

IMPACT OF MANDUKASANA AND MATSYENDRASANA ON DIABETES- A RESEARCH ARTICLE

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ABSTRACT

A person's lifestyle used to be a good predictor of their general health, but over time, it became a source of sickness and is now the subject of medical attention, raising concerns. Over the past 20 years, diabetes has become a much bigger issue. With an 8.3% prevalence in 2014, 387 million individuals worldwide have diabetes; by 2035, that number will have increased to 592 million. Yoga is a science and an art of well-being. It is a kind of spiritual practice that aims to harmonize the mind and body by drawing on a very delicate science. The effects of the two main asanas—mandukasana and matsyendrasana—are included in this study. This study examines the effects of certain poses on diabetes management. This study's publication was found by searching PUBMED, Google Scholar, and a few editorials based on diseases. When attempting to obtain these databases from pertinent papers and articles, the keywords yoga, diabetes, lifestyle, and lifestyle problems were utilized. The analysis of old yoga texts like the Gherand Samhita and the Hatha Pradipika was also included in this essay. The primary two asanas (Mandukasana and Matsyendrasana) and their therapeutic effects on diabetes and the pancreas. Mandukasana massages pancreas which in turn helpful as a blood sugar buffering system of our body. This stimulation might go a long way for insulin secretion and most importantly, better blood sugar control. Matsyendrasana's twisted pose massages the organs of the abdomen, including the pancreas. The pancreas may benefit from this massage by being more active and producing and regulating more insulin. This position can help improve blood sugar management by strengthening pancreatic function. Yoga literature has shown how these practices may be used therapeutically to strengthen the mind and body and promote psychophysiological positivity. It affects diabetics' health, promotes cellular and systemic metabolism, reduces stress and anxiety, and improves overall well-being.

Keywords- yoga, diabetes, lifestyle, and lifestyle problems.

INTRODUCTION

A person's lifestyle used to be a good predictor of their general health, but over time, it became a source of sickness and is now the subject of medical attention, raising concerns. The Indian lifestyle has been disrupted by urbanization and the adoption of western culture, leading to a sedentary lifestyle and low exercise levels, among other things. These factors greatly increase the chance of developing metabolic syndrome and other lifestyle-related diseases. The fact that India is a large country with a highly diverse population that has different social and cultural norms makes it difficult to gather epidemiological data on the overall prevalence of lifestyle disorders. In addition, many rural communities still lack access to healthcare facilities, and urbanization has led to a decrease in physical activity, increased exposure to potentially harmful products and technologies, and psychosocial stress brought on by unemployment. We may thus prevent lifestyle problems by modifying our food and lifestyle in accordance with the principles of yoga. Since an individual's environment and lifestyle play a vital role in the genesis of illnesses, correcting and managing these factors should also play a role in promoting health and preventing disease. (Singh, 2016)

From this angle, lifestyle problems may be prevented and managed with the use of yoga activities. A sound mind in a sound body is crucial for leading an active and healthy life, and all yoga practices support both mental and physical well-being. (Singh, 2016)

Mellitus means "sweet honey" in Latin, while diabetes means "siphon" (passing water). This metabolic syndrome, which regulates the metabolism of carbohydrates, proteins, fats, and electrolytes, is characterized clinically by polyuria, polyphagia, polydipsia, hyperglycemias, and glycosuria. It is caused by an absolute or relative deficiency of the hormone insulin (either by action, by secretion, or by both). (Aili, 2021)

Over the past 20 years, diabetes has become a much bigger issue. With an 8.3% prevalence in 2014, 387 million individuals worldwide have diabetes; by 2035, that number will have increased to 592 million. With 37 million diabetics, North America and the Caribbean has the greatest prevalence of 11%, followed by the Middle East and North Africa, which has 35 million diabetics with a 9.2% prevalence. With 138 million people, the Western Pacific area has the highest rate of diabetes prevalence (8.6%), which is comparable to the global rate. China, India, the United States, Russia, and Brazil are now the top 5 nations with the largest number of diabetes patients, according to the International Diabetes Federation (IDF). Every nation is seeing a rise in the number of individuals suffering from type 2 diabetes. People with diabetes make up 77% of the population in low- and middle-income nations. There are 179 million undiagnosed diabetics worldwide. In 2014, 4.9 million people died from diabetes. (Thangasami & Chandani, 2015).

There are two classifications for diabetes.

DM Type 1

- They are known as "Juvenile type" diabetes mellitus (DM), or insulin-dependent diabetes mellitus (IDDM), which is defined as an absolute lack of insulin.
- It is typical among younger adults under 30.
- It begins suddenly.
- Most patients have narrow frames.

DM Type 2

- These are diabetes mellitus that is not insulin-dependent (NIDDM) (partial or relative shortage of insulin)
- We refer to these as "maturity onset."
- It's typical for those over thirty years old.
- It starts out slowly.
- Most patients are overweight.

Diabetic patient shows various symptoms such as rise in thirst, or polydipsia, a lot of urine (polyuria), excessive hunger, or polyphagia, Unexpected weight reduction, weary, hazy vision and recurrent infections or slow-healing wounds.

Yoga is a science and an art of well-being. It is a kind of spiritual practice that aims to harmonize the mind and body by drawing on a very delicate science. Since yoga is a well-established holistic approach and promotes balance in all spheres of life, it is well-known for preventing disease, promoting health, and managing a variety of problems linked to a busy lifestyle. (Vasavaraddi, 2015)

Yoga comes from the Sanskrit word yuj, which means "to join, to yoke, or to unite." According to Yogic teachings, practicing yoga results in the unification of one's own consciousness with that of the universe, signifying complete harmony between the mind and body, as well as between man and nature. (Vasavaraddi, 2015) It is the means to

reach complete Self-Realization. Yoga is a reduction of one's mental process, along with the physical. (Milli, 2022)

MANDUKASANA - The technique for practising mandukasana is very simple.(Niranjanananda Saraswati, 1992). According to shloka 2.34-

*Prūṣṭhadeshe pādatalāvanguṣṭhau dvau ch sanspruṣhet ।
jānuyugman puraskṛutya sādhyenmaṇḍūkāsanam ॥34॥*

As you sit in vajrasana, try to keep your knees as apart as you can without straining. Just enough distance should separate the heels and feet to allow the buttocks to rest comfortably on the ground. The inside border of the foot stays in touch with the floor, and the toes point outward.(Niranjanananda Saraswati, 1992)

MATSYENDRASANA - This variation's primary goal is to encourage meditation in individuals who are flexible enough to achieve profound relaxation in the position.(Niranjanananda Saraswati, 1992). According to shlokas 2.23 and 2.24-

*Udaran pashchimābhāsan kṛtvā tiṣṭhatyayatnatah ।
namrītan vāmapādan hi dakṣhajānūpari nyaset ॥23॥
tatra yāmyan kūrparan ch yāmyakare'pi ch ।
dhruvormadhye gatāan dṛuṣṭīah pīṭhan mātsyendramuchyate ॥24॥*

While maintaining a straight back, pull the abdomen towards the back. With some effort, bend the left leg such that the heel rests over the right thigh. On the leg, support the right elbow. With the chin resting on the right hand, look directly at the middle of the eyebrow. We call this posture matsyendrasana. (Niranjanananda Saraswati, 1992)

The effects of the two main asanas—mandukasana and matsyendrasana—are included in this study. This study examines the effects of certain poses on diabetes management.

MATERIALS AND METHODS

This study's publication was found by searching PUBMED, Google Scholar, and a few editorials based on diseases. When attempting to obtain these databases from pertinent papers and articles, the keywords yoga, diabetes, lifestyle, and lifestyle problems were utilized.

The analysis of old yoga texts like the Gherand Samhita and the Hatha Pradipika was also included in this essay.

REVIEW OF LITERATURE

To acquire further information, studies related to the researcher's title were looked at. This study has addressed the research findings related to the previously specified title. Only a small number of the papers in this literature review are reviewed. The following studies featured specific research components:

1. This study looked at how individuals with type 2 diabetes (T2DM) responded to a single yoga pose, Ardha Matsyendrasana, in terms of their random blood glucose (RBG) readings. Our specific goal was to find out if practicing Ardha Matsyendrasana for 15 minutes may lower RBG levels in T2DM patients. Every participant engaged in two 15-minute sessions: a control session (CS) and an asana session (AS). Participants relaxed in a sitting position during the CS and performed Ardha Matsyendrasana during the AS. Randomization was used to determine the order of the sessions; half of the participants underwent the CS on day 1 and the AS on day 2, while the other half underwent the sessions in the opposite order. Random blood glucose (RBG) levels were monitored in subjects both prior to and following each intervention. The Ardha Matsyendrasana session significantly lowered random blood glucose (RBG) levels when compared to the control session, according to the study. In T2DM patients, both genders showed this tendency.(Tamilselvi et al., 2023)
2. Studies were gathered for this review article in order to examine the impact of different alternative treatments on the management of diabetes. The therapeutic benefits of a nutritious diet, naturopathy, acupressure, and yoga (asanas and pranayama) have all been researched. After using yoga, pranayama, naturopathy, a balanced diet, and acupressure as interventions for diabetes, the collected review showed several health advantages. The glycaemic index dropped dramatically. Anti-diabetic medication dosages were decreased. According to the study's summary, Yogmudrasana, Mandukasana, and Surya Namaskar are effective in easing the symptoms of diabetes. In light of this, a diet heavy in fibre, complex carbohydrates, and liquids was thought to be beneficial for regulating hyperglycaemia. It has been shown that several natural remedies, such as hot and cold baths and sauna baths, can effectively alleviate type 1 diabetic symptoms. For children with type 1

diabetes, maintaining a healthy lifestyle is crucial to managing hyperglycaemic peaks. Eating meals with a low glycaemic index can assist maintain glycaemic stability and can also help avoid postprandial elevation in blood sugar levels. (Ojha & Bhati, 2024)

3. Yoga helps the body's stress levels to decrease. This study looked at how the primary cause of diabetes is stress, which may be controlled by managing stress. This also improves blood flow to the body, which is necessary for healthy organ function. Asanas that stimulate the pancreatic and endocrine system to stimulate insulin secretion include the Surya namaskar, forward and backward bends, inversions, and perverse positions. Additionally, they reduce the average waist circumference, which may be beneficial for controlling elevated blood sugar levels. (Aili, 2021)
4. The purpose of this study was to evaluate and compare the impact of Yog asanas on patients with Type 2 diabetes mellitus before and after an intervention (yoga asanas) on fasting blood glucose (FBG), postprandial blood glucose (PPG), and HbA1C level (glycosylated haemoglobin). Patients with simple type 2 Diabetes mellitus in the age range of 35–55 years with a disease duration of 1–10 years who are on oral hypoglycaemic medications and food management were included in the trial after obtaining written consent. The participants in the research were split into two groups: the yoga training group (n = 40) and the control group (n = 40) who did not get yoga training. For three straight months, the subjects were instructed in thirteen different styles of Yog asanas. Five days a week, in the morning, subjects were forced to do yoga poses by a yoga teacher for forty to fifty minutes. For all groups, blood samples were measured for FBG, PPG, and HbA1C on day one and at the conclusion of each of the three study months. The study group's mean values of FBG, PPG, and HbA1C reduced statistically significantly from 139.2 ± 16.6 to 99.8 ± 15.9 mg/dl (p value < 0.001), 174.1 ± 7.9 to 141 ± 8.4 mg/dl (p value < 0.001), and 9.3 ± 1.0 to $7.1 \pm 0.7\%$ (p value < 0.001). In the control group, no discernible alterations were seen. (Sharma et al., 2015)

RESULT

The primary two asanas (Mandukasana and Matsyendrasana) and their therapeutic effects on diabetes and the pancreas are included in the following table, along with an observational and theoretical analysis of each pose.

TABLE 1- Effect of Mandukasana and Matsyendrasana on Diabetes.

<u>S.No.</u>	<u>ASANAS</u>	<u>TECHNIQUE</u>	<u>EFFECT ON DIABETES</u>
1.	Mandukasana	<ul style="list-style-type: none"> • Vajrasana (thunderbolt pose) : Sit in the kneeling position with knees bent, shins on floor, top of feet pointing down and big toes touching each other. • Form fists with each hand and lay them on the abdomen, under the navel, knuckles against your body. • Breathe in, as you exhale drive your fists into the wall leaning forward; • Stay in this position for a few breaths (begin with 20-30 seconds and work your way up). • Slowly return to the original position, and relax. <p>PRECAUTION: People with severe back pain, knee pain or who have had abdominal surgeries should not attempt these or should consult a healthcare professional first. (Niranjanananda Saraswati, 1992)</p>	<p>Though the pressure is mainly on the belly, and it ends up being a massage for pancreas which in turn helpful as a blood sugar buffering system of our body. This stimulation might go a long way for insulin secretion and most importantly, better blood sugar control.</p> <p><i>Improves Digestion:</i> Through the compression of the abdominal area, there will be escalation by functioning well and circulate around getting stabilized blood sugar levels.</p> <p><i>Helpful to lose weight:</i> performing Mandukasana along with other yoga asanas could be very beneficial to drop some pounds. Weight loss is a key part of the management of type 2 diabetes, and obesity is a risk factor for type 2 diabetes.</p> <p><i>Boost Circulation:</i> This posture enhances circulation, which means that more blood flows to the organs in the abdomen there by optimizing organ health and function.</p>

2.	Matsyendrasana	<ul style="list-style-type: none"> • Stretch your legs straight out in front of you while you sit on the floor. • With your right foot on the outside of your left thigh, bend your right knee. • Bring your left foot up to your right hip while bending your left knee. • Take a breath and stretch your back. • Take a breath out and turn your body to the right. • For support, place your right hand on the ground behind you. • Hold your right ankle or position it on the outside of your right knee while encircling your right knee with your left arm. • While holding the pose for 30 to 60 seconds, take deep breaths. • Return to the beginning position after releasing the twist. • Continue on the opposite side. <p>PRECAUTION: Before attempting this position, anyone with serious back or spinal conditions should speak with a physician. During pregnancy, this posture is not advised. (Niranjanananda Saraswati, 1992)</p>	<p>Pancreas Stimulation: Matsyendrasana's twisted pose massages the organs of the abdomen, including the pancreas. The pancreas may benefit from this massage by being more active and producing and regulating more insulin.</p> <p>Control of Insulin: This position can help improve blood sugar management by strengthening pancreatic function.</p> <p>Digestive System: By stimulating the digestive organs, Matsyendrasana improves nutrition absorption and digestion. Stable blood glucose levels can be maintained with the aid of improved digestion.</p> <p>Detoxification: The position helps the digestive tract become cleaner, which can improve metabolic health in general.</p> <p>Hormonal Balance: The position has an indirect positive impact on blood sugar regulation by assisting in the balance of hormones, particularly those linked to stress reactions.</p>
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DISCUSSION

Across the world, diabetes is becoming one of the most prevalent disorders. India is currently the world's centre for diabetes. This illness impacts individuals throughout nearly every age range. Practicing yoga on a daily basis is a regular affair for diabetic disorders. Diabetes-related diseases have been proven to improve with frequent yoga asana practice. Yoga positions like mandukasana and matsyendrasana have demonstrated remarkable effects and responses in these circumstances.

Yoga incorporates physical postures, breathing techniques, and meditation to provide a comprehensive approach to controlling diabetes. This age-old technique promotes general health and emotional well-being in addition to increasing physical strength and flexibility. Yoga can help people with diabetes manage their blood sugar levels, lower their stress levels, improve their circulation, and lead healthier lives. Including yoga in a diabetes control program can have positive effects on the body as well as the mind, improving general health.

The Ardha Matsyendrasana session significantly lowered random blood glucose (RBG) levels when compared to the control session, according to the study. In T2DM patients, both genders showed this tendency. Patients with type 2 diabetes can successfully lower their blood glucose levels with a single 15-minute session of Ardha Matsyendrasana. To ascertain the asana's long-term impact on glycaemic management, more research is necessary. (Tamilselvi et al., 2023) Ardha Matsyendrasana massages the abdominal organs, easing digestive ailments. It controls the secretion of adrenaline and bile and is suggested in the yogic management of diabetes. (Aili, 2021). Research demonstrates that asanas such as Mandukasana and Pranayama such as Bhastrika have a positive impact on blood sugar and insulin levels in individuals with type 2 diabetes. (Tripathi, 2015)

Sage Gheranda mostly explains poses that strengthen and stabilize the body. Once total control over the body has been established, the goal is to reach a point where there is no more pain or suffering. (Niranjanananda Saraswati, 1992)

Consequently, this study demonstrates that, based on an analysis of these studies, it can be concluded that, while both Manukasana and Matsyendrasana have an impact on general body function, their primary focus is on diabetes.

CONCLUSION

Yoga literature highlighted how therapeutically using these techniques may strengthen the body and mind and create psychophysiological positivity. It has an effect on the health of diabetics, encourages cellular and systemic metabolism, lowers stress and anxiety, and enhances general health and quality of life.

LIMITATION

This study solely looks at the data from the literature about the effects of matsyendrasana and mandukasana alone on the health of diabetics. There were very few studies that included literature that focused just on diabetes and ignored other potential impacts of these poses.

FURTHER DIRECTION

The two asanas—mandukasana and matsyendrasana—and their impact on the health of those with diabetes are the only subjects of this study. To control diabetes, a range of procedures, guidelines, and methods can be applied. Moreover, it is possible to research these asanas' additional consequences.

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