

# **Hypertension and Lifestyle Management:**

## **A Comparison of Western and Ayurvedic Approach**

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*Introduction – Hypertension is a huge contributor to disease and death. While pharmaceutical medications are an option for managing high blood pressure, the condition may be prevented or managed with lifestyle changes including diet, exercise, alternative and integrative options, and Ayurvedic interventions.*

*Compliance to these practices may be manifested as significant reductions in blood pressure. The traditional healing system of Ayurveda enhances overall health of the individual with comprehensive lifestyle guidelines, herbs, and mental and spiritual practices. Ayurveda offers a unique approach that is individualized and not a “one size fits all” therapy. This research paper will explore various possibilities for lifestyle management of hypertension with a look at similar and contrasting perspectives of current suggested health guidelines and Ayurvedic approaches.*

### **Overview of Hypertension and the Current Guidelines for Management**

While many people have high blood pressure, few will have any symptoms that reflect that there is a problem. Despite the lack of attention grabbing symptoms the consequences of the disease are immense, earning hypertension the name of “The Silent Killer.” The statistics for hypertension in the United States as of 2013 are quite significant. Per The American Heart Association’s (AHA) 2013 update, about 1/3 of adults are afflicted, and that by 2030 the numbers will increase by 7.2 per cent. The AHA has determined that 81.5 percent of people with hypertension know they

have it, only 52.5 percent of people with high blood pressure have it under control, and 74.9 percent are being treated for the disease. The AHA states that death certificates reveal “high blood pressure was listed as a primary or contributing cause of death in about 348,102 of the more than 2.4 million U.S. deaths in 2009. “ (1) The World Health Organization claims that blood pressure above the optimal range “is responsible for 62 percent of cerebrovascular disease and 49 percent of ischemic heart disease. It is the number one attributable risk factor for death throughout the world.” (2) Hypertension is a primary link to heart disease, stroke, kidney disease and vision loss. (3)

Hypertension is defined under two categories, primary or secondary types. Primary hypertension accounts for ninety -five % of all cases and assumes no known cause for the individual’s hypertension. Secondary hypertension implies a known cause such as kidney disease, certain medications, or pregnancy induced, and is managed by addressing the actual cause. The risk factors for primary hypertension include conditions such as advancing age and family history. Lifestyle related risks include obesity, smoking, sedentary lifestyle, stress, diabetes mellitus, and diets high in saturated fats, alcohol, and sodium. (4)

Blood pressure is the outcome of cardiac output and/or total peripheral resistance. (5) The reason primary hypertension develops is due to a number of possibilities. It is theorized that total peripheral resistance is the result of changes in the vascular beds causing vessels to be rigid and noncompliant. The sympathetic nervous system may be the initiator of these changes, or there may be a genetic cause. Increased volume of blood and vasoconstriction may be the result of the production of angiotensin II, which occurs when the kidneys produce an abnormal amount of renin. (6)

Blood pressure is measured in systolic and diastolic measurements, usually with the use of a sphygmomanometer and blood pressure cuff. The systolic measurement is the top number and this measures the pressure of the heart during a

contraction. The diastolic, the bottom number, measures the pressure of the heart at rest. Current guidelines for hypertension can be obtained from The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC 7). In this most recent compilation of data and recommendations, normal blood pressure is defined as less than 120 mm Hg systolic and less than 80 mm Hg diastolic. Hypertension is determined at a systolic pressure above or at 140 mm Hg and a diastolic above or at 90 mm Hg. The range in between, 120-139 systolic and /or 80-89 diastolic, is classified as prehypertension. (7) People who are unable to achieve the goal of being at levels below hypertension are advised to take medications to control their blood pressure; most people will need two or more types. A thiazide diuretic is usually the first line, followed by an anti-hypertensive such as an ACE inhibitor, beta-blocker or calcium channel blocker. (8)

Individuals wanting to prevent or manage impending or diagnosed hypertension can adopt lifestyle modifications to prevent cardiovascular disease. The JNC 7 guidelines advise to modify lifestyle by emphasizing dietary management, weight reduction, and exercise. Reduced alcohol intake is also recommended. Alcohol should be minimized to no more than 2 drinks per day for men and no more than 1 drink per day for women. (9) The JNC report states that while it is not exactly known how alcohol affects blood pressure, it is likely due to sympathetic nervous system stimulation as well as calcium and cortisol involvement. (10) Smoking, a strong vasoconstrictor should be eliminated to avoid high blood pressure (11).

The JNC 7 nutrition advice adheres to the DASH Diet (Dietary Approaches to Stop Hypertension), which can lower systolic blood pressure by 8 to 14 mm Hg. This diet includes high intake of vegetables, fruit, grains, nuts, and low fat dairy. The diet should be low in saturated fats and simple sugar foods. The diet calls for restricted sodium – no more than 2300 mg per day, with 1500 mg optimal for decreasing blood pressure even further or for those with hypertension and health risks. (12)

A modest weight loss can significantly impact blood pressure. Body fat is

necessary for thermoregulation, protection of body organs and energy storage. Too much fat (especially abdominal fat), however, is an indicator for developing diabetes and stroke as well as high blood pressure. (11) The JNC 7 reports that even a loss of 10 pounds “reduces blood pressure and/or prevents hypertension in a large proportion of overweight persons, although the ideal is to maintain normal body weight.” (12). Maintaining normal body weight can decrease systolic pressure by 5 to 20 mm Hg (13).

Exercise can lower systolic blood pressure by approximately 4 to 9 mm Hg. Thirty minutes of aerobic exercise per day on most days is recommended. There are unlimited numbers of activities that will accomplish this. The exercise does not necessarily have to be vigorous, and the time can be incremented. (14)

While current Western authority is dictating much of the thought on managing hypertension with lifestyle choices either to prevent the need for medications or to enhance medication use, many people in the United States and throughout the world are turning to complementary and alternative options. A meta analysis conducted to review current research on complementary and alternative medicine (CAM) found that many therapies “may provide positive and significant effects” despite some of the challenges of methodology of many studies. Some mind body therapies for managing hypertension appear promising; such as, yoga, meditation, and relaxation techniques. There are several herbs showing hypotensive potential, including garlic and hawthorn. Results for some popular remedies such as Omega three fatty acids and ginkgo biloba were not conclusive enough for recommendation. (15) Studies abound that suggest possible foods that may decrease blood pressure; such as, celery, carrots, radishes, flaxseed, ginger, wheat bran, and cacao, (16)

### ***Ayurveda***

Ayurveda, termed a “whole medical system” (along with acupuncture, homeopathy and naturopathy) is becoming increasingly available and of interest to

Americans. With roots in India and traditions going back thousands of years, this healing system is a path that promotes lifestyle and diet as the key to health and long life. The ancient texts, some estimated to be as old as 5,000 years, are currently translated into English.

Hypertension, known as Rakta Capa Vriddhi (literally translated as “blood unstable increase”) is discussed in Ayurvedic literature, although research for this paper did not reveal that it is addressed directly in the ancient texts. Heart disease, however, is commonly described in the classics and is referred to as hrdroga. In the ancient text, Sushruta Samhita, hrdroga was believed to manifest from unnatural practices such as suppressing natural urges and the ingestion of very dry or hot substances, as well as the poor practice of eating before the previous meal is digested. These practices are damaging to the lymph system and the heart. (17) Dr. David Frawley states that the reason heart disease is so prevalent in our society is because in our pursuit of success we have largely ignored the heart, which is who we truly are. He recognizes that lifestyle and diet play a big part, but that emotional causes should be the first line of inquiry. (18)

The teachings of the traditional text, the Caraka Samhita emphasizes the proper approach for eating food, in order to optimize digestion, as the right state of mind is even more important than what we eat. “Wholesome food taken even in proper quantity do not get properly digested when the individual is afflicted with grief, fear, anger, sorrow, excessive sleep and excessive vigil.”(19) There are rules for the healthy intake and behaviors surrounding food. Food should be warm enough and adequately oiled, which will complement the digestive enzymes. Eating foods in proper balance of tastes and other attributes should also be acknowledged. Food should not be eaten before the previous food is digested; else immaturely processed food mixes with the previous meal (this provokes the timing of particular enzymes and causes digestive problems). Attention should be given to the act of eating so that digestion is not hampered by stress. Such practices include sitting down to eat

with all the proper accessories in their place. One should not eat in a hurry or too slowly. Eating should be a mindful affair, free of emotional or distracting activities. (20 ) Good food habits contribute to good digestion – or efficient “agni.” Good digestion insures optimal assimilation of nutrients and other factors of the food’s energy.

Today, Ayurveda still stresses that lifestyle activities have a strong influence on whether a person will develop disease, including hypertension. Ultimately, how we behave and what and how we eat are essential components of the condition of our health; disease and lack of disease will often reflect our choices. In order to appease the senses and optimize good health, the effect of food and food habits on the genetic constitution of the individual is considered. The energetics that make up our constitution are called doshas; the doshas are vata (air and ether), pitta (fire and water) and kapha (earth and water). The doshas should be honored and in balance for optimal health.

Although our prakruti (doshaic genetic makeup for body and mind) may predispose a person to the condition of hypertension, “lifestyle stress is usually the first factor to trigger onset.” (21) John Dulliard emphasizes that it is our fast paced lifestyle with accompanying habits such as skipping meals, staying up late and eating large evening meals that are the main culprits. Added to this are dosha aggravating factors such as too much salty, sour and hot spicy foods, and dehydration. Dulliard points out that these activities put a severe stress on the sympathetic nervous system, which responds by increasing heart rate. Further stress is accumulated in the nervous system and the circulatory system. (22)

Hypertension is usually considered a vata and/or pitta condition, although ultimately all three doshas may be involved. David Frawley claims that hypertension is usually of pitta origin as the heart and blood are of Pitta domain, and as Pitta (fire) types have the tendency of being driven. A pitta-centered case of hypertension can be identified by symptoms reflecting the fire of pitta such as redness of eyes and

face, and emotional intensity such as anger and irritation. “The pulse will be wiry, taught and tight.” (23) It is often, he says, a “complication of liver disorders and the accumulation of internal heat.” (24)

Vata (air and ether) type hypertension is instigated by a nervous, anxious mentality. Vata hypertension is usually of the hardening of the arteries variety of arteriosclerosis. One would see an erratic pattern of blood pressure and pulse with afflictions of the nervous system.(25) Fluctuating patterns of blood pressure may go on for years, afflicting pitta and kapha in its course to the point of being a challenge to cure. (26)

Kapha (earth and water) type hypertension remains high but stable and is associated with obesity, fluid retention, and high cholesterol with associated clogging of the arteries. (27). Dulliard points out that “kapha can act as a storage site for all the circulatory ama” (toxins and other congestion) of pitta and vata. (28)

### ***Ayurvedic Treatment***

As one can see from the description of various types of hypertension that are associated with doshic dominance, hypertension is a disease that that does not manifest the same for all persons. One needs to consider each of the three doshas for a cure that is unique and individualized to each person.

#### *Vata*

Vata, being of the air and ether elements, is by nature airy, cold, mobile, and dry. A person who indulges too much in food that is light, cold, and dry will aggregate vata. Vata needs to have food that is predominantly heavy, warm, and moist. The best tastes for Vata are sour, salty and sweet as these tastes balance vata, providing warmth and nourishment.

The Caraka Smhita advises that salt should not be used in excess (29) as can be demonstrated by those where it is continually used are “mostly languid and of

loose flesh and blood;" however, adequate salt "makes food delicious. When properly used, it produces good results." (30) While the trend in hypertension management is that salt should be restricted with all people with hypertension, and perhaps with all persons, there is currently research available that argues the wisdom of this opinion. In one study conducted by the American Medical Association, it was determined that the decreased ingestion of salt put people at risk of dying from heart disease at a later time (31).

Adequate salt is an important factor in the prevention and healing of vata type hypertension. Dr. Marc Halpern explains; "Salt attracts water and tissues become tender and pliable. This pacifies vata dosha and is beneficial for the management of arteriosclerosis." (32) Furthermore, "excessive water in the body is not the cause of the condition. Hardening of the arterioles is and this takes precedence." (33) Justifiably, exception would be made for hypertension that is very high, at which point diuretics to decrease fluid and blood pressure would be attempted first before modifying salt intake. Vata type hypertension can be managed with salt that comes from rock salt and bladder wrack (34).

Vata psychological tendencies of nervousness and fear will affect the body as well which can result in hypertension as a result of vasoconstriction and vasospasm. "Psychological factors such as distrust create hardening of the body and mind while worry, nervousness and anxiety activate the sympathetic nervous system resulting in vasospasm." (35) One of the best approaches for managing vata type hypertension is herbal nervines, which include ashwaganda and bhrami. Garlic will also help to relax and tonify the nervous system. (36) There are also herbs which have been shown to have a cardiovascular effect and may decrease blood pressure; such as, hawthorne, arjuna and sarpagandha. (37) It is best that individuals with vata-dominated hypertension do not indulge in coffee or alcohol or anything that increases vasoconstriction and/or loss of fluid through excess urine output. Yoga, meditation and various calming measures are helpful for this type. (38)

### *Pitta*

“Pitta-type hypertension most often occurs in combination with vata or kapha vitiation and makes the condition worse.” (39) With the pitta tendency toward aggressiveness and anger, any existing hypertension can be exacerbated. Headaches may occur with pitta dominance hypertension. (40) Too much hot and spicy food can irritate the already strong heat of pitta. Therefore, these people should avoid hot, sour, and salty tastes. Bitter, astringent and sweet tastes will be nourishing and cleansing for pitta.

Bitter herbs such as manjistha and gudduchi are recommended to help cleanse and cool the circulation. (41) Nervine tonics and sedatives are best if cooling, such as gotu kola, brahmi and skullcap. Soothing massage (Ayurvedic abhyanga), shirodara ( practice entailing warm oil poured on the forehead), and yoga can all be helpful. Cooling colors such as blue and pastels and scents such as sandalwood and rose help to soothe pitta aggravation. Persons with pitta type hypertension would benefit from avoiding stressors to the sympathetic nervous system. (42)

### *Kapha*

Kapha, bearing the elements of earth and water, is the stable, heavy, cold, and moist dosha. A diet that is too aggravating to kapha would be predominant in foods that are of the same qualities –such as cold, fatty, and heavy foods. Tastes that support kapha would be bitter, pungent and astringent. The tastes of sweet, salty, and sour should be indulged in moderation. People who are dominant in Kapha attributes would tend toward fluid retention, putting on weight, and atherosclerosis. A person with kapha type hypertension would likely show improvement with a diet that is more vegetable based and low in fat. Exercise is essential for kapha types.

Atherosclerotic, Kapha type hypertension may respond to circulatory stimulating herbs such as hawthorn berries, ginkgo, guggul, and cinnamon, and

channel clearers such as turmeric. Excess fat accumulation can be reduced with lekhanas such as guggul and trikatu. Herbal diuretics to release water retention include coriander and dandelion leaf. (43) People with kapha type hypertension need stimulation that may be provided with dry massage, stimulating scents such as clove and calamus, and bright colors such as orange. (44)

***Herbs that are commonly used in Ayurvedic medicine for hypertension:***

“It is estimated that 75 to 80 % of the world population use herbal medicines, mainly in developing countries, for primary health care because of the better acceptability with the human body and lesser side effects.” (45)

**Hawthorne** has been well studied and shows strong support for its use in cardiovascular problems including congestive heart failure, shortness of breath, and fatigue. It appears to increase exercise tolerance and decrease cardiac oxygen consumption. (46). Hawthorne is shown to affect blood pressure by “smooth muscle vasorelaxation resulting from nitrous oxide stimulation, and a tonic action on cardiac myocytes.” (47) The vasorelaxant effect reduces peripheral vascular resistance. Hawthorne is also demonstrated to reduce plaque on the arterial walls and decrease the incidence of blood clots, which can lead to strokes and heart attacks. (48) Hawthorne berries “have a special action on the heart, strengthening the heart muscle and promoting longevity. They are particularly good for vata heart conditions like nervous palpitation, or the heart problems of old age (the age of vata) like cholesterol and arteriosclerosis.” (49)

**Arjuna** shows promise for a variety of cardiovascular benefits including hypotensive benefits. Arjuna’s constituents include flavonoids, which are lipid reducing and anti-

inflammatory, and glycosides, which are cardiotoxic. (50). One study revealed therapeutic potential of Arjuna using an alcohol extract on anesthetized dogs. The results concluded that Arjuna does have a hypotensive effect. (51)

**Ginko biloba** The CAM report observed that while prevention of peripheral artery disease may be possible there was no improvement in blood pressure in the selected group of older men and women studied. (52) Nevertheless there are studies that suggest it has a positive effect on circulation of the heart and has a hypotensive effect. (53)

**Cinnamon** is considered a circulatory stimulant in Ayurvedic herbal lore. There are some studies that deduce that it decreases systolic blood pressure. One such study done on rats in 2006 was based on the precept that certain agents such as glucose that affect insulin concentration sensitivity will also affect blood pressure. Apparently cinnamon has a hypotensive affect as well as a role in insulin circulation. (54). Being warm, cinnamon is best for kapha and vata but is described as a “universal medicine and is less likely to aggravate Pitta than ginger.” (55)

**Guggul** has been used in Ayurveda for thousands of years to treat many ailments including hypertension, hypercholesteremia and obesity. (56) it is especially good for reducing cholesterol in kapha types as “It improves circulation, reduces pain, removes accumulations and promotes healing.” (57) Some studies offer conflicting evidence; however, a recent report of a review of studies was conducted resulting in the conclusion that guggul appears to play a role in cholesterol metabolism. (58)

**Garlic** has been studied for its cardioprotective properties. There is substantial evidence that garlic may decrease systolic blood pressure by 10-12 mm Hg and

diastolic pressure by 6-9 mm Hg. (59) It is thought to “increase nitric oxide production resulting in smooth muscle relaxation and vasodilation.”(60) Garlic is pungent and cleanses ama from the blood and lymphatics; it is best for Vata and Kapha. It could be aggravating to Pitta, as it can “aggravate the blood and cause or aggravate bleeding.” (61). Indeed, according to the CAM study, garlic may interact with aspirin, clopidogrel, warfarin, or heparinoids to increase bleeding risk.” (62)

**Sarpagandha** (Rauwolfia serpentine) “is a strong depressant of the central nervous system. It reduces blood pressure and anxiety.” (63) “This is considered the most powerful hypotensive plant.” Reserpine, the purified alkaloid, was the first potent drug widely used for hypertension (64)

**Nervine tonics and sedatives**: There are many herbs that are used in Ayurvedic medicine that may decrease blood pressure by calming the mind and nervous system; such as, ashwaganda, valerian, and brahmi (65) Skullcap is a nervine sedative that is particularly good for Pitta, as it is said to “reduce the fiery Pitta emotions such as anger, jealousy and hatred.” (66)

### ***Ayurvedic practices to decrease blood pressure***

*Sattvic lifestyle* - According to Ayurvedic thought, lifestyle should revolve around a “Sattvic” approach. This means that contrary to the common modern lifestyle of intensity, busyness and pressure (all which stimulates the sympathetic nervous system and thus predisposes to hypertension), the senses should be soothed and commotion should be limited. People benefit from being in nature as much as possible, and from meditation and yoga practices.

*Sleep-* Good quality sleep, one of the cornerstones of Ayurveda, is essential to health. Current studies indicate that inadequate or poor quality amounts of sleep may be linked to high blood pressure, reflecting that while we sleep, the body is working to stress and the nervous system. (67)

*Scents* - Aromatic scents and essential oils have been found to soothe the senses and decrease blood pressure. This was demonstrated with the inhalation of the essential oils of lavender, ylang ylang and bergamot, per a Korean study in 2003. This study also reflected the associated decreases in pulse, cortisol, anxiety, and stress levels. (68) Vata and pitta respond to other calming scents such as rose, chamomile and lavender. Kapha needs more stimulating scents such as cloves and rosemary.

*Color-* Color also plays a part in involving the nervous system and thereby having an effect on blood pressure. Calming color like pastels are beneficial to pitta, earth colors such as green and brown help to ground vata, while kapha would require the more stimulating colors of red or bright orange.

*Massage* - Oils are best for vata and pitta; they nourish the body and mind and are nourishing to the nervous system and endocrine system. Massage with oil (abhyanga) can be done by at home as a daily practice. Kapha types will benefit from “udvartana” or dry brushing done with plant-based powders. This practice is helpful for reducing excess fat. (69) Shirodara, a practice that involves warm oil poured slowly over the forehead, has been found in one study to lower both systolic and diastolic pressures, possibly due to the body/mind connection (70).

*Meditation-* According to the CAM report, is shown in studies to decrease both systolic and diastolic blood pressure, as well as a reduction in other cardiac risks.

However, because methodology is not rigorous enough, further study is required. (71)

Another recent report of a review of studies confirmed that meditation yielded small but significant results; but again, further research is warranted. (72)

*Yoga* -A review and meta-analysis looked at a variety of current studies of yoga as a comprehensive combination of the yoga exercises, breathing techniques, and meditation. An appreciable decrease in systolic and diastolic blood pressure was observed when all these practices were considered together. Yoga exercise alone showed no improvement over regular exercise. Nevertheless, their conclusion is that “yoga can be preliminarily recommended as an effective intervention for reducing blood pressure. “ (73)

### **Conclusion**

Advances in science and western medicine offer an invaluable approach for controlling hypertension with the use of lifestyle management and medications. Medications may be implemented if an individual is unresponsive to lifestyle management or not compliant with it. Allopathic medicine may resolve symptoms and prolong lives, and lifestyle management guidelines are certainly a huge step in the right direction for developing good health. Conversely, current allopathic medicine tends to approach hypertension, and most diseases for that matter, as a condition that can be “fixed” and forgotten. Ultimately, however, medications carry their own side effects and risks, and ultimately do not “cure” hypertension. Whatever is causing the problem is likely to manifest in some disease form. Current western lifestyle guidelines, likewise, do not take into account individuality and time may tell if some of this advice may not be good for all people. Alternatively, Ayurveda aims to cure from the cause up, and with a treatment plan that is unique to each individual and addresses the uniqueness of both genetic doshic predisposition and doshic imbalance. With the advent of modern science and western influence,

Ayurveda may be experienced with a different and broader viewpoint than the ancient practice; nevertheless, what does not change is the fundamental fact that how we eat and how we live are the foundations for good physical and mental health. Ayurveda is a path that will not only help to heal a disease condition such as hypertension, but is a process of healing the whole person in body, mind, and spirit.

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