

A REVIEW ON ROLE OF EXERCISE AND YOGA IN THE PREVENTION OF MADHUMEHA (DIABETES MELLITUS)

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ABSTRACT :

In past couple of decades, evidence from prospective observational studies and clinical trials has converged to support the importance of individual nutrients, food and dietary pattern in the prevention and management of *Madhumeha* (Diabetes mellitus). The epidemiological trends indicate that without proper control and prevention its prevalence will increase upto 438 millions in 2030. *Madhumeha* (Diabetes mellitus) is a life style disorder so, there is need to prevent it through natural process like exercise and yoga. Yoga has been an ancient and effective care for numerous health related problems. The practice of yoga includes meditation, breathing, exercise, pranayam, asanas and most important of all, attaining eternal peace. Present paper highlights a role of exercise and regular practice of yoga which may prevent and control the status of *Madhumeha* (Diabetes mellitus) and produce optimum healthy populations.

Keywords: Diabetes mellitus, Exercise, Yoga, *Madhumeha*, Asana, Insulin.

INTRODUCTION: A medical condition in which body can't produce enough insulin to process the glucose in the blood is known as diabetes. The word *diabetes* named in Greek *diabainein*, meaning "a siphon," referring to the excessive urination associated with the disease and the Greek word *mellitus*, meaning "like honey," was added, to reflect the sweet smell and taste of the patient's urine. Similarly in Ayurveda a condition in which a person passes honey like (sweet) urine is called *Madhumeha* (Hyperglycemia). Reduced insulin production and decreased insulin sensitivity are the contributing factors for Diabetes. *Asya sukha*¹ (sedentary life style), *atinidra* (excess sleep), *avyayama*² (lack of exercise), *achinta* (lack of mental exercise), are the causes of

Prameha. Acharya Shusruta explained that it treatment or prevention is not employed to all varieties of *prameha* at the appropriate time converted to *Mahumeha*³. The WHO has commented there is 'an apparent epidemic of diabetes, which is strongly related to lifestyle and economic change.' About 30% of type 2 diabetes is preventable by changing diet, increasing physical activities (exercise), yoga and improving the living environment⁴. Yoga and physical exercise has been considered as one of the counter stone in the prevention of *Madhumeha* (Diabetes mellitus). Apart from spiritual philosophy, yoga has been utilized as a therapeutic tool to achieve positive health and cure disease. Exercise including appropriate endurance and resistance training is a major therapeutic modality for *Madhumeha*

(Diabetes mellitus). The current level of physical inactivity are partly due to insufficient participation in physical inactivity during leisure time and an increase in sedentary behavior during occupational and domestic activities leading to metabolic and life style disease like Diabetes. So, it is of utmost importance to stress on lifestyle modification.

NEED OF THE STUDY: The main objective of study is to provide a comprehensive overview of the situation regarding exercise and yoga for *Madhumeha* (Diabetes mellitus) and explore the possible strategies that could be effective in combating the spread and focus for healthy life. While we think the list of benefits might be applicable to any one, it is even more applicable while referring to *Madhumeha* (Diabetes mellitus), exercise and yoga. For instance, each of benefits may require in reduction in medication. Therefore regular practice of exercise and yoga may prevent and control the status of *Madhumeha* (Diabetes mellitus) and produce optimum healthy population.

Madhumeha (Diabetes Mellitus) and Exercise: The main causes of *Madhumeha* are lack of exercise and improper food habits. Exercise is a kind of physical activity that gets a person moving. Getting started for exercise begins with motivation and will to exercise. Diabetic person will benefitted more from doing even a light exercise but on a regular basis. This is also a preventive method to ward off diabetes and at the same time it is one of the major components of lifestyle changes. There are three main kind of exercise - aerobic, strength training and flexion work at least 30 minutes gradually.

Exercise has so many benefits, but the biggest on is that it makes easier to control blood glucose level. People with type 2 diabetes have too much glucose in their blood either because their body doesn't produce enough insulin process it or because their body doesn't use insulin properly (insulin resistant).

According to Ayurveda Acharya Charak, mentioned that *Madhumeha* gets immediately cured by different types of strenuous exercises, therefore regular exercise the aggravated *kleda* (oiliness), *medas* (adipose tissues) and *kapha* (heaviness) are minimized this can also be due to administration of depletion therapy, as there are the factors responsible for causation of *Madhumeha*.

Generally, diabetes occurs in people who do not exercise and lead to a sedentary life. It is very important to do some exercise, that may help to balance the blood sugar by stimulating pancreas to release insulin hormone.

Madhumeha (Diabetes Mellitus) and Yoga: There are different approaches to yoga including spiritual, therapeutic and developmental⁵. However, the underlying premise of mind-body exercise modalities like yoga is that the physiological state of the body can affect emotions, thoughts and attitudes, which in turn have a reciprocal effect on the body⁶.

Yoga stimulates the organs which in turn improves metabolic activities. This means that the chemical transformations with in a cell are carried out more efficiently. This makes it highly beneficial exercise for those suffering from *Madhumeha* (Diabetes)- a complex condition which occur due to lack of insulin production by pancreas or lack of cell response to insulin, resulting in a multitude of metabolic imbalance involving the regulation and

utilization of insulin and glucose in the body.

The yoga therapy as a preventive process for *Madhumeha* (Diabetes mellitus) is as in following way-

1. Suryanamaskar⁷: Suryanamaskar is a very good exercise for people suffering from diabetes, it increases the blood supply to various part of the body, improving insulin administration in the body, it gives all the benefits of exercise if practiced at 3-6 rounds. One round of Suryanamaskar consists of twelve postures. It helps to burn out the excessive calorie.

2. Pranayama⁸

- **Kapalbhati :** Kapalbhati is one of the best options for diabetic. If the diabetic person practices this technique regularly, then certainly he can get his disease controlled. This is a very effective form of Pranayama. In this stimulation of vagus nerve by contraction of abdominal muscles has a beneficial effect in the reduction of depression and normal insulin secretion from pancreas.

- **Anulom-Vilom:** It is another way to treating this disease. It is also known as alternate nasal breathing. It has the calming effect on the nervous system, which reduces stress level, helping in diabetes. It helps both hemispheres of brain, which help to calm thinking and be able to relax and rest much more easily. Both Pranayama breathing techniques are beneficial to the diabetic since reduction of stress hormones like adrenaline and cortisol help lower blood glucose levels.

3. Asanas⁹: Asanas are beneficial in the prevention of diabetes. An important aspect of Asanas is stability and comfort experienced in the position. Due to various twists, stretches and strain in the body, the internal organs are stretched and subjected

to strain. This increases the blood supply, oxygen supply to the organs, increasing the efficiency and functioning of the organ. Stretching various glands results in increased efficiency of the endocrine system. Some of the Yoga Asanas are effective to control the diabetes (*Madhumeha*), which are as follows-

- **Mandukasana:**¹⁰ It helps to stimulate the pancreas to secrete more natural insulin in the patients of inadequate insulin secretion defects.

- **Ardha matsyendrasana:**¹¹ This asana massages the kidneys, pancreas, small intestine, gall bladder and liver, helping to stimulate digestion and squeeze out toxins. Useful in diabetics, with concentration on the pancreas.

- **Dhanurasana:**¹² It improves the functioning of pancreas and intestines. Thus, helps in controlling blood sugar levels.

- **Sarvanga asana:**¹³ It helps to improve the blood circulation in the body; the better circulation of blood carries the adequate amount of insulin to act upon the blood glucose level at the skeletal muscle sites to utilize the blood glucose.

- **Halasana :**¹⁴ It stimulates the pancreas, spleen and activate immune system by massaging all the internal organs including pancreas. It also rejuvenates the mind.

These Asanas have positive effect on pancreas and also insulin functioning. But to get this result, one needs to maintain the asana for a longer duration while relaxing the muscles.

4. Meditation¹⁵: Meditation is an important part of yoga practice. As much as stretching and moving help the body rest and rejuvenate, meditation is a healing balm for brain chemistry, helping to bring

the mind to a state of awakened calm. The meditation in Kundalini yoga is described as benefiting the brain chemistry, the hormonal balance and the stimulation of communication between the brain hemispheres. Initially meditation may be difficult and one can practice Omkar Chanting, concentration on breathing.

Especially for diabetics, concentration on pancreas during the meditation practice has shown positive effect on sugar levels. One can even visualize the proper functioning of the pancreas, proper insulin administration in the body can help in the management of diabetes.

DISCUSSION: In developing countries, low cost strategies to identify at risk individuals and implementation of inexpensive lifestyle inventions like yoga are the best options. In view of people embracing sedentary life style and the effectiveness of management becoming less, the role of regular exercise especially 'yoga' seems to be a beneficial and economical adjuvant in the prevention of *Madhumeha* (Diabetes mellitus). Yogic exercise is a slow, static type of muscular exercise. The recent review suggested that yoga may reduce the stress, improve metabolic profile, regulate autonomic nervous system and alter hypothalamopituitary adrenal axis which act as neural mediators of hyperglycemia. Exercise refers to behavior, specially a body movement that occurs from skeletal muscle contraction and results in increased energy expenditure above resting metabolic rate. Exercise is a specific type of physical activity that is performed with the intention of enhancing component of physical fitness. Physical inactivity can initiate and accelerate the pathogenesis of diabetes and subsequent morbidity and mortality. Conversely, regular physical

activity can retard the progression from one stage to another and it may even reverse the process. Numerous studies have shown the moderate exercise has decreased the risk of diabetes considerably. *Madhumeha* (Diabetes mellitus), exercise and yoga therapy are complimentary to each other. They reduce sugar levels in the body resulting in lesser need of insulin. Besides relieving from stress, it strengthens bone and tone of muscles and refreshing too.

CONCLUSION: Western medical research has focused upon diabetes mellitus as only a physical disorder, requiring only physical modalities of invention. Several key points should be emphasized:

- To benefit diabetes control, exercise needs to be part of a lifelong management program that starts gradually and works up to higher intensity.
- Direct influence on pancreatic secretion by rejuvenation of the pancreatic cells, through alternate abdominal contractions and relaxation, during Asanas (yogic postures which produces relaxation) and breathing exercises.
- Reduction in blood sugar due to muscular exercise involved in Asanas.

Therefore, regular practice of yoga and exercise may prevent and control the status of *Madhumeha* (Diabetes mellitus) and increased the quality of life, right to a happier, healthier life.

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