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Control.[™]

Understanding and Managing **High Blood Pressure**



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What is Blood Pressure?

When your heart pumps blood through the blood vessels, the blood pushes against the walls of your blood vessels. This creates blood pressure. Your body needs blood pressure to move the blood throughout your body, so every part of your body can get the oxygen it needs.

Healthy arteries (the blood vessels that carry oxygen-rich blood from the heart to the rest of the body) are elastic. They can stretch to allow more blood to push through them. How much they stretch depends on how hard the blood pushes against the artery walls.

For your arteries to stay healthy, it's important that your blood pressure be within a healthy range. Fortunately, there are things you can do to help keep your blood pressure in that range. We'll talk about that more later in this guide.

For some people, blood pressure can get too high. This is true for about one-third of American adults (33.0%). This can cause health problems that need to be dealt with as you work with your healthcare provider. We'll talk about this, too, later in the guide.



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Arbor is a proud sponsor of the American Heart Association/American Stroke Association's High Blood Pressure Toolkit.

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An interactive digital version
is available at
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How Blood Pressure is Measured

How can you tell what your blood pressure is? By using a device called a blood pressure monitor, your healthcare provider can measure your blood pressure to see if it's in a healthy range. You've probably had your blood pressure taken during a visit to your healthcare provider's office.

Your blood pressure is recorded as two numbers. The systolic blood pressure (the "upper" number) tells how much pressure blood is exerting against your artery walls while the heart is pumping blood. The diastolic blood pressure (the "lower" number) tells how much pressure blood is exerting against your artery walls while the heart is resting between beats. Blood pressure is measured in units of millimeters of mercury, or mm Hg. For example, a blood pressure reading might be 120/80 mm Hg.

A healthy blood pressure is under 120/80 mm Hg. A blood pressure reading of 120-139 systolic or 80-89 diastolic is defined as "prehypertension." This means that the blood pressure is not high enough to be called high blood pressure (hypertension), but that it is higher than normal. If systolic blood pressure is 140 or greater, or diastolic blood pressure is 90 or greater, it's high blood pressure.



The table below shows healthy and unhealthy blood pressure ranges as recognized by the American Heart Association:

Blood Pressure Category	Systolic mm Hg (Upper #)		Diastolic mm Hg (Lower #)
Normal	Less than 120	And	Less than 80
Prehypertension	120-139	Or	80-89
High Blood Pressure (Hypertension) Stage 1	140-159	Or	90-99
High Blood Pressure (Hypertension) Stage 2	160 or higher	Or	100 or higher
Hypertensive Crisis (Emergency care needed)	Higher than 180	Or	Higher than 110

Causes of high blood pressure

High blood pressure cannot be cured. It can, however, be managed very effectively through lifestyle changes and, when needed, medication.

In most cases, the cause of high blood pressure is not known. In fact, high blood pressure usually doesn't have symptoms. This is why it is sometimes called "the silent killer."

However, there are known risk factors for high blood pressure. These are conditions that are known to increase the risk for getting high blood pressure. Risk factors fall into two categories: those you can control, and those that are out of your control.

Risk factors that are outside of your control

- **Family history:** Just as hair and eye color can run in families, so can high blood pressure. If your parents or other close blood relatives have high blood pressure, there's an increased chance that you'll get it, too. This is why it's important to get your blood pressure checked on a regular basis. The American Heart Association recommends checking at your regular healthcare visit or every two years for people whose blood pressure is in a normal range.
- **Age:** The older you are, the more likely you are to get high blood pressure. As we age, our blood pressures gradually lose some of the elastic quality, which increases blood pressure.
- **Gender:** Until age 54, men are more likely to get high blood pressure than women are. But that changes as we age. From age 55 to 64, men and women get high blood pressure at similar rates. And at 65 and older, women are more likely to get high blood pressure than men are.
- **Race:** African Americans tend to develop high blood pressure more often than Caucasians. For African Americans, high blood pressure also tends to occur at younger ages and to be more severe.

Risk factors that you can control

- **Lack of physical activity:** Not getting enough physical activity as part of your lifestyle increases your risk of getting high blood pressure. Physical activity is great for your heart and circulatory system in general, and blood pressure is no exception.
- **An unhealthy diet, especially one high in sodium.** Good nutrition from a variety of sources is critical for your health. A diet that is too high in salt consumption, as

well as calories, saturated fat, and sugar, carries an additional risk of high blood pressure. On the other hand, making healthy food choices can actually help lower blood pressure.

- **Overweight and obesity:** Carrying too much weight puts an extra strain on your heart and circulatory system, and can cause serious health problems. Being overweight increases your risk of cardiovascular disease and diabetes. It also increases your risk of getting high blood pressure.
- **Drinking too much alcohol.** Regular, heavy use of alcohol can cause many health problems, including heart failure, stroke, and irregular heartbeats. Drinking too much alcohol can increase your risk of cancer, obesity, alcoholism, suicide, and accidents. It can also cause your blood pressure to increase dramatically.

In addition to these risk factors, there are others that may contribute to high blood pressure, although how is still uncertain. These include:

- **Smoking and tobacco use:** Using tobacco can cause your blood pressure to temporarily increase and can contribute to damaged arteries, which can make high blood pressure worse.
- **Stress:** Stress is not necessarily a bad thing in and of itself. But too much stress may contribute to increased blood pressure. Also, too much stress can encourage behaviors that increase blood pressure, such as poor diet, physical inactivity, and using tobacco or drinking alcohol more than usual.
- **Sleep apnea:** This is a condition in which some of the tissues in the throat collapse during sleep and block the breathing passageway. In response to that, the brain awakens the sleeper, who then gulps for air in order to open the trachea again. This cycle often repeats many times a night, leading to severe fatigue the following day from a lack of good sleep. Sleep apnea can be a contributing factor to high blood pressure.



How high blood pressure affects the body

Left untreated, high blood pressure can have damaging effects on your health. The primary way it causes harm is by increasing the workload of the heart and arteries, which causes damage to the circulatory system over time.

High blood pressure can cause the heart to enlarge because it has to work harder to supply the blood the body needs. It also can contribute to a condition called atherosclerosis, in which the walls of the arteries become stiff and brittle as fatty deposits build up inside them.

Untreated high blood pressure can lead to coronary heart disease, heart failure, heart attack, stroke, kidney damage, angina (chest pain related to heart disease), peripheral artery disease, and other serious conditions.

In fact, people with high blood pressure over 140/90 are far more likely to have these dangerous conditions. According to the American Heart Association, 77% of Americans who've had a first stroke had high blood pressure at or over this level, while the same is true of 69% of Americans who've had a first heart attack. And 74% of Americans who have congestive heart failure have blood pressure levels above 140/90.

How high blood pressure is diagnosed

While high blood pressure rarely has symptoms, the good news is that it can be diagnosed using a simple test with a blood pressure monitor. Your healthcare provider will perform this test. The most accurate type of monitor is called a bicep cuff monitor. You've probably had this test already, using this device.

To get your blood pressure reading, the cuff is placed around your upper arm and inflated. This temporarily stops the blood flow in the arm. Your healthcare provider then slowly deflates the cuff, observing the reading on the monitor or listening through a stethoscope.



As this happens, your healthcare provider takes note of your systolic and diastolic pressure to determine your blood pressure reading.

Many things can affect blood pressure, so a diagnosis of high blood pressure is usually made after two or more successive readings that exceed healthy blood pressure ranges. Your healthcare provider will test you at least every two years if your blood pressure readings are within healthy ranges, but more often if they're not.

Monitoring, treating, and managing high blood pressure

If you've been diagnosed with high blood pressure, it's very important to follow the treatment plan your healthcare provider gives you. This will almost certainly include changes to your diet and level of physical activity, and may include medication, too.

Eating healthy

For people with high blood pressure (and those at risk for it), a healthy diet is a must. There are many healthy diet plans available, but the best for high blood pressure include limiting sodium (salt) intake and including a variety of nutritious foods. One proven diet plan is called the DASH plan (DASH stands for Dietary Approaches to Stop Hypertension).

The DASH plan emphasizes eating plenty of fruits and vegetables, as well as low-fat protein sources (such as skinless poultry, fish, and legumes), low-fat dairy products, and whole grains. It is also low in sugars and red meat, and offers many other nutritional benefits. You can learn more about the DASH plan by visiting the website of the National Heart, Lung, and Blood Institute: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.

As for sodium, you'll want to limit your intake to no more than 1,500 mg per day, which is associated with the greatest reduction in blood pressure. How can you tell how much sodium you're eating? By reading food labels. Be careful when you do so—many foods that don't seem to be salt-heavy may contain “hidden” sodium, especially canned foods. Fortunately, food labels give an accurate picture of how much you'll ingest by eating that particular product.



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Physical activity

Physical activity is great for everyone. The health benefits of being active are many, and among them are proven benefits to your heart and circulatory system. One of the best ways to manage high blood pressure is to get plenty of physical activity.

Keep in mind that you don't have to be an athlete to get the benefits of physical activity. And you don't even have to get all your daily activity in at one session. In addition to traditional forms of exercise, healthy physical activity can include:

- **Parking farther away from your destination to walk a bit more**
- **Taking the stairs instead of the elevator**
- **Taking your dog out for a stroll**
- **Walking instead of driving**

To get the greatest benefits from physical activity, the American Heart Association recommends:

- **Aim for 3 to 4 40-minute sessions per week of moderate-to-vigorous intensity physical activity**
- **Getting at least 10 minutes of physical activity per episode**

It's a good idea to check with your healthcare provider before beginning a physical activity program.



Maintaining a healthy weight

Many Americans are overweight or obese, and this is itself a risk factor for high blood pressure, among many other serious health conditions.

If you are overweight or obese, your healthcare provider can gauge how much weight you need to lose by determining your body mass index (BMI). BMI is determined by assigning a numerical value to your weight in relation to your height. The American Heart Association has a BMI calculator you can use here: http://www.heart.org/HEARTORG/GettingHealthy/WeightManagement/BodyMassIndex/Body-Mass-Index-In-Adults-BMI-Calculator-for-Adults_UCM_307849_Article.jsp.

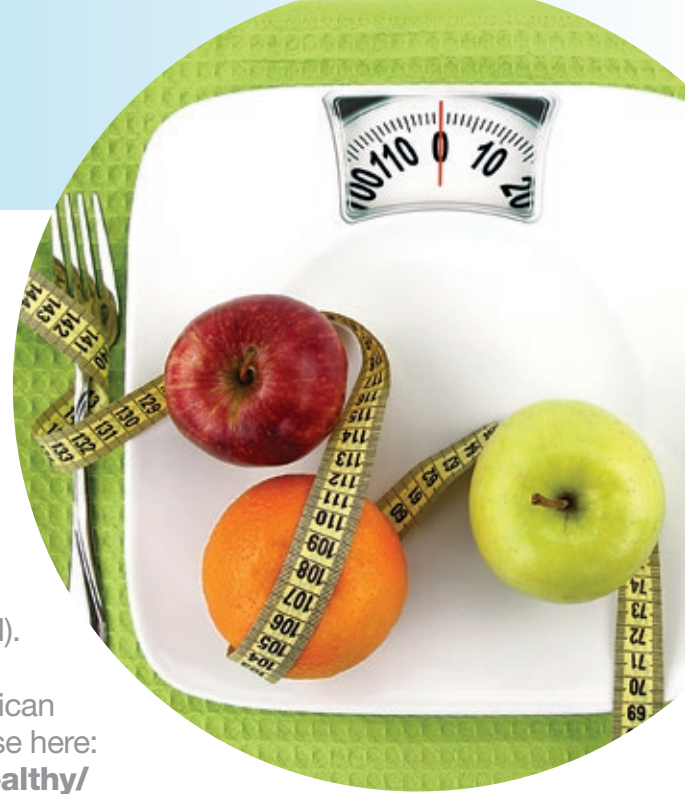
There's good news here, too. Even losing 3% to 5% of your body weight can bring good health benefits, such as reducing the workload on your heart. Talk with your healthcare provider about the best way to lose weight. The safest way to lose weight is typically to do so a few pounds at a time, by making changes to how many calories you eat and how much physical activity you get. By reducing calories and increasing your physical activity, you're on your way to a healthier weight.

Reducing stress

Researchers continue to study how stress affects our health, and while we don't know exactly how stress impacts high blood pressure, we do know that it has an effect. Stress makes us more likely to overeat or eat unhealthy foods, drink too much alcohol, smoke (or smoke more than usual), and engage in other risky behaviors that are known to have a bad effect on high blood pressure.

While stress is unavoidable, it can be managed effectively. There are some simple things you can do to reduce the amount of stress you have to deal with. These include:

- **Giving yourself time to get things done.** Overscheduling yourself can increase your stress load.
- **Not overpromising what you can do.** There's nothing wrong with saying "no" if adding one more responsibility would be too much for you.
- **Understanding your stress triggers.** Knowing what causes you to become stressed and taking steps to avoid or manage (when you can't avoid) those triggers can help you control stress.



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- **Planning to address what you can change, and accepting what you can't change.** No one can do it all. Some things must be dealt with, and it's good to have a plan in place for doing just that. But some things are out of your control. Learn to let those go.
- **Taking time to relax.** There are countless ways to relax, from breathing exercises to getting into a hobby, from sitting in a favorite chair and listening to soothing music to having a chat with a cherished friend. Make sure you make time to relax in a way that is good for you.
- **Building relationships with people who care about you.** We all need friends. Having a support network helps you get through tough times and enjoy good times all the more.
- **Taking care of yourself.** Eating healthy and getting plenty of physical activity has many benefits beyond your physical health—it's great for your emotional and spiritual health, as well. Physical activity is a great stress reducer.



Limit (or avoid) alcohol

Drinking too much alcohol raises your blood pressure and is a risk factor for many other serious health conditions. If you do drink alcohol, limit your drinking to no more than two drinks per day (for men) or one drink per day (for women). A drink is one 12 oz. beer, 4 oz. of wine, 1.5 oz. of 80-proof spirits, or 1 oz. of 100-proof spirits.

Avoid or quit tobacco

It's simple: Tobacco is terrible for your health. It is a known risk factor for many potentially deadly diseases, including cancer, heart disease, and lung disease, among many other conditions. Smoking is the single most important preventable cause of premature death in the U.S.

While the exact connection between tobacco and high blood pressure is unclear, we do know that smoking causes blood pressure to temporarily rise. Smoking also contributes to atherosclerosis, the hardening of and buildup of fatty deposits in the arteries. Atherosclerosis can lead to serious conditions of the heart and blood vessels.

If you don't smoke, don't start. If you do smoke, talk with your healthcare provider about ways you can begin to quit. There are medications and programs available to help you, and they have proved effective for many people.

Home blood pressure monitoring

One way to stay on top of how you're doing in managing your high blood pressure is to use a home blood pressure monitor. This can be a very important tool for you and your healthcare provider to use in getting a "broader" picture of how well you're controlling your high blood pressure. Sometimes, a healthcare provider will even recommend a home blood pressure monitor for people who are at risk for high blood pressure but haven't been diagnosed yet.

Choose a bicep monitor with an appropriately sized cuff, which will give the most accurate readings. Make sure the monitor has been tested and validated. A list of validated monitors is available here: http://www.dableducational.org/sphygmomanometers/devices_2_sbpm.html#ArmTable.

Home monitoring can help eliminate false blood pressure readings, which happen when temporary factors affect your blood pressure, and can help give a more reliable picture of how your blood pressure is being managed to you and your healthcare provider.

Medications

For many people, making changes to diet and lifestyle doesn't do enough to lower blood pressure to a healthy range. Fortunately, there are many medications that can help. They each work in different ways to help lower your blood pressure. Not all blood pressure medications work the same way for everyone, so you and your healthcare provider may need to work together to try different medications until you find the best one for you.

Other high blood pressure medications

- **Diuretics:** Often the first medication tried with a person newly diagnosed high blood pressure, diuretics work by removing excess salt and water from your body, which is passed through urine. Diuretics are enough for some people, but others need more help to lower blood pressure to a healthy range. In these cases, a healthcare provider may prescribe an additional medication or a medication that contains a diuretic and an additional medication. Diuretics can have side effects. These can include reduced potassium in the body (which can be supplemented), increased blood sugar levels (a potential problem for diabetics), and in some cases, flare-ups of gout or impotence.

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- **ACE inhibitors:** These medications work by expanding blood vessels and reducing resistance inside them. By doing this, ACE inhibitors allow blood to flow more easily and reduce the workload on the heart. Side effects can include skin rash, loss of taste, and a chronic, dry hacking cough. In rare instances, kidney damage can result. ACE inhibitors should not be taken by pregnant women, and are not recommended for most women of child-bearing age.
- **Angiotensin II receptor antagonists:** These medications stop a hormone called angiotensin II from narrowing the blood vessels. These can cause occasional dizziness. They should not be used in pregnant women.
- **Beta blockers:** These reduce the heart rate and decrease cardiac output, which both help lower blood pressure. Side effects can include insomnia, cold hands or feet, tiredness or depression, asthma symptoms, or a slow heartbeat. For people with diabetes who take insulin, beta blockers have to be monitored carefully. Women receiving beta blockers who are or may become pregnant should consult with their healthcare providers to determine the safest treatment strategy.
- **Calcium channel blockers:** These interrupt the movement of calcium into the heart and blood vessel cells. These can cause palpitations, swollen ankles, constipation, headache, and dizziness. Side effects can vary depending on the specific calcium channel blocker prescribed.
- **Central agonists:** These work by limiting the ability of blood vessels to expand and contract, thus lowering blood pressure. These can cause a rapid drop in blood pressure while standing or moving, which can make you feel weak or faint. They can also cause drowsiness or sluggishness, dry mouth, constipation, fever, or anemia.
- **Peripheral adrenergic inhibitors:** These lower blood pressure by blocking the chemical message the brain sends to the blood vessels to make them constrict. These medications are typically only prescribed if other medications don't help. Stuffy nose, diarrhea, or heartburn can be side effects from this medication.
- **Blood vessel dilators:** These cause the blood vessel walls to relax, which helps them expand more easily and allow blood to flow more freely. These can cause headaches, swelling around the eyes, heart palpitations, or aches and pains in the joints.



Monitoring blood pressure medications

No matter what blood pressure medication you're prescribed, you will need to work with your healthcare provider to carefully monitor how well the medication is working. It's important to understand that taking blood pressure medication isn't a short-term fix. High blood pressure is a lifelong condition, so taking medication may be a lifelong need. Do not stop taking your medication unless your healthcare provider tells you to do so.

Your healthcare provider may want you to come in for office visits frequently at first to check your blood pressure. Once your blood pressure is under control, you will likely be tested less often.

Another important purpose of careful monitoring is to minimize the impact of side effects. If you're having side effects from the medications you're prescribed, talk with your doctor. A change in dosage or in the type of medication you're taking may be appropriate. Your healthcare provider will work with you to figure out the best changes to make.

Take medications exactly as prescribed

Your medications are designed to reduce your blood pressure to a healthy range, but they can only work if they're taken exactly as prescribed. This means following the dosage instructions on your medicine bottle to the letter. If you are unsure about how to take your medication, talk with your healthcare provider or pharmacist.

Again, do not stop taking your medication unless you're instructed to do so by your healthcare provider.

If affording your medication is an issue, ask your healthcare provider if a generic medication might be appropriate. These are as effective as name-brand medications and are usually much cheaper. You may also want to look into getting help affording your medications. Visit the Partnership for Prescription Assistance at www.pparx.org or Needy Meds at www.needymeds.org to learn more.



Living with high blood pressure

High blood pressure is a lifelong condition. Making healthy changes can help control blood pressure, and you should consider eating healthy and getting more physical activity to be lifelong habits.

The same is true of taking medication. Dealing with side effects can be a difficult matter, but it's worth working with your healthcare provider to manage side effects because taking medication can make a huge difference in how well you manage your blood pressure. Controlling your blood pressure means you're lowering your risk for heart disease, heart attack, diabetes, stroke, and kidney disease. Most people who control their high blood pressure are able to live full, healthy lives.

To keep your blood pressure under control, follow these tips:

- Keep your appointments with your healthcare provider.
- Make changes to your diet and physical activity routines lifelong habits. Remember, you don't have to make dramatic changes all at once. Make gradual changes that you're likely to keep pursuing.
- Follow your healthcare provider's advice, including losing weight if recommended.
- Keep your eyes on the prize: better health. By reminding yourself of your goal, you are putting yourself in a position to succeed.





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Keep Track of Your Heart Health at Heart360!

You can take control of your blood pressure and other vital cardiovascular information by signing on at the American Heart Association's website, www.heart360.org/cholesterol. Here you can keep track of your cholesterol, blood pressure, physical activity, medications, blood glucose, and weight—storing all your vital information in a Microsoft® HealthVault™ account. This easy-to-use tool puts you in control of your heart's health. Sign up today!



Your Comments and Suggestions are Needed!

And now, please tell us what you think about this workbook! We need your suggestions to make sure that this has everything you need to know about high blood pressure. Go to our online survey www.surveymonkey.com/s/AHA_HBP and answer just a few questions. It will only take a few minutes of your time. Thank you for your help!