



Review Article

Preventive Aspect of Ayurveda and Yoga in Hypertension

Pratibha Tripathi¹, Swikriti Iamichhane²

1. Assistant Professor, Department of swasthavritta, Ayurveda Campus, IOM, TU, Kathmandu, Nepal, 2. Ayurveda Practitioner, Ayurveda Campus, IOM, TU, Kathmandu, Nepal

Abstract

Today is the era of technology. Due to easy access of everything, people are becoming fat and devices thinner. Because of the easiness, world is now suffering from lifestyle disorders rather than contagious disease. Contagious disease can be cured may be early or later but lifestyle disorder is difficult to cure once they enter complication. One of the conditions of lifestyle disorder is Hypertension. Almost 30% of world population is hypertensive till date. Still 15-20% population are unaware of the condition. Due to modernization, lack of exercise, smoking and drinking habits as fashion, food habits, etc younger generations are also getting into the problem. Symptoms usually are unnoticed till it damages heart, kidney or brain, therefore it is also called as Silent Killer. Many hypertensive drugs are in use for hypertension just to control the blood pressure. As per Ayurveda Classics, its aim is to protect the health of healthy person, and treat the diseased condition. Our classics have not described single disease which can be understood as hypertension. So according to our classics such condition should be treated using our *Yukti* (proper planning) and recognising *Dosha* (3 pillars of body) and *Dushya* (body tissues). This article is an attempt to how one can avoid the condition of hypertension through *Aahar* (food), *Yoga* (body postures) and *Pranayama* (breathing exercise). We aim to prevent disease; hence the preventive aspect can be understood in this topic.

Keywords: Hypertension, lifestyle disorder, *Aahar*, *Yoga*, Prevention

Introduction

Ayurveda is derived from 2 Sanskrit words, namely, "*Ayus*" and "*Veda*," meaning life and knowledge, respectively. It literally means science of life. The basic philosophy of Ayurveda is that everything in the universe, including life, is composed of 5 elements, called *Panchamahabhutas*. These 5 elements are *Akash* (ether), *Vayu* (air), *Agni* (fire), *Jala* (water), and *Prithvi* (earth). These elements are not recognized as

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*Corresponding Author:

Dr. Pratibha Tripathi

Assistant Professor, Department of swasthavritta,
Ayurveda Campus, IOM, TU, Kathmandu, Nepal,
E-mail: pratibha1986tripathi@gmail.com

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physical elements but rather they represent principles unique to the particular element. For example, fire represents the natural force associated with light and heat, and water represent the property of cohesiveness that holds things together, and so on.

These elements, in turn, give rise to 3 basic types factors (or energies) that regulate the life cycle and control the entire human body. These factors, called *Doshas*, are *Vata*, *Pitta*, and *Kapha*. *Vata* arises from space and air, *Pitta* from fire and water, and *Kapha* from water and earth. *Doshas* contribute in various proportions to make up *Prakruti* (the essential constitution) of an individual. *Prakruti* is genetic in nature. Just as 3 *Doshas* control regulatory aspects of the body, 3 *Gunas*—*Sattva*, *Rajas*, and *Tamas*—influence and control the mind. *Ayurveda* also recognizes 7 *Dhatus* (tissue elements): *Rasa* (plasma), *Rakta* (blood), *Mamsa* (muscle), *Meda* (fat), *Asthi* (bone), *Majja* (bone marrow), and *Shukra* (reproductive tissue); 3 *Malas* (excretory products): feces, urine, and sweat; and *Agni* (energy metabolism). Any disturbance in any of these factors can give rise to disease. Because *Dosha* imbalance is at the core of every dysfunction, keeping *Doshas* in balance will maintain good health.

Disease Management

Disease evaluation and management in *Ayurveda* are individualized. Diagnosis is made by history-taking, observation, palpation, and performing an examination of various organs and systems with particular attention to the heart, lungs, and intestines. Particular attention is paid to the examination of the pulse, tongue, eyes, and nails. The nature and the quality of the assessment are quite different from conventional biomedical assessment most physicians are used to. The findings have different interpretations and are based on principles as explained in classics. Depending on *Ayu*, *Sharirika Bala*, *Manasika Bala*, *Agni*, etc. treatment is decided whether to go with *Shama-*

na therapy (palliative) or *Shodhana* therapy (detoxification). If the patient is weak in all aspect, then *Chitiksak* (physician) should go with *Shamana* (palliative) therapy and if patient has good *Bala* (strength) then *Chikitsak* (physician) should go with *Shodhana* (detox) therapy.

In case of Hypertension, *Acharya Charaka* has described various factors in *Vimanasthana*, which are responsible for *Rasavaha Strotas Dush-ti*, (Excessive intake of *Guru* (heavy), *Sheet* (cold), excessively unctuous food, and constant worry); *Raktavaha Stroto Dushti* (get vitiated due to intake of food and drinks which are irritant, unctuous, hot and liquid); excessive exposure to sunlight and fire, excessive intake of fatty diet and day time sleep causes the disturbance in the metabolism of lipid^[1] which finally results in to *Dhamanipratichaya* (Atherosclerosis / Arteriosclerosis) leading to genesis of HTN. In *Ayurveda*, *Pragyaparadha* (doing bad deeds knowingly) and *Asatmyaindriyartha Samyoga* (misuse of sense organs) are considered as the root causes for every disease, which indicate the involvement of mind. *Manasika Bhava* (mental factors) like *Chinta* (worry), *Krodha* (anger), *Bhaya* (fear) etc. play an important role in the etiopathogenesis, progression and prognosis of disease as well as response to the treatment of the disease. This fact reveals that *Manas*(mind) is also involved and the disease should be considered as psychosomatic.^[2] *Acharya Sushruta* has also described '*Shonit Kapha Prasadajam Hridayam*', which means while development of *Garbha*, heart is formed by the purest portion of *Rakta* (blood) and *Kapha*.^[3] These originating constituents should be considered while treating cardiac ailments. Drugs acting on these constituents can offer more reliable results. As per classics, we can correlate Hypertension with *Siragata Vata*^[4], *Raktagata Vata*^[5], *Avritta Vataroga*^[6]

Prevalence

An estimated 1.28 billion adults aged 30-79 years have hypertension worldwide, among which two third of them live in low- and middle-income

countries. 46% of adults are unaware about the condition that they are hypertensive. Less than 42% with hypertension are diagnosed and are treated. 1 among 4 men and 1 among 5 women are hypertensive.^[7]

A study conducted in the rural areas of Kathmandu District reported a three-fold increase in the prevalence of hypertension prevalence in 25 years. The last two periodic surveys conducted in Nepal (STEPS survey 2007 and 2019) showed that the prevalence of hypertension had increased from 21.5% to 24.5% in Nepal. Other studies reported largely varied findings on hypertension, with prevalence ranging from 19.6% to 25.7% at the national level; 15.1% to 38.9% at the regional level; 21.7% to 48.1% in males; 10.5% to 35.2% in females; 22.5% to 38.6% in rural areas; and 32.5% to 38.9% in urban areas.^[8]

Aims and objectives:

To understand and learn different perspective of preventive aspect of Hypertension through *Ayurveda* and *Yoga*.

Methods and Materials

Different classical books on *Ayurveda* along with research paper, modern literature, available research updates and scientific information available on internet etc. were searched and analyzed.

Aahar and hypertension

We all know that diet has high impact in our body may be healthy individual or diseased one. Healthy diet helps in proper development of our body and unhealthy diet brings out unequilibrium of *Tridosha* (three body humours) and further produce disease in body. *Vaidya Jeevakam* has also explained that if a person consumes good food, he doesn't require any medicine but if a person is taking unhealthy diet, then even medicine will not give desired effect in the body.

Hypertension is also called as Silent killer as the symptoms are not seen before the condition

damages any system in the body.^[9] Unhealthy dietary behaviours often occur in association with other unhealthy behaviours such as physical inactivity, drinking of alcohol and smoking. Furthermore, unhealthy dietary practices such as high consumption of saturated fats, salt and refined carbohydrates as well as low consumption of fruit and vegetables tend to cluster together.^[10] Therefore, to avoid the risk factor of hypertension or the one who is diagnosed with hypertension; one must follow the proper diet.

Different studies irrespective of age, sex, inclusion and exclusion criterias, methodology, statistical analysis, each studies found significant reduction in blood pressure with less consumption of Sodium diet^[11] Researches has also proved that intake of less sodium and more potassium has positive impact on body. It helped in body weight reduction.^{[12] [13]} One of the studies also showed that unrestricted consumption of a low-fat, high-fiber diet and daily exercise can mitigate oxidative stress, improve NO availability, and normalize BP in obese men within 3 weeks.^[14]

Health organizations (i.e. National Heart, Lung, and Blood Institute, AHA, Dietary Guidelines for Americans, United States (US) guidelines for treatment of high BP) has consistently endorsed Dietary Approaches to Stop Hypertension (DASH) diet as an effective diet for controlling BP, among the studied dietary patterns. The DASH diet was developed to focus on a dietary profile mainly consisting of plant-based foods, whole grains, and low-fat dairy products. Effect of the diet has been shown to reduce Systolic Blood Pressure in HTN.^[15] A review of studies published in 2021 in StatPearls, suggested that the DASH diet is associated with lowering Blood pressure, the risk of adverse cardiac events, Stroke, Type 2 diabetes & Obesity. A study published in 2019 in Scientific Reports suggests that adhering to the DASH diet is associated with "better metabolic profiles." Researchers found that, compared to metabolic healthy obesity, "greater adherence to the DASH diet was associated with

21% lower odds of metabolic unhealthy obesity” regardless of age, sex, energy intake, physical activity, body-mass index, smoking and educational level. Research published in the Journal of the American Medical Association suggests that the DASH diet is associated with reductions in systolic blood pressure and diastolic blood pressure.^[16]

It is clear that, hypertension is directly supported by excess sodium intake along with low physical activity, smoking and high consumption of fatty diet. Except this, increased consumption of diet with potassium, calcium and magnesium has positive effect in the health of heart and kidney which has high risk of damage due to increased sodium intake.^[17] Acharya Charak in *Vidhishonitiya Adhyaya* has also expalined the *Hetus* (causes) as Rotten & putrefied food possesses contradictory qualities (*Viruddha*), Sleeping during day time after taking liquid, unctuous and heavy food, Excessive anger, excessive exposure to the sun and fire, Unwholesome, hot and sharp wine and excessive food, consumption of salty, alkaline, acidic and pungent food items, *Kulattha* (horse gram), *Masha* (black gram), *Nishpava* (a type of bean) and *Til taila* (sesame oil), *Pindalu* (coco yam), *Mulaka* (raddish) and all green eatables; Meat of aquatic, marshy, *Prasaha* (birds who snatch for foods) and the animals living in holes; Curd, sour whey (*Mastu*), vinegar, *Sura* (wine); Suppression of the urge for vomiting, avoidance of bloodletting (in *Sharad Ritu*); Exertion, external injury, heat, taking food before previous food is digested.^[18]

Acharya Charaka has also considered Lavana as a substance not to be used in excessive quantity for longer duration.^[19] Additional dietary changes beneficial for reducing blood pressure include adopting the diet which is rich in fruits, vegetables, whole grains and low-fat dairy products, reducing consumption of refined sugar and heavily processed food, reducing caffeine intake, and limiting alcohol consumption. Daily consumable foods with low sodium and high potassium are- Non-Veg Diet: Eggs, fish, red meat, pork, and poultry, Fruits: Apples, avocado, bananas, strawberries, or-

anges, peaches and watermelon. (All raw fruits are naturally low in sodium and contain high amount of potassium).

Grains- Whole- Wheat bread, oatmeal, macaroni, and rice. Most grains are low in dietary fat, potassium, and calcium. Some may contain high amounts of sodium, especially when more than one serving is consumed. Legumes & nuts: Almonds, black beans, tofu, peanut butter, pistachios and walnut. (They contain high amount of fat in the form of healthy mono and poly unsaturated fatty acids. Also, they are rich in potassium and calcium) Vegetables: Broccoli, carrots, corn, mushrooms, potatoes, and spinach. Most raw vegetables are naturally low in fat and sodium, and high in potassium and calcium.^[20]

Randomised study done in 1980s and 1990s also showed that consumption of garlic lowered the total cholesterol level by 5% to 12%.^[21] A recent metaanalysis has shown an overall marginal benefit of garlic on lipid levels.^[22] Except these- Dairy products like cheese, milk and yoghurt; Desserts like Pastries, cookies, muffins, choco pie and cakes and other baked products are high in sodium and fat and low in potassium and calcium. In Condiments, Fats, and Oils- Ketchup, pickles, mayonnaise, barbecue sauce, butter, and salad dressing. These group is mostly high in fat and sodium, and poor in potassium and calcium. Therefore, they should be consumed in moderation.^[23] High blood pressure is the second leading cause of chronic kidney disease after diabetes. The pressure of the blood through the tiny blood vessels of the kidneys can cause damage. By making lifestyle changes such as modification of diet, exercise, stopping smoking and losing excess weight, can help lowering blood pressure and avoid the complications such as kidney disease, eye disease and heart disease. Making little changes now, may help reduce blood pressure and maintain better health.^[24]

Yoga:

The hypertension can be considered as a psychosomatic disease; hence its seat is both *Kaya* (somatic) and *Mana* (psychic). There is intertwining relation between *Kaya* and *Mana*.^[25]

Yoga (body technique) and *Pranayama* (breathing technique) is very much helpful in prevention of lifestyle disorders. Hypertension also being one of the lifestyle disorders, *Yoga* and *Pranayama* acts as preventive therapy for maintaining blood pressure. It helps to balance the harmony between body and mind.^[26] *Yoga* and *Pranayama* helps in stress reduction and mind-body relaxation.^[27] There are several controlled and uncontrolled studies that have demonstrated the long-term usefulness of *Yoga* in the treatment of hypertension.^[28] ^[29] In earlier studies involving the use of *Savasna* (a type of yogic activity), significant reductions in blood pressures were noticed.^[30] Randomized controlled study & other studies suggests *Yoga* is capable of producing a long-term beneficial effect in reduction of blood pressure.^[31] *Yogic* practices like *Shavasana* (corpse pose), *Sukhasana* (easy sitting), *Makarasana* (child pose), *Vajrasana* (diamond pose) as *Yoga* and *Sheetali* (cooling breathe), *Shitkari* (hissing breathe), *Anuloma Viloma* (controlled breathing) *Pranayama* can be easily practiced by hypertensive patients. These procedures can be followed as preventive and curative aspects as well.

According to *Bruhadaranyaka* and *Chhandogya Upanishadas* the main aim of *Yogic* practice and *Pranayama* is to control *Prana* (respiration). Though the target of controlling *Prana* is difficult to achieve, but mental peace and relaxation thus achieved could be used as a therapeutic tool. According to Patel and others in Britain, they have shown that meditation and prayer techniques can lower blood pressure on a short term and long-term basis. This factor further can be important in primary prevention of coronary atherosclerosis. Various biochemical inducers and aggravators of atherogenesis can also be decreased on metabolic level. Significant decline in cardiovascular risk factors, hypertension, dyslipidemias and obesity have

also been reported by Patel et al in Britain using group meditation techniques, and in India by Mahajan et al in Delhi and Damodaran et al in Mumbai.^[32]

Significance of *Yoga* & *Pranayama* can be justified as **during** the relax stage, the body performs many anabolic reactions which are valuable for the regulation and proper functioning of body and mind (psychosomatic) physiology.^[33] *Yogic* practices and *Pranayama* harmonize the action of stress-induced reaction through balancing the Autonomic Nervous System. *Agya Chakra* is supposed to act as main governing *Chakra* in *Chakral* system of Nadis. All the parts of these *Chakras* include cerebral hemisphere, thalamus, hypothalamus functionary unit's pituitary, and pineal glands. Regulation of respiratory rhythm through inhibitory response shifted sympathetic tone to parasympathetic and tries to synchronize the action of HPA axis.^[34] **Many** scientists believe *Asanas* restore baroreflex sensitivity, thereby reducing blood pressure.^[35]

Other Physiological Effects

Yoga can also alter various pulmonary, cerebral, mental, and metabolic physiological functions, producing beneficial effects on the cardiovascular status. These beneficial effects include better breath holding ability, improved tidal volume and vital capacity, an improvement in physical fitness^[36] reduction in anxiety^[37] and improved sugar levels among patients with diabetes. An association between increased cerebral blood flow and transcendental meditation (TM) has also been observed. A very unique and a distinct phase of relaxation, referred to as "the fourth state of consciousness" (the other 3 being waking, dreaming, and sleeping), has been described during TM.^[38] ^[39] This state is characterized by not only the usual changes seen in deep relaxation such as reduced cortisol and plasma lactate levels, decreased muscle and red cell metabolism, and reduced breath rate, but also by an increased alpha brain wave activity and a distinctive pattern of en-

hanced cerebral blood flow. The regular practice of yoga has also been shown to have positive effects on mood and emotional well-being.^[40] Improved muscle strength and relaxation response have also been described.^{[41] [42]}

Although *Yoga* cannot be recommended as a primary treatment of patients with hypertension and/or heart disease, its use as an adjunct in such patients can be safely recommended. Adjustment of postures could be required for certain patients. Pregnant women should avoid certain postural *Yogic* techniques. Also, those with a history of psychosis should refrain from *Yoga*. Excessive meditation could lead to mental disturbances.

Yoga is flexible and its techniques can be customised according to individual needs. It can be self-taught, although it is best learned with supervision in class situations. *Yoga* is a safe and inexpensive method for promoting general health and emotional well-being.

Discussion & Conclusion:

Hypertension or Silent Killer is serious condition once it is diagnosed. It is more difficult to treat once the patient enters the complication. Day by day the number of hypertensive patients is increasing rapidly. Dietary modification is very important in this condition. It can be reversible if proper care is taken in time. DASH diet has most significant result in lowering blood pressure. Besides this, taking less fatty diet, sodium diet and increasing potassium, calcium and magnesium is much beneficial. Potassium and sodium have direct effect on blood. Intake of more sodium decreases potassium level in blood and vice versa. An increased intake of potassium has greater BP lowering effects in the setting of a higher sodium intake and lesser BP effects when sodium intake is already low. When potassium intake is low, less Sodium consumption also helps to decrease BP.^[43] Therefore, diet with less sodium, protein and alcohol helps to decrease systolic BP whereas potassium rich diet helps with both systolic and diastolic BP.^[44] DASH diet with additional physical exercise

shows more beneficial result in SBP and DBP.^[45]

Ayurveda is gaining attraction in present scenario. As the condition is diagnosed, many people seek Ayurveda therapy and treatment. Before the condition gets worsen, it is advised to adopt preventive therapy by following *Ritu-Shodhana* (detox according to seasons), doing *Yoga* and *Pra-nayama* daily or involving in some exercise, following proper diet, following of *Dinacharya* (daily regimen), *Ratricharya* (Night Regimen), & *Ritucharya* (Seasonal Regimen).

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References-

1. Agniveshakrita Charaka Samhita by Vaidya Satya Narayana Shastri, Viyotinitika by Pt. Kashinath Shastri and Dr Gorakhnath Chaturvedi, Chaukhambha Bharat Academy, Varanasi 2009 Ch.Vi.5/13,14,16; pg-713.
2. Prajapat et al. HYPERTENSION – CLINICAL APPROACH AND MANAGEMENT THROUGH AYURVEDA; World Journal of Pharmaceutical Research SJIF Impact Factor 8.084 Volume 10, Issue 2, 1423-1429. Review Article ISSN 2277-7105; pg-1241,1242
3. Susruta, Susrutasamhita, Vaidya Yadavaji Trikamaji Acharya, Chaukhamba Surabharathi Prakashan, Varanasi, 7th edition 2008, Sharirshana 4/3
4. Ashtanga Hridaya, Hindi Commentary by Gupta A.D., 5th Edition, Chaukhamba Sanskrit Sansthan, Varanasi, 1975, Vatavyadhi Nidan 15/10.
5. Shastri K.N. & Chaturvedi G.N., Charak Samhita with Vidyotini Hindi Commentary, 12th edition, Chaukhambha Bharti Academy, Varanasi, 1984, Vatavyadhi Chikitsa 28/31: 782.
6. Yadavaji Trikamaji Acharya, Charak Samhita with Ayurveda Dipika Hindi Commentary of Chakrapani Datta, Nirnaya Sagar Press, Bombay, 1941, Vatavyadhi Chikitsa 28/31.

7. who.int/news-room/fact-sheets/detail/hypertension
8. Raja Ram Dhungana; Trends in the Prevalence, Awareness, Treatment, and Control of Hypertension in Nepal between 2000 and 2025: A Systematic Review and Meta-Analysis; International Journal of Hypertension Volume 2021, Article ID 6610649 , pg-2
9. Anil D et al. / Understanding Essential Hypertension through Ayurveda – A Review; International Journal of Pharmaceutical & Biological Archives 2013; 4(4): 591 - 595; pg-591
10. KS Reddy and MB Katan ; Diet, nutrition and the prevention of hypertension and cardiovascular diseases ; Public Health Nutrition: 7(1A), 167–186 pg-168
11. M.A. Krousel-Wood et al / Med Clin N Am 88 (2004) 223–238; Primary prevention of essential hypertension; pg 226
12. F. SKRABAL T. AUBÖCK H. HORTNAGL*; LOW SODIUM/HIGH POTASSIUM DIET FOR PREVENTION OF HYPERTENSION: PROBABLE MECHANISMS OF ACTION, pg.896
13. KS Reddy and MB Katan ; Diet, nutrition and the prevention of hypertension and cardiovascular diseases ; Public Health Nutrition: 7(1A), 167–186;pg-174)
14. Roberts et al; Effect of Diet and Exercise Intervention on Blood Pressure, Insulin, Oxidative Stress, and Nitric Oxide Availability pg-2531
15. Ozemek et al.; Role of diet in management of hypertension ; www.co-cardiology.com Volume 33 ; Number 00 ; Month 2018;pg-2,3
16. <https://health.usnews.com/best-diet/dash-diet>
17. KS Reddy and MB Katan ; Diet, nutrition and the prevention of hypertension and cardiovascular diseases ; Public Health Nutrition: 7(1A), 167–186;pg-175
18. Brahmanand Tripathi, Charak Samhita Vol, Chaukhambha Surbharati Prakashan, Varanasi, 2009 Sutra Sthana 24
19. Brahmanand Tripathi, Charak Samhita Vol.1, Chaukhambha Surbharati Prakashan, Varanasi, 2009, Vimanasthana 1/15; page-660
20. <https://extension.colostate.edu/topic-areas/nutrition-food-safety-health/diet-and-hypertension-9-318/pg-3>
21. Low Dog T, Riley D. Management of hyperlipidemia. *Altern TherHealth Med.* 2003;9:28–40.
22. Stevinson C, Pittler MH, Earnst E. Garlic for treating hypercholesterol- emia: a meta-analysis of randomized trials. *Ann Intern Med.* 2000;133: 420–429.
23. <https://extension.colostate.edu/topic-areas/nutrition-food-safety-health/diet-and-hypertension-9-318/pg-4>
24. <https://www.davita.com/diet-nutrition/articles/basics/how-diet-can-affect-your-blood-pressure>
25. Kamble et al ; Concept of essential hypertension in Ayurvedic perspectives ; Journal of Drug Delivery & Therapeutics. 2018; 8(6-s):407-410; ISSN: 2250-1177 ; CODEN (USA): JDDTAO; pg: 409
26. Jaspreet Singh / Charu Sharma ; HYPERTENSION– IN AYURVEDIC PARLANCE ; 2020 IJRAR March 2020, Volume 7, Issue 1 www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138)
27. Vithalani Lalitkumar V. Et; Al: Hypertension - An Ayurvedic Perspective; HYPERTENSION - AN AYURVEDIC PERSPECTIVE ; Review Article International Ayurvedic Medical Journal ISSN:2320 5091 ; pg-2327
28. Sharma H, Clark C. *Contemporary Ayurveda. Medicine and Research in Maharishi Ayurveda*, 1st ed. Philadelphia: Churchill Livingstone; 1998.
29. Patel C. Twelve month follow-up of yoga and bio-feedback in the management of hypertension. *Lancet.* 1975;1:62–64.
30. Raub JA. Psychophysiologic effects of hatha yoga on musculoskeletal and cardiopulmonary function: a literature review. *J Altern Complement Med.* 2003;8:797–812.
31. *Alternative Medicine—Expanding Medical Horizons.* A Report to the NIH on Alternative Medical Systems and Practices in the US; 1992.
32. Vithalani Lalitkumar V. Et; Al: Hypertension - An Ayurvedic Perspective; HYPERTENSION - AN

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33. Pal et al.; EVALUATION OF THE EFFECT OF YOGIC PRACTICES ON RAKTAGATA VATA (ESSENTIAL HYPERTENSION); Asian J Pharm Clin Res, Vol 11, Issue 9, 2018, 425-430; pg:428
34. Pal et al.; EVALUATION OF THE EFFECT OF YOGIC PRACTICES ON RAKTAGATA VATA (ESSENTIAL HYPERTENSION); Asian J Pharm Clin Res, Vol 11, Issue 9, 2018, 425-430; pg:429
35. Marugesan R, Govindarajulu N, Bera TK. Effect of selected yogic practices on the management of hypertension. *Indian J Physiol Pharmacol.* 2000;44:207–210.
36. Benson H. The physiology of meditation. *Sci Am.* 1972;226:84–90.
37. Fenwick PB, Donaldson L, Gillis L. Metabolic and EEG changes during transcendental meditation: an explanation. *Biol Psychol.* 1977;5:101–118
38. Sharma H, Clark C. *Contemporary Ayurveda. Medicine and Research in Maharishi Ayurveda*, 1st ed. Philadelphia: Churchill Livingstone; 1998.
39. Jevning R, Wilson AF. Behavioral increase of blood flow. *Physiologist.* 1978;21:60.
40. Ananda S. *The Complete Book of Yoga: Harmony, of Body and Mind*, 1st ed. Delhi, India: Orient Paperbacks; 1981 (reprinted 2001).
41. *Alternative Medicine—Expanding Medical Horizons.* A Report to the NIH on Alternative Medical Systems and Practices in the US; 1992.
42. Ananda S. *The Complete Book of Yoga: Harmony, of Body and Mind*, 1st ed. Delhi, India: Orient Paperbacks; 1981 (reprinted 2001).
43. Lawrence J. Appel; The Effects of Dietary Factors on Blood Pressure;pg-201
44. Ihab M.Hajjar et.al.; Impact of Diet on blood pressure and age related changes in blood pressure in US population; pg-589
45. WAN AIN NADIRAH CHE WAN MANSOR, SAKINAH HARITH* and CHE SUHAILI CHE TAHA; EFFECT OF VARIOUS DIETARY PATTERN ON BLOOD PRESSURE MANAGEMENT: A REVIEW;pg-2