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### Review Article

#### EFFECT OF YOGA IN HYPERTENSION: A REVIEW

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#### ABSTRACT

**Introduction:** Hypertension is one of the most common risk factors for developing coronary heart disease. Nearly 63% of total deaths in India are due to non-communicable diseases, of which 27% are attributed to cardiovascular disease which affects 45% people in the 40-69 age group. **Material and Methods:** Data and information pertaining to *Yoga* such as *Asana* and *Pranayama* in hypertension were searched from various text books, journals, web-based search engines source were referred for research data and presented in systemic manner. **Result:** *Yoga* practice (*Asana*, *Pranayama* and meditation) had significant effect on reducing blood pressure. Increased physical activity decreases cardiovascular disease mortality, both resistance and aerobic exercises are beneficial for physical fitness. Hence, continuous and interval practice of physical fitness training i.e *Yoga* showed a reduction in blood pressure. **Conclusion:** *Yoga* (*Asana*, *Pranayama* and meditation) play an important role in maintaining preservation and curative of health by improving the

biochemical functions of the body i.e. oxidative stress and helpful to overcome the complications of hypertension.

**Keywords:** Hypertension, *Asana*, *Pranayama*, Meditation, *Yoga*

## 1. INTRODUCTION

Hypertension is one of the most common risk factors for developing coronary heart disease, stroke and other cardiovascular diseases, such as heart failure morbidity and mortality<sup>1</sup>. Nearly 63% of total deaths in India are due to non-communicable diseases, of which 27% are attributed to cardiovascular disease which affects 45% people in the 40-69 age group due to lack awareness on hypertension, improper care and poor follow up leads to disease. Morbidity and mortality due to CVDs can be evaded through proper care from early detection to control of hypertension and improving quality of care<sup>2</sup>.

*Yoga* mainly teaches healthy way of life which is originated in India and most powerful drugless system of treatment. *Yoga* for a common person contains the practices of *asana*, *pranayama*, and meditation, which are helpful to keep oneself physically fit, mentally alert and emotionally balanced, ultimately leads for the spiritual development, can be adopted as lifestyle for preservation & promoting of physical and mental health and also development of strength, stamina, endurance at physical level and with increased concentration, calm and peace at mental level leading to inner and outer health<sup>3</sup>.

*Yoga* a simple and economical therapeutic modality, considered to be beneficial for many of the health problems that prevents and cures various diseases such as hypertension through practice of *Yoga*. *Yogasanas* practiced in India from Vedic period time. *Yoga* is derived from a Sanskrit word “*Yujyate anena iti Yoga*” means to “that which unite,” “state of balance between body and mind”. *Yoga* a systematic practice approach for purifying one's mind, intellect and body. The aim of *Yoga* in *Gita* states that to get free from sorrow and to achieve equilibrium were mentioned. *Hathayoga pradipika* is the text in which *Asana* and *Pranayama* are described in details<sup>4</sup>.

In today's scenario, human beings are suffered from life non communicable diseases, style disorders, chronic diseases, etc. and main cause due to improper lifestyle and stress leads to hormonal and chemical imbalances in human body. *Asana* helps in controlling mind and preservation of health & cure of various diseases.

*Pranayama* helps to establish control over the mind. Various *Asana* such as *Pascimottanasana*, *Savasana*, *Siddhasana*, *Padmasana*, *Halasana*, *Pranayama*, etc. reported to prevent stress.

Hence, review study on effect of *Yoga* such as *Asana* and *Pranayama* in hypertension diseases is the main aim of this article.

## 2. MATERIALS AND METHODS

Data and information pertaining to *Yoga* such as *Asana* and *Pranayama* in hypertension were searched from various text books, journals, web-based search engines source were referred for research data and presented in systemic manner.

## 3. RESULT

*Asana* is the third part of *Yoga*, which includes different *Yogic* postures helps to attain different *yogic* postures, it helps to attain further steps of *yoga*. Control over physical body leads to control over mind, which enhance all over development of human being. *Asana* develops in lightness of the body, enhances strength and health is the first step of *Hathayoga*<sup>5</sup>. Detail description regarding *Asana* and *Pranayama* with methods and benefits are mentioned below<sup>6</sup>.

### **PASCIMOTTANASANA**



**Fig.1: Pascimottanasana**

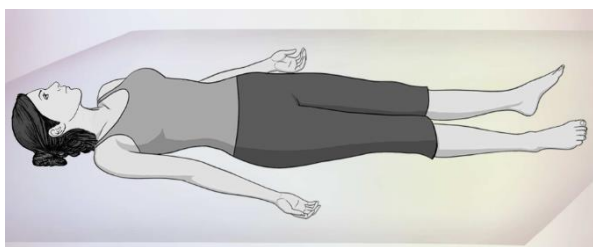
### **Method**

Sit straight with the legs extended to the foot. Hold the great toes of foot with respective hands, bend forwards and touch the head to the knee joint with exhalation. The elbows should touch the ground. Be in this position for 30-60 seconds. Release the hands and with exhalation come back to the earlier posture (Fig.1).

## Benefits

- ✓ Beneficial in defects of *Prana vayu*.
- ✓ Enhances digestive power.
- ✓ Reduces the abdominal fat.
- ✓ Provides health and strengthen the spine.
- ✓ It also tones the abdominal organs like kidney, liver, spleen, etc.
- ✓ Pose massage the heart
- ✓ Increases vitality & helps to cure impotence and gain control over sex.

## SAVASANA



**Fig.2: Svasasana**

## Method

Lying down on the ground in the supine position like a dead body is Savasana. This relieves tiredness and mental stress (Fig.2).

## Benefits

- ✓ Soothing effect on the body.
- ✓ Relaxes the body completely.
- ✓ Calms the mind and reduces the tensions.

## SIDDHASANA



**Fig.3: Siddhasana**

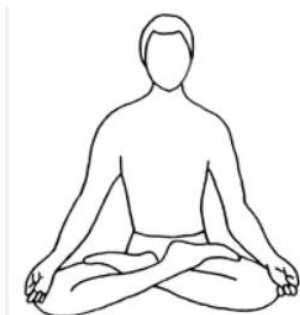
### **Method**

Sit on the ground with the legs stretched to the front. Flex the left leg at the knee. Hold the foot with the hands, keep the heel near the perineum and keep the sole of the left foot against the right thigh. Flex the right leg at the knee and keep the right foot over the left ankle, keeping the right heel against the pubic bone. Keep the sole of the right foot between the thigh and the calf of the left leg. Do not rest the body on heels. Sit in *Jnana mudra*. Sit in the position comfortably for some time and then come to the earlier position (Fig.3).

### **Benefits**

- ✓ The position keeps the pubic region healthy.
- ✓ One of the most relaxing position
- ✓ Crossed legs erect back, keeps the mind attentive and alert.
- ✓ Best postures for *Prana vayu* and meditation.
- ✓ Relieves stiffness of knees and ankles.
- ✓ Tones up the lower region of spine & abdominal organs.

### **PADAMASANA**



**Fig.4: Padmasana**

### **Method**

Sit on the ground with the legs stretched. Bend the right leg at the knee and keep it on the root of the left thigh, so that right heel is near the umbilicus, bend the left leg at the knee, keep it on the root of right thigh and heel near the umbilicus, sit with hands placed one above the other in comfort position. Back, neck and body should be straight. Change with position of the legs after some times and perform the posture with opposite way (Fig.4).

### **Benefits**

- ✓ Best posture for meditation and *Prana vayu*.
- ✓ Makes the mind attentive and alert.
- ✓ Helps to arose Kundalini power.
- ✓ Beneficial in curing stiffness of knee and ankle.
- ✓ Enhances blood circulation in lumbar and abdominal region.
- ✓ Tones up the spine and abdominal organs.

### ***HALASANA***

‘*Hala*’ means plough and ‘*Asana*’ is posture.



**Fig.5: Halasana**

### **Method**

Lie flat on the ground with legs straight, exhale slowly and raise the legs perpendicular to the ground. Exhale again, raise the hips and back, supporting the waist with the palms and keep the chin on the breast bone. Release the chin lock, further touch the ground with the toes and move the hands above the head to touch the feet. Remain in this posture for some time. Release the hand, raise the legs as in *Sarvangasana* and gradually bring the body to floor, lie flat in the ground and relax.

### **Benefits**

- ✓ Beneficial in several endocrine gland anomalies.
- ✓ Enhances blood circulation and nutrition absorption.
- ✓ Beneficial in breathlessness, palpitation, asthma, bronchitis and throat ailments.
- ✓ It relaxes the nerves, beneficial in chronic headaches.
- ✓ Beneficial in backache, cramps, stiffness in shoulder and arthritis.

### ***PRANAYAMA***

The word Pranayama is made up of two words '*Prana*' & '*ayama*'. '*Prana*' means breath, respiration, life, vitality, wind, energy or strength. '*Ayama*' means lengthen, expand and stretch or restraint indicates the control over the breath. *Paranayama* helps to establish control over the mind and thus helps in mastery of other '*angas*' of *yoga*. So one should learn to control *prana vayu* through *Pranayama* to enhance the longevity of life.

### ***Bhramari Pranayama***

Sound is produced like the large black bee during *Pranayama*. The practitioner gets the feeling of pleasantness.



**Fig.6: Bhramari pranayama**

### Method

Sit in *Padmasana*, *Siddhasana*, *Vajrasana* or *Sukhasana* with the back erect. Perform *jalandhara bandha*. Close the eyes and look inwards. Exhale completely. Take slow deep, steady breath through both nostrils. Fill the lungs completely. With hold the breath with *mula bandha*. Exhale slowly with humming sound like a black bee. Repeat the cycle 5-10 minutes (Fig.6).

### Benefits

- ✓ Beneficial in insomnia.
- ✓ Relieves stress, tensions, anger, anxiety and blood pressure.
- ✓ Improves the voices and throat ailments.

## 4. DISCUSSION

Hypertension is a lifestyle disorder in which management not only requires medical treatment but also modification of lifestyle changes. Oxidative stress has been reported to be the root cause of hypertension<sup>7</sup>. Yoga practice (*Asana*, *Pranayama* and meditation) had significant effect on reducing blood pressure<sup>8</sup>. Reports claims the effectiveness of yoga which is encouraging but inconclusive as a treatment of hypertension<sup>9</sup>. Relaxed state of skeleton muscle in some *Yogasana*, where intra-abdominal pressure is consciously raised by 10-80mm Hg, it is presumed to have good effect on blood circulation to viscera or remote internal areas of



body. Role of Yoga is all-round personality development in physical, mental, emotional, spiritual and intellectual level<sup>10</sup>.

Study reported that *Pranayama* and breath awareness significantly reduces blood pressure in patient<sup>11</sup>. *Pranayama* involves a lot of attention and concentration of mind followed by an initiation of relaxed emotional state. The CO<sub>2</sub> tension in the exhaled air and in the alveolar air increases. This rise gradually helps the person to get accustomed to higher concentration of CO<sub>2</sub> in the blood. The higher level of CO<sub>2</sub> stimulates cerebral and cardiac circulation. During *Jalandara bandha*, there is slowing down of heart rate<sup>12</sup>.

Meditation practice play important role through reduction in the consumption of O<sub>2</sub> and excretion of CO<sub>2</sub> is due to reduced metabolic activity. Oxygen consumption was reduced in terms of both the volume of air breathed and also the rate of breathing. Average decrease of 25% of cardiac output simultaneously leads to fall of heart rate by about 5 beats/min is a state of deep metabolic rest. Alpha wave activity in their normal resting period and marked increase in amplitude of alpha wave during meditation<sup>13</sup>.

*Yoga* can be adopted for promoting and preservation of physical and mental health. Increased physical activity decreases cardiovascular disease mortality, both resistance and aerobic exercises are beneficial for physical fitness. Hence, continuous and interval practice of physical fitness training i.e. *Yoga* showed a reduction in blood pressure<sup>14</sup>.

## 5. CONCLUSION

The prevalence of hypertension is increasing among all ages due to lifestyle disorder. *Yoga* (*Asana*, *Pranayama* and meditation) play an important role in maintaining preservation and curative of health by improving the biochemical functions of the body i.e. oxidative stress and helpful to overcome the complications of hypertension. *Yoga* should be adopted at an early age by youngsters and kids for healthy lifestyle overcome diseases such as hypertension.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTEREST

Authors have declared that no competing interest exist.

## REFERENCE

1. Hadaye RS, Shastri S, Salagre S. Effect of yoga intervention in the management of hypertension: A preventive trial. *Int J Prev Med* 2021;12:55.
2. <https://www.who.int/india/health-topics/hypertension> [ Accessed on 2023 Sep. 20]
3. Yoga a Health way of living. NCERT; New Delhi; 1<sup>st</sup> Edition 2015; p. 1-2
4. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 375-378
5. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 390
6. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 394-399
7. Suchetha KN et al. Effect of Yoga Therapy on Body Mass Index and Oxidative Status. *NUJHS*. 2011; I (1-3): 10-14
8. Cohen S. A global measure of perceived stress. *J Health Social Behav* 1983;24:385-96.
9. Posadzki P, Cramer H, Kuzdzal A, Lee MS, Ernst E. Yoga for hypertension: A systematic review of randomized clinical trials. *Complement Ther Med* 2014;22:511-22.
10. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 411
11. Telles S, Yadav A, Kumar N, Sharma S, Naveen K, Visweshwaraiah AB. Blood Pressure and purdue pegboard scores in individuals with hypertension after alternate nostril breathing, breath awareness and no intervention. *Med Sci Monit* 2013;19:61-6.
12. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 410-411
13. Rao MV. A Text Book of Svasthavrtta. Chaukhambha Orientalia; Varanasi; Reprint 2011; p. 428
14. Paoli A, Bianco A. What is fitness training? Definitions and implications: A systematic review article. *Iran J Public Health* 2015;44:602-14.