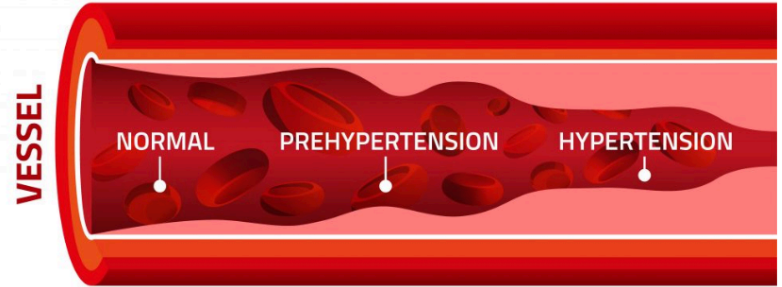


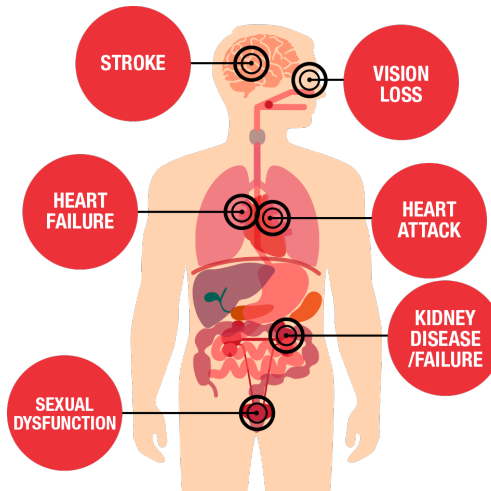
Blood pressure is a measurement of the force against the artery walls as the heart pumps blood through the body. High blood pressure (hypertension) is a condition in which the long-term force of the blood against the artery walls is consistently too high. If high blood pressure is left uncontrolled, it can cause severe damage to many organs including the heart, kidneys, brain, and blood vessels.



A blood pressure reading, given in millimeters of mercury (mm Hg), contains two numbers. The first number measures the pressure in the arteries when the heart beats (systolic pressure). The second number measures the pressure in the arteries between beats (diastolic pressure).

Blood pressure measurements fall into four categories:

- Normal blood pressure: below 120/80 mm Hg
- Elevated blood pressure: systolic pressure ranging from 120 to 129 mm Hg and a diastolic pressure below 80 mm Hg
- Stage 1 hypertension: systolic pressure ranging from 130 to 139 mm HG or a diastolic pressure ranging from 80 to 89 m HG
- Stage 2 hypertension: systolic pressure of 140 mm Hg or higher or a diastolic pressure of 90 mm Hg or higher.



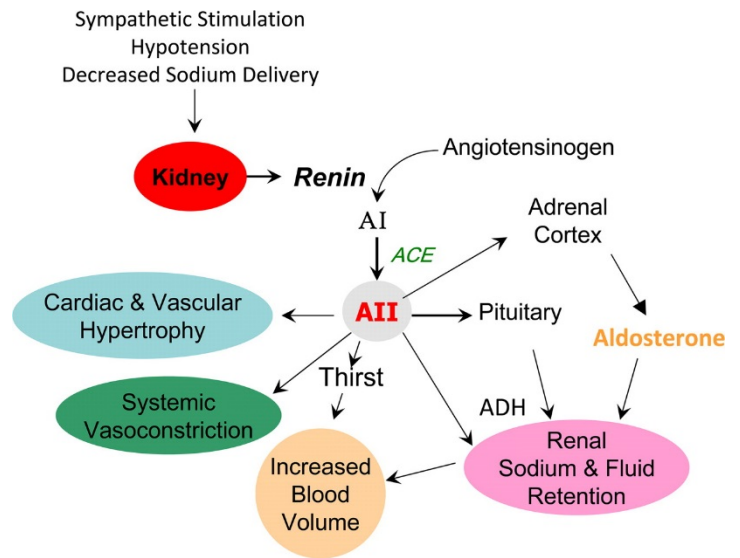
Most patients do not experience any symptoms, even if their blood pressure is dangerously high. This is why the condition can be referred to as “the silent killer.” Few may experience headaches and shortness of breath, but these typically don’t appear until high blood pressure has reached a life-threatening stage. Although there may not be prominent symptoms, high blood pressure can cause serious complications. The excessive pressure on the artery walls can damage the blood vessels as well as the organs. This can lead to complications including stroke, heart attack, aneurysm, heart failure, weakened blood vessel in the kidneys which may result in chronic kidney disease or kidney failure, metabolic syndrome, sexual dysfunction, vision loss, and memory loss.

Blood pressure is regulated through the renin-angiotensin system (RAS), or renin-angiotensin-aldosterone system (RAAS) which is a hormone system that regulates blood pressure, fluid and electrolyte balance, as well as systemic vascular resistance. The liver and kidneys play a vital role in regulating blood pressure using a hormone system.

The RAS regulates blood pressure by modulating vascular smooth muscle contractions. When blood pressure is reduced, the blood flow to the kidneys is also reduced. The reduced blood flow to the kidneys triggers the juxtaglomerular cells in the kidneys to convert pro-renin in the blood to renin which is secreted directly into circulation. Renin will catalyze the formation of angiotensin I from angiotensinogen which is synthesized by the liver. Angiotensin I is subsequently converted to angiotensin II by the angiotensin-converting enzyme (ACE) found in the lungs. The angiotensin II then binds to the receptors on the blood vessel cells. The type I angiotensin II receptor (AT1) will be become activated upon binding to angiotensin II and trigger activation of G-proteins and protein kinase to initiate the signal transduction inducing vascular smooth muscle contractions to raise blood pressure. Over activation of RAS can cause high blood pressure.

The RAAS regulates blood pressure by modulating the kidney's mineral absorption function. The angiotensin II also stimulates the secretion of aldosterone from the adrenal gland to increase the reabsorption of sodium and water into the blood by the kidneys, while at the same time excreting potassium, to maintain electrolyte balance. This increases the volume of extracellular fluid in the body as well as the blood pressure. Overactivation of RAAS can cause high blood pressure

There are two types of high blood pressure. The first is called primary hypertension that tends to develop gradually over time. The second is referred to as secondary hypertension and tends to appear suddenly. Various conditions and medications can lead to secondary hypertension.



Many liver conditions can affect blood pressure due to their overactivation of RAS and RAAS. Fatty liver disease and diabetes stimulate the hepatic expression of RAS components such as ACE and angiotensin receptors. The increased levels of renin, ACE, and angiotensin receptor levels and increased sensitivity of AT1 signal transduction pathway to angiotensin II and cause over activated RAS and RAAS resulting in the development of high blood pressure.

High blood pressure may also be caused by vascular hypersensitivity due to hyperactive Angiotensin II Receptors transduction pathway. The stimulants such as renin, ACE or angiotensin II might be normal. However, the vascular system will overly respond to the stimulants with increased levels of vasoconstriction due to over response of AT1 signal transduction pathway. Patients with liver conditions often also have vascular hypersensitivity.

Atherosclerosis is a condition involving the narrowing of the blood vessels due to the build-up of fats, cholesterol, and other substances on the artery walls. Atherosclerosis usually develops from the lower part of the body and progress upward. The narrowed renal arteries can lead to declined kidney function and/or structure. The resulting reduced blood flow to the kidneys causes an excess amount of renin production, which raises blood pressure. Patients usually develop renal atherosclerosis, nephrosclerosis, with high blood pressure before having heart atherosclerosis. The time frame is usually 5 years.

Chronic kidney disease can also cause reduced blood flow to the kidneys resulting in overproduction of renin and aldosterone. More importantly, the poor kidney function can also cause retention of water and salt leading to high blood pressure.

Pulmonary hypertension occurs due to pathologic vasoconstriction of the blood vessels in the lungs causing a narrowing of the blood vessels. This causes poor blood circulation in the lungs with less oxygen in the blood. The narrowing of the lung's blood vessels can be caused by blood clots, blood vessel obstruction, increased vasoconstriction, lung infections, as well as emphysema or pulmonary fibrosis. Difficulty breathing and fatigue are the main symptoms. Patients may also have symptoms coughing, ear pounding sound and upper body pressure sensation. Pulmonary hypertension can lead to portal vein congestion leading to enlarged spleen and liver, pleural effusion and ascites. Patients may take diuretics such as Lasix to get rid of ankle swelling by pushing the kidney to expel more water. However, diuretics do not help breathing and long-term can cause kidney damage.

Wellness Recommendation

The wellness recommendation depends upon the cause of high blood pressure. From a TCM standpoint, this can be broken into three categories, Liver Deficiency/Liver Wind, Heart Blood Stasis, and Kidney Deficiency.

Liver Deficiency and Liver Wind

Liver Deficiency, in TCM, is referred to as poor liver function or liver injury due to poor support to the liver health or conditions such as fatty liver or diabetes. Overreaction to the stimulant with increased vasoconstriction or vascular hypersensitivity is referred to as Liver Wind in TCM. Liver Wind often co-exists with a Liver Deficiency. For patients with high blood pressure due to a Liver Deficiency and Liver Wind, the recommendation includes Brown, LC Balancer, and Breez. Brown, a Liver Yin nurturing product, helps enhance the function and structure of the liver to down-regulate RAS expression. Key herbal ingredients in Brown have been shown to have anti-hypertensive effects through increasing vasodilation and regional blood flow.¹ LC Balancer, a Kidney Yin product, enhances systemic microcirculation and increases nutrient absorption. Herbal ingredients in LC Balancer have been shown to be a good source of hypotensive peptides as well inhibitory effects against ACE.² Breeze clears Liver Wind to reduce vascular hypersensitivity and the over response of AT1 signal transduction pathway. Patients can experience improvement in their blood pressure in 3 days. 2-6 weeks of treatment is required for significant and sustained improvement. The treatment can help patients to significantly reduce or eliminate the use of blood pressure medications while maintaining normal blood pressure.

Atherosclerosis – Blood Stasis

Atherosclerotic plaque in the arteries is referred to as Heart Blood Stasis in TCM. The recommendation includes CV, B2 and Qi Booster or Vigorall. CV reduces blood vessel restriction, removes the atherosclerotic plaque, and repairs artery damage. Herbal ingredients used in CV Formula have the ability to inhibit oxidative stress to prevent low-density lipoprotein from oxidation and disrupt adhesion molecules. This, in turn, reduces atherosclerotic areas as well as decreases levels of pro-inflammatory cytokines to decrease the susceptibility of plaque formation.³ B-2 and Qi Booster or Vigorall helps clear the waste from the plaque break down. As the blood vessel narrowing is resolved and blood flow resumes, the over-activated RAAS will settle to normal. Patients can experience improved blood pressure in 1-2 weeks. 4-6 weeks of treatment is required to have significant and sustained improvement. Patients who have atherosclerosis often also have Liver Deficiency and Liver Wind.

Kidney Deficiency

In high blood pressure patients with a kidney deficiency such as chronic kidney disease, the retention of fluid and minerals due to poor kidney filtration play a significant role. High blood pressure patients with Kidney Deficiencies usually do not respond well to blood pressure medications that belong to ACE inhibitors and angiotensin receptor antagonists. They are usually prescribed with calcium channel blockers to reduce mineral absorption and lower blood pressure.

The recommendation to address Kidney Yin and Yang Deficiencies includes LC Balancer, Xcel and KS. LC Balancer and Xcel nurture the kidneys and helps repair kidney damage and enhance its filtration function for fluid and mineral secretion to reduce blood pressure. Herbal ingredients in Xcel have been shown to support the cells of the adrenal cortex, alleviate renal damage by increasing the number of glomerular endothelial and mesangial cells as well as by reducing collagen fibers.⁴ KS removes kidney heat and helps reduce kidney inflammation through promoting diuresis as well as inhibiting pathogenic bacteria, such as Staph. aureus. Patients can experience improved blood pressure with 1-2 weeks. 4-6 weeks is required to have significant improvement.

Patients with chronic kidney disease (CKD) or kidney failure due to severe kidney deficiency may have uncontrollable high blood pressure even with the use of 4 or 5 different blood pressure medications. Additional formulas including Anemic and Formula C are required. Anemic nurtures blood and helps improve anemia. Formula C nurtures connective tissue and helps rebuild kidney structure. Herbal ingredients in Formula C have been shown to accelerate the growth of healthy tissues and boosts the structure and function of cellular membranes.⁵ The combined treatment also helps improve kidney filtration and secretion of excessive water and salt. Patients can experience improved blood pressure with 2-4 weeks. 6 weeks to 3 months of treatment is required for significant improvement with sustained results. The treatment can help patients to improve their blood pressure into the normal range with significantly reduced use of blood pressure medications.

If patients also have atherosclerosis or nephrosclerosis, CV is also recommended. If the high blood pressure persists, Breez is also required to clear Liver Wind and reduce vasoconstriction.

Pulmonary Hypertension

Mild or moderate CHF in the right side and pulmonary hypertension can improve by itself after the lung scarring and the restriction to the lung's blood vessels are addressed. However, for patients with a more severe condition, may not experience breathing improvement unless the CHF is addressed. Java is recommended to improve the right-side CHF by enhancing lymphatic circulation to lower the burden on the heart and improve patients' breathing. Patients should experience improvement in their breathing and water retention in 1-2 weeks with Java in combination with Soup A, Soup B and LC Balancer. 2-4 weeks or longer periods of treatment may be required depending on the severity of the condition for significant improvement.

Pulmonary hypertension can also occur as an independent condition caused by pathologic vasoconstriction of the blood vessels in the lungs with a narrowing of the blood vessels due to blood clot formation and lung infections. This causes poor blood circulation in the lungs with less oxygen in the blood.

If the patients' condition is caused by vasoconstriction, blood clot formation, or blood vessel obstruction, Respanin is recommended to enhance Lung Yang and remove Lung Blood Stagnation to increase the contraction of the lung arteries and reduce the resistance of blood flow. Respanin helps improve blood circulation of the lungs to lower the lung's blood pressure. Breez is recommended to clear Liver Wind and decrease vasocontraction to relieve the constriction of the lung's blood vessels to lower the lung's blood pressure. Patients can experience symptom improvement in 1 week. 4-6 weeks of treatment is required for significant improvement.

Patients who have a known parasite infection or are not seeing symptom improvement, Pulmin is recommended. Pulmin moistens the lungs and respiratory tract and clears parasite infections in the lungs and the respiratory tract. Respanin also helps clear the toxins and clear parasite "die off" symptoms. Patients can experience symptom improvement in 3 days, and 3-4 weeks of treatment is required for significant improvement and sustained results.

Condition	Products
Liver Deficiency / Liver Wind	Brown, LC Balancer, Breez
Atherosclerosis / Heart Blood Stasis	CV, B-2, Qi Booster/Vigorall
Kidney Deficiency	LC Balancer, Xcel, KS CKD - add in Anemic and Formula C
Pulmonary Hypertension	Soup A, Soup B, LC Balancer, Java, Breez, Respanin If needed: Pulmin

Selected Case Studies

Case 1: Increased Kidney Function and Normalized Blood Pressure in CKD Patient

Dr. Charles Lewis, ND, AR

A 75-year-old male patient presented with frequent urination, joint aches, low energy, lower extremity edema, anemia, and high blood pressure of 159/81. The patient had a history of bladder infections stemming from the Vietnam War. He had been diagnosed with retinitis pigmentosa, congestive heart failure with 2 previous carotid surgeries on the right side, and stage 4 chronic kidney disease. Bloodwork on September 18th, 2017 showed GFR at 19, calcium at 9.8, BUN at 68 and creatinine at 3.02. The primary care physician was addressing his conditions through 3 blood pressure medications (metolazone, metoprolol, amlodipine), 4 urinary retention medications (furosemide, terazosin, tamsulosin, finasteride), and a statin (lipitor) for his heart. The patient was likely soon going to be recommended dialysis and was looking for a solution to enhance his quality of life.

On Oct. 26th, 2017, the patient started on 4 bottles of LC Balancer, Xcel, KS, Formula C, Anemic, and CV at full dose. LC Balancer, Xcel, KS and Formula C were added to increase microcirculation, restore kidney filtration capability, reduce kidney inflammation, and help repair the kidney structure which then leads to improved function. Anemic formula helps improve red blood cells production while CV was added to remove plague and repair artery

damage. Within one month, the patient had reported having higher energy levels. The patient did lose some weight, but Dr. Lewis suspected the initial weight loss could be due to improved kidney function and its ability to filter out waste better.

The patient continued on 3 more months of the same protocol. On February 28th, 2018, the patient reported having the best sleep he has had in a long time. He had been experiencing pain with the left hip due to the cold and damp weather and Dr. Lewis suggested 6 Large White patches to help provide blood flow and increased nutrient supply to the area. On March 1st, 2018, Blood work showed increased GFR at 29, decreased calcium at 9.2, decreased BUN at 50.14 and decreased creatinine at 2.18. His blood pressure was also measured in the normal range at 108/63. He also reported gaining 4 lbs. Due to these improvements, Dr. Lewis suggested the patient be on 2/3 dose starting April and the patient is looking forward to checking in with his primary care physician in hopes of remove or lowering his blood pressure medications.

	9-18-2017	3-1-2018
GFR (above 60) *	19	29
Calcium (8.5 - 9.5) *	9.8	9.2
BUN (7 - 20) *	68	50.14
Creatinine (0.5 - 1.1) *	3.02	2.18
Blood Pressure (120/80) *	159/81	108/63

* normal range

Case 2: Reduction of Blood Pressure and Weight Loss of CKD Patient

Ela Corcoran, Homeopath, CA

A 54-year-old female presented with Stage 4 Chronic Kidney Disease. Her kidney function has been steadily declining for the last 12 years under her primary care physician. As of February, of 2018, her GFR was 27, Serum Creatinine was 2.04 mg/dL and BUN was 28 mg/dL (normal range GFR >90, Serum Creatinine 0.6 - 1.1 mg/dL, BUN 7-20 mg/dL). The patient had anemia with hemoglobin values of 11.9 g/dL (normal range 12.0 - 15.5 g/dL) and had been on iron tablets and vitamin D. The patient was once on 5 different blood pressure medication, currently on 3 blood pressure medications, but still suffered from high blood pressure, 160/80 mmHg (normal 120/80 mmHg). She was overweight at 198lbs, 5 feet 3 inches tall. Her main symptoms involved feeling fatigued and often felt she had no energy.

The patient sought out Ela in hopes of a better solution. Ela advised the patient to make lifestyle and dietary changes such as eliminating red meat, soda, and sweets in addition to some supplements to help improve her digestion. She was also put on Wei products to help improve her kidney structure and function which consisted of LC Balancer, Xcel, KS and Formula C at full dosage and Anemic formula at one-fourth dosage.

Within 2 weeks of the programs, the patient reported that she was feeling less fatigue and had a surge of energy. On March 1st, 2018, the patient reported that her blood pressure was around 112/68 mmHg and 109/62 mmHg. This was very surprising to her and her cardiologist because it had been such a long time since she had normal blood pressure and was suggested to keep on the program. Due to this, her cardiologist took her off of one blood pressure medication as she no longer needed it. The new dietary changes also helped the patient lose 19 lbs. during the first month.

The patient is very happy with her results is currently continuing her second month. She is due for another blood work to see what the progress has been.

Case 3: Successful Resolution of High Blood Pressure and Gout as Complications of Kidney Failure

Dr. Robert Caruso, DC, HI

A 58M patient was diagnosed with kidney failure 10-15 years ago. His kidney problem started at 6 years old when his urethra was blocked and the urine refluxed to the kidneys which drowned the kidneys and caused inflammation.

His blood pressure was out of control at 176/107 without medication and 152/94 with Lostarden. He also frequently experienced gout attacks and was on Allopurinol. There were a lot of bubbles in his urine due to a high amount of protein in the urine. Exercise made him gain weight due to increased retention of more liquid. He could not go back to sleep after urinating.

A recommendation with LC Balancer, Xcel, Formula C, KS and Anemic Formula was utilized. After using 2 weeks of the protocol, he stopped his blood pressure meds and his BP stayed at 130/80 and sometimes 123/78. He stopped his gout med Allopurinol, and has not seen a gout attack yet. He has also lost weight from 230-225lbs to 210-208lbs.

After 1 month, he felt not as drained and less fatigued. His RBC went from 4.8 to 5.2. Usually, if he did some strenuous thing, the next day he would be very tired. Now, he no longer experienced that. His proteinuria also decreased. His blood pressure regulated without any meds.

After 3 months, his liver feels less toxic and overall, he feels much better and is in very good shape. The patient said even though not 100% yet, he is finally out of hell. Right now, the patient is under parasite and mycobacteria treatment to address the original cause of his kidney condition.

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