



renew

Home Health

Patient Information Book

Hypertension

What is Hypertension?

Hypertension, also known simply as "high blood pressure", is very common. However, it can lead to many significant complications if left uncontrolled.

When the blood pressure is elevated, the force the blood puts on the walls of the arteries is high and can lead to artery damage. Also, when the heart muscle has to pump blood against a high blood pressure, it thickens and enlarges, just like any muscle does when it has to do more work (think of a weight lifter).

Hypertension develops slowly over the years and frequently does not cause any symptoms until something severe happens such as a heart attack, stroke or heart failure. Fortunately, hypertension is easily diagnosed and treated to help prevent this from happening.

How is Hypertension diagnosed?

Hypertension is diagnosed by measuring the blood pressure with a blood pressure cuff around the arm. Below are the ranges of normal and abnormal blood pressure. The top number is called the "systolic blood pressure" and measures the highest pressure in your arteries – as your heart pumps. The bottom number is called the "diastolic blood pressure" and measures when the pressure in the artery is at its lowest - when your heart relaxes/rests.

Normal: < 120/80

Pre-hypertension: Between 120-139 for the systolic pressure and 80-89 diastolic (120/80 to 139/89)

Hypertension:

> 140/90 if age < 60 OR diabetic OR if kidney disease present.

> 150/90 if age < 60 AND NO diabetes or kidney disease present

What are the symptoms of Hypertension?

Hypertension rarely causes symptoms until some significant event happens - such as a heart attack or stroke. This is why it is often referred to as "The Silent Killer".

When the blood pressure is dangerously high, people may feel a headache or tired. Some people may feel a pounding in their head, have a headache or blurry vision. Hearing the heart beating in the ear especially at night can also be a sign of high blood pressure.

Eventually, symptoms of stroke, heart attack, heart failure or irregular heartbeats can occur.

Why do I have Hypertension?

Most commonly, hypertension is something that simply happens with age. In fact, more than half of people over the age of 60 will develop hypertension. Family history can also be a contributing factor.

While certain risk factors can't be changed, it is important to realize that you do have control over many others risk factors. Regardless of your age or family history, you can take important steps to lower your blood pressure and improve your heart health.

It may be tempting to believe that doing just one healthy thing will take care of your heart. For example, you may hope that if you walk or swim regularly, you can still eat a lot of sodium or fatty foods. But unfortunately, that is not true. To protect your heart, you need to address each and every risk factor that you have. You can make the changes gradually, one at a time. But making them is very important.

Risk Factors:

Smoking - People who smoke are six times more likely to suffer from heart disease than nonsmokers and the risk increases with the number of cigarettes smoked each day.

An unhealthy diet such as one that is high in sodium or fat can contribute to elevated blood pressure and heart disease.

Obesity - Being overweight by just 20 pounds can cause significant elevations in the blood pressure. Also, overweight people are much more likely to have sleep apnea.

Alcohol use - even small amounts of alcohol (1-2 drinks/day) - can elevate blood pressure. The effect is more pronounced in women, so females should limit themselves to one drink a day.

Obstructive Sleep Apnea (OSA) is a common cause of hypertension that is difficult to control with medications, especially in overweight individuals. Snoring and stopping breathing at night (apnea) significantly alters the adrenaline in the system and causes fatigue and many complications including high blood pressure and heart rhythm disorders such as atrial fibrillation.

Kidney/Adrenal/Thyroid disease - The kidneys control many hormones in your body that regulate blood pressure. Kidney disease or blockages in the kidney arteries can increase these hormone levels causing the blood pressure to increase.

Diabetes is a major risk factor for hypertension and heart disease. More than 65 percent of people with diabetes die from some kind of heart disease, with women being at especially high risk for dying of heart disease or stroke.

Medications - Certain drugs (prescription medications and illegal drugs) can increase the blood pressure significantly.

Stress - Much remains to be learned about the connection between stress and heart disease, but a few things are clear. Anger, emotional isolation and demonstrating negative coping behaviors (such as overeating, heavy drinking and smoking) are all bad for your heart.

What medications are used to treat Hypertension?

There are five main types of medications to treat hypertension and many other older types of drugs that can also be effective. It is also important to know that it is not uncommon for a patient to take more than one medication to treat their high blood pressure.

Diuretics (hydrochlorothiazide, chlorthalidone): Also known as "water pills", diuretics are thought to be the safest, most effective medications to treat hypertension.

ACE Inhibitors (i.e. lisinopril, ramipril): These medications work to block the production of the kidney hormone that is frequently overactive and raises blood pressure.

ARBs (i.e. losartan, valsartan): These medications block the receptor that the kidney hormones work at to prevent the hormones from raising the blood pressure.

Calcium Channel Blockers (i.e. amlodipine, diltiazem): These medications relax the muscles in the wall of the arteries and veins to help lower blood pressure.

Beta Blockers (i.e. metoprolol, atenolol): These medications block adrenaline in your system which allows the heart to beat slower and lower blood pressure.

Older Medications: Some older blood pressure medications include hydralazine, isosorbide mononitrate, clonidine, methyldopa and terazosin/doxazosin. These have different mechanisms of action, but can be effective in the treatment of hypertension.

Medication Compliance: Since hypertension rarely exhibits symptoms until a person is seriously ill, patients have been known to choose not to take their hypertension medications as ordered - especially if a patient experiences negative side effects from the medications, such as feeling tired or fatigued after dosing. Please remember, failing to take blood pressure medications is a dangerous practice and places the patient at risk for complications, such as a stroke or heart attack.

If you are experiencing negative side effects from a medication, discuss those effects with your physician or nurse. Often, changes can be made that will ease the symptoms.

Never stop taking your blood pressure medications abruptly without physician approval.

What are the complications of uncontrolled Hypertension?

Coronary Heart Disease: Hypertension has been associated with an increased risk of cardiovascular disease. The higher the blood pressure, the higher the risk becomes. Cardiovascular disease then leads to an increased risk for other heart disease, such as heart failure or heart attack.

Heart Failure: High blood pressure is the number one cause of heart failure. Heart failure happens when the heart is weakened and is unable to pump enough blood to meet the demands of the body. The heart has 1 main function - which is to circulate blood all throughout the body. If something impedes the heart's ability to pump and circulate blood, symptoms of heart failure occur. It is a very serious condition and is often referred to as "congestive heart failure" or CHF.

Heart attack: Also known as "myocardial infarction" or "MI", a heart attack occurs when a blood clot forms inside a coronary artery – the arteries that provide blood to the heart muscle itself. High blood pressure over the time leads to damage of the coronary arteries allowing cholesterol plaque to build and increasing the risk of heart attack.

Stroke: Hypertension can cause stroke in many ways and is the #1 risk factor for stroke. High blood pressure can lead to bleeding in the brain (hemorrhagic stroke), blood clot in the brain (ischemic stroke) or can cause atrial fibrillation which increases the risk of stroke since a blood clot can form inside the heart then travel to the brain.

Atrial Fibrillation: The most common cause of this fast, irregular heartbeat is hypertension. As the blood pressure remains high over time, the stress on the heart makes the muscle thicken and causes the chambers to enlarge. This change in the heart's structure can result in a "short circuit" of the normal electrical pathways that run down the middle of the heart, eventually leading to this serious arrhythmia.

Kidney Disease: Hypertension is the second leading cause of kidney failure. The structures of the kidney that filter waste are tiny and can become damaged over time from the force of high blood pressure. This can cause kidney function to decline. If the damage becomes severe, the kidneys may fail completely and result in the patient requiring dialysis to remove wastes from their blood supply.

Vision Loss: Much like the kidney, the structures in the eye are very, very small. These structures can become damaged over time from the force of high blood pressure. This can lead to vision issues, such as retinopathy, and can result in vision loss.

Vascular dementia - Vascular dementia, the second most common form of dementia, is caused by conditions that damage the blood vessels in the brain and interfere with proper blood flow and oxygen delivery to the brain. High blood pressure can lead to damage of the vessels of the brain.

Peripheral artery disease (PAD): Damage to the peripheral arteries – those that supply blood to the arms, hands, legs, feet, stomach and head – that is caused by hypertension, can decrease the blood supply to those areas of the body and result in pain, swelling, loss of sensation and fatigue in those areas

Angina: Over time, high blood pressure can lead to heart disease or microvascular disease. Angina, or chest pain, is a common symptom of heart disease.

Aneurysms - aneurysms are caused by a weakening of an artery wall due to damage or injury. Many health conditions and lifestyle habits can put you at risk for damage to the aortic wall, including high blood pressure and smoking.

Sexual dysfunction – High blood pressure can lead to erectile dysfunction in men or lower libido in women.

What can I do to lower my blood pressure without medications?

Healthy lifestyle changes can play a big part in lowering your blood pressure. Here are some of the most important steps you can take to decrease your risks associated with hypertension:

If you smoke, STOP! Smoking causes a significant deterioration in your heart health, so addressing this risk factor is one of the most important things you can do. Along with the lung damage that comes from smoking, the nicotine ingested causes blood vessels to constrict and harden. This constriction and hardening increases the pressure within the vessels and causes the blood pressure to become elevated. Even secondhand smoke can have this effect and should be avoided.

Be more physically active – Exercising at least 30 minutes per day at 3 days of the week or more is recommended to help keep blood pressure healthy.

Aim for a healthy weight: Maintaining a normal BMI (body mass index) is very important in keeping blood pressure readings normal. Eat a healthy diet that is low in saturated fat and rich in vegetables, fruits, whole grains and low-fat dairy. Eat foods rich in potassium. The DASH diet (Dietary Approaches to Stop Hypertension) has been shown to reduce blood pressure.

Avoid salt: Sodium in the diet increases the blood pressure in many ways. Salt comes in many foods, so just because you don't add salt to your food it does not mean that you are eating a low salt diet. Read labels and keep sodium intake to less than 2000 mg per day.

Avoid alcohol: Even 1 or 2 alcoholic drinks can significantly increase blood pressure.

Treat sleep apnea: When left uncontrolled, obstructive sleep apnea frequently will make it very difficult, if not impossible to keep blood pressures normal. If you believe you may have undiagnosed sleep apnea, speak to your physician about being tested. If you tested positive and have a CPAP machine, use it! If you are having a difficult time tolerating the facemask you were provided, ask to be refitted for a mask that will be more comfortable. Often, once a patient is fitted for the right type of mask, they love using their CPAP machine and won't leave home without them.

Manage stress levels: Develop a wide circle of supportive people, share your feelings/concerns with others you trust or attend a stress management program. Regular physical activity can also be very effective in reducing stress levels.

What should be my long term plan for managing my Hypertension?

Take your medications, as ordered. Your doctor may need to change or add medicines to your treatment plan over time.

Check your blood pressure and have regular medical checkups or tests as your doctor advises. Your doctor may suggest ways for you to monitor your blood pressure at home. During checkups, talk to your doctor about these important topics:

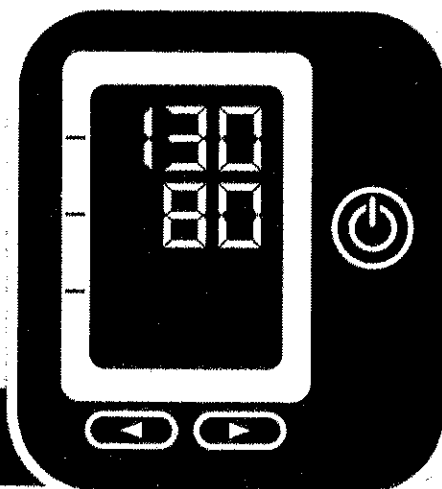
- Blood pressure readings
- Your overall health
- Your treatment plan

To help control your blood pressure and prevent heart disease, keep up your healthy lifestyle changes.

Be mindful of the effects of hypertension and notify your physician if you identify the onset of any new symptoms that might be contributed to elevated blood pressure.

BP Raisers

Learn What Could Raise Your Blood Pressure



Many things can affect your blood pressure (BP). It is critical to understand what medications and substances you should avoid to support a healthy BP.

SMALL CHANGES CAN MAKE A BIG DIFFERENCE

Be your own health advocate by following a healthy lifestyle, such as reducing sodium and checking your blood pressure as part of your daily routine.

High blood pressure – a systolic blood pressure reading of 130 mmHg and above or a diastolic reading of 80 mmHg and above – is a serious health condition that can increase your risk of heart disease and stroke. Take these steps to control your risk.

AVOID:

- Illicit and recreational drugs
- Herbal supplements
- Foods that contain tyramine when taking antidepressants, such as MAOIs (*monoamine-oxidase inhibitors*)



LIMIT:

- Alcohol to less than 1 drink a day for women and less than 2 drinks a day for men
- Caffeine to less than 300 mg per day (about 2-3 cups of coffee); avoid with hypertension
- Decongestants and some cold medicines; avoid with severe or uncontrolled hypertension

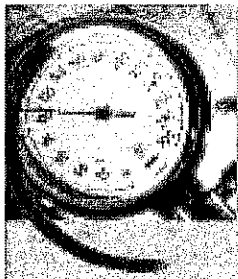


TALK TO YOUR HEALTHCARE PROVIDER ABOUT STARTING, STOPPING OR CHANGING:

- NSAID pain medication (drugs like acetaminophen are less likely to increase BP)
- Amphetamines
- Certain medications to treat mental health
- Corticosteroids, such as prednisone
- Immunosuppressants
- Oral birth control (*consider alternative forms such as barrier, IUD, abstinence*)
- Certain cancer medications (*such as angiogenesis inhibitors*)



NOTE: Do you suffer from chronic pain? Certain medicines can raise your BP or make your BP medication less effective. Talk to your healthcare provider for guidance if you have any questions.



Action Items To

Help Lower Your Blood Pressure

Remember—*You Can Do It!*

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.

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.

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 lowfat 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.

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.

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.

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.





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 and sodium also can reduce blood pressure.

Box 6 gives the servings and food groups for the DASH eating plan. The number of servings that is right for you may vary, depending on your caloric need.

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. Box 7 offers some tips on how to adopt the DASH eating plan.

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 should choose an eating plan that is lower in calories. You can still use the DASH eating plan, but follow it at a lower calorie level. (See box 8.) 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.



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 cup ready-to-eat cereal* 1/2 cup cooked rice, pasta, or cereal
Vegetables	4-5	1 cup raw leafy vegetable 1/2 cup cooked vegetable 6 ounces vegetable juice
Fruits	4-5	1 medium fruit 1/4 cup dried fruit 1/2 cup fresh, frozen, or canned fruit 6 ounces fruit juice
Lowfat or fat free dairy foods	2-3	8 ounces milk 1 cup yogurt 1 1/2 ounces cheese
Lean meats, poultry, and fish	2 or fewer	3 ounces cooked lean meat, skinless poultry, or fish
Nuts, seeds, and dry beans	4-5 per week	1/3 cup or 1 1/2 ounces nuts 1 tablespoon or 1/2 ounce seeds 1/2 cup cooked dry beans
Fats and oils†	2-3	1 teaspoon soft margarine 1 tablespoon lowfat mayonnaise 2 tablespoons light salad dressing 1 teaspoon vegetable oil
Sweets	5 per week	1 tablespoon sugar 1 tablespoon jelly or jam 1/2 ounce jelly beans 8 ounces lemonade

* Serving sizes vary between 1/2 cup and 1 1/4 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 lowfat salad dressing equals 1/2 serving, and 1 tablespoon of fat free salad dressing equals 0 servings.

TIPS ON SWITCHING TO 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. Try casseroles, pasta, and stir-fry dishes. Have two or more meatless meals a week.
- Use fruits or lowfat foods as desserts and snacks.



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—and that also will 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 $\frac{1}{4}$ cup of dried apricots instead of a 2-ounce bag of pork rinds. You'll save 230 calories.

To increase vegetables:

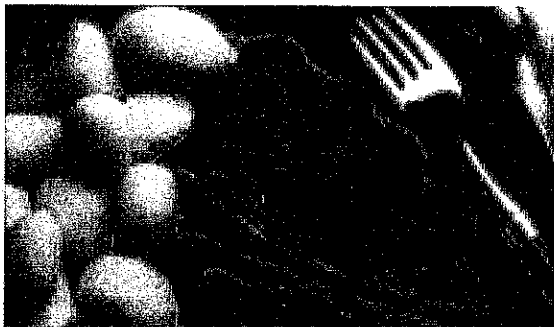
- Have a hamburger that's 3 ounces instead of 6 ounces. Add a $\frac{1}{2}$ cup serving of carrots and a $\frac{1}{2}$ cup serving of spinach. You'll save more than 200 calories.
- Instead of 5 ounces of chicken, have a stir fry with 2 ounces of chicken and $1\frac{1}{2}$ cups of raw vegetables. Use a small amount of vegetable oil. You'll save 50 calories.

To increase lowfat or fat free dairy products:

- Have a $\frac{1}{2}$ cup serving of lowfat frozen yogurt instead of a $1\frac{1}{2}$ -ounce milk chocolate bar. You'll save about 110 calories.

And don't forget these calorie-saving tips:

- Use lowfat or fat free condiments, such as fat free salad dressings.
- Eat smaller portions—cut back gradually.
- Choose lowfat or fat free dairy products to reduce total fat intake.
- Use food labels to compare fat content in packaged foods. Items marked lowfat or fat free are not always lower in calories than their regular versions. See box 11 on how to read and compare food labels.
- 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.





Spice It Up and Use Less Sodium

Use More Spices and Less Salt

An important part of healthy eating is choosing foods that are low in salt (sodium chloride) and other forms of sodium. Using less sodium is key to keeping blood pressure at a healthy level.

Most Americans use more salt and sodium than they need. Some people, such as African Americans and the elderly, are especially sensitive to salt and sodium and should be particularly careful about how much they consume.

Most Americans should consume no more than 2.4 grams (2,400 milligrams) of sodium a day. That equals 6 grams (about 1 teaspoon) of table salt a day. For someone with high blood pressure, the doctor may advise less. The 6 grams includes *all* salt and sodium consumed, including that used in cooking and at the table.

Before trying salt substitutes, you should check with your doctor, especially if you have high blood pressure. These contain potassium chloride and may be harmful for those with certain medical conditions.

Box 9 offers some tips on how to choose and prepare foods that are low in salt and sodium.

box 9

TIPS TO REDUCE SALT AND SODIUM

- Buy fresh, plain frozen, or canned “with no salt added” vegetables.
- Use fresh poultry, fish, and lean meat, rather than canned or processed types.
- Use herbs, spices, and salt-free seasoning blends in cooking and at the table.
- Cook rice, pasta, and hot cereal without salt. Cut back on instant or flavored rice, pasta, and cereal mixes, which usually have added salt.
- Choose “convenience” foods that are low in sodium. Cut back on frozen dinners, pizza, packaged mixes, canned soups or broths, and salad dressings—these often have a lot of sodium.
- Rinse canned foods, such as tuna, to remove some sodium.
- When available, buy low- or reduced-sodium or no-salt-added versions of foods—see box 11 for guidance on how to use food labels.
- Choose ready-to-eat breakfast cereals that are low in sodium.



With herbs, spices, garlic, and onions, you can make your food spicy without salt and sodium. There's no reason why eating less sodium should make your food any less delicious! See box 10 for some great ideas on using spices.

box 10

TIPS FOR USING HERBS AND SPICES

HERBS AND SPICES	USE IN
Basil	Soups and salads, vegetables, fish, and meats
Cinnamon	Salads, vegetables, breads, and snacks
Chili Powder	Soups, salads, vegetables, and fish
Cloves	Soups, salads, and vegetables
Dill Weed and Dill Seed	Fish, soups, salads, and vegetables
Ginger	Soups, salads, vegetables, and meats
Marjoram	Soups, salads, vegetables, beef, fish, and chicken
Nutmeg	Vegetables, meats, and snacks
Oregano	Soups, salads, vegetables, meats, and snacks
Parsley	Salads, vegetables, fish, and meats
Rosemary	Salads, vegetables, fish, and meats
Sage	Soups, salads, vegetables, meats, and chicken
Thyme	Salads, vegetables, fish, and chicken

Experiment with these and other herbs and spices. To start, use small amounts to find out if you like them.

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 and sodium that Americans consume. Processed foods that are high in salt include regular canned vegetables and soups, frozen dinners, lunchmeats, instant and ready-to-eat cereals, and salty chips and other snacks.

Use food labels to help you choose products that are low in sodium. Box 11 shows you how to read and compare food labels.

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.



COMPARE LABELS

Food labels can help you choose items lower in sodium, as well as calories, saturated fat, total fat, and cholesterol. The label tells you:

FROZEN PEAS	
Nutrition Facts	
Serving Size: 1/2 cup	
Servings Per Container: about 3	
Amount Per Serving	
Calories: 60	Calories from Fat: 0
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 125mg	5%
Total Carbohydrate 11g	4%
Dietary Fiber 6g	22%
Sugars 5g	
Protein 5g	
Vitamin A 15% • Vitamin C 30%	
Calcium 0% • Iron 6%	
* Percent Daily Values are based on a 2,000 calorie diet.	

Amount per serving

Nutrient amounts are provided for one serving. If you eat more or less than a serving, add or subtract amounts. For example, if you eat 1 cup of peas, you need to double the nutrient amounts on the label.

Number of servings

There may be more than one serving in the package, so be sure to check serving size.

Nutrients

You'll find the milligrams of sodium in one serving.

Percent daily value

Percent daily value helps you compare products and tells you if the food is high or low in sodium. Choose products with the lowest percent daily value for sodium.

CANNED PEAS	
Nutrition Facts	
Serving Size: 1/2 cup	
Servings Per Container: about 3	
Amount Per Serving	
Calories: 60	Calories from Fat: 0
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 380mg	16%
Total Carbohydrate 12g	4%
Dietary Fiber 3g	14%
Sugars 4g	
Protein 4g	
Vitamin A 6% • Vitamin C 10%	
Calcium 2% • Iron 8%	
* Percent Daily Values are based on a 2,000 calorie diet	

? Which product is lower in sodium?

Answer: The frozen peas. The canned peas have three times more sodium than the frozen peas.

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.

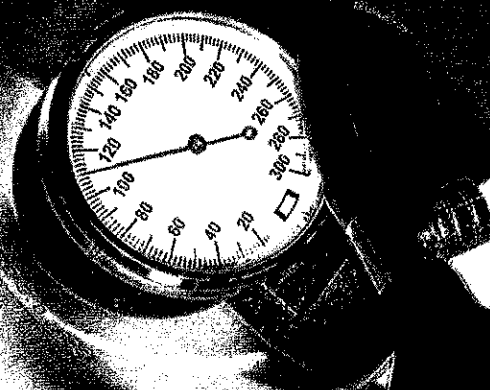
What counts as a drink?

- 12 ounces of beer (regular or light, 150 calories),
- 5 ounces of wine (100 calories), or
- 1 1/2 ounces of 80-proof whiskey (100 calories).

IN BRIEF:

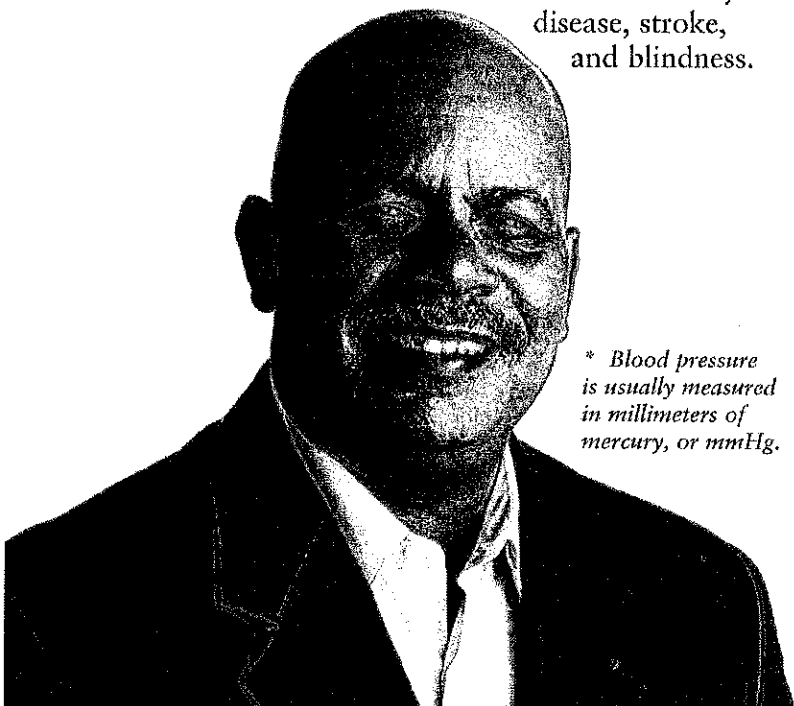


Your Guide To Lowering Your Blood Pressure With DASH



What you eat affects your chances of developing high blood pressure (hypertension). Research shows that high blood pressure can be prevented—and lowered—by following the Dietary Approaches to Stop Hypertension (DASH) eating plan, which includes eating less sodium.

High blood pressure is blood pressure higher than 140/90 mmHg*, and prehypertension is blood pressure between 120/80 and 139/89 mmHg. High blood pressure is dangerous because it makes your heart work too hard, hardens the walls of your arteries, and can cause the brain to hemorrhage or the kidneys to function poorly or not at all. If not controlled, high blood pressure can lead to heart and kidney disease, stroke, and blindness.



* Blood pressure is usually measured in millimeters of mercury, or mmHg.

But high blood pressure can be prevented—and lowered—if you take these steps:

- Follow a healthy eating plan, such as DASH, that includes foods lower in sodium.
- Maintain a healthy weight.
- Be moderately physically active for at least 2 hours and 30 minutes per week.
- If you drink alcoholic beverages, do so in moderation.

If you already have high blood pressure and your doctor has prescribed medicine, take your medicine, as directed, and follow these steps.

The DASH Eating Plan

The DASH eating plan is rich in fruits, vegetables, fat-free or low-fat milk and milk products, whole grains, fish, poultry, beans, seeds, and nuts. It also contains less sodium; sweets, added sugars, and beverages containing sugar; fats; and red meats than the typical American diet. This heart-healthy way of eating is also lower in saturated fat, *trans* fat, and cholesterol and rich in nutrients that are associated with lowering blood pressure—mainly potassium, magnesium, calcium, protein, and fiber.



National Heart, Lung,
and Blood Institute

How Do I Make the DASH?

The DASH eating plan requires no special foods and has no hard-to-follow recipes. It simply calls for a certain number of daily servings from various food groups.

The number of servings depends on the number of calories you're allowed each day. Your calorie level depends on your age and, especially, how active you are. Think of this as an energy balance system—if you want to maintain your current weight, you should take in only as many calories as you burn by being physically active. If you need to lose weight, eat fewer calories than you burn or increase your activity level to burn more calories than you eat.

What is your physical activity level? Are you mostly:

- Sedentary? You do only light physical activity that is part of your typical day-to-day routine.
- Moderately active? You do physical activity equal to walking about 1 to 3 miles a day at 3 to 4 miles per hour, plus light physical activity.
- Active? You do physical activity equal to walking more than 3 miles per day at 3 to 4 miles per hour, plus light physical activity.

Use the chart below to estimate your daily calorie needs.

Your Daily Calorie Needs

Gender	Age (years)	Calories Needed for Each Activity Level		
		Sedentary	Moderately Active	Active
Female	19–30	2,000	2,000–2,200	2,400
	31–50	1,800	2,000	2,200
	51+	1,600	1,800	2,000–2,200
Male	19–30	2,400	2,600–2,800	3,000
	31–50	2,200	2,400–2,600	2,800–3,000
	51+	2,000	2,200–2,400	2,400–2,800

Now that you know how many calories you're allowed each day, find the closest calorie level to yours in the chart on page 3 called "Following the DASH Eating Plan." This shows roughly the number of servings from each food group that you can eat each day.

Next, compare DASH with your current eating pattern. Fill in the "What's on Your Plate and How Much Are You Moving?" chart on page 4 for 1 or 2 days to compare what you usually eat with the DASH eating plan—and note how active you are. This should help you decide what changes you need to make in your food choices—and in the sizes of the portions you eat.

"A Day With the DASH Eating Plan" on page 6 shows a sample menu based on about 2,000 calories a day. Increase or decrease the serving sizes for your own calorie level. This chart also shows the two levels of sodium, 2,300 and 1,500 milligrams (mg), that DASH allows each day. Because fruits and vegetables are naturally lower in sodium than many other foods, DASH makes it easier to eat less sodium. Try it at the 2,300 mg level (about 1 teaspoon of table salt). Then, talk to your doctor about gradually lowering it to 1,500 mg a day. Keep in mind: The less sodium you eat, the more you may be able to lower your blood pressure.

Choose and prepare foods with less sodium and salt, and don't bring the salt shaker to the table. Be creative—try herbs, spices, lemon, lime, vinegar, wine, and salt-free seasoning blends in cooking and at the table. And, because most of the sodium that we eat comes from processed foods, be sure to read food labels to check the amount of sodium in different food products. Aim for foods that contain 5 percent or less of the Daily Value of sodium. Foods with 20 percent or more Daily Value of sodium are considered high. These include baked goods, certain cereals, soy sauce, and some antacids—the range is wide.

DASH Tips for Gradual Change

Make these changes over a couple of days or weeks to give yourself a chance to adjust and make them part of your daily routine:

- Add a serving of vegetables at lunch one day and dinner the next, and add fruit at one meal or as a snack.
- Increase your use of fat-free and low-fat milk products to three servings a day.
- Limit lean meats to 6 ounces a day—3 ounces a meal, which is about the size of a deck of cards. If you usually eat large portions of meats, cut them back over a couple of days—by half or a third at each meal.
- Include two or more vegetarian-style, or meatless, meals each week.

Following the DASH Eating Plan

Use this chart to help you plan your menus—or take it with you when you go to the store.

Food Group	Servings Per Day			Serving Sizes	Examples and Notes	Significance of Each Food Group to the DASH Eating Plan
	1,600 Calories	2,000 Calories	2,600 Calories			
Grains	6	6–8	10–11	1 slice bread 1 oz dry cereal† ½ cup cooked rice, pasta, or cereal	Whole wheat bread and rolls, whole wheat pasta, English muffin, pita bread, bagel, cereals, grits, oatmeal, brown rice, unsalted pretzels and popcorn	Major sources of energy and fiber
Vegetables	3–4	4–5	5–6	1 cup raw leafy vegetable ½ cup cut-up raw or cooked vegetable ½ cup vegetable juice	Broccoli, carrots, collards, green beans, green peas, kale, lima beans, potatoes, spinach, squash, sweet potatoes, tomatoes	Rich sources of potassium, magnesium, and fiber
Fruits	4	4–5	5–6	1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen, or canned fruit ½ cup fruit juice	Apples, apricots, bananas, dates, grapes, oranges, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, raisins, strawberries, tangerines	Important sources of potassium, magnesium, and fiber
Fat-free or low-fat milk and milk products	2–3	2–3	3	1 cup milk or yogurt 1½ oz cheese	Fat-free (skim) or low-fat (1%) milk or buttermilk; fat-free, low-fat, or reduced-fat cheese; fat-free or low-fat regular or frozen yogurt	Major sources of calcium and protein
Lean meats, poultry, and fish	3–6	6 or less	6	1 oz cooked meats, poultry, or fish 1 egg‡	Select only lean meats; trim away visible fat; broil, roast, or poach; remove skin from poultry	Rich sources of protein and magnesium
Nuts, seeds, and legumes	3 per week	4–5 per week	1	½ cup or 1½ oz nuts 2 Tbsp peanut butter 2 Tbsp or ½ oz seeds ½ cup cooked legumes (dry beans and peas)	Almonds, hazelnuts, mixed nuts, peanuts, walnuts, sunflower seeds, peanut butter, kidney beans, lentils, split peas	Rich sources of energy, magnesium, protein, and fiber
Fats and oils§	2	2–3	3	1 tsp soft margarine 1 tsp vegetable oil 1 Tbsp mayonnaise 2 Tbsp salad dressing	Soft margarine, vegetable oil (such as canola, corn, olive, or safflower), low-fat mayonnaise, light salad dressing	The DASH study had 27 percent of calories as fat, including fat in or added to foods
Sweets and added sugars	0	5 or less per week	≤2	1 Tbsp sugar 1 Tbsp jelly or jam ½ cup sorbet, gelatin 1 cup lemonade	Fruit-flavored gelatin, fruit punch, hard candy, jelly, maple syrup, sorbet and ices, sugar	Sweets should be low in fat

* Whole grains are recommended for most grain servings as a good source of fiber and nutrients.

† Serving sizes vary between ½ cup and 1¼ cups, depending on cereal type. Check the product's Nutrition Facts label.

‡ Because eggs are high in cholesterol, limit egg yolk intake to no more than four per week; two egg whites have the same protein content as 1 oz of meat.

§ Fat content changes serving amount for fats and oils. For example, 1 Tbsp of regular salad dressing equals one serving; 1 Tbsp of a low-fat dressing equals one-half serving; 1 Tbsp of a fat-free dressing equals zero servings.

Abbreviations: oz = ounce; Tbsp = tablespoon; tsp = teaspoon

What's on Your Plate and How Much Are You Moving?

Use this form to track your food and physical activity habits before you start on the DASH eating plan or to see how you're doing after a few weeks. To record more than 1 day, just copy the form. Total each day's food groups and compare what you ate with the DASH eating plan at your calorie level.

Date:			Number of Servings by DASH Food Group							
Food	Amount (serving size)	Sodium (mg)	Grains	Vegetables	Fruits	Milk products	Meats, fish, and poultry	Nuts, seeds, and legumes	Fats and oils	Sweets and added sugars
Example: whole wheat bread, with soft (tub) margarine	2 slices 2 tsp	299 52	2						2	
Breakfast										
Lunch										
Dinner										
Snacks										
Day's Totals										
2,000 calorie-level example: Compare yours with the DASH eating plan at your calorie level.		2,300 or 1,500 mg per day	6-8 per day	4-5 per day	4-5 per day	2-3 per day	6 or less per day	4-5 per week	2-3 per day	5 or less per week
Enter your calorie level and servings per day:										
Physical Activity Log Aim for at least 2 hours and 30 minutes of moderate-intensity physical activity per week. When your heart is beating noticeably faster, the activity is probably moderately intense.			30 min 5 min Moderate walking Cleaning							
Record your minutes per day for each activity:			Time:		Type of activity:					

- Increase servings of vegetables, brown rice, whole wheat pasta, and cooked dry beans. Try casseroles and stir-fry dishes, which have less meat and more vegetables, grains, and dry beans.
- For snacks and desserts, use fruits or other foods low in saturated fat, *trans* fat, cholesterol, sodium, sugar, and calories—for example, unsalted rice cakes; unsalted nuts or seeds; raisins; graham crackers; fat-free, low-fat, or frozen yogurt; popcorn with no salt or butter added; or raw vegetables.
- Use fresh, frozen, or low-sodium canned vegetables and fruits.

DASH Hints

- Be aware that the DASH eating plan has more servings of fruits, vegetables, and whole grain foods than you may be used to eating. These foods are high in fiber and may cause some bloating and diarrhea. To avoid these problems, gradually increase the amount of fruit, vegetables, and whole grain foods that you eat over several weeks.
- If you have trouble digesting milk products, try taking lactase-enzyme pills (available at drug stores and groceries) with milk products. Or buy lactose-free milk, which includes the lactase enzyme.
- If you don't like or are allergic to nuts, use seeds or legumes (cooked dried beans or peas).
- If you take medicines to control your high blood pressure, keep taking them. But tell your doctor that you are now eating the DASH way.

Other Lifestyle Changes

Making other lifestyle changes while following the DASH eating plan is the best way to prevent and control high blood pressure.

Lose Weight, If Necessary, While Following DASH
DASH is rich in lower-calorie foods, such as fruits and vegetables, so it easily can be changed to support weight loss. You can reduce calories even more by replacing higher calorie foods, such as sweets, with more fruits and vegetables. The best way to take off pounds is to do it slowly, over time, by getting more physical activity and eating fewer calories. To develop a weight-loss or weight-maintenance program that's tailored for you, talk to your doctor or a registered dietitian.

Be Physically Active While Following the DASH Eating Plan

Combining DASH with a regular physical activity program, such as walking or swimming, will help you shed pounds and stay trim for the long term. Start with a simple 15-minute walk during your favorite time of day, and gradually increase the amount of time you are active. You can do an activity for 30 minutes at one time, or choose shorter periods of at least 10 minutes each. The important thing is to total at least 2 hours and 30 minutes per week of activities at a moderate intensity level. For more health benefits, gradually increase to 5 hours per week.

Make the DASH for Life

DASH can help you prevent and control high blood pressure. It also can help you lose weight, if you need to. It meets your nutritional needs and has other health benefits for your heart. So get started today, and make the DASH for a healthy life.

To Learn More

Contact the National Heart, Lung, and Blood Institute (NHLBI) for information on heart disease and heart health.

NHLBI Health Information Center
P.O. Box 30105
Bethesda, MD 20824-0105
Phone: 301-592-8573
TTY: 240-629-3255
Fax: 301-592-8563

Also check out these heart health resources:

NHLBI Website: <http://www.nhlbi.nih.gov>

"Aim for a Healthy Weight": http://www.nhlbi.nih.gov/health/educational/lose_wt/index.htm

DASH Health Topic: <https://www.nhlbi.nih.gov/health/health-topics/topics/dash>

"Dietary Guidelines for Americans 2010": <http://www.health.gov/dietaryguidelines/>

NHLBI Delicious Heart Healthy Recipes: <https://healthyeating.nhlbi.nih.gov/>

A Day With the DASH Eating Plan

2,300 mg Sodium (Na) Menu	Substitution to Reduce Sodium to 1,500 mg
Breakfast ½ cup instant oatmeal 1 mini whole wheat bagel: 1 Tbsp peanut butter 1 medium banana 1 cup low-fat milk	½ cup regular oatmeal with 1 tsp cinnamon
Lunch Chicken breast sandwich: 2 slices (3 oz) chicken breast, skinless 2 slices whole wheat bread 1 slice (¾ oz) natural cheddar cheese, reduced-fat 1 large leaf romaine lettuce 2 slices tomato 1 Tbsp low-fat mayonnaise 1 cup cantaloupe chunks 1 cup apple juice	1 slice (¾ oz) natural Swiss cheese, low-sodium
Dinner 1 cup cooked spaghetti: ¾ cup low-salt vegetarian spaghetti sauce 3 Tbsp Parmesan cheese Spinach salad: 1 cup fresh spinach leaves ¼ cup fresh carrots, grated ¼ cup fresh mushrooms, sliced 1 Tbsp vinegar and oil dressing ½ cup corn, cooked from frozen ½ cup canned pears, juice pack	
Snacks ½ cup almonds, unsalted ¼ cup dried apricots 1 cup fruit yogurt, fat-free, no sugar added	

Nutrients Per Day	2,300 mg	1,500 mg
Calories	2,027	2,078
Total fat	64 g	68 g
Calories from fat	28%	30%
Saturated fat	13 g	16 g
Calories from saturated fat	6%	7%
Cholesterol	114 mg	129 mg
Sodium	2,035 mg	1,560 mg
Calcium	1,370 mg	1,334 mg
Magnesium	535 mg	542 mg
Potassium	4,715 mg	4,721 mg
Fiber	34 g	34 g

Abbreviations: mg = milligram; Tbsp = tablespoon;
tsp = teaspoon; oz = ounce; g = gram



NIH Publication No. 06-5834
Originally printed December 2006
Revised August 2015