vritti nirodhah*" means mastery over the modification of mind.<sup>[6]</sup>

### Techniques of yoga

**Types of yoga:-** Yoga mainly classified as *Hath-Yoga, Karma-Yoga, Raja-yoga, Dyan-Yoga, Bhakti-Yoga*. According to *Yogasutra* there are *Ashtanga yoga* that is eight limbs of yoga are *Yama* (Restraints), *Niyama* (Rituals/Self observations), *Aasan* (Postures), *Pranayama* (breathing exercises), *Pratyahara* (withdrawal of the senses), *Dharana* (concentration), *Dhyana* (Meditation), *Samadhi* (State of complete relaxation). Other practices of yoga are *Mudra, Bandha, Shat-Karma (Dhouti, Neti, Basti, Nouli Trataka, Kapalbhati)*.

*Yama-Niyama* principles of cleanliness purity and self control are most commonly important along with *Asanas* and *Pranayama* in present era, where to prevent chances of infection social (physical) distancing, personal hygiene (use of mask, Sanitizer) are being emphasised by all medical authorities. All these measures are also recommended by AYUSH department.

### Covid-19

COVID-19 (Corona virus disease 2019) is an infectious respiratory disease. It was first identified in December 2019 in Wuhan China. WHO declared the covid-19 as Pandemic on 11 March 2020.<sup>[17]</sup> To control spread of corona virus outbreak in India, Government of India ordered a nationwide lockdown because of which factories and workplaces shutdown, millions of migrant workers had to deal with the loss of income, food shortage and uncertainty about their future. So, this is obvious people are not mentally stable during this period. Old age people, people with medical condition like diabetes, hypertension, people with compromised immune system are more prone to cause infection. So, *yoga* practices are recommended. *Yoga* practice specially those done mindfully will strengthen their immune

system by increasing a sense of empowerment and confidence from within. Regular practice of yoga helps in controlling individuals mind, body and soul. It unites physical and mental authorities and also helps to supervise stress and anxiety, flexibility, muscle strength and body tone is improved by yoga. *Yoga* exhibits positive effects for treatment of various systemic elements and lifestyle disorder. Practice of yoga is beneficial for all the elements of health- physical, mental, social and spiritual.

### **Co-morbidities during covid-19 pandemic**

Number of co-morbidities is a predictor of mortality in covid-19, as chances of infection increases due to immune-compromised state. Diabetes mellitus is a risk factor for hospitalization and mortality of COVID-19 infection. Diabetes mellitus was co-morbid in many cases. In addition to diabetes mellitus other common co- morbidities were hypertension, cardiovascular diseases and lung diseases. Indeed people with diabetes mellitus are high risk group for severe diseases.

In this condition, we all need to focus on our own “*Swastha*” to maintain physical and mental health by doing *Yoga*. *Yoga* empowers us and enables us to take charge of our own life, thus promoting holistic health for each and everyone of us. That is why in this article we are going to focus on *Yoga* in diabetes mellitus as a co-morbidity in COVID-19 pandemic.

### **MATERIALS AND METHODS**

A systematic search was made through the medical database using keywords yoga, COVID 19, co morbidity, diabetes mellitus. Also matter was collected from the various textbooks, samhitas, medical journals and published articles.

### **Diabetes mellitus**

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both also it is a leading cause of cardiovascular mortality.<sup>[8]</sup> *Yoga* is an alternative therapy for diabetes with not only physical but also psychological benefits. It improves blood glucose, lipid profiles and oxidative stress.<sup>[9]</sup>

### **Mechanism of yoga in diabetes mellitus**

Mind control for better compliance of lifestyle modifications and stress reduction.<sup>[10]</sup>

### Various *asanas* performed in diabetes mellitus

**Asanas:** In *Yoga-sutra of Patanjali*, *Asana* is defined as “*Sthira sukham asanam.*” *Asana* is 1<sup>st</sup> step of *Yoga*. Which produces *laghawata* (lightness of body), *Sthairya* (enhances strength), and *Arogya* (health).<sup>[11]</sup>

### Yoga- As a therapy for diabetes mellitus.<sup>[12]</sup>

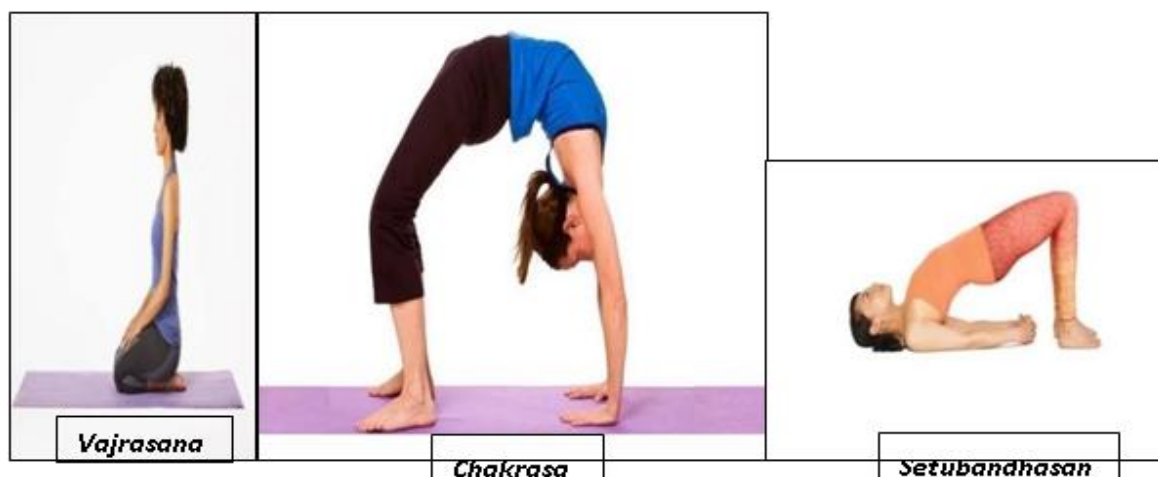
	Avoid	Emphasize
Diabetes with no retinopathy	Yogamudra Shalabhasana Dhanurasana	Sarvangasana Matsyendrasana Ardha-matsyendrasana Agnisar- kriya Uddiyana bandha

- 1) ***Sarvangasana*:** This pose is essentially known for its ability to regulate the working of thyroid glands these glands are responsible for proper functioning of entire body, including the digestive, nervous, reproductive and respiratory system. It also helps to normalise the body weight by balancing the endocrine system.

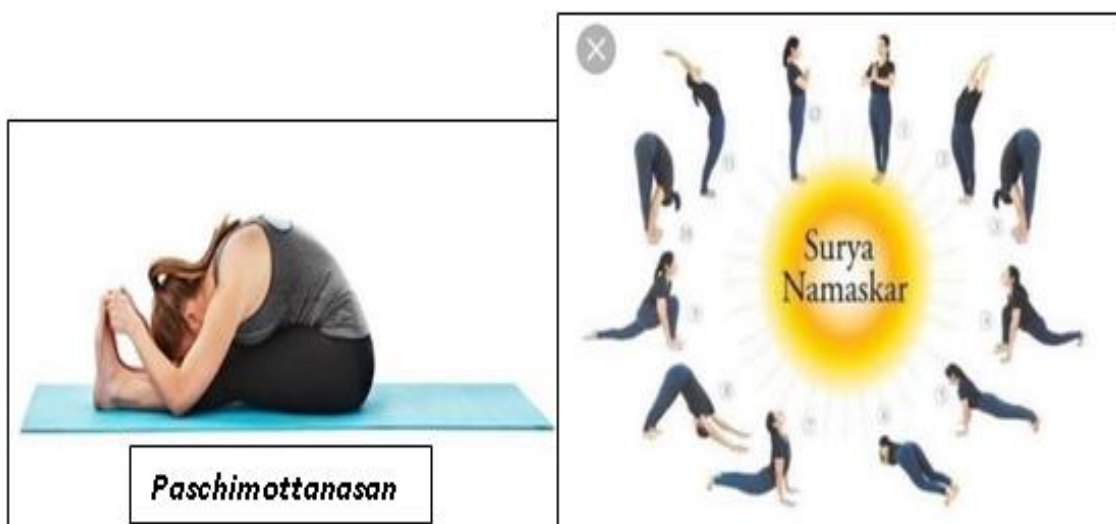


- 2) ***Matsyendrasana*:** gives an excellent massage to abdominal organs there by helping to alleviate various types of digestive disorders.
- 3) ***Ardha matsyendrasana*:** (half spinal twist): It has been found useful to treat diabetes mellitus, indigestion, rheumatism and constipation. It is specially designed to increase the capacity of your lungs so that it can inhale more oxygen
- 4) ***Halasana*<sup>[13]</sup>:** is almost an upside down form of *Paschimottanasana*. It is more effective for thyroid disorders. Also abdominal muscles are strengthened. It generally decongest and

revitalizes the liver, spleen, kidneys, pancreas and adrenal glands. This pose is great for those who seat for long hours and tends to have bad postures.



- 5) **Vajrasana**<sup>[14]</sup>: This is great to relax mind, improve digestion. Only the asana which can be performed after eating.
- 6) **Setubandhasan**<sup>[15]</sup>: This asana keeps one's hypertension and diabetes in control. It also helps to relax mind and improves digestion. It facilitates suitable stretches and massage to the abdominal organ.
- 7) **Chakrasan**<sup>[16]</sup>(**wheel pose**): massages abdominal organs. This pose is great to stretch the spine and relax the muscles of the back. More over it helps to relax the mind and make it stress free.
- 8) **Paschimottanasana**<sup>[17]</sup>: One of the forward bending pose of asana which helps blood to flow to the face. Apart from this it helps the stomach function better, strengthens thigh muscle, relaxes back and arms, also regulate the blood sugar level.



***Surya namaskar***

*Surya namaskar* is a series of 12 physical postures made up of a variety of forward and backward bends. *Surya namaskar* is a branch of yoga that concentrates physical health and mental wellbeing through practicing various body postures (*asanas*) breathing techniques (*pranayama*) and meditation. It is believed that one can obtain a sound physical body as well as calm and peaceful mind. *Suryanamaskar* energize the entire neuro-glandular and neuromuscular system of body. Its regular practice ensures a balanced supply of oxygenated blood and perfect harmony to all systems of the body, thus invigorating the entire psychosomatic system of human constitution.<sup>[18]</sup>

***Pranayama:*** According to *Gherand-Samhita* “*Pranayamat laghavat ch ...I*” That is *Pranayama* gives lightness or *laghima*. Breathing in deeply and breathing out helps to oxygenate your blood and improve circulation.

According to *hath-yoga pradipika*, *Pranayam* is of three types:<sup>[19]</sup>

1. *Rechak* (exhalation),
2. *Purak* (inhalation)
3. *Kumbhak* (retention)

***Shat-Karma:*** According to *Hath-Yoga Pradipika*, by practicing this body becomes healthy, elastic and free from kapha disorder. “*Medah shlemadhikah purvam shatkarmani samacharet.*” As in *Prameh* “*Bahudravah shlema doshvisheshah*”<sup>[20]</sup> So, these *Shat-karma* should be practiced in it. Out of six *Agnisara kriya*<sup>[12]</sup> and *Kapalbhati* are very much effective in it.

***Bandha (Lock)***

There are 3 classic *bandhas* that is *Mula bandha*, *Uddiyana bandha* and *jalandhara bandha*.

**Benefits of *Uddiyana bandha***<sup>[12]</sup>: Activates the *Manipur chakra* and solar plexus, stimulates intestinal activity, stimulates pancreas and is helpful for diabetes mellitus. Also strengthens the immune system, balances mind, soothing irritability and anger and dispels a depression mode. It is believed that the negative pressure created in the abdominal cavity may improve pancreatic function.

**CONCLUSION**

*Yoga* therapy is relevant for wellness as well as for illness. Recent scientific researchers

suggest that yoga based lifestyle modifications is very much effective to reduce blood sugar level also to maintain physical and mental state of patient which is very much essential in covid-19 outbreak. Anti stress mechanism improves psychological profiles of the patient. Yoga practices such as various *Asanas*, *Pranayam*, *Surya namaskar*, *Shat-karma*, *Bandhas* and meditation are known to reduce blood sugar levels and help in the management of co-morbid conditions in covid-19 alongwith diabetes mellitus. Thus, *yoga* soon may become an accepted non- pharmacological endocrinotherapy along with diet and exercise.

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