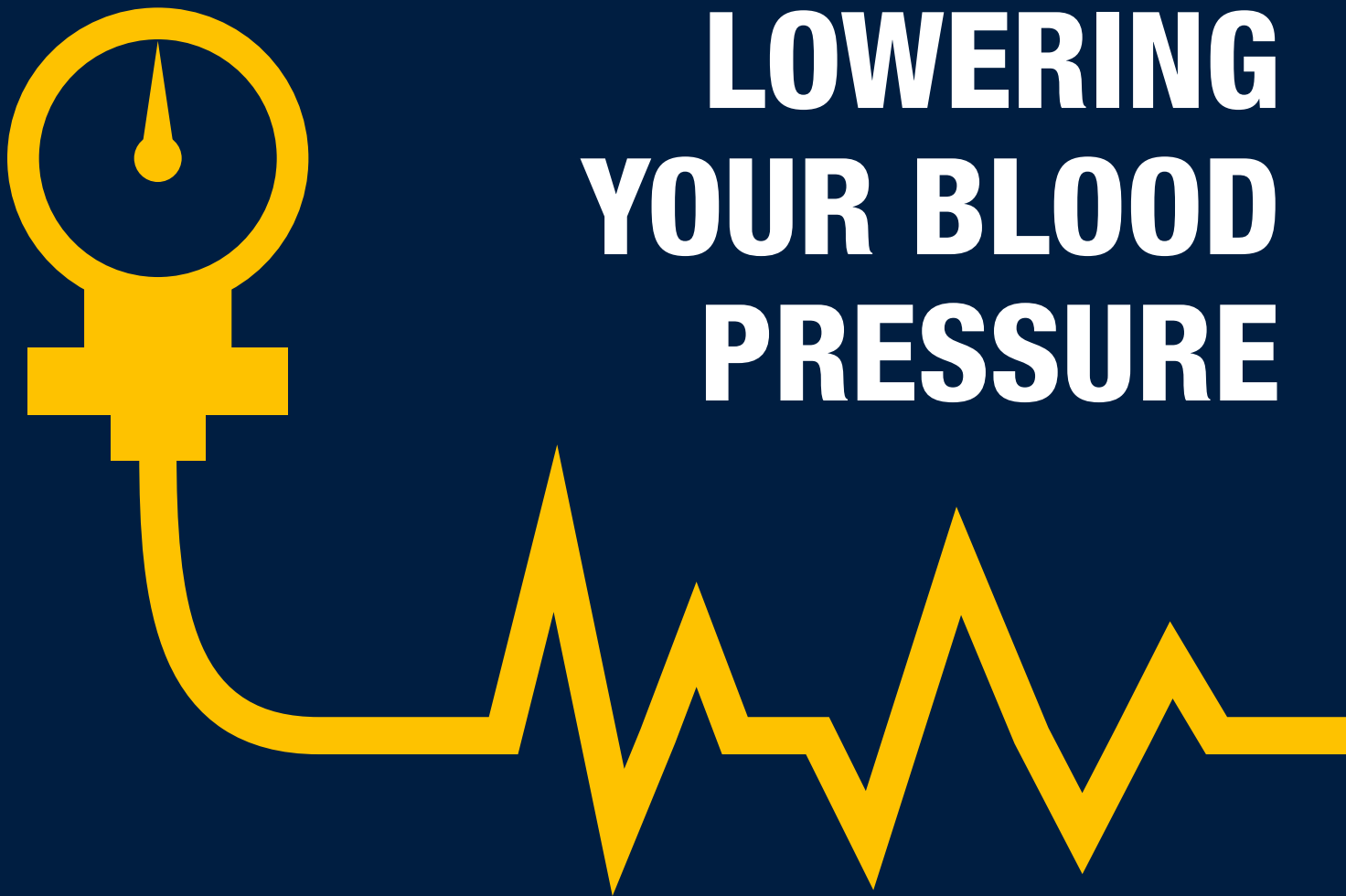




CARDIOVASCULAR
NETWORK

PATIENT GUIDE

LOWERING YOUR BLOOD PRESSURE



UNIVERSITY OF MICHIGAN HEALTH-WEST
MICHIGAN MEDICINE

Heart & Vascular

ACTION ITEMS TO HELP LOWER YOUR BLOOD PRESSURE

Remember – You Can Do It!

1. Maintain a healthy weight

- Check with your health care provider to see if you need to lose weight.
- If you do, lose weight slowly using a healthy eating plan and engaging in physical activity.

2. Be physically active

- Engage in physical activity for a total of 30 minutes on most days of the week.
- Combine everyday chores with moderate-level sporting activities, such as walking, to achieve your physical activity goals.

3. Follow a healthy eating plan

- Set up a healthy eating plan with foods low in saturated fat, total fat and cholesterol and high in fruits, vegetables and low-fat dairy foods such as the DASH eating plan.
- Write down everything that you eat and drink in a food diary. Note areas that are successful or need improvement.
- If you are trying to lose weight, choose an eating plan that is lower in calories.

4. Reduce sodium in your diet

- Choose foods that are low in salt and other forms of sodium.
- Use spices, garlic and onions to add flavor to your meals without adding more sodium.

5. Drink alcohol only in moderation

- In addition to raising blood pressure, too much alcohol can add unneeded calories to your diet.
- If you drink alcoholic beverages, have only a moderate amount – one drink a day for women, two drinks a day for men.

6. Take prescribed drugs as directed

- If you need drugs to help lower your blood pressure, you still must follow the lifestyle changes mentioned above.
- Use notes and other reminders to help you remember to take your drugs. Ask your family to help you with reminder phone calls and messages.

WHAT ARE HIGH BLOOD PRESSURE AND HYPERTENSION?

Blood pressure is the force of blood against the walls of arteries. Blood pressure rises and falls throughout the day. When blood pressure stays elevated over time, it's called high blood pressure.

The medical term for high blood pressure is hypertension. High blood pressure is dangerous because it makes the heart work too hard and contributes to atherosclerosis (hardening of the arteries). It increases the risk of heart disease and stroke, which are the first- and third-leading causes of death among Americans. High blood pressure also can result in other conditions, such as congestive heart failure, kidney disease, and blindness.

What causes high blood pressure?

In most cases, doctors can't point to the exact cause. But several things are known to raise blood pressure, including being very overweight, drinking too much alcohol, having a family history of high blood pressure, eating too much salt and getting older.

Your blood pressure may also rise if you are not very active, you don't eat enough potassium and calcium, or you have a condition called insulin resistance.

What are the symptoms?

High blood pressure doesn't usually cause symptoms. Most people don't know they have it until they go to the doctor for some other reason.

Very high blood pressure can cause headaches, vision problems, nausea and vomiting. These symptoms can also be caused by dangerously high blood pressure called malignant high blood pressure. It may also be called a hypertensive crisis or hypertensive emergency. Malignant high blood pressure is a medical emergency.

RISK FACTORS FOR HEART DISEASE

Risk factors are conditions or behaviors that increase your chances of developing a disease. When you have more than one risk factor for heart disease, your risk of developing heart disease greatly multiplies. So if you have high blood pressure, you need to take action. Fortunately, you can control most heart disease risk factors.

Risk factors you can control:

- High blood pressure
- Abnormal cholesterol
- Tobacco use
- Diabetes
- Overweight
- Physical inactivity

Risk factors beyond your control:

- Age (55 or older for men; 65 or older for women)
- Family history of early heart disease (having a father or brother diagnosed with heart disease before age 55 or having a mother or sister diagnosed before age 65)

BLOOD PRESSURE LEVELS FOR ADULTS*

Category	Systolic [†] (mmHg)		Diastolic [†] (mmHg)	Result
Optimal	Less than 120	and	Less than 80	Good for you!
Prehypertension	120-139	or	80-89	Your blood pressure could be a problem. Make changes in what you eat and drink, be physically active, and lose extra weight. If you also have diabetes, see your doctor.
Hypertension	140 or higher	or	90 or higher	You have high blood pressure. Ask your doctor or nurse how to control it

* For adults ages 18 and older who are not on medicine for high blood pressure and do not have a short-term serious illness.

Source: *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*; NIH Publication No. 03-5230, National High Blood Pressure Education Program, May 2003.

[†] If Systolic and diastolic pressures fall in different categories, overall status is the higher category.

[†] Millimeters of mercury.

HOW CAN YOU PREVENT OR CONTROL HIGH BLOOD PRESSURE

If you have high blood pressure, you and your health care provider need to work together as a team to reduce it. The two of you need to agree on your blood pressure goal. Together, you should come up with a plan and timetable for reaching your goal.

Blood pressure is usually measured in millimeters of mercury (mmHg) and is recorded as two numbers – systolic pressure “over” diastolic pressure (for example, 130/80 mmHg).

- The systolic number (the top number) shows how hard the blood pushes when the heart is pumping.
- The diastolic number (the bottom number) – shows how hard the blood pushes between heartbeats, when the heart is relaxed and filling with blood.

Ask your doctor to write down your blood pressure numbers and your blood pressure goal level.

A blood pressure level of 140/90 mmHg or higher is considered high. About two-thirds of people over age 65 have high blood pressure. If your blood pressure is between 120/80 mmHg and 139/89 mmHg, then you have prehypertension. This means that you don't have high blood pressure now but are likely to develop it in the future unless you adopt the healthy lifestyle changes described in this brochure.

Hypertension can *almost always* be prevented, so these steps are very important even if you do not have high blood pressure.

- Maintain a healthy weight
- Be physically active
- Follow a healthy eating plan
- Eat foods with less sodium (salt)
- Drink alcohol only in moderation
- Take prescribed drugs as directed

People who do not have high blood pressure at age 55 face a 90 percent chance of developing it during their lifetimes. So high blood pressure is a condition that most people will have at some point in their lives.

Both numbers in a blood pressure test are important, but for people who are age 50 or older, systolic pressure gives the most accurate diagnosis of high blood pressure. Systolic pressure is the top number in a blood pressure reading. It is high if it is 140 mmHg or above.

Monitoring your blood pressure at home between visits to your doctor can be helpful. You also may want to bring a family member with you when you visit your doctor. Having a family member who knows that you have high blood pressure and who understands what you need to do to lower your blood pressure often makes it easier to make the changes that will help you reach your goal.

Reminders when taking your blood pressure:

- Do not consume caffeine or tobacco prior to taking blood pressure
- Sit in a chair with your feet on the floor
- Sit calmly for 5 minutes before taking blood pressure
- Use the same arm for each reading
- Your arm should be at breastbone level and rested on a flat surface
- Make sure your blood pressure cuff fits snugly around your arm
- Do not move during the test
- Record the results in your Blood Pressure Workbook

The steps listed in this brochure will help lower your blood pressure. If you have normal blood pressure or prehypertension, following these steps will help prevent you from developing high blood pressure. If you have high blood pressure, following these steps will help you control your blood pressure.

This brochure is designed to help you adopt a healthier lifestyle and remember to take prescribed blood pressure-lowering drugs. Following the steps described will help you prevent and control high blood pressure. While you read them, think to yourself . . .

“I CAN DO IT!”

LOWER YOUR BLOOD PRESSURE BY AIMING FOR A HEALTHY WEIGHT

Being overweight or obese increases your risk of developing high blood pressure. In fact, your blood pressure rises as your body weight increases. Losing even 10 pounds can lower your blood pressure—and losing weight has the biggest effect on those who have hypertension and are overweight.

Overweight and obesity are also risk factors for heart disease. And being overweight or obese increases your chances of developing high blood cholesterol and diabetes—two more risk factors for heart disease.

Two key measures are used to determine if someone is overweight or obese. These are body mass index, or BMI, and waist circumference. BMI is a measure of your weight relative to your height. It gives an approximation of total body fat—and that's what increases the risk of diseases that are related to being overweight.

But BMI alone does not determine risk. For example, in someone who is very muscular or who has swelling from fluid retention (called edema), BMI may overestimate body fat. BMI may underestimate body fat in older persons or those losing muscle.

That's why waist measurement is often checked as well. Another reason is that too much body fat in the stomach area also increases risk for heart disease. A waist measurement of more than 35 inches in women and more than 40 inches in men is considered high.

If you are obese you are at increased risk for heart disease and need to lose weight. You also should lose weight if you are overweight and have two or more heart disease risk factors. If you fall in the normal weight range or are overweight but do not need to lose pounds, you still should be careful not to gain weight.

BODY MASS INDEX (BMI)

If you need to lose weight, it's important to do so slowly. Lose no more than ½ pound to 2 pounds a week. Begin with a goal of losing 10 percent of your current weight. This is the healthiest way to lose weight and offers the best chance of long-term success.

There's no magic formula for weight loss. You have to eat fewer calories than you use up in daily activities. Just how many calories you burn daily depends on factors such as your body size and how physically active you are.

One pound equals 3,500 calories. So, to lose 1 pound a week, you need to eat 500 calories a day less or burn 500 calories a day more than you usually do. It's best to work out some combination of both eating less and being more physically active. And remember to be aware of serving sizes. It's not only what you eat that adds calories, but also how much.

Overweight is defined as a BMI of 25 to 29.9; obesity is defined as a BMI equal to or greater than 30.

WHAT DOES YOUR BMI MEAN?

Category	BMI	Result
Normal Weight	18.5-24.5	Good for you! Try not to gain weight.
Overweight	25-29.9	Do not gain any weight, especially if your waist measurement is high. You need to lose weight if you have two or more risk factors for heart disease.
Obese	30 or greater	You need to lose weight. Lose weight slowly – about ½ pound to 2 lbs. a week. See your doctor or a registered dietitian if you need help.

Source: Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report; NIH Publication No. 98-4083, National Heart, Lung, and Blood Institute, in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, June 1998.

Your care team should be checking your BMI during your office visits, and letting you know your progress.

LOWER YOUR BLOOD PRESSURE BY BEING ACTIVE

Being physically active is one of the most important things you can do to prevent or control high blood pressure. It also helps to reduce your risk of heart disease.

It doesn't take a lot of effort to become physically active. All you need is 30 minutes of moderate-level physical activity on most days of the week. Your care team will work with you to find exercises and activities that will work best for you.

Most people don't need to see a doctor before they start a moderate-level physical activity. You should check first with your doctor if you have heart trouble or have had a heart attack, if you're over age 50 and are not used to moderate-level physical activity, if you have a family history of heart disease at an early age, or if you have any other serious health problem.

LOWER YOUR BLOOD PRESSURE BY EATING RIGHT

What you eat affects your chances of getting high blood pressure. A healthy eating plan can both reduce the risk of developing high blood pressure and lower a blood pressure that is already too high.

For an overall eating plan, consider DASH, which stands for "Dietary Approaches to Stop Hypertension." You can reduce your blood pressure by eating foods that are low in saturated fat, total fat, and cholesterol, and high in fruits, vegetables, and lowfat dairy foods. The DASH eating plan includes whole grains, poultry, fish, and nuts, and has low amounts of fats, red meats, sweets, and sugared beverages. It is also high in potassium, calcium, and magnesium, as well as protein and fiber. Eating foods lower in salt (sodium) also can reduce blood pressure.

The DASH eating plan has more daily servings of fruits, vegetables, and grains than you may be used to eating. Those foods are high in fiber, and eating more of them may temporarily cause bloating and diarrhea. To get used to the DASH eating plan, gradually increase your servings of fruits, vegetables, and grains.

A good way to change to the DASH eating plan is to keep a diary of your current eating habits. Write down what you eat, how much, when, and why. Note whether you snack on high-fat foods while watching television or if you skip breakfast and eat a big lunch. Do this for several days. You'll be able to see where you can start making changes.

If you're trying to lose weight, you can still use the DASH eating plan, but follow it at a lower calorie level. Again, a food diary can be helpful. It can tell you if there are certain times that you eat but aren't really hungry or when you can substitute low-calorie foods for high-calorie foods.

Tips on Enjoying the DASH Eating Plan

- Change gradually. Add a vegetable or fruit serving at lunch and dinner.
- Use only half the butter or margarine you do now.
- If you have trouble digesting dairy products, try lactase enzyme pills or drops—they're available at drugstores and groceries. Or buy lactose-free milk or milk with lactase enzyme added to it.
- Get added nutrients such as the B vitamins by choosing whole grain foods, including whole wheat bread or whole grain cereals.
- Spread out the servings. Have two servings of fruits and/or vegetables at each meal, or add fruits as snacks.
- Treat meat as one part of the meal, instead of the focus.
- Have two or more meatless meals a week.
- Use fruits or low-fat foods as desserts and snacks.

The DASH Eating Plan

The DASH eating plan shown below is based on 2,000 calories a day. The number of daily servings in a food group may vary from those listed, depending upon your caloric needs.

Food Group	Daily Servings (Except as noted)	Serving Sizes
Grains and grain products	7-8	1 slice bread 1 c. ready-to-eat cereal* ½ c. cooked rice, pasta or cereal
Vegetables	4-5	1 c. raw leafy vegetable ½ c. cooked vegetable 6 oz. vegetable juice
Fruits	4-5	1 medium fruit ¼ c. dried fruit ½ c. fresh, frozen or canned food
Low-fat or fat free dairy foods	2-3	8 oz. milk 1 c. yogurt 1½ oz. cheese
Lean meats, poultry and fish	2 or fewer	3 oz. cooked lean meat, skinless poultry or fish
Nuts, seeds and dry beans	4-5 per week	⅓ c. or 1½ oz. nuts 1 tbsp. or ½ oz. seeds ½ c. cooked dry beans
Fats and oils [†]	2-3	1 tsp. soft margarine 1 tbsp. low-fat mayonnaise 2 tbsp. light salad dressing 1 tsp. vegetable oil
Sweets	5 per week	1 tbsp. sugar 1 tbsp. jelly or jam ½ oz. jelly beans 8 oz. lemonade

* Serving sizes vary between ½ cup and 1¼ cups. Check the product's nutrition label.

[†] Fat content changes serving counts for fats and oils: For example, 1 tablespoon of regular salad dressing equals 1 serving, 1 tablespoon of low-fat salad dressing equals ½ serving, and 1 tablespoon of fat free salad dressing equals 0 servings.

How to Lose Weight on the DASH Eating Plan

The DASH eating plan was not designed to promote weight loss. But it is rich in low-calorie foods such as fruits and vegetables. You can make it lower in calories by replacing high-calorie foods with more fruits and vegetables which will also make it easier for you to reach your DASH eating plan goals. Here are some examples:

To increase fruits:

- Eat a medium apple instead of four shortbread cookies. You'll save 80 calories.
- Eat ¼ cup of dried apricots instead of a 2-ounce bag of pork rinds. You'll save 230 calories.

To increase vegetables:

- Have a hamburger that's 3 ounces instead of 6 ounces. Add a ½ cup serving of carrots and a ½ cup serving of spinach. You'll save more than 200 calories.
- Instead of 5 ounces of chicken, have a stir fry with 2 ounces of chicken and 1½ cups of raw vegetables. Use a small amount of vegetable oil. You'll save 50 calories.

To increase low-fat or fat free dairy products:

- Have a ½ cup serving of low-fat frozen yogurt instead of a 1½-ounce milk chocolate bar. You'll save about 110 calories.

And don't forget these calorie-saving tips:

- Use low-fat or fat-free condiments, such as fat-free salad dressings.
- Eat smaller portions—cut back gradually.
- Choose low-fat or fat-free dairy products to reduce total fat intake.
- Use food labels to compare fat content in packaged foods. Items marked low-fat or fat-free are not always lower in calories than their regular versions.
- Limit foods with lots of added sugar, such as pies, flavored yogurts, candy bars, ice cream, sherbet, regular soft drinks, and fruit drinks.
- Eat fruits canned in their own juice.
- Snack on fruit, vegetable sticks, unbuttered and unsalted popcorn, or bread sticks.
- Drink water or club soda.

EASY ON THE ALCOHOL

Drinking too much alcohol can raise blood pressure. It also can harm the liver, brain, and heart.

Alcoholic drinks also contain calories, which matters if you are trying to lose weight. If you drink alcoholic beverages, drink only a moderate amount— one drink a day for women, two drinks a day for men.

WHAT COUNTS AS A DRINK?

- 12 oz. beer (regular or light, 150 calories),
- 5 oz. wine (100 calories), or
- 1½ oz. of 80-proof whiskey (100 calories).

SHOPPING FOR FOODS THAT WILL HELP YOU LOWER YOUR BLOOD PRESSURE

By paying close attention to food labels when you shop, you can consume less sodium. Sodium is found naturally in many foods. But processed foods account for most of the salt (sodium) that Americans consume. Processed foods that are high in salt include regular canned vegetables, soups, frozen dinners, lunchmeats, instant and ready-to-eat cereals, salty chips and other snacks.

As you read food labels, you may be surprised that many foods contain sodium, including baking soda, soy sauce, monosodium glutamate (MSG), seasoned salts, and some antacids.

MANAGE YOUR BLOOD PRESSURE MEDICATIONS

If you have high blood pressure, the healthy lifestyle habits noted above may not lower your blood pressure enough. If they don't, you'll need to take blood pressure medications.

Even if you need to take medications, you still must make lifestyle changes. Doing so will help your drugs work better and may reduce how much of them you need.

There are many drugs available to lower blood pressure. They work in various ways. Many people need to take two or more drugs to bring their blood pressure down to a healthy level.

When you start on a drug, work with your doctor to get the right drug and dose level for you. If you have side effects, tell your doctor so the drugs can be adjusted. If you're worried about cost, tell your doctor or pharmacist—there may be a less expensive drug or a generic form that you can use instead.

It's important that you take your drugs as prescribed. Taking your medications as prescribed can prevent a heart attack, stroke, and congestive heart failure, (a serious condition in which the heart cannot pump as much blood as the body needs).

It's easy to forget to take medications. But just like putting your socks on in the morning and brushing your teeth, taking your medicine can become part of your daily routine.

Tips to Help You Remember to Take Your Blood Pressure Drugs

- Put a picture of yourself or a loved one on the refrigerator with a reminder note or put reminder “sticky” notes in visible places like the refrigerator or bathroom mirror.
- Keep your meds next to your toothbrush or on the nightstand next to your the bed.
- Set up a buddy system with a friend who also is on daily medication and arrange to call each other every day with a reminder to “take your blood pressure drugs.”
- Place your drugs in a weekly pillbox, available at most pharmacies.
- If you have a personal computer, program a start-up reminder to take your high blood pressure drugs, or sign up with a free service that will send you a reminder e-mail every day.
- Remember to refill your prescription. Each time you pick up a refill, make a note on your calendar to order and pick up the next refill 1 week before the medication is due to run out.

You can be taking drugs and still not have your blood pressure under control. Everyone—older Americans in particular—must be careful to keep their blood pressure below 140/90 mmHg. If your blood pressure is higher than that, talk with your doctor about adjusting your drugs or making lifestyle changes to bring your blood pressure down.

Some over-the-counter drugs (such as arthritis, allergy medications with decongestants, stimulants and pain drugs) and dietary supplements (such as ephedra, ma huang, bitter orange), excessive caffeine and energy drinks can raise your blood pressure. Be sure to tell your doctor about any nonprescription drugs that you’re taking and ask whether they may make it harder for you to bring your blood pressure under control.

The information that appears in this guide originally appeared in “Your Guide to Lowering Blood Pressure,” which was published by the National Heart, Lung and Blood Institute (NHLBI). The NHLBI is a part of the National Institutes of Health (NIH) and the US Department of Health and Human Services. For more information about the NHLBI, visit <http://www.nhlbi.nih.gov>.



CARDIOVASCULAR NETWORK

The Cardiovascular Network of West Michigan, a joint venture between Trinity Health and University of Michigan Health-West, leverages the combined resources and capabilities of the two award-winning West Michigan health systems and Michigan Medicine's Frankel Cardiovascular Center, one of the nation's highest-rated centers for cardiology and heart surgery.



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