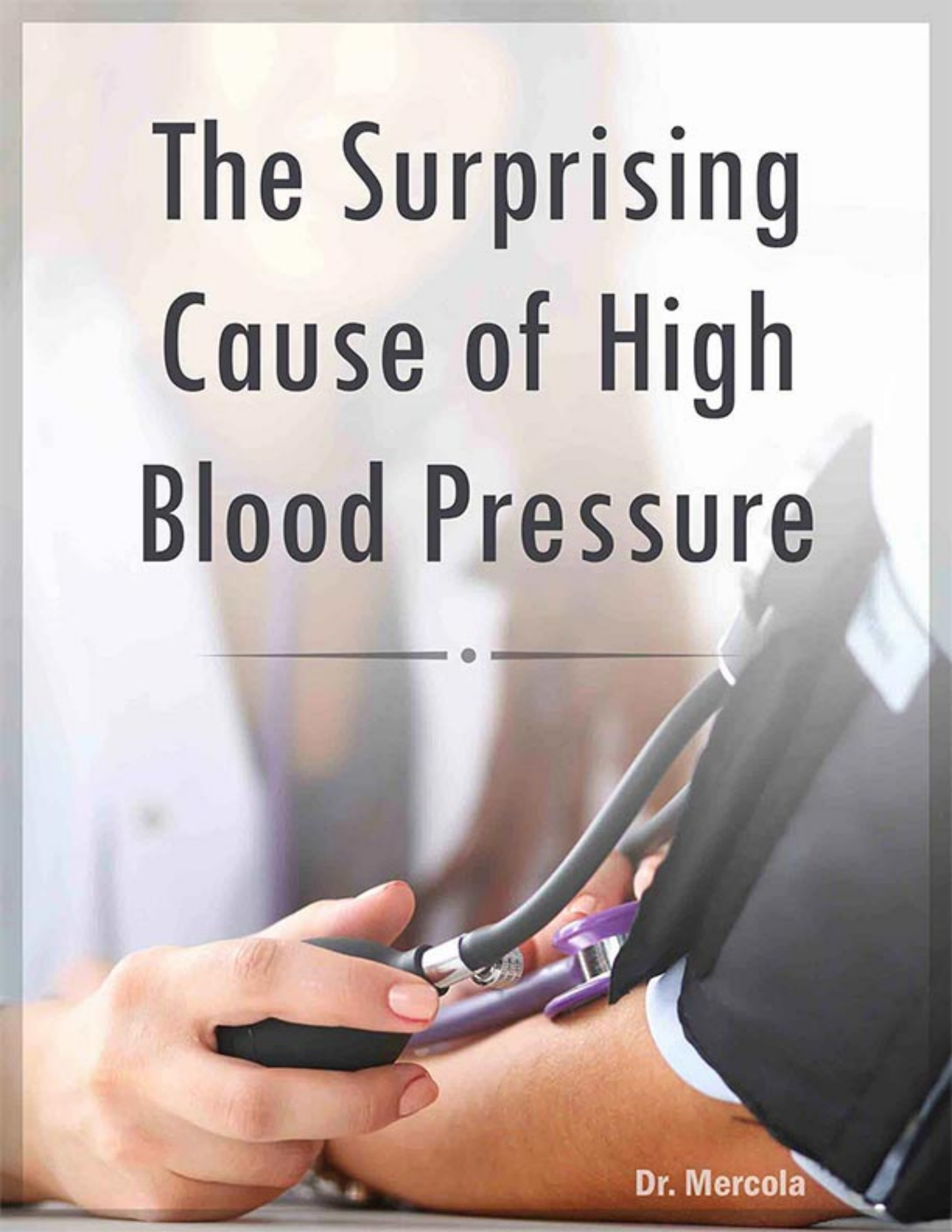
The Surprising Cause of High Blood Pressure



Dr. Mercola

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The Surprising Cause of High Blood Pressure (Hypertension)

If you are not already among the 1 in 3 adults with high blood pressure in the U.S. — or about 75 million people[1] — the odds are that without intervention, you will have high blood pressure at some point in your life.

In fact, if you're middle-aged (55 to 65), the risk of becoming hypertensive over your lifetime is about 90 percent,[2] and statistics show that 64.9 percent of adults in the U.S. age 60 and over do have high blood pressure.[3] Also, when you become hypertensive, statistics also show that there is a 50 percent chance that you'll be among those with uncontrolled high blood pressure, which increases your risk for a number of serious health problems, including:[4]

- Heart disease
- Stroke
- Kidney disease
- Vision problems
- Cognitive decline and dementia

The medical term for high blood pressure is hypertension. Unfortunately, many confuse this word as being related to feelings of anxiety or nervous tension. While such feelings certainly can cause high blood pressure in some people, anxiety is not the only cause of this condition.

In reality, a number of other factors have been identified as contributing to high blood pressure, including, but not limited to:

- **Insulin and leptin resistance**. As your insulin and leptin levels rise, it causes your blood pressure to increase[5,6]
- **Metabolic syndrome**. Identified as a group of risk factors that put you at risk for heart disease, diabetes and stroke,[7] metabolic syndrome is now also recognized as a contributor to high blood pressure[8]

- **Elevated uric acid levels** are also significantly associated with hypertension,[9] so any program adopted to address high blood pressure needs to normalize your uric acid level as well
- **Poor nutrition in childhood** has been shown to raise the risk of high blood pressure in adulthood[10]
- **Lead exposure**[11]
- **Pollution**. Air pollution affects blood pressure by causing inflammation, while noise pollution asserts an effect via your nervous and hormonal systems. Air pollution has been shown to increase your risk of high blood pressure to the same degree as having a body mass index (BMI) of 25 to 30.[12]

  Living in an environment plagued by constant noise pollution can also raise blood pressure[13]

With all of these factors playing in to your everyday life, it's no surprise that hypertension is on the rise. What may be surprising, however, is how easily you can control one of the major contributors to high blood pressure — insulin and leptin resistance — through diet alone.

The Importance of Diet and Insulin Sensitivity

Groundbreaking research published in 2001 in the journal Hypertension, featuring a prospective cohort study of 12,550 adults, reported the development of diabetes was almost 2.5 times as likely in persons with hypertension.[14] A few years earlier, a 1998 article in the same journal showed that 58 percent of study subjects with hypertension were also insulin resistant.[15]

This crucial connection between insulin resistance and hypertension is yet another example of how wide-ranging the debilitating effects of high insulin, leptin and blood glucose levels can be on your body.

The bottom line is if you have hypertension, chances are you also have poorly controlled blood sugar levels. And if your hypertension is the direct result of an out-of-control blood sugar level, then getting your blood sugars normalized will also bring your blood pressure readings into a healthy range.

The Sugar Connection

Research now shows that consuming excessive fructose (sugar) can not only cause metabolic syndrome — a precursor of diabetes — but also lead to an increase in blood pressure of about 7 mmHg/5 mmHg,[16] which is greater than what is typically seen with sodium (4 mmHg/2 mmHg). And in fact, a study in the journal Open Heart argues that sugar consumption may be more directly associated with high blood pressure than sodium.[17]

One of the primary sources of excess sugar in your diet (as well as sodium) is processed food. According to SugarScience.org, added sugars hide in 74 percent of processed foods under more than 60 different names![18]

When you consider that Americans consume 66 pounds of added sugar each year, it's easy to understand why, as your insulin and leptin levels rise, your blood pressure increases and, besides having high blood pressure, you may eventually become insulin and/or leptin resistant.

How Magnesium Figures Into the Sugar Connection and Insulin Resistance

Magnesium is a mineral important to the health of every cell and organ in your body, especially your heart, kidneys and muscles. Symptoms of a magnesium deficiency include unexplained fatigue or muscle weakness, abnormal heart rhythms, eye twitches and muscle spasms.

Magnesium has a direct effect on the relaxation of vascular smooth muscle and the regulation of ions important to blood pressure control, and a meta-analysis done at the Indiana University School of Medicine Strategic Research Initiative shows a direct link between magnesium deficiency and hypertension.[19]

Insulin stores magnesium, but if your insulin receptors are blunted and your cells grow resistant to insulin, you can't store magnesium, so it passes out of your body through urination. Since magnesium stored in your cells relaxes muscles, if your magnesium level is too low, your blood vessels will be unable to fully relax, and this constriction raises your blood pressure.

Fructose also elevates uric acid, which drives up your blood pressure by inhibiting the nitric oxide in your blood vessels. (Uric acid is a byproduct of fructose metabolism. In fact, fructose typically generates uric acid within minutes of ingestion.)

Nitric oxide helps your vessels maintain their elasticity, so nitric oxide suppression leads to increases in blood pressure. Therefore, any program adapted to address high blood pressure needs to eliminate added sugars in your diet, to help normalize both your insulin/leptin sensitivity and uric acid level, as well as your magnesium levels.

Healthy Blood Pressure Is Within Your Control

Uncontrolled high blood pressure is a very serious health concern. It is especially dangerous because hypertension often has no warning signs or symptoms.

The sad reality is half of people taking multiple medications for high blood pressure are still not able to manage their condition, often because they don't take their medications as prescribed.[20,21]

The great news is that if you have hypertension or hope to avoid it, there are simple lifestyle steps you can take to balance your blood pressure, glucose, leptin and insulin levels — all at the same time — without harmful and/or ineffective medications.

I'll detail those steps later in this report.

But first, a little background information about the importance of your blood pressure to your health.

What Do the Numbers Mean?

If you've ever had your blood pressure taken, you know that there are two numbers given in a blood pressure reading. The upper or first number is your systolic blood pressure reading. The lower or second number is your diastolic pressure.

For example, a blood pressure reading of 120 over 80 (120/80) means you have a systolic arterial pressure of 120 and a diastolic arterial pressure of 80.

Your systolic pressure is the highest pressure in your arteries. It occurs when your ventricles contract at the beginning of your cardiac cycle. Diastolic pressure refers to the lowest arterial pressure, and occurs during the resting phase of your cardiac cycle. Ideally, your blood pressure should be about 120/80 without medication.

If you're over the age of 60, your systolic pressure is the most important cardiovascular risk factor. If you're under 60 and have no other major risk factors for cardiovascular disease, your diastolic pressure is believed to be a more important risk factor.[22]

So what is the ideal blood pressure for you?

According to guidelines issued by the Joint National Committee (JNC) on Prevention, Detection, Evaluation and Treatment of High Blood Pressure,[23] the following blood pressure classifications are used to determine whether you might suffer from hypertension:[24]

Blood Pressure Classification	Systolic Pressure (mmHg)	Diastolic Pressure (mmHg)
Normal	<120	<80
Pre-hypertension	120 - 139	80 - 89

Stage 1 Hypertension	140 - 159	90 - 99
Stage 2 Hypertension	≥160	≥100

These guidelines also include the following recommendations for specific groups of people:[25]

- Adults ages 30 to 59 with high blood pressure should aim for a target reading of under 140/90 or under
- Adults with diabetes or chronic kidney disease should aim for a target reading of under 140/90 or under
- Adults age 60 and older should aim for a target reading of under 150/90

In late 2016, the American College of Physicians (ACP) and the American Academy of Family Physicians (AAFP) broke from these guidelines and recommended looser numbers for the treatment of those age 60 and over:[26]

- Adults age 60 and older with high blood pressure should aim for a target systolic reading of less than 150 mm/Hg
- Adults age 60 or older with a history of stroke or transient ischemic attack should aim for a systolic pressure of less than 140
- Adults age 60 or older at higher cardiovascular risk, based on individualized assessment, should aim for a systolic reading of less than 140 mm/Hg

Getting an Accurate Blood Pressure Reading

Your blood pressure readings can vary significantly from day to day — even from morning to evening, and often within the same hour. It is when your blood pressure remains consistently elevated that significant health problems can occur.

It's important to remember that there are several variables that can affect the validity of your blood pressure reading. For example:

- ✓ **If you're overweight, a size "average" blood pressure cuff can lead to a falsely elevated blood pressure reading.** Estimates indicate that 8 to 10 percent of overweight and obese patients are wrongly diagnosed as hypertensive due to ill-fitting blood pressure cuffs.[27] Since two-thirds of Americans are overweight, this is a significant concern. You should make sure your doctor or health care professional is using the right size cuff for your size.

- ✓ **Arm and body position.** If your blood pressure is taken while your arm is parallel to your body, your systolic reading can be as much as 10 mm/Hg higher than it really is. Unless your health care provider is using a wrist monitor, which requires that your wrist be placed over your heart, blood pressure readings should always be taken with your arm at a right angle to your body. Your arm also needs to be supported: A dangling arm, or one held up by the patient her/himself, can cause an increase in systolic pressure of 10 mm/Hg.

  Lack of back support, crossed legs, tight clothing pushed up on the cuffed arm and even the need to urinate can also give a falsely high systolic reading.[28]

- ✓ "**White coat hypertension,"** which is an elevation in blood pressure caused by the stress or fear associated with visits to doctors and other medical personnel, can be a transient but serious concern.[29] Stress reduction in this situation is key.

But guess what happens all-too-often when a patient receives just a single elevated reading in a doctor's office? That patient is likely diagnosed as hypertensive and a prescription is written — and a vicious cycle of blood pressure monitoring and medication adjusting begins.

Statistics support this claim: A study in JAMA says that "overestimating true blood pressure by 5 mm/Hg would lead to inappropriate treatment with hypertensive medications in almost 30 million Americans."[30]

Along with that overdiagnosis and treatment would also come possible adverse drug reactions, not to mention the financial burden of "treating" something you don't really have.

So, if this happens to you, be very careful. It is important to have at least three elevated readings, properly measured, over a few weeks before you can truly be diagnosed with high blood pressure. The exception would be hypertensive crisis,[31] which is very elevated blood

pressure that occurs in certain situations such as heart or kidney failure, and which could increase your risk for stroke — that situation should be treated without waiting.

Hypertension: When Your Blood Pressure Is Too High

According to medical physiology textbooks, as much as 95 percent of hypertension is called essential hypertension, meaning the underlying cause is unknown. From my perspective, this simply isn't true. As mentioned in the introduction to this special report, a number of factors have been identified as contributing to high blood pressure.

In addition to those already listed, other triggers that can cause high blood pressure include:[32]

- Alcohol use
- Sodium intake
- Smoking
- Lack of physical activity
- Psychosocial stress
- Obesity

Additionally, sleep apnea and other sleep disorders can cause a rise in blood pressure,[33] so it's important to address any sleep issues you have as part of your strategy to normalize your blood pressure.

I can't stress enough, however, the important relationship between the level of insulin in your body and your blood pressure readings. Remember: As your insulin level elevates, so does your blood pressure.

Keeping your insulin level in the healthy range is therefore of paramount importance to good blood pressure readings. Efforts to control your insulin and leptin levels can also help address the other hypertension triggers, such as lack of physical exercise and obesity.

Blood Pressure and Big Pharma

It's important to understand that national guidelines for what constitutes high blood pressure or hypertension (HTN) and how it's treated are heavily influenced by drug companies. In fact, the two lead authors of the 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults for the Eighth Joint National Committee (JNC) have a long list of affiliations with pharmaceutical companies that make blood pressure drugs.[34]

There are dozens of different medications in 10 different classes of drugs to treat blood pressure, and it's important to note that the JNC's reports are remarkable for its heavy emphasis on drugs — more often than not, multiple drugs — for treating hypertension. Ace inhibitors, angiotensin receptor blockers (ARBs), beta blockers and calcium channel blockers are all listed as first lines of therapy in the guidelines,[35] with the total recommended drug classes being:[36]

Diuretics: increase urination, which reduces sodium and fluid in the body	**Beta Blockers**: work directly on the heart to reduce heart rate and force of pumping	**ACE Inhibitors**: decrease production of the hormone angiotensin, which reduces blood pressure	**Angiotensin II Receptor Blockers**: prevent angiotensin from binding to receptors in blood vessels, which lowers blood pressure	**Calcium Channel Blockers**: increase the strength and force of contractions in the heart, thus relaxing blood vessels and reducing heart rate
Alpha Blockers: dilate blood vessels, thereby lowering blood pressure	**Alpha-2 Receptor Agonists**: work on the central nervous system to lower blood pressure	**Central Agonists**: work directly in the central nervous system rather than the cardiovascular system	**Peripheral Adrenergic Inhibitors**: work in the brain to block signals telling blood vessels to constrict	**Vasodilators**: relax artery wall muscles (usually prescribed only for very high blood pressure, together with other drugs)

The drugs your doctor prescribes for you depend on a number of different factors, including whether you have a chronic kidney condition, heart failure or diabetes.

Unfortunately, alternative recommendations for prevention and treatment of high blood pressure are barely mentioned, with insulin resistance not mentioned at all, in the JNC's reports. While Cleveland Clinic, ranked No. 1 in the nation for heart care,[37] does note that insulin resistance and insulin levels can lead to hypertension, it still doesn't offer ideas for addressing insulin resistance specifically to lower blood pressure.

In line with the JNC, the Clinic's approach also concentrates on drug therapy and basic diet changes.[38]

The confounder here is that, despite years of intensive drug therapy on millions of patients, the number of people with high blood pressure has now reached 1 billion worldwide, and the global hypertension drug market is projected to be $32 billion a year by the end of 2020.[39] In the last 25 years alone, people with systolic pressure of 140 or more grew by 18 percent, while deaths due to high blood pressure increased by 51 percent.[40] It's obvious that all this drug treatment simply isn't working.

Prescription Drugs Are Not Your Best Choice

It should come as no surprise that the majority of conventional physicians apply a cookbook model to treating hypertension, rather than treating the individual patient and addressing the underlying causes, which have far more to do with lifestyle choices than unavoidable aging.

High blood pressure is in fact an easily treated condition, but one that can cause serious damage if it's ignored.

As previously noted, drugs have not solved most people's blood pressure problems — primarily because in most cases, drugs are not the answer to this problem. Yet, with a seemingly endless supply of drugs and drug combinations available with the flick of a pen across a prescription

pad, many doctors choose pharmaceutical interventions as opposed to taking the time to sit down with you and discuss diet, exercise and insulin and leptin levels with you.

When it comes to stress, the connection between stress and high blood pressure is proven. Unresolved stress issues are at least as significant to your health as poor diet and lack of exercise. So, how is it that the Joint National Committee fails to so much as suggest stress management as part of lifestyle modification?

Again, most doctors' answer to stress problems is to turn to drugs and add a prescription or two for antidepressants or even antipsychotics to your blood pressure drug regimen, even though some studies show that antidepressants actually may add to your heart problems![41,42]

Blood Pressure Guidelines Are Designed to Create New Patients and More Prescriptions

Up until the JNC changed its guidelines in 2003, a blood pressure reading of 120/80 was considered normal. But with the 2003 changes, which were updated again in 2013, you were now "normal" only if your blood pressure is **below** 120/80. And with these changes, 45 million Americans "suddenly" had high blood pressure and were potential consumers of anti-hypertensive drugs. This, despite the fact that there was absolutely no evidence that these new, overnight blood pressure drug candidates were at risk for chronic high blood pressure.

Normalize Your Blood Pressure Naturally, for Life

The remainder of this special report will show you how to normalize your blood pressure for the rest of your life **without dangerous drugs**.

The following information not only will help you bring your blood pressure under control, but will optimize your overall health and the quality of your life in countless other exciting ways. You'll read about the importance of:

- ✓ Eliminating two types of foods that are poison for most people, but especially if you have high blood pressure
- ✓ Addressing insulin and leptin resistance

- ✓ Balancing the omega fats in your diet
- ✓ Normalizing your weight
- ✓ Managing your emotional life
- ✓ Drugging yourself with exercise
- ✓ Appropriate sun exposure
- ✓ Experimenting with supplements and other alternative tips for improving your blood pressure

Eliminate Grains and Sugars From Your Diet Right Now

If you are like most people with hypertension, you have insulin receptors that don't work efficiently. This is a condition called insulin resistance (IR). To compensate, your body generates more insulin.

One of the most important dietary changes needed to improve high blood pressure is to eliminate or dramatically reduce sugar and processed fructose from your diet. The easiest way to do that is to replace processed foods with real, whole foods. This will address not only insulin and leptin resistance, but also elevated uric acid levels.

Eating sugars and grains — including any type of bread, pasta, corn, potatoes or rice — will cause your insulin levels to remain elevated. And since insulin stores magnesium, your insulin receptors can't work properly and subsequently passes the magnesium out of your body in your urine, as opposed to going to your cells.

Magnesium stored in your cells relaxes muscles; if your magnesium level is too low, your blood vessels will constrict rather than relax, which will raise your blood pressure and decrease your energy level.

Insulin also affects your blood pressure by causing your body to retain sodium. Sodium retention causes fluid retention, which in turn causes high blood pressure, and can ultimately lead to congestive heart failure.

It's important to note that high sugar diets are a significant risk factor for cardiovascular disease not only in adults, but children as well.[43] For American adults, who consume as much as 25 percent or more of their total daily calories in added sugars, high levels of fructose in your diet may predispose you to fast-onset hypertension,[44,45] and regular consumption of sugar-sweetened beverages is associated with earlier death from cardiovascular disease.[46]

It's clear that eliminating sugars from your diet should be your No. 1 priority, whether you're getting those sugars from processed foods, in sugar-sweetened beverages or by adding them to your foods and drinks yourself. When you eliminate or sharply reduce starches and grains as well, you are on your way to achieving a healthy level of insulin in your bloodstream.

Again, the role insulin plays in high blood pressure cannot be overstated. Elevated insulin levels are very toxic and can lead to devastating consequences to your health — including your blood pressure.

Other Dietary Considerations

1. **Eat real food**. A processed food diet, loaded with net carbohydrates (non-fiber carbs like sugar, fructose and grains) and trans fats (margarines and vegetable oils) is a recipe for hypertension. Instead, make whole, ideally organic foods the focus of your diet.

   Also, remember to swap non-fiber carbs for healthy fats such as avocados, butter made from raw, grass-fed organic milk, organic pastured egg yolks, coconuts and coconut oil, raw nuts such as pecans and macadamia, grass-fed meats and pasture-raised poultry.

   My Optimal Nutrition Plan will turn your health around with my own Healthy Food Pyramid, which limits grain and sugar intake and promotes healthy saturated fats. This Nutrition Plan is divided into two levels: beginners and those who are looking for extensive measures to promote health and healing.

2. **Normalize your omega 6-to-3 ratio**. Omega-3 is vital for healthy blood pressure. Findings from a study of 2,000 healthy men and women between the ages of 25 and 41 showed that those with the highest serum levels of omega-3 also had the lowest blood pressure readings.

Both omega-3 and omega-6 fats are essential for your health. Most Americans, however, are getting too much omega-6 in their diets and far too little omega-3. Consuming omega-3 fats is one of the best ways to re-sensitize your insulin receptors if you suffer from insulin resistance. It is also vital for healthy blood pressure.

You can obtain omega-3 fats from both plants and marine animals like fish and krill, but it's really important to realize that these sources provide very different types of omega-3, and they are NOT interchangeable. You absolutely need animal-based omega-3, and you simply cannot obtain all you need from plants.

3. **Mind your sodium-to-potassium ratio.** The key here is managing your diet as a whole, rather than concentrating on simply reducing your sodium (salt) intake. This means avoiding processed foods of all kinds because they often have high levels of hidden sodium in them, and switching to whole foods.

   Most people actually need more potassium, calcium and magnesium to balance their sodium intake, which then will help maintain a proper sodium-to-potassium ratio.

4. **Load up on veggies**. Juicing is a simple way to increase the amount of vegetables in your diet. Beets, kale, celery, spinach and carrots are all excellent for this purpose. Adding allicin-rich garlic, leeks, shallots and chives also will help improve your blood pressure, and are easy to add to your salads and side dishes.
5. **Lower your uric acid levels**. You can do this naturally by eliminating sugars (fructose) from your diet, limiting alcohol, staying hydrated and eating modest portions of inflammation-fighting foods like pineapple, cherries, blueberries and strawberries. Tart cherry juice and apple cider vinegar can also fight inflammation while lowering your body's uric acid levels.
6. **Some people may need to eliminate caffeine**. The connection between coffee consumption and high blood pressure is not well understood, but there is ample evidence to indicate that if you have hypertension, coffee and other caffeinated drinks and foods may exacerbate your condition.

Normalize Your Weight

If you are overweight, have diabetes, already have high blood pressure or are at risk for developing hypertension, it's crucial to your health and longevity that you normalize your weight.

Long-established studies show that even a modest weight loss, when maintained, can reduce blood pressure long-term.[47] The key is to keep the weight off because your blood pressure will likely go back up right along with any weight you regain.

The best way to optimize your weight and regain or improve your health is to first understand the profound influence the foods you eat have on your physiology.

Three very important things to keep in mind:

- Food is fuel
- You are unique in terms of the type of fuel your body needs for optimal health
- You absolutely must address insulin and leptin resistance to successfully normalize your weight

If you're overweight or obese and want to lose some weight, you may be wondering where to start, and that's where insulin and leptin resistance come in. Most overweight Americans have some degree of insulin and leptin resistance.

Generally, this is a metabolic dysfunction that develops as a result of consuming too many net carbohydrates (total carbs minus fiber) and/or protein. Sugars found in processed foods and grains are the primary culprits. So, to reverse this process, you need to eliminate net carbs and sugars from your diet and eat a high-quality fat, low-carbohydrate and low- to moderate-protein diet.

This can help you achieve "nutritional ketosis," a metabolic state in which your body burns fat, rather than glucose, as its primary fuel. The key to success with a ketogenic diet high-fat diet is

to eat high-quality healthy fats, not the fats most commonly found in the American diet (processed fats and vegetable oils).

To implement a ketogenic diet, the first step is to eliminate packaged, processed foods and replace them with real whole food, plenty of fats and as few grains as possible. Healthy fats include olives and olive oil, coconut and coconut oil, animal-based omega-3 fat such as krill oil and small fatty fish like sardines and anchovies, butter from raw grass-fed milk, raw nuts such as macadamia and pecans, seeds, avocados, grass-fed meats, ghee (clarified butter) and organic pastured egg yolks.

You can learn more about a ketogenic diet and its health benefits by reading my articles here and here. Remember: One of the most important dietary recommendations is to limit net carbs (total carbohydrates minus fiber) and protein, replacing them instead with higher amounts of high-quality healthy fats.

Also helpful is intermittent fasting, which can increase your insulin and leptin sensitivity and improve ghrelin levels, which help control hunger and reduce the urge to overeat. This is NOT a form of extreme calorie restriction; rather, it's a practice with typical fast time ranging from 14 to 18 hours.

Learn to Manage Your Emotional Stress

The link between stress and hypertension has been well-documented for decades.[48] Stress can even induce sodium and fluid retention, which ultimately can manifest as hypertension.[49] Doctors and health care professionals committed to treating the whole person rather than a list of physical symptoms are well aware of these crucial mind-body connections.

Especially important is the link between stress and behaviors that stress can initiate or exacerbate, such as smoking, physical activity and overeating or drinking too much — all of which can lead to metabolic syndrome and heart disease.

When you are stressed — whether from an emergency situation, suppressed negative emotions such as fear, anger and sadness, an ongoing chronic stress issue or even work stress[50] — your adrenaline levels rise and, combined with chronic bad health habits, your blood pressure can rise exponentially.[51]

The good news is that it's not the stressful events that are harmful, but your lack of ability to cope. Technology does exist to quickly and effectively transform your negative emotions and relieve stress and tension.

Managing Stress With Your Breath, Mindfulness and EFT

Clearly, stress is an inescapable part of life — but it's important to understand that it is how you deal with it that will determine whether it translates into hypertension or other health problems later on. The trick is to develop resilience by learning how to deal with stress.

There are many breathing techniques that can help you slow your heart rate and ultimately your blood pressure. Learning to breathe correctly can improve your overall feeling of calmness, as well as balance your sympathetic and parasympathetic nervous symptoms.

Mindfulness training — which focuses on being present in the moment — is another strategy that can be very helpful. In fact, one study showed that people who participated in 10 mindfulness sessions over the course of one month experienced "significantly decreased" levels of stress, anxiety and depression.[52]

Another study showed that blood pressure levels were effectively lowered by mindfulness-based stress reduction.[53] Mindfulness meditation, in which you consciously focus your attention on specific thoughts or sensations, and then observe them in a non-judgmental way, is also helpful.

Last but not least, energy psychology techniques such as the Emotional Freedom Techniques (EFT) can be very effective for targeted stress relief by helping you to reprogram your body's reactions to the unavoidable stressors in everyday life.

Use Exercise as a Drug

It's no secret that regular physical activity is a far better drug than anything a pharmaceutical company can manufacture, as are the "side effects" of exercise. Regardless of the primary reason you start an exercise program, your efforts will be rewarded in countless other ways.

A rigorous comprehensive exercise program seems to be very important in producing long-term benefits in people with high blood pressure. Depending on your physical condition when you embark on an exercise program, you may need to consult with a health care professional who can design a fitting program for you, with intensity levels appropriate to your capabilities.

It's important to have a target intensity level that will make a difference in lowering your insulin levels. As a general rule, weight-bearing exercises like walking, jogging and running are best. Studies also indicate that aerobic activities like these — which increase your heart and breathing rates — are most beneficial for lowering blood pressure.[54]

Admittedly, some people don't have time to spend 45 minutes or more in a gym or working out. That's why short, intense workouts like high-intensity interval training (HIIT) are so popular. While it was once believed that the longer you stayed on a treadmill or elliptical machine, the better, it's now known that you can seriously maximize your fitness results while working out for a fraction of the time, as long as you sufficiently ramp up the intensity, interspersed with periods of rest.

The HIIT approach I personally use and recommend is the Peak Fitness method, which consists of 30 seconds of maximum effort followed by 90 seconds of recuperation, for a total of eight repetitions. I also recommend super slow weight lifting for your resistance training.

The HIIT type of aerobics can be performed in seven minutes, making it an easy way to address blood pressure problems. Coupled with strength training, you can quite easily get in shape while noticeably lowering your blood pressure.

Another note: One way to maximize the benefits of HIIT is to incorporate variable-intensity interval training (VIIT) into your routine. VIIT consists of low, medium and high-intensity segments that can include a wide variety of exercise ranging from agility and strength to high intensity functional movements.

So, if you are insulin resistant, you'll definitely want to find time for weight training as well. When you work the individual muscle groups, you increase blood flow to those muscles. Good blood flow will increase your insulin sensitivity.

Even more importantly, to keep your blood pressure low, you need to exercise regularly.

Get a Daily Dose of Sunshine

Believe it or not, the farther you live from the equator, the higher your risk of developing high blood pressure. And did you know that blood pressure is typically higher in winter months than during the summer?[55]

It's a long-known fact that vitamin D deficiency is associated with both arterial stiffness and hypertension, but a large-scale genetic study involving over 155,000 individuals has now found that low vitamin D levels can actually **cause** hypertension. Not only that, the highest vitamin D levels were shown to lower hypertension risk the most.[56]

Vitamin D deficiency is also linked to insulin resistance and metabolic syndrome, so knowing your vitamin levels and keeping them at a healthy 40 ng/ml is an important strategy for controlling blood pressure.[57]

The best way to get your vitamin D is through sun exposure, especially since the health benefits of sunlight go above and beyond vitamin D. But if you live in a climate where a daily walk in the sun isn't possible, you can also find it in certain foods. For example:

- Four ounces of wild-caught Alaskan sockeye salmon will give you 128 percent of the recommended dietary allowance (RDA) for vitamin D

- 3.2 ounces of sardines will yield 44 percent of the RDA
- One egg will give you 11 percent of the RDA
- Shiitake mushrooms offer up 5 percent of the RDA

A Word About Vitamin D Supplements

Please do NOT let your doctor give you a "prescription" vitamin D. That is vitamin D2, which is synthetic, and not nearly as beneficial as the real vitamin D, which is D3 (cholecalciferol).

Before supplementing, you need to know your vitamin D levels. A simple blood test can measure them. While the Institute of Medicine recommends 20 nanograms per milliliter (ng/ml) to be adequate, I believe that is a mistake,[58] and that your levels should never be below 40. According to GrassrootsHealth, a group of vitamin D specialists, practitioners and physicians, adults need about 8,000 IUs of vitamin D3 a day to maintain a 40 ng/ml level.

Also, if you supplement with D3, please remember that you also need to boost your intake of vitamin K2 through food and/or a supplement, as vitamin K2 deficiency is actually what produces the symptoms of vitamin D toxicity, which includes inappropriate calcification that can lead to stiffened arteries.

Additionally, if you take a calcium supplement, it's important to maintain the proper balance between calcium, vitamin K2, vitamin D and magnesium. Lack of balance between these nutrients is why calcium supplements have become associated with increased risk of heart attack and stroke.

Other Supplements and Non-Drug Alternatives

Although I have listed some supplements below that may help with blood pressure problems, please understand that they are NOT to be considered as an alternative to the primary recommendations above, which treat the real cause of hypertension.

Using only the supplements below without incorporating the lifestyle recommendations discussed above will not address the underlying causes of why you have high blood pressure.

- **Beetroot juice**.[59] In one small placebo-controlled trial, one glass (25 milliliters or 8.5 ounces) of beetroot juice per day for one month reduced blood pressure in those diagnosed with hypertension by an average of 8 mmHg systolic and 4 mmHg diastolic pressure. However, within two weeks of stopping the juice, study subjects' pressure returned to their previous numbers, so this is something you would have to drink consistently.

- **Certain fresh vegetables**. Your body converts nitrate (NO3) found in beetroot juice and other vegetables into bioactive nitrite (NO2) and nitric oxide (NO), the latter of which helps relax and dilate your blood vessels. Besides beetroot, other vegetables high in NO3 include:

Radishes	Kale	Celery	Mustard greens
Turnip tops	Spinach	Cabbage	Eggplant
Leeks	Scallions	String beans	Carrots

- **Omega-3s**. Studies show that higher omega-3 intake helps avert the onset of high blood pressure in young people.[60] More than 2,000 healthy men and women participated in one of the studies. Findings showed that those with the highest serum levels of omega-3 also had the lowest blood pressure readings.

  If you decide to supplement with omega-3s, it's important to remember that although you can obtain omega-3 fats from both plants and marine animals like fish and krill, they are NOT interchangeable. These sources provide very different types of omega-3. You absolutely need animal-based omega-3, preferably from krill oil, which is far superior and which also has natural astaxanthin, a potent antioxidant.

- **Calcium and magnesium**. Daily calcium and magnesium supplementation can be useful in lowering blood pressure, especially if yours is on the high end of high. However, if you avoid sugars and grains, it's unlikely additional calcium or magnesium supplements will be necessary.

- **Vitamin C**. Studies indicate that high doses of vitamin C can be helpful in lowering blood pressure.[61] However, if you're following my Nutrition Plan, you should be getting enough vitamin C from your diet without supplements.

- **Olive oil leaf extract**.[62] Research has shown that supplementing with 1,000 mg of olive leaf extract daily over eight weeks caused a significant dip in both blood pressure and LDL ("bad") cholesterol in people with borderline hypertension.

  If you want to incorporate olive leaves as a natural adjunct to a nutritionally sound diet, you should look for fresh leaf liquid extracts for maximum synergistic potency. You can also prepare your own olive leaf tea by placing a large teaspoon of drive olive leaves in a tea ball or herb sack. Place it in about two quarts of boiling water and let it steep for three to 10 minutes. The tea should be a medium amber color when done.

- **Electro-acupuncture**.[63] Studies indicate that electro-acupuncture caused a drop in blood pressure that can last up to a month-and-a-half. Researchers said study participants averaged a drop of 6 to 8 mmHg for systolic blood pressure and 4 mmHg for diastolic.

- **Nattokinase**.[64] Nattokinase is an enzyme found in the food natto, a fermented soy product. This enzyme has been used successfully for nearly three decades to treat circulatory problems, and a double-blind, placebo-controlled, randomized study showed that supplementing with nattokinase for eight weeks resulted in significant reduction of both systolic and diastolic blood pressure.

- **Vitamin E**. A triple-blind, placebo-controlled clinical trial showed that 200 IUs a day of vitamin E can be effective in treating mild hypertension. If you decide to supplement with vitamin E, do not take more than the recommended dose, and be sure to take a natural (not synthetic) form. You can tell what you're buying by reading the label. Natural vitamin E is always listed as the "d-" form (d-alpha-tocopherol, d-beta-tocopherol). Synthetic vitamin E is listed as "dl-" forms.

- **Garlic and watermelon**.[65] Second and third behind beetroot juice, this kitchen herb and fruit helped to lower blood pressure in a small study.

Additional Information

- **For parents**: If your children lose their cool while playing video games, this could signal they are at risk for developing hypertension in later years, if for no other reason that playing video games encourages sitting. The video games available today can also be very violent in nature, which is cause for further concern.

  Encourage a balance in your children's activities. Ideally, they should be involved in exercise and other physically active pursuits during the majority of their leisure time. The sedentary lifestyle of so many children today is contributing to obesity and other chronic conditions and diseases, including high blood pressure.

- **For moms of newborns**: Research has shown that babies who are breastfed have a reduced risk of developing hypertension.[66] Researchers believe long-chain polyunsaturated fatty acids (the same found in fatty fish) in breast milk provide a protective effect for newborns.

- **Quick tricks**: Increasing nitric monoxide in your blood can open constricted blood vessels and lower your blood pressure. Methods for increasing the compound include taking a warm bath, breathing in and out through one nostril (close off the other nostril and your mouth) and eating bitter melon, which is rich in amino acids and vitamin C.

Lifestyle Changes Are the Key to Naturally Lowering Your Blood Pressure

In summary, there are many things that you can do to lower your blood pressure before resorting to pharmaceutical agents. From addressing insulin and leptin resistance to eating REAL food, loading up on veggies and minding your sodium-to-potassium ratio, it is possible to take control of your blood pressure.

Try intermittent fasting, boost your animal-based omega-3 intake, optimize your vitamin D levels, exercise regularly, address your stress and avoid smoking and all forms of pollution and you will have a good solid foothold on the road to drug-free, optimal health.

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