

## ROLE OF YOGA IN MANAGEMENT OF STRESS RELATED HYPERTENSION: A REVIEW

Bharat Zinjurke<sup>1</sup>, Pradnya Ravindra Deshpande<sup>2</sup>, Sureshkumar Sharma<sup>3</sup>

<sup>1</sup>Assistant Professor, <sup>3</sup>Professor & HOD

Department of Swasthavritta & Yoga, Smt. K. G. Mittal Punarvasu Ayurved College, Netaji Subhash Road, Mumbai, Maharashtra, India

<sup>2</sup>Assistant Professor, Department of Rachana Sharir, Government Ayurved College, Nanded, Maharashtra, India

**Email:** [drpradnyadeshpande777@gmail.com](mailto:drpradnyadeshpande777@gmail.com)

### ABSTRACT

Today's era deals with competitive life. Stress is omnipresent in our lives to varying degree. But chronic stress is a serious health problem also makes existing problem worse. One of the common non-communicable diseases closely related to stress is hypertension. Stress acts as predisposing factor for essential hypertension which is risk for cardiac, cerebral and renal events. The relationships between stress and hypertension have been evaluated extensively Stress causes hypertension by activating hypothalamic –pituitary-adrenal axis. Most important is psychological well-being is related to maintain this axis. Exercises in yoga, breathing exercises in *pranayama* relieve stress and tension to greater extent. *Yoga-asana* such as *Gomukhasana*, *Padamasana* and *Shavasana* as well as *Bhramari* and *Anulom-vilomapranayama* specially acts as stress controller by maintaining homeostatic balance of mind, body and spirit. Stress induced hypertension can be prevented with adaptation of these particular *Yoga-asana* and *Pranayama*.

**Keywords:** *pranayama*, *Gomukhasana*, *Padamasana*, *Shavasana*, *Bhramari* and *Anulom-vilomapranayama*.

### INTRODUCTION

State of complete physical, mental and social well-being is considered as health. Disease is most common health issue. Disease is categorized as communicable and non-communicable. Approximately 36 million people die each year from non-communicable

diseases.<sup>1</sup> Cardiovascular diseases (CVD), cancer, respiratory disease etc. are involved in NCD of which hypertension belong to CVD.<sup>2</sup> Premature mortality in terms of years of life last because of CVD in India increased by 59% i.e. 23.2 million (1990) to 3.7 million. Among cause

of CVD hypertension contribute about 8% of causes. Hypertension is a condition in which the force of blood against artery walls is too high. Long term hypertension is a major risk factor for CAD, stroke, heart failure, peripheral vascular diseases, CRF etc. Hypertension is classified either essential or secondary .90-95% are essential. <sup>3</sup>Genetic and environmental are the major contributing factors to it. There are several risk factors for elevated blood pressure fortunately much of them are modifiable out which stress is common factor not avoidable but manageable.<sup>4</sup>

In Psychology stress is feeling of strain and pressure. Small amount of stress may be beneficial of health but excessive or prolonged stresses have adverse effect on physical and mental status. Acutely, stress has been shown to increase blood pressure by increasing cardiac output and the heart rate without affecting total peripheral resistance. Acute stress has been found to increase levels of catecholamines, cortisol, vasopressin, endorphins and aldosterone which may in part explain the increase in blood pressure. To cope up the stressful condition and to maintain internal environment, various physiological responses evoke leading to chemical level readjustment. As result, along with signs and symptoms blood pressure also suit up. Long term stress does not allow the condition to turn normal which will give rise to hypertension. Action should be taken before serious stress related complications of hypertension occur.

To combat stress, routine Yogic practices is one of best option. Several *asanas* i.e. *Padmasana*, *Gomukhasana*, *Shavasana* and form of *Pranayama* i.e. *Anulom-vilom*, *Bhramari* mentioned in *Hathayoga* provide health benefits especially in management of stress and thus Hypertension. These above mentioned *asana*

and *Pranayama* through hormonal influence and effect on *chakra* alleviate stress and anxiety.

## DISCUSSION

Yoga is mind body practices with historical origin of ancient Indian philosophy. Prevention is its prime aim. Yoga has become popular as a form of physical exercises based upon *asanas* (poses) to promote improved control of mind and body and to uplift wellbeing. *Yama*, *Niyama*, *Asana*, *Pranayama*, *Dhyana* etc. are eight limbs of yoga.<sup>5</sup>*Hatha yoga*, *Raj yoga*, *Karm yoga* mentioned as branches of yoga of which *asana* and *Pranayama* belong to *Hatha yoga*.<sup>6</sup>Integration of mind and body is achieved by *asanas* through specific physical activity.<sup>7</sup>Along with mind – body balance, regulation of breath acquired by practices of *pranayama*. In short *asana* and *pranayama* regulate internal environment by various ways.

Change in internal environment leads to diseases. Various factors right from intra cellular to extrinsic (environmental) may act as pathogenic. Life style is major contributing factor to modify homeostatic balance. In today's era adjusting to modern day life can also be a source of stress. Chronic illness, injury, loss of job, death of loved one , divorce, increase in financial obligation , emotional problems such as depression, anxiety, anger, grief, low self-esteem are the stresses which may target weakest point of our physiology or character. However, a primary role for the activation of the sympathetic nervous system has recently been suggested in several studies. Several studies suggest that prolonged stress may predispose people and animals to prolonged hypertension and certain populations are at risk for the development of stress-induced hypertension. This chronic stress always accompanied by an assay of physical

reaction, one of these feedback responses is an alteration in blood pressure later lead to hypertension.<sup>8</sup>

When life event felt to be threatening, there arises anxiety. Natural reaction to anxiety is nothing but tension. Failure to combat anxiety and tension lead to depressive disorder and insomnia. All of this condition predisposes essential hypertension. Continuous physical stress results in over eating, alcohol drinking, poor sleeping which in turn causes initially spikes and later on long term hypertension. Stresses stimulate sympathetic- adrenal-medullar activities which on persistent trigger causes hypertension.

Our body responds to the stress by readjusting chemical levels. As alarming reaction pituitary gland releases adrenaline, nor epinephrine, Cortisol etc hormone.<sup>9</sup> Cortisol is one of the hormones influencing blood pressure. Hyper-cortisolaemia results in hyper functioning of hypothalamic -pituitary -adrenal axis. It has a greater role in development of hypertension by sodium retention; volume expansion and increasing peripheral resistance.<sup>9</sup> Over reacting sympathetic nervous system elevate blood pressure. Suppression of cortisol helps to reduce blood pressure.

There are many helpful interventions for stress but yoga proves to be best. Even a little yoga minimizes stress level, encourages good mood and reduction in cortisol level. For stress induced hypertension best solution is *Yogasana* and *Pranayama*. *Patanjali* has clearly mention benefit of asana is on mind and it reduces stress (1). *Hathayoga Pradipikaka* has clearly mention *Pranayama*ie breathing exercise has good effect on Heart rate because Respiratory system is only system work involuntary and voluntary. There

for if we control breathing then we can control our heart rate i.e. *Pranayama*. *Gomukhasana*, *Padmasana*, *Simhasana* and *Shavasana* along with *Anulom-vilom pranayama* and *Bhramari Pranayama* these practices especially good to stress induced hypertension.

Specific *asanas* like *Gomukhasana*, *Padmasana* and *Shavasana* may act at the level of hypothalamus by its anti- stress effect *Anulomviloma* and *Bhramari Pranayama* also release stress and helps to alleviating anger, anxiety, insomnia.

*Yoga* practices when performed regularly and properly having psychosomatic relaxing effect. Here particular *asanas* are considered to be effective as they exert more effect on psychology i.e. stress reduction and also help to alter sympathetic and parasympathetic mechanism.

*Gomukhasana* simply means cow's face pose. It is done by placing both the feet on the ground by the side of buttocks and keeping the body steady, resembling the mouth of cow. Duration is from 30 sec. up to 3 min. *Gomukhasana*<sup>10</sup> relaxes the muscle and imparts the sense of calm with the release of endorphins cause relaxation of mind and body. *Padmasana*<sup>11</sup> is one of the best calming and stabilising pose. *Padmasana* is done by fixing the right foot on the left thigh, left foot on the right thigh. Usually this is meditative pose. The pose stimulate parasympathetic nerve which exhibit calming effect. Control over *Vayu* exerts calming effect on nervous system. Lying supine on the ground like corpus is nothing but *Shavasana*. There should be distance about one and half feet between the legs, eyes should be closed. It should be performed along with concentration on breathing pattern. The asana relaxes whole psycho-somatic sys-

tem. It should be practiced daily before sleep, during or before asana practices particularly suryanamaskara for 5 min. By obtaining pratyahara (control over behavioral pattern) it is beneficial in stress. Deep relaxation in *Shavasana*<sup>12</sup> decreases blood pressure. *Shavasana* gives the nervous system a chance to integrate that the reacting force with the stresses of daily life.

Adopting *padmasana* or *sukhasana*, breath in through *Chandra naadi* (left nostril) for 5 sec. should exhale through *Surya naadi* (right nostril) for 6-8 sec. And again breathe in through *Surya naadi* for 4 sec. and exhale through *Chandra naadi* for 6-8 sec. slowly considered as one round of *Anulom-Vilom pranayama*. One can perform it for 5-10 min. *Anulom-viloma Pranayama*<sup>13</sup> help in reduction of anxiety and depression level by increasing human potential.

Sitting in *sukhasana*, hand resting on knees in *dnyana-mudra*, one has to inhale through nose (with eyes closed and relaxed body). Exhalation should be done in controlled manner with humming sound. Such multiple rounds can be performed for 5 min. *Bhramari pranayama*<sup>14</sup> is effective instantly calms down the mind. To free the mind of agitation and anxiety, it is best breathing exercise. Humming sound vibration has natural calming effect. This vibration improves hypothalamic function which controls the pituitary gland.

Yoga also acts on *chakras* i.e. structure like spinning wheels and are convergence of energy, thought, feeling and physic. As the *chakras* are said to be determinant of emotional reaction, desires, level of confidence etc. Control over this by yoga may exert anti cortisol effect and thus reduces stress.

Though these are stress releasing asana practices, all should be performed under the guidance and consultation of an expert.

## CONCLUSION

Stress undoubtedly contributes the essential hypertension by disturbing hypothalamic pituitary adrenal axis and by causing over reactivity of sympathetic nervous system. Stress related release of cortisol elevates blood pressure. Stress isn't avoidable but is modifiable. Yoga pacifies sympathetic nervous system and also acts at the level of hypothalamus and thus help to exert anti cortisol effect. By performing regular and specific *asanas* (*Padmasana*, *Shavasana*, *Gomukhasana*) and breathing exercise (*Anulom-vilome* and *Bhramari Pranayama*) one may combat with ill effects of stress i.e. Hypertension.

## REFERENCES

1. Global issues, organization.
2. Global health organization, global survey.
3. Robbins and Colran, pathological basis of diseases, Kumar - Abbas - Fausto, 7th edition - published by Elsevier, reprinted -2017 (pg: 525-530)
4. Davidson's principles and practice of medicine, edited by Christopher Haslett, Edvin R. Chilvers, 18th edition, reprinted 1999, Churchill Livingstone (pg:220)
5. Shrimat Hariharanand Aaranya, Patanjaliyogdarshan, Hindi anuvaad, Tritiyasanskaran 1980, Motilal Banarasidas, Delhi (pg: 238-239)
6. HatyogaPradipika, Swatmaram Yogindra Virachit, Sanskrit tika 1985, sanvat 2041, Shrivyankateshwarmudranalaya, Mumbai (pg: 17)

7. 'Integrated yoga therapy for improving mental health' Gavpat T.S and Narendra(2011) Industrial psychiatry journal 20(1)-45-16
8. Robbins and Cotran, pathological basis of diseases, Kumar - Abbas - Fausto, 7th edition - published by Elsevier, reprinted -2017 (pg: 528)
9. Textbook of medical physiology, Guyton and Hall, 11th edition, reprinted 2006, published by Elsevier(pg: 952-955)
10. Hatyoga Pradipika, Swatmaram Yogindra Virachit, Sanskrit tika 1985, sanvat 2041, Shrivyankateshwarmudranalaya, Mumbai (pg: 19)
11. Hatyoga Pradipika, Swatmaram Yogindra Virachit, Sanskrit tika 1985, sanvat 2041, Shrivyankateshwarmudranalaya, Mumbai (pg: 29-30)
12. Hatyoga Pradipika, Swatmaram Yogindra Virachit, Sanskrit tika 1985, sanvat 2041, Shrivyankateshwarmudranalaya, Mumbai (pg: 24)
13. Shrimat Hariharanand Aaranya, Patanjaliyogdarshan, Hindi anuvaad, Tritiyasansakaran 1980, Motilal Banarasidas, Delhi (pg: 283-285)
14. Swami Satyananda Saraswati , Asana, Pranayama, Mudra and Bandha: 1 Paperback – 1 Oct 2002

**Source of Support: Nil**

**Conflict Of Interest: None Declared**

How to cite this URL: Pradnya Ravindra Deshpanderole Of Yoga In Management Of Stress Related Hypertension: A Review. International Ayurvedic Medical Journal {online} 2017 {cited March, 2017} Available from: [http://www.iamj.in/posts/images/upload/868\\_872.pdf](http://www.iamj.in/posts/images/upload/868_872.pdf)