



The Practice of Yoga and Ayurveda in the Management of Anxiety, Hypertension and Diabetes Mellitus.

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ABSTRACT:

Ayurveda is a comprehensive system that concentrates on repeated consciousness. Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure. It stands to be the most focused disease due to its high mortality rate. Diabetes is a metabolic disorder that stands second to hypertension as a great concern repeated yoga practice and following Ayurveda together show wonderful results in treating various diseases. And this technique can help with long-term stress or stress related to various health problems such as heart disease. Relaxation techniques are a great way to help with stress management. It's the process that decreases the stress effects on your mind and body. Yoga, a form of physical activity, is rapidly gaining in popularity and has many health benefits. In this study, the effect of yoga therapy, and how it worked in controlling hypertension immediately after the Deep Relaxation Technique (DRT) and Ayurveda medicines on Hypertension (HTN) and Diabetes Mellitus (DM) have been discussed.

Keywords-Diabetes, Hypertension, Ayurveda, Stress, Deep Relaxation Technique, Yoga therapy.

INTRODUCTION

Ayurveda has been a traditional health care system of Indian medicine since ancient times, it's also called as science of life and is considered *Upa Veda of Atharva Veda*.¹ Ayurveda explains the basic and applied aspects of life. It offers a balanced and holistic approach to treating various diseases.²

Diabetes is a chronic, metabolic and lifestyle disease characterized by elevated levels of blood glucose (or blood sugar). Diabetes occurs either when the pancreas does not

produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood glucose. Hyperglycaemia, also called raised blood glucose or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels. And damage to the heart, blood vessels, eyes, kidneys, and nerves. The most common is type 2 diabetes, usually in adults, which occurs



when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades, the prevalence of type 2 diabetes has risen dramatically in countries of all income levels.³

According to Ayurveda, Diabetes Mellitus (DM) is described as *Madhumeha* excretion of sweet urine, under the wide heading *Prameha* described by Charaka. the passing of excessive urine. According to Ayurveda Diabetes Mellitus is understood in two stages; *Sahaja Prameha* i.e., genetic form compared to the Insulin Dependent Diabetes Mellitus (IDDM) and *Apathyanimitaja Prameha* i.e., Diabetes that occurs at a later stage of life compared to Non-Insulin Dependent Diabetes Mellitus (NIDDM).

Another classification of diabetes is Gestational Diabetes (GDM) which can occur in women who have never had diabetes previously and occurs during pregnancy for the first time and might get resolved after delivery. There is no direct reference to GDM in Ayurveda but correlated as *Garbha Vridhi* which is a complication.⁴ Hypertension (HTN) is the most prevalent cause of cerebrovascular disorder and cardiovascular disorder leading to high mortality and morbidity rate. HTN is asymptomatic and as per available reports 85% of the population are asymptomatic and 95% of the population suffer from essential HTN where the underlying cause is not known. ¹ According to Ayurveda HTN is known as *Uccharaktachapa* classified under the Hridroga topic. HTN can be correlated to the *Dushti* of *Vata*, *Pitta*, and *Manovaha srotas*.⁵

Yoga is the ancient Indian system for stress management. Yoga practice includes muscle stretching, behavioral modification, and diet control through mental discipline. Control of stress, diet, and exercise impact the management of Hypertension and Diabetes Mellitus. One of the main aims of yoga is to obtain a sense of relaxation and achieve tranquility of mind. The deep Relaxation Technique (DRT) is one of the relaxation techniques that involve guided instructions and is regarded as a powerful tool in controlling a number of diseases caused by stress.⁶ DRT involves the relaxation of all body parts by directing the attention of the mind on different parts of the body starting from the toes to the head region to propagate the relaxation feeling.⁷ Ayurveda, an integral part of yoga, is widely practiced in India. It's been useful to patients with heart disease and other lifestyle disorders. Yoga helps by reducing anxiety, promoting well-being, and improving quality of life. It's considered a complementary therapeutic

regimen. Yoga and Ayurveda are the old schools of India that have proven their anti-diabetic potential without any consequence. The present study combines Ayurveda treatment with Yoga techniques to heal Diabetes Mellitus (DM) and Hypertension (HTN).

MATERIALS AND METHODS

Case Presentation

A 65-year-old male, retired government employee residing at Doddakallasandra, Bengaluru visited Central Ayurveda Research Institute on September 29th, 2021 seeking Ayurveda treatment and yoga therapy for DM and HTN of his own will. The patient was advised to do a few blood investigations in which the Post Prandial Blood Glucose (PPBS) showed a slight elevation from the normal range. The patient was asked to start with Ayurveda medicines such as *Nisha Amalaki churna* tablet, *Prabhakar Vati*, and *Sarpaganda mishran* and to follow a proper diet and practice therapeutic yoga daily. With regular ayurvedic medication, diet, and yoga practice he was feeling better without any new signs and symptoms. Investigations were done to know the changes in his Blood Glucose levels, which showed significant improvement in glucose levels.

History of Past Illness: NAD (No Abnormalities Detected)

General condition – Normal

Systemic Examination:

Vitals before Treatment

Blood pressure- 140/90 mmHg

Pulse Rate- 74 beats/minute

Temperature- 95.9 F, Afebrile

Respiratory Rate- 22/ minute

Others- Oedema Absent

Pallor Absent

Icterus Absent

Lymphadenopathy Absent

Rest of the systemic examination did not reveal any significant abnormality.

Dashvidh Pariksha:

1. *Prakriti- Pitta-Kaphaja*

2. *Vikriti-Vata-pitta*

3. *Saara-Meda*

4. *Samhanana- Madhyama*

5. *Satmaya- Vyamishra*

6. *Satva-Madhayama*

7. *Pramaana-Madhyama*

8. *Aahar Sakti-Madhyama*

9. *Vyayaam Shakti-Pravara*

10. Vaya-Vrudha

History of Present illness

On October 25th he came to yoga therapy and complained about severe sweating, his Blood Pressure (BP) was monitored and the reading showed 160/100 mmHg. He also complained about stress and tension and he was mentally disturbed. He was taught and made to practice *Nadi Shodhana Pranayama* (Alternate Nostril Breathing Technique), *Bhramari* (Humming Bee Breathing), *Dhyana* (Meditation), and Deep Relaxation Techniques (DRT). After the class, his BP was monitored which showed 120/80 mmHg. He was also asked to start with *Sarpaganda Mishran* tablet. A huge difference was noted in Blood Pressure readings before and after each yoga class. An overall effect of about 10-20 mmHg reduction in systolic and about 10-20 mmHg reduction in diastolic blood pressure were noted. Because of his busy schedule patient could not regularly attend yoga therapy at CARI, so he was asked to practice yoga at home (Table 2) along with medications daily and also, to monitor his BP. Readings before and after the treatment (25/10/2021, 28/10/2021, 15/11/2021, 10/3/2022, and 18/3/2022) are charted in Graph 1.

Whenever he used to visit CARI for Yoga therapy demonstration was done by the patient and his BP was monitored (in supine posture) and blood sugar was monitored at regular intervals.

Readings are tabulated below In Table 1.

The patient was healthy by following a healthy diet and daily practice of yoga at home along with medicines.

Also, his blood sugar levels both fasting and postprandial exhibited significant improvement after weeks of yoga therapy. After continuous practice of yoga therapy for 3 months, his Blood Pressure and glucose in 4-5 months came to normal.

Presently the patient is only on *Sarpagandha Mishran* and his Glucose Levels and Blood Pressure are said to be under control following diet and yoga. Table 2 Name and duration of asanas.

RESULTS AND DISCUSSION

In this case study, A Patient diagnosed with diabetes and hypertension was taken for study for 3 months for five days a week to know the effect of *asanas*, *pranayama* and DRT along with ayurvedic medications. The patient practiced therapeutic yoga regularly.

The decrease in blood pressure and blood sugar levels and

comparative improvement subjective parameters like palpitation, sweating, burning sensation in sole & palm, numbness and general weakness.

The patient reported a feeling of betterment physically and psychologically at the end of study. (Table 3). This indicates the potential role of yoga in preventive and management approaches of yoga in these conditions.

These practices can increase parasympathetic activity and decrease sympathetic activity. Thus, counteracting excess activity in the nervous system has been linked with hypertension and diabetes mellitus. Though it is not possible to reverse nerve damage, yoga practices can reduce the impact of nerve damage.

CONCLUSION

Yoga therapy and Ayurveda treatment were found to show an immediate effect on patient's blood glucose and blood pressure too. The current study validates the effect of yoga has given the patient hope to reduce medication and slow the progress of the disease. It employs stable postures or *asanas* and breath control or *pranayama*. The deep relaxation technique reduces depression, anxiety, and stress, improving hypertension's sleep and autonomic functions.

Thus, yoga can be considered a safe therapy for managing stress, diabetes, hypertension, and various health conditions.

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Conflict Of Interest-None.

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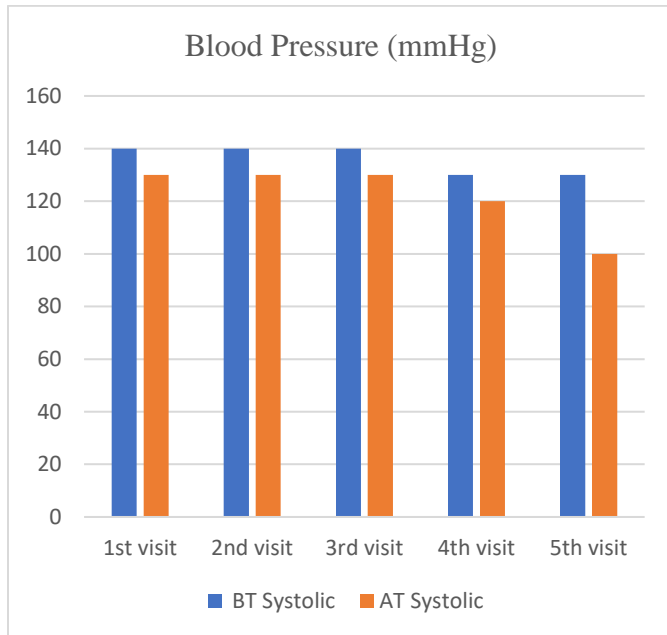
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Table 1
Laboratory Investigations before and after yoga therapy

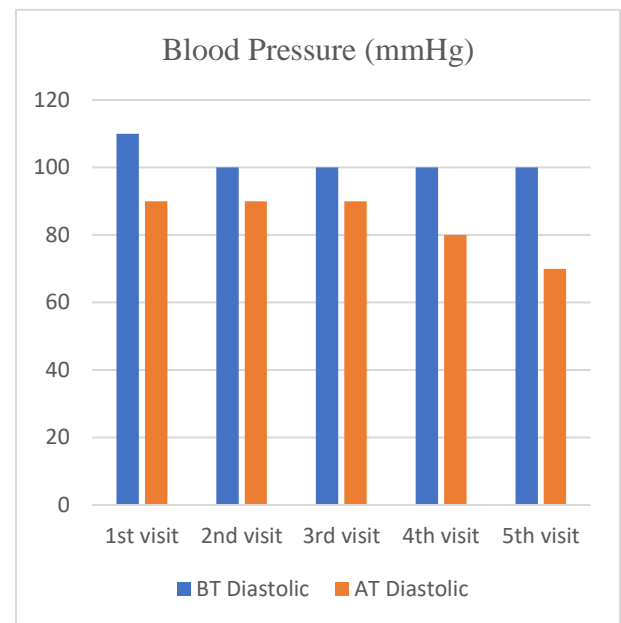
	Fasting Blood Sugar (FBS)	Post-Prandial Blood Sugar (PPBS)
29/9/21	77	188
10/11/21	81	95
22/12/21	107	152
18/3/22	75	100

Graph 1
Investigations before and after yoga therapy



(a)

(a) X-axis = Systolic values, Y-axis = Visits



(b)

(b) X-axis = Diastolic values, Y-axis = Visits

BT- Before Treatment; AT- After Treatment.

Table 2

Name and duration of asanas:

ASANA	DURATION	
LOOSENING EXERCISES Neck movements Shoulder movements Waist movements Hip joint movements Kneemovement Ankle movements	5 counts each	15min
STANDING POSTURES <i>Tadasana</i> <i>Parivrtta trikonasana</i> <i>Paschimottanasana</i> <i>Ardha chakrasana</i>	10-30 counts i.e., ¼-½ minute 10-30 counts i.e., ¼-½ minute (on one side) 10-30 counts i.e., ¼-½ minute (on one side) 10-30 counts i.e., ¼-½ minute (on one side)	2 ½ min
SITTING POSTURE <i>Vajrasana</i> <i>Ardhamatsyendrasana</i> <i>Vakrasana</i> <i>Paschimottanasana</i>	10-30 counts i.e., ¼-½ minute 10-30 counts i.e., ¼-½ minute (on one side) 10-30 counts i.e., ¼-½ minute (on one side) 10-30 counts i.e., ¼-½ minute	2 min
SUPINE POSTURES <i>Setubandasana</i> <i>Jathara parivartanasana</i> <i>Shavasana</i>	10-30 counts i.e., ¼-½ minute 10-30 counts i.e., ¼-½ minute (on one side) 60 counts i.e., 1 minute	3 min
PRONE POSTURE <i>Bhujangasana</i> <i>Shalabasana</i> <i>Makarasana</i>	10-30 counts i.e., ¼-½ minute 10-30 counts i.e., ¼-½ minute 60 counts i.e., 1 minute	2 min
DEEP RELAXATION TECHNIQUE (DRT)	15 MINUTES	15 min
PRANAYAMA- a) <i>NADI SHODHANA PRANAYAMA</i> b) <i>BHRAMARI PRANAYAMA</i>	10 ROUNDS (5 MINUTES) 10 ROUNDS (5 MINUTES)	10 min
<i>OM KARA MEDITATION (Dhyana)</i>	5 MINUTES	5MIN

Table 3 Results

Parameters	Assessment Before Treatment (BT)	Assessment After Treatment (AT)
Palpitation	++++	+
Sweating	+++	+
Burning sensation in sole & palm	+	-
Numbness	+	-
General weakness	+++	-

Severe: +++++, Moderate: +++, Mild: +, Nil: -.

EVIDENCE OF CLINICAL CASE

CLINICAL LABORATORY
Central Ayurvedic Research Institute
Postgraduate of CGRIAS
Ministry of AYUSH
Government of India

LABORATORY TEST REPORT

Test	Result	Unit	Reference Interval	Method
CLINICAL CHEMISTRY				
Fasting Blood Sugar (Plasma)	111	mg/dL	DPHCE, Normal 80-130 mg/dL	Trinder
Post Prandial Blood Sugar (Plasma)	180	mg/dL	DPHCE, Normal <180 mg/dL	Trinder

Remarks: Please correlate with clinical condition.

Sample type	Plasma
Sample	Collected
Date	29-03-2023
Time	12:30 AM
Reported	29-03-2023
Time	1:10 PM

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Central Ayurvedic Research Institute
Postgraduate of CGRIAS
Ministry of AYUSH
Government of India

LABORATORY TEST REPORT

Test	Result	Unit	Reference Interval	Method
CLINICAL CHEMISTRY				
Fasting Blood Sugar (Plasma)	95	mg/dL	DPHCE, Normal 80-130 mg/dL	Trinder
Post Prandial Blood Sugar (Plasma)	140	mg/dL	DPHCE, Normal <180 mg/dL	Trinder

Remarks: Please correlate with clinical condition.

Sample type	Plasma
Sample	Collected
Date	29-03-2023
Time	10:20 AM
Received	28-03-2023
Time	12:30 AM
Reported	29-03-2023
Time	1:30 PM

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Central Ayurveda Research Institute
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Faculty of AYUSH
Government of India

Address: Nagpur (Maharashtra), Maharashtra, Nagpur, Maharashtra 440009

Patient Name: [Redacted] Age: 45
 Patient ID (OPD): 152 Sex: Male
 Referring Doctor: [Redacted] Lab No: [Redacted]
 Test Report Status: OK Category: RPTD

LABORATORY TEST REPORT

Test	Result	Units	Reference Interval	Method
CLINICAL CHEMISTRY				
Fasting Blood Sugar (FBS)	87	mg/dl	DIABETIC: Normal 80-120 mg/dl	Trinder
Post Prandial Blood Sugar (PPBS)	90	mg/dl	DIABETIC: Normal < 180 mg/dl	Trinder

Remarks: Please correlate with clinical condition

Sample type: Plasma

Sample	Collected	Received	Reported
Date	05-12-2023	05-12-2023	05-12-2023
Time	13:30:34	11:31:48	13:02:56


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Address: Nagpur (Maharashtra), Maharashtra, Nagpur, Maharashtra 440009

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LABORATORY TEST REPORT

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Post Prandial Blood Sugar (PPBS)	90	mg/dl	DIABETIC: Normal < 180 mg/dl	Trinder

Remarks: Please correlate with clinical condition

Sample type: Plasma

Sample	Collected	Received	Reported
Date	05-12-2023	05-12-2023	05-12-2023
Time	13:30:34	11:31:48	13:02:56


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