

This SmartCare article is prepared exclusively for:
 Institute Of Endocrinology Diabetes Health And Hormones

Controlling your high blood pressure

Description

Hypertension is another term used to describe high blood pressure. High blood pressure can lead to:

- Stroke
- Heart attack
- Heart failure
- Kidney disease
- Early death

You are more likely to have high blood pressure as you get older. This is because your blood vessels become stiffer as you age. When that happens, your blood pressure goes up.

When is Your Blood Pressure a Concern?

If your blood pressure is high, you need to lower it and keep it under control. Your blood pressure reading has 2 numbers. One or both of these numbers can be too high.

- The top number is called the **systolic blood pressure**. For most people, this



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Every health care visit should include a blood pressure reading



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reading is too high if it is 140 or higher.

- The bottom number is called the **diastolic blood pressure**. For most people, this reading is too high if it is 90 or higher.

Look for these words:

LOW-SODIUM
 sodium-free no salt added
 sodium-reduced
 UNSALTED



The above blood pressure numbers are goals that most experts agree on for most people. For some people age 60 years and above, some health care providers recommend a blood pressure goal of 150/90. Some patients may have blood pressure goals lower than these targets, in particular circumstances. Your provider will work with you to create a blood pressure goal that applies to you specifically.

Nutrition Facts	
3.5 servings per container	
Serving size	1/2 cup (121g)
Amount per serving	
Calories	35
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 25mg	1%
Potassium 230mg	7%
Total Carbohydrate 7g	2%
Dietary Fiber 2g	8%
Total Sugars 3g	
Includes 10g Added Sugars	0%
Protein 1g	

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Medicines for Blood Pressure

Many medicines can help you control your blood pressure. Your provider will:

- Prescribe the best medicine for you
- Monitor your medicines
- Make changes if needed

Older adults tend to take more medicines and this puts them at greater risk for harmful side effects. One side effect of blood pressure medicine is an increased risk for falls. When treating older adults, blood pressure goals need to be balanced against medicine side effects.

Diet, Exercise, and Other Lifestyle Changes

In addition to taking medicine, you can do many things to help control your blood pressure. Some of these include:

- Limit the amount of sodium (salt) you eat. Aim for less than 1,500 mg per day.
- Limit how much alcohol you drink, no more than 1 drink a day for women and 2 a day for men.
- Eat a heart-healthy diet that includes the recommended amounts of potassium and fiber.
- Drink plenty of water.
- Stay at a healthy body weight. Find a weight-loss program, if you need it.
- Exercise regularly. Get at least 40 minutes of moderate to vigorous aerobic exercise at least 3 to 4 days a week aiming for at least 150 minutes per week.

- Reduce stress. Try to avoid things that cause you stress, and try meditation or yoga to de-stress.
- If you smoke, quit. Find a program that will help you stop.

Your provider can help you find programs for losing weight, stopping smoking, and exercising. You can also get a referral to a dietitian from your provider. The dietitian can help you plan a diet that is healthy for you.

Checking Your Blood Pressure

Your blood pressure can be measured at many places, including:

- Home
- Your provider's office
- Your local fire station
- Some pharmacies

Your provider may ask you to keep track of your blood pressure at home. Make sure you get a good quality, well-fitting home device. It is best to have one with a cuff for your arm and a digital readout. Practice with your provider to make sure you are taking your blood pressure correctly.

It is normal for your blood pressure to be different at different times of the day.

It is most often higher when you are at work. It drops slightly when you are at home. It is most often lowest when you are sleeping.

It is normal for your blood pressure to increase suddenly when you wake up. For people with very high blood pressure, this is when they are most at risk for heart attack and stroke.

Follow-up

Your provider will give you a physical exam and check your blood pressure often. With your provider, establish a goal for your blood pressure.

If you monitor your blood pressure at home, keep a written record. Bring the results to your clinic visit.

When to Call the Doctor

Contact your provider if your blood pressure goes well above your normal range.

Also contact your provider if you have any of the following symptoms:

- Severe headache
- Irregular heartbeat or pulse
- Chest pain
- Sweating

- Nausea or vomiting
- Shortness of breath
- Dizziness or lightheadedness
- Pain or tingling in the neck, jaw, shoulder, or arms
- Numbness or weakness in your body
- Fainting
- Trouble seeing
- Confusion
- Difficulty speaking
- Other side effects that you think might be from your medicine or your blood pressure

Controlling hypertension

Review Date: August 23, 2022.

Reviewed By: Thomas S. Metkus, MD, Assistant Professor of Medicine and Surgery, Johns Hopkins University School of Medicine, Baltimore, MD. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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06/01/2025

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Cooking without salt

Description

Sodium is one of the main elements in table salt (NaCl or sodium chloride). It is added to many foods to enhance the flavor. Too much sodium is linked to high blood pressure.

Eating a low-salt diet is an important way to take care of your heart. Most people eat about 3,400 mg of sodium a day. This is about twice as much as the American Heart Association recommends. Most healthy people should have no more than 2,300 mg of sodium a day. People over 50 years old, and those who have high blood pressure, may need to limit sodium to 1,500 mg a day or less.

To get down to a healthy level, learn how to trim the excess salt from your diet.

Avoid Prepared Foods

Ready-to-eat foods make dinner preparation easy, but they account for 75% of the sodium in the American diet. They include:

- Prepared mixes
- Packaged rice dishes
- Soups
- Canned foods
- Frozen meals
- Packaged baked goods
- Fast food

A healthy level of sodium is 140 mg or less per serving. If you use prepared foods, limit sodium by:

Look for these words:

LOW-SODIUM
sodium-free
no salt added
sodium-reduced
UNSALTED



Nutrition Facts	
3.5 servings per container	
Serving size 1/2 cup (121g)	
Amount per serving	
Calories	35
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 25mg	1%
Potassium 230mg	7%
Total Carbohydrate 7g	2%
Dietary Fiber 2g	8%
Total Sugars 3g	
Includes 10g Added Sugars	0%
Protein 1g	

ADAM.

- Looking closely at the nutrition facts label for the milligrams (mg) of sodium per serving. Be sure to note how many servings are in the package.
- Using products labeled "low-sodium," or "no salt added."
- Checking the nutrition labels of cereals, bread, and prepared mixes.
- Rinsing canned beans and vegetables to wash off some of the sodium.
- Using frozen or fresh vegetables in place of canned vegetables.
- Avoiding cured meats like ham and bacon, pickles, olives, and other foods prepared in salt.
- Choosing unsalted brands of nuts and trail mix.

Also, use small amounts of condiments like ketchup, mustard, and soy sauce. Even the low-salt versions are often high in sodium.

Bring on the Fresh Produce

Fruits and vegetables are a great source of flavor and nutrition.

- Plant-based foods -- carrots, spinach, apples, and peaches -- are naturally low in sodium.
- Sun-dried tomatoes, dried mushrooms, cranberries, cherries, and other dried fruits are bursting with flavor. Use them in salads and other dishes to add zest.

Try Salt-free Cooking

Explore other flavors when you are cooking.

- Add a splash of lemon and other citrus fruits, or wine, to soups and other dishes. Use them as a marinade for chicken and other meats.
- Avoid onion or garlic salt. Instead, use fresh garlic and onion, or onion and garlic powder.
- Try different types of pepper, including black, white, green, and red.
- Experiment with vinegars (white and red wine, rice wine, balsamic, and others). For the most flavor, add it at the end of cooking time.
- Toasted sesame oil adds a savory flavor without added salt.

Read the labels on spice mixes. Some have added salt.

To add a little heat and spice, try:

- Dry mustard
- Fresh chopped hot peppers
- A sprinkle of paprika, cayenne pepper, or dried hot red pepper

Help Yourself to Herbs and Spices

Herbs and spices provide a mix of flavors. If you are not sure what spices to use, do a taste test. Mix a small pinch of a spice or spice mix into a lump of low-fat cream cheese. Let it sit for an hour or more, then try it and see if you like it.

Try these flavors to liven up your meals without salt.

Herbs and spices on vegetables:

- Carrots -- Cinnamon, cloves, dill, ginger, marjoram, nutmeg, rosemary, sage
- Corn -- Cumin, curry powder, paprika, parsley
- Green beans -- Dill, lemon juice, marjoram, oregano, tarragon, thyme
- Tomatoes -- Basil, bay leaf, dill, marjoram, onion, oregano, parsley, pepper

Herbs and spices on meat:

- Fish -- Curry powder, dill, dry mustard, lemon juice, paprika, pepper
- Chicken -- Poultry seasoning, rosemary, sage, tarragon, thyme
- Pork -- Garlic, onion, sage, pepper, oregano
- Beef -- Marjoram, nutmeg, sage, thyme

Source: *Flavor That Food, National Heart, Lung, and Blood Institute*

Adjust to Less Salt

You will notice a difference when you first start cooking without salt. Fortunately, your sense of taste will change. After a period of adjustment, most people stop missing salt and start enjoying the other flavors of food.

Salt-free Recipe

There are many great tasting low sodium recipes. Here's one you can try.

Chicken and Spanish Rice

- One cup (240 mL) onions, chopped
- Three fourth cup (180 mL) green peppers
- Two teaspoons (tsp) (10 mL) vegetable oil
- One 8-oz (240 g) can tomato sauce*
- One tsp (5 mL) parsley, chopped
- One half tsp (2.5 mL) black pepper
- One and a quarter tsp (6 mL) garlic, minced
- Five cups (1.2 L) cooked brown rice (cooked in unsalted water)
- Three and a half cups (840 mL) chicken breasts, cooked, skin and bone removed, and diced

1. In a large skillet, sauté onions and green peppers in oil for 5 minutes on medium heat.
2. Add tomato sauce and spices. Heat through.
3. Add cooked rice and chicken. Heat through.

*To further reduce sodium, use one 4-oz (120 g) can of low-sodium tomato sauce and one 4-oz (120 g) can of regular tomato sauce.

Source: *Your Guide to Lowering Your Blood Pressure with DASH, U.S. Health and Human Services.*

DASH diet; High blood pressure - DASH; Hypertension - DASH; Low-salt diet - DASH

Review Date: June 22, 2022.

Reviewed By: Stefania Manetti, RD/N, CDCES, RYT200, My Vita Sana LLC - Nourish and heal through food, San Jose, CA. Review provided by VeriMed Healthcare Network. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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DASH diet to lower high blood pressure

Definition

DASH stands for Dietary Approaches to Stop Hypertension and is recommended by the US National Heart, Lung and Blood Institute. The DASH diet can help lower high blood pressure, cholesterol and other fats in your blood. It can help lower your risk for heart attack and stroke and help you lose weight. This diet is low in sodium (salt) and rich in nutrients.

Follow the DASH diet to potentially lower your blood pressure



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How DASH Works

The DASH diet reduces high blood pressure by lowering the amount of sodium in your diet to 2300 milligrams (mg) a day. Lowering sodium to 1500 mg a day reduces blood pressure even more. The DASH diet also includes a variety of foods rich in nutrients that may help some people lower blood pressure, such as potassium, calcium, and magnesium.

On the DASH diet, you will:

- Get plenty of vegetables, fruits, and fat-free or low-fat dairy
- Include whole grains, beans, seeds, nuts, and vegetable oils
- Eat lean meats, poultry, and fish
- Cut back on salt, red meat, sweets, and sugary drinks
- Limit alcoholic beverages

You should also get at least 30 minutes of moderate intensity exercise most days of the week. Examples include brisk walking or riding a bike. Aim to get at least 2 hours and 30 minutes of exercise per week.

You can follow the DASH diet if you want to prevent high blood pressure. It can also help you lose extra weight. Most people can benefit from lowering sodium intake to 2300 mg a day.

Your health care provider may suggest cutting back to 1500 mg a day if you:

- Already have high blood pressure
- Have diabetes or chronic kidney disease
- Are African American
- Are age 51 years or older

If you take medicine to treat high blood pressure, do not stop taking your medicine while on the DASH diet. Be sure to tell your provider you are following the DASH diet.

How to get Started

On the DASH diet, you can eat foods from all food groups. But you will include more of the foods that are naturally low in salt, cholesterol, and saturated fats. You will also include foods that are high in potassium, calcium, magnesium, and fiber.

Here's a list of the food groups and how many servings of each you should have per day. For a diet that has 2000 calories per day, you should eat:

- Vegetables (4 to 5 servings a day)
- Fruits (4 to 5 servings a day)
- Low-fat or fat-free dairy products, such as milk or yogurt (2 to 3 servings a day)
- Grains (6 to 8 servings a day, and 3 should be whole grains)
- Fish, lean meats, and poultry (2 servings or less a day)
- Beans, seeds, and nuts (4 to 5 servings a week)
- Fats and oils (2 to 3 servings a day)
- Sweets or added sugars, such as jelly, hard candy, maple syrup, sorbet, and sugar (fewer than 5 servings a week)

The number of servings you have each day depends on how many calories you need.

- If you're trying to lose weight, you may need fewer servings than listed.
- If you are not very active, aim for the lower number of servings listed.
- If you are moderately active, have the higher number of servings.
- If you are very active, you may need more servings than listed.

Your provider can help find the right number of servings a day for you.

Know your Serving Sizes

To know how much to eat, you need to know serving sizes. Below are sample servings for each food group.

Vegetables:

- 1 cup (70 grams) raw leafy vegetables
- ½ cup (90 grams) chopped raw or cooked vegetables

Fruits:

- 1 medium fruit (6 ounces or 168 grams)
- ½ cup (70 grams) fresh, frozen, or canned fruit
- ¼ cup (25 grams) dried fruit

Fat-free or low-fat dairy products:

- 1 cup (240 milliliters) milk or yogurt
- 1½ ounce (oz) or 50 grams (g) cheese

Grains (Aim to make all of your grain choices whole grain. Whole grain products contain more fiber and protein than "refined" grain products.):

- 1 slice bread
- ½ cup (80 grams) cooked rice, pasta, or cereal

Lean meats, poultry, and fish:

- 3 oz (85 g) of cooked fish, lean meat, or poultry

Nuts, seeds, and legumes:

- ½ cup (90 grams) cooked legumes (dried beans, peas)
- 1/3 cup (45 grams) nuts
- 1 tablespoon (10 grams) seeds

Fats and oils:

- 1 teaspoon (5 milliliters) vegetable oil
- 2 tablespoons (30 grams) low-fat salad dressing
- 1 teaspoon (5 grams) soft margarine

Sweets and added sugars:

- 1 tablespoon (15 grams) sugar
- 1 tablespoon (15 grams) jelly or jam
- ½ cup (70 grams) sorbet, gelatin dessert

Tips for Following the DASH Diet

The DASH diet is designed to be easy to follow. But it might mean making some changes to how you currently eat. To get started:

- Do not try to make changes all at once. It's fine to change your eating habits gradually.
- To add vegetables to your diet, try having a salad at lunch. Or, add cucumber, lettuce, shredded carrots, or tomatoes to your sandwiches.
- There should always be something green on your plate. It's fine to use frozen vegetables instead of fresh. Just make sure the package does not contain added salt or fat.
- Add sliced fruit to your cereal or oatmeal for breakfast.
- For dessert, choose fresh fruit or low-fat frozen yogurt instead of high-calorie sweets, such as cakes or pies.
- Choose healthy snacks, such as unsalted rice cakes or popcorn, raw vegetables, or yogurt. Dried fruits, seeds, and nuts also make great snack choices. Just keep these portions small because these foods are high in total calories.
- Think of meat as part of your meal, instead of the main course. Limit your servings of lean meat to 6 ounces (170 grams) a day. You can have two 3-ounce (85 grams) servings during the day.
- Try cooking without meat at least twice each week. Instead, eat beans, nuts, tofu, or eggs for your protein.

Tips to Lower Your Salt

To lower the amount of salt in your diet:

- Take the salt shaker off the table.
- Flavor your food with herbs and spices instead of salt. Lemon, lime, and vinegar also add flavor.
- Avoid canned foods and frozen entrees. They are often high in salt. When you make things from scratch you have more control over how much salt goes in them.
- Check all food labels for sodium. You may be surprised at how much you find, and where you find it. Frozen dinners, soups, salad dressings, and prepared foods often have a lot of sodium.
- Choose foods that contain less than 5% of the daily value of sodium.
- Look for low-sodium versions of foods when you can find them.
- Limit foods and condiments that have a lot of salt, such as pickles, olives, cured meats, ketchup, soy sauce, mustard, and barbecue sauce.
- When dining out, ask that your food be made with no added salt or MSG.

Where to get More Information

There are many books about the DASH diet plan to help you get started. These books can also provide sample meal plans and recipe ideas.

Review Date: October 25, 2022.

Reviewed By: Frank D. Brodkey, MD, FCCM, Associate Professor, Section of Pulmonary and Critical Care Medicine, University of Wisconsin School of Medicine and Public Health, Madison, WI. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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High blood pressure - what to ask your doctor

Definition

When your heart pumps blood into your arteries, the pressure of the blood against the artery walls is called your blood pressure. Your blood pressure is given as two numbers: systolic over diastolic blood pressure. Your systolic blood pressure is the highest blood pressure during the course of your heart beat cycle. Your diastolic blood pressure is the lowest pressure.

When your blood pressure gets too high, it puts extra stress on your heart and blood vessels. If your blood pressure stays high all the time, you will be at a higher risk for heart attacks and other vascular (blood vessel) diseases, strokes, kidney disease, and other health problems.

Below are questions you may want to ask your health care provider to help you take care of your blood pressure.

Questions

How can I change the way I live to lower my blood pressure?

- What is a heart-healthy diet? Is it OK to ever eat something that is not heart healthy? What are some ways to eat healthy when I go to a restaurant?
- Do I need to limit how much salt I use? Are there other spices that I can use to make my food taste good?
- Is it OK to drink alcohol? How much is OK?
- What can I do to stop smoking? Is it OK to be around other people who are smoking?

Should I check my blood pressure at home?

- What type of equipment should I buy? Where can I learn how to use it?
- How often do I need to check my blood pressure? Should I write it down and bring it to my next visit?
- If I cannot check my own blood pressure, where else can I have it checked?
- What should my blood pressure reading be? Should I rest before taking my blood pressure?

- When should I call my provider?

What is my cholesterol? Do I need to take medicines for it?

Is it OK to be sexually active? Is it safe to use sildenafil (Viagra), vardenafil (Levitra), or tadalafil (Cialis), or avanafil (Stendra) for erection problems?

What medicines am I taking to treat high blood pressure?

- Do they have any side effects? What should I do if I miss a dose?
- Is it ever safe to stop taking any of these medicines on my own?

How much activity can I do?

- Do I need to have a stress test before I exercise?
- Is it safe for me to exercise on my own?
- Should I exercise inside or outside?
- Which activities should I start with? Are there activities or exercises that are not safe for me?
- How long and how hard can I exercise?
- What are the warning signs that I should stop exercising?

What to ask your doctor about high blood pressure; Hypertension - what to ask your doctor

Review Date: March 02, 2023.

Reviewed By: Jacob Berman, MD, MPH, Clinical Assistant Professor of Medicine, Division of General Internal Medicine, University of Washington School of Medicine, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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Understanding the DASH diet

Description

Follow the DASH diet to potentially lower your blood pressure

The DASH diet is low in salt and rich in fruits, vegetables, whole grains, low-fat dairy, and lean protein. DASH stands for Dietary Approaches to Stop Hypertension. The diet was first created to help lower high blood pressure. It is also a healthy way to lose weight.



How it Works

The DASH diet helps you eat nutritious foods.



This is not just a traditional low-salt diet. The DASH diet emphasizes foods high in calcium, potassium, magnesium, and fiber, which, when combined, help lower blood pressure.

To follow the DASH diet for weight loss, you eat plenty of:

- Non-starchy vegetables and fruit

You eat moderate portions of:

- Fat-free or low-fat dairy products
- Whole grains
- Lean meats, poultry, beans, soy foods, legumes, and eggs and egg substitutes
- Fish
- Nuts and seeds
- Heart-healthy fats, such as olive and canola oil or avocados

You should limit:

- Sweets and sugar-sweetened beverages
- Foods high in saturated fats such as full-fat dairy, fatty meals, tropical oils, and most packaged snacks
- Alcohol intake

Your health care provider can help you figure out how many calories you need to eat each day. Your calorie needs are influenced by your age, sex, activity level, medical conditions, and whether or not you are trying to lose or maintain your weight. The "A Day With the DASH Eating Plan" helps you track how many servings of each type of food you can eat. There are plans for 1,200; 1,400; 1,600; 1,800; 2,000; 2,600; and 3,100 calories per day. DASH suggests smaller portions and healthy food swaps to aid weight loss.

You can follow an eating plan that allows for either 2,300 milligrams (mg) or 1,500 mg of salt (sodium) per day.

Off-Limit Foods

When following the DASH plan, you should limit how much you eat of these foods:

- Foods with added salt (sodium) and adding salt to foods
- Alcohol
- Sugar-sweetened beverages
- Foods high in saturated fats, such as whole fat dairy and deep-fried foods
- Packaged snacks, which are often high in fat, salt, and sugar

Before you increase the potassium in your diet or use salt substitutes (which often contain potassium), check with your provider. People who have kidney problems or who take certain medicines must be careful about how much potassium they consume.

The Role of Exercise

DASH recommends at least 30 minutes of exercise a day, most days of the week. The important thing is to total at least 2 hours and 30 minutes per week of activities at a moderate-intensity level. Do exercises that get your heart pumping. To help prevent weight gain, exercise for 60 minutes a day.

Health Benefits

The DASH diet has been widely studied and has many health benefits. Following this diet plan may help:

- Lower high blood pressure
- Reduce the risk for heart disease, heart failure, and stroke
- Help prevent or control type 2 diabetes
- Improve cholesterol levels
- Reduce the chance of kidney stones

The National Heart, Blood, and Lung Institute helped develop the DASH diet. It is also recommended by:

- The American Heart Association

- U.S. guidelines for treatment of high blood pressure

Possible Health Concerns

Following this diet will provide all the nutrients you need. It is safe for both adults and children. It is low in saturated fat and high in fiber, an eating style that is recommended for everyone.

If you have a health condition, it is a good idea to talk with your provider before starting this or any diet plan to lose weight.

On the DASH diet eating plan you will likely be eating a lot more of fruits, vegetables, and whole grains. These foods are high in fiber and increasing your intake of fiber too quickly may cause GI discomfort. Slowly increase how much fiber you eat each day and be sure to drink plenty of fluids.

Ease of Use

In general, the diet is easy to follow and should leave you feeling satisfied. You will be buying more fruits and vegetables than before, which may be more expensive than prepared foods.

The diet is flexible enough to follow if you are vegetarian, vegan, or gluten-free.

Where to Find More Information

You can get started by going to the National Heart, Blood, and Lung Institute web page "What Is the DASH Eating Plan?" -- www.nhlbi.nih.gov/health-topics/dash-eating-plan.

You can also buy books about the DASH diet that include diet tips and recipes.

Hypertension - DASH diet; Blood-pressure - DASH diet

Review Date: August 15, 2022.

Reviewed By: Linda J. Vorvick, MD, Clinical Professor, Department of Family Medicine, UW Medicine, School of Medicine, University of Washington, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

Blood pressure measurement

Definition

Blood pressure is a measurement of the force on the walls of your arteries as your heart pumps blood through your body.

You can measure your blood pressure at home. You can also have it checked at your health care provider's office or even a fire station.

How the Test is Performed

Sit in a chair with your back supported. Your legs should be uncrossed, and your feet on the floor.

Your arm should be supported so that your upper arm is at heart level. Roll up your sleeve so that your arm is bare. Be sure the sleeve is not bunched up and squeezing your arm. If it is, take your arm out of the sleeve, or remove the shirt entirely.

You or your provider will wrap the blood pressure cuff snugly around your upper arm. The lower edge of the cuff should be 1 inch (2.5 cm) above the bend of your elbow.

- The cuff will be inflated quickly. This is done either by pumping the squeeze bulb or pushing a button on the device. You will feel tightness around your arm.
- Next, the valve of the cuff is opened slightly, allowing the pressure to slowly fall.
- As the pressure falls, the reading when the sound of blood pulsing is first heard is recorded. This is the systolic pressure.
- As the air continues to be let out, the sounds will disappear. The point at which the sound stops is recorded. This is the diastolic pressure.

Inflating the cuff too slowly or not inflating it to a high enough pressure may cause a false reading. If you loosen the valve too much, you will not be able to measure your blood pressure.

The procedure may be done two or more times.

How to Prepare for the Test

Before you measure your blood pressure:

- Rest for at least 5 minutes, 10 minutes is better, before blood pressure is taken.
- DO NOT take your blood pressure when you are under stress, have had caffeine or used tobacco in the past 30 minutes, or have exercised recently.

Take 2 or 3 readings at a sitting. Take the readings 1 minute apart. Remain seated. When checking your blood pressure on your own, note the time of the readings. Your provider may suggest that you do your readings at certain times of the day.

- A typical approach is to take your blood pressure before breakfast and dinner for 5 days.
- This will give you at least 10 readings and will help your provider make decisions about your blood pressure treatment.

How the Test will Feel

You will feel slight discomfort when the blood pressure cuff is inflated to its highest level.

Why the Test is Performed

High blood pressure has no symptoms, so you may not know if you have this problem. High blood pressure is often discovered during a visit to the provider for another reason, such as a routine physical exam.

Finding high blood pressure and treating it early can help prevent heart disease, stroke, eye problems, or chronic kidney disease. All adults 18 years and older should have their blood pressure checked regularly:

- Once a year for adults aged 40 years and older
- Once a year for people at increased risk for high blood pressure, including people who are overweight or obese, African Americans, and those with elevated blood pressure 120/80 mm Hg or higher
- Every 3 to 5 years for adults aged 18 to 39 years with blood pressure lower than 120/80 mm Hg who do not have other risk factors

Your provider may recommend more frequent screenings based on your blood pressure levels and other health conditions.

Normal Results

Blood pressure readings are usually given as two numbers. For example, your provider might tell you that your blood pressure is 120 over 80 (written as 120/80 mm Hg). One or both of these numbers can be too high.

Normal blood pressure is when the top number (systolic blood pressure) is below 120 and the bottom number (diastolic blood pressure) is below 80 (written as 120/80 mm Hg).

What Abnormal Results Mean

If your blood pressure is 120-129/80, you have elevated blood pressure.

- Your provider will recommend lifestyle changes to bring your blood pressure down to a normal range.
- Medicines are rarely used at this stage.

If your blood pressure is 130/80 or higher but lower than 140/90 mm Hg, you have Stage 1 high blood pressure. When thinking about the best treatment, you and your provider must consider:

- If you have no other diseases or risk factors, your provider may recommend lifestyle changes and repeat the measurements after a few months.
- If your blood pressure remains 130/80 or higher but lower than 140/90 mm Hg, your provider may recommend medicines to treat high blood pressure.
- If you have other diseases or risk factors for heart disease, your provider may be more likely to recommend medicines to treat high blood pressure and make lifestyle changes.

If your blood pressure is 140/90 mm Hg or higher, you have Stage 2 high blood pressure. Your provider will most likely recommend you start medicines and make lifestyle changes.

Most of the time, high blood pressure does not cause symptoms.

Considerations

It is normal for your blood pressure to vary at different times of the day:

- It is usually higher when you are at work.
- It drops slightly when you are at home.
- It is usually lowest when you are sleeping.
- It is normal for your blood pressure to increase suddenly when you wake up. In people with very high blood pressure, this is when they are most at risk for a heart attack and stroke.

Blood pressure readings taken at home may be a better measure of your current blood pressure than those taken at your provider's office.

- Make sure your home blood pressure monitor is accurate.
- Ask your provider to compare your home readings with those taken in the office.

Many people get nervous at the provider's office and have higher readings than they have at home. This is called white coat hypertension. Home blood pressure readings can help detect this problem.

Diastolic blood pressure; Systolic blood pressure; Blood pressure reading; Measuring blood pressure; Hypertension - blood pressure measurement; High blood pressure - blood pressure measurement; Sphygmomanometry

Review Date: July 25, 2022.

Reviewed By: Linda J. Vorvick, MD, Clinical Professor, Department of Family Medicine, UW Medicine, School of Medicine, University of Washington, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

Blood pressure monitors for home

Information

Your health care provider may ask you to keep track of your blood pressure at home. To do this, you will need to get home blood pressure monitor. The monitor you choose should be good quality and fit well.

MANUAL BLOOD PRESSURE MONITORS

- Manual devices include a cuff that wraps around your arm, a rubber squeeze bulb, and a gauge that measures the blood pressure. A stethoscope is needed to listen to the blood pulsing through the artery.
- You can see your blood pressure on the circular dial of the gauge as the needle moves around and the pressure in the cuff rises or falls.
- When used correctly, manual devices are very accurate. However, they are not the recommended type of blood pressure monitor for home use.

DIGITAL BLOOD PRESSURE MONITORS

- A digital device will also have a cuff that wraps around your arm. To inflate the cuff, you may need to use a rubber squeeze ball. Other kinds will inflate automatically when you push a button.
- After the cuff is inflated, the pressure will slowly drop on its own. The screen will show a digital readout of your systolic and diastolic blood pressure.
- After showing your blood pressure, the cuff will deflate on its own. With many machines, you must wait for 15 to 30 seconds before using it again.
- A digital blood pressure monitor will not be as accurate if your body is moving when you are using it. Also, an irregular heart rate will make the reading less accurate. However, digital monitors are the best choice for home use for most people.

TIPS FOR MONITORING YOUR BLOOD PRESSURE

- Practice using the monitor with your provider or nurse to make sure you are taking your blood pressure correctly.
- Your arm should be supported, with your upper arm at heart level and feet on the floor (back supported, legs uncrossed).
- It's best to measure your blood pressure after you rest for at least 5 minutes.

- Do not take your blood pressure when you are under stress, have had caffeine or used a tobacco product in the last 30 minutes, or have recently exercised.
- Take at least 2 readings 1 minute apart in the morning before taking medicines and in evening before eating supper. Try to measure and record BP daily for 5 days and then report your results to your provider.

Hypertension - home monitoring

Review Date: August 20, 2023.

Reviewed By: Jacob Berman, MD, MPH, Clinical Assistant Professor of Medicine, Division of General Internal Medicine, University of Washington School of Medicine, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

High blood pressure and diet

Information

Follow the DASH diet to potentially lower your blood pressure

Making changes to your diet is a proven way to help control high blood pressure. These changes can also help you lose weight and lower your chance of heart disease and stroke.

Your health care provider can refer you to a dietitian who can help you create a healthy meal plan. Ask what your blood pressure target is. Your target will be based on your risk factors and other medical problems.



DASH DIET

The low-salt Dietary Approaches to Stop Hypertension (DASH) diet is proven to help lower blood pressure. Its effects on blood pressure are sometimes seen within a few weeks.

This diet is rich in important nutrients and fiber. It also includes foods that are higher in potassium, calcium, and magnesium and lower in sodium (salt) than the typical American diet.

The goals of the DASH diet are:

- Limit sodium to no more than 2,300 mg a day (eating only 1,500 mg a day is an even more effective goal).

Saturated fats are found in animal products such as butter, cheese, whole milk, ice cream, cream, and fatty meats, and oils such as coconut, palm, and palm kernel oil



- Reduce saturated fat to no more than 6% of daily calories and total fat to 27% of daily calories. Low-fat dairy products appear to be especially beneficial for lowering systolic blood pressure.
- When choosing fats, select monounsaturated oils, such as olive or canola oil.
- Choose whole grains over white flour or pasta products.
- Choose fresh fruits and vegetables every day. Many of these foods are rich in potassium, fiber, or both.
- Eat nuts, seeds, or legumes (dried beans or peas) daily.
- Choose modest amounts of protein (no more than 18% of total daily calories). Fish, skinless poultry, and soy products are the best healthy protein sources.

Trans-fatty acids are found in fried foods, commercial baked goods, processed foods and margarine



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Other daily nutrient goals in the DASH diet include limiting carbohydrates to 55% of daily calories and dietary cholesterol to 150 mg. Try to get at least 30 grams (g) of daily fiber.

Check with your provider before you increase the potassium in your diet or use salt substitutes (which often contain potassium). People who have kidney problems or who take certain medicines must be careful about how much potassium they consume.

HEART HEALTHY DIET

Eat foods that are naturally low in fat. These include whole grains, fruits, and vegetables.

- Look at food labels. Pay special attention to the level of saturated fat.
- Avoid or limit foods that are high in saturated fat (more than 20% of the total fat). Eating too much saturated fat is one of the major risk factors for heart disease. Food high in this type of fat include: egg yolks, hard cheeses, whole milk, cream, ice cream, butter, and fatty meats (and large portions of meats).
- Choose lean protein foods. These include soy, fish, skinless chicken, very lean meat, and fat-free or 1% fat dairy products.
- Look for the words "hydrogenated" or "partially hydrogenated" on food labels. Do not eat foods with these ingredients. They are very high in saturated fats and trans fats.
- Limit how much fried and processed foods you eat.
- Limit how many commercially prepared baked goods (such as donuts, cookies, and crackers) you eat. They may contain a lot of saturated fats or trans fats.
- Pay attention to how foods are prepared. Healthy ways to cook fish, chicken, and lean meats are broiling, grilling, poaching, and baking. Avoid adding high-

fat dressings or sauces.

Other tips include:

- Eat foods that are high in soluble fiber. These include oats, bran, split peas and lentils, beans (such as kidney, black, and navy beans), some cereals, and brown rice.
- Learn how to shop for and cook foods that are healthy for your heart. Learn how to read food labels to choose healthy foods. Stay away from fast food restaurants, where healthy choices can be hard to find.

Hypertension - diet

Review Date: August 20, 2023.

Reviewed By: Jacob Berman, MD, MPH, Clinical Assistant Professor of Medicine, Division of General Internal Medicine, University of Washington School of Medicine, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

High blood pressure in adults - hypertension

Definition

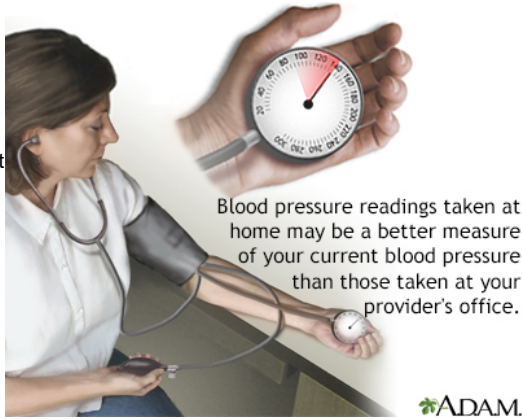
Blood pressure is a measurement of the force exerted against the walls of your arteries as your heart pumps blood to your body. Hypertension is the medical term used to describe high blood pressure.

Untreated high blood pressure can lead to many medical problems. These include heart disease, stroke, kidney failure, eye problems, and other health issues.

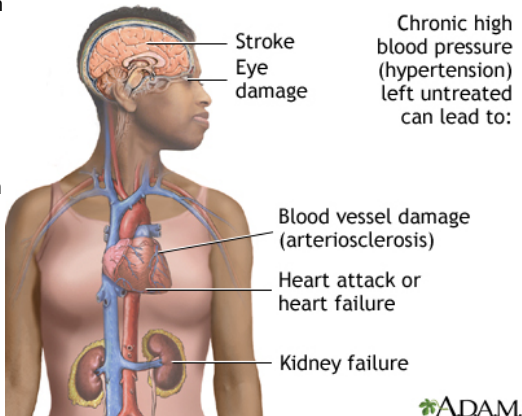
Blood pressure readings are given as two numbers. The top number is called systolic blood pressure. The bottom number is called diastolic blood pressure. For example, 120 over 80 (written as 120/80 mm Hg).

One or both of these numbers can be too high. (Note: These numbers apply to people who are not taking medicines for blood pressure and who are not ill.)

- Normal blood pressure is when your blood pressure is lower than 120/80 mm Hg most of the time.
- High blood pressure (hypertension) is when one or both of your



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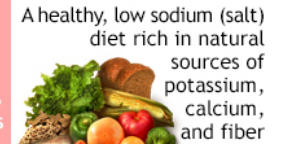
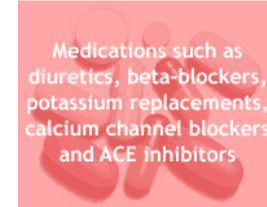
blood pressure readings are 130/80 mm Hg or higher most of the time.

- If the top blood pressure number is from 120 to 129 mm Hg, and the bottom blood pressure number is less than 80 mm Hg, it is called elevated blood pressure.

If you have heart or kidney problems, or you had a stroke, your doctor may want your blood pressure to be even lower than that of people who do not have these conditions.



Lifestyle changes and/or medication may reduce high blood pressure to healthy levels:



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Causes

Many factors can affect blood pressure, including:

- The amount of water and salt you have in your body
- The condition of your kidneys, nervous system, or blood vessels
- Your hormone levels

Follow the DASH diet to potentially lower your blood pressure



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You are more likely to be told your blood pressure is too high as you get older. This is because your blood vessels become stiffer as you age. When that happens, your blood pressure goes up. High blood pressure increases your chance of having a stroke, heart attack, heart failure, kidney disease, or early death.

You have a higher risk of high blood pressure if you:

- Are African American
- Are obese
- Are often stressed or anxious
- Drink too much alcohol (more than 1 drink per day for women and more than 2 drinks per day for men)
- Eat too much salt
- Have a family history of high blood pressure

- Have diabetes
- Smoke or use tobacco

Most of the time, no cause of high blood pressure is found. This is called essential hypertension.

High blood pressure that is caused by another medical condition or medicine you are taking is called secondary hypertension. Secondary hypertension may be due to:

- Chronic kidney disease
- Disorders of the adrenal gland (such as pheochromocytoma or Cushing syndrome)
- Hyperparathyroidism
- Pregnancy or preeclampsia
- Medicines such as birth control pills, diet pills, some cold medicines, migraine medicines, corticosteroids, some antipsychotics, and certain medicines used to treat cancer
- Narrowed artery that supplies blood to the kidney (renal artery stenosis)
- Obstructive sleep apnea (OSA)

Symptoms

Most of the time, there are no symptoms. For most people, high blood pressure is found when they visit their health care provider or have it checked elsewhere.

Because there are no symptoms, people can develop heart disease and kidney problems without knowing they have high blood pressure.

Malignant hypertension is a dangerous form of very high blood pressure. Symptoms may include:

- Severe headache
- Nausea and vomiting
- Confusion
- Vision changes
- Nosebleeds

Exams and Tests

Diagnosing high blood pressure early can help prevent heart disease, stroke, eye problems, and chronic kidney disease.

Your provider will measure your blood pressure many times before diagnosing you with high blood pressure. It is normal for your blood pressure to be different based on the time of day.

All adults over the age of 18 should have their blood pressure checked every year. More frequent measurements may be needed for those with a history of high blood pressure readings or those with risk factors for high blood pressure.

Blood pressure readings taken at home may be a better measure of your current blood pressure than those taken at your provider's office.

- Make sure you get a good quality, well-fitting home blood pressure monitor. It should have a properly sized cuff and a digital readout.
- Practice with your provider to make sure you are taking your blood pressure correctly.
- You should be relaxed and seated for five or more minutes prior to taking a reading.
- Bring your home monitor to your appointments so your provider can make sure it is working correctly.

Your provider will do a physical exam to look for signs of heart disease, damage to the eyes, and other changes in your body.

Tests may also be done to look for:

- High cholesterol level
- Heart disease, using tests such as an echocardiogram or electrocardiogram
- Kidney disease, using tests such as a basic metabolic panel and urinalysis or ultrasound of the kidneys

Treatment

The goal of treatment is to reduce your blood pressure so that you have a lower risk of health problems caused by high blood pressure. You and your provider should set a blood pressure goal for you.

Whenever thinking about the best treatment for high blood pressure, you and your provider must consider other factors such as:

- Your age
- The medicines you take
- Your risk of side effects from possible medications
- Other medical conditions you may have, such as a history of heart disease, stroke, kidney problems, or diabetes

If the top blood pressure number is from 120 to 129 mm Hg, and the bottom blood pressure number is less than 80 mm Hg, you have elevated blood pressure.

- Your provider will recommend lifestyle changes to bring your blood pressure down to a normal range.
- Medicines are rarely used at this stage.

If your blood pressure is 130/80 or higher, but lower than 140/90 mm Hg, you have Stage 1 high blood pressure. When thinking about the best treatment, you and your provider must consider:

- If you have no other diseases or risk factors, your provider may recommend lifestyle changes and repeat the measurements after a few months.
- If your blood pressure remains 130/80 or above, but lower than 140/90 mm Hg, your provider may recommend medicines to treat high blood pressure.
- If you have other diseases or risk factors, your provider may be more likely to recommend medicines at the same time as lifestyle changes.

If your blood pressure is 140/90 mm Hg or higher, you have Stage 2 high blood pressure. Your provider will most likely recommend medicines and lifestyle changes together.

Before making a final diagnosis of either elevated blood pressure or high blood pressure, your provider should ask you to have your blood pressure measured at home, at your pharmacy, or somewhere else besides their office or a hospital.

LIFESTYLE CHANGES

You can do many things to help control your blood pressure, including:

- Eat a heart-healthy diet, including potassium and fiber.
- Drink plenty of water.
- Get at least 40 minutes of moderate to vigorous aerobic exercise at least 3 to 4 days a week.
- If you smoke or use tobacco, quit.
- Limit how much alcohol you drink to 1 drink a day for women, and 2 drinks a day for men or less and consider quitting entirely.
- Limit the amount of sodium (salt) you eat. Aim for less than 1,500 mg per day of sodium.
- Reduce stress. Try to avoid things that cause you stress, and try meditation or yoga to de-stress.
- Stay at a healthy body weight.

Your provider can help you find programs for losing weight, stopping smoking, and exercising.

You can also get a referral to a dietitian, who can help you plan a diet that is healthy for you.

How low your blood pressure should be and at what level you need to start treatment is individualized, based on your age and any medical problems you have.

MEDICINES FOR HYPERTENSION

Most of the time, your provider will suggest you try lifestyle changes first, and check your blood pressure two or more times. Medicines will likely be recommended if your blood pressure readings remain at or above these levels:

- Top number (systolic pressure) of 130 or more

- Bottom number (diastolic pressure) of 80 or more

If you have diabetes, heart problems, or a history of a stroke, medicines may be started at lower blood pressure reading. The most commonly used blood pressure targets for people with these medical problems are below 120 to 130/80 mm Hg.

There are many different medicines to treat high blood pressure.

- Often, a single blood pressure drug may not be enough to control your blood pressure, and you may need to take two or more drugs.
- It is very important that you take the medicines prescribed to you.
- If you have side effects, your doctor can substitute a different medicine.

Outlook (Prognosis)

Most of the time, high blood pressure can be controlled with medicine and lifestyle changes.

When blood pressure is not well-controlled, you are at risk for:

- Bleeding from the aorta, the large blood vessel that supplies blood to the abdomen, pelvis, and legs
- Chronic kidney disease
- Heart attack and heart failure
- Poor blood supply to the legs
- Problems with your vision
- Stroke

When to Contact a Medical Professional

If you have high blood pressure, you should have regular checkups with your provider.

Even if you have not been diagnosed with high blood pressure, it is important to have your blood pressure checked during your regular check-up, especially if someone in your family has or had high blood pressure.

Contact your provider right away if home monitoring shows that your blood pressure is still high.

Prevention

Most people can prevent high blood pressure from occurring by following lifestyle changes designed to bring blood pressure down.

Hypertension; HBP; High blood pressure

Review Date: January 01, 2023.

Reviewed By: Michael A. Chen, MD, PhD, Associate Professor of Medicine, Division of Cardiology, Harborview Medical Center, University of Washington Medical School, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

High blood pressure medications

Information

Treating high blood pressure will help prevent problems such as heart disease, stroke, loss of eyesight, chronic kidney disease, and other blood vessel diseases.

You may need to take medicines to lower your blood pressure if lifestyle changes are not enough to bring your blood pressure to the target level.

WHEN ARE MEDICINES FOR HIGH BLOOD PRESSURE USED

Most of the time, your health care provider will try lifestyle changes first and check your BP two or more times.

If your blood pressure is 120/80 to 129/80 mm Hg, you have elevated blood pressure.

- Your provider will recommend lifestyle changes to bring your blood pressure down to a normal range.
- Medicines are rarely used at this stage.

If your blood pressure is equal to or higher than 130/80 but lower than 140/90 mm Hg, you have Stage 1 high blood pressure. When thinking about the best treatment, you and your provider must consider:

- If you have no other diseases or risk factors, your provider may recommend lifestyle changes and repeat the measurements after a few months.
- If your blood pressure remains equal to or higher than 130/80 but lower than 140/90 mm Hg, your provider may recommend medicines to treat high blood pressure.
- If you have other diseases or risk factors, your provider may be more likely to recommend medicines at the same time as lifestyle changes.

If your blood pressure is equal to or higher than 140/90 mm Hg, you have Stage 2 high blood pressure. Your provider will most likely recommend that you take medicines and recommend lifestyle changes.

Before making a final diagnosis of either elevated blood pressure or high blood pressure, your provider should ask you to have your blood pressure measured at home, at your pharmacy, or somewhere else besides their office or a hospital.

If you have a higher risk for heart disease, diabetes, or a history of a stroke, medicines may be started at lower blood pressure readings. The most commonly used blood pressure

targets for people with these medical problems are below 130/80.

MEDICINES FOR HIGH BLOOD PRESSURE

Most of the time, only a single drug will be used at first. Two drugs may be started if you have stage 2 high blood pressure.

Several types of medicine are used to treat high blood pressure. Your provider will decide, with you, which type of medicine is right for you. You may need to take more than one type.

Each type of blood pressure medicine listed below comes in different brand and generic names.

One or more of these blood pressure medicines are often used to treat high blood pressure:

- **Diuretics** are also called water pills. They help your kidneys remove some salt (sodium) from your body. As a result, your blood vessels don't have to hold as much fluid and your blood pressure goes down.
- **Angiotensin-converting enzyme inhibitors** (also called **ACE inhibitors**) reduce the production of angiotensin II in your body. This helps relax your blood vessels, which lowers your blood pressure.
- **Angiotensin II receptor blockers** (also called **ARBs**) reduce the action of angiotensin II in your body. This helps relax your blood vessels, which lowers your blood pressure.
- **Calcium channel blockers** relax blood vessels by reducing calcium entering cells in the wall of the blood vessels.

One category of blood pressure medicines that has been commonly used but is now usually only used if the drugs above are not adequate or cannot be used is beta-blockers. These medicines make the heart beat at a slower rate and with less force.

Blood pressure medicines that are not used as often include:

- **Alpha-blockers** help relax your blood vessels, which lowers your blood pressure.
- **Centrally acting drugs** signal your brain and nervous system to relax your blood vessels.
- **Vasodilators** signal the muscles in the walls of blood vessels to relax.
- **Renin inhibitors** act by reducing the amount of angiotensin precursors thereby relaxing your blood vessels.

SIDE EFFECTS OF BLOOD PRESSURE MEDICINES

Most blood pressure medicines are easy to take, but all medicines have side effects. Most of these are mild and may go away over time.

Some common side effects of high blood pressure medicines include:

- Cough
- Diarrhea or constipation
- Dizziness or lightheadedness

- Erection problems
- Feeling nervous
- Feeling tired, weak, drowsy, or a lack of energy
- Headache
- Nausea or vomiting
- Skin rash
- Weight loss or gain without trying

Tell your provider as soon as possible if you have side effects or the side effects are causing you problems. Most of the time, making changes to the dose of medicine or when you take it can help reduce side effects.

Never change the dose or stop taking a medicine on your own. Always talk to your provider first.

OTHER TIPS

Taking more than one medicine may change how your body absorbs or uses a drug. Vitamins or supplements, different foods, or alcohol may also change how a drug acts in your body.

Always ask your provider whether you need to avoid any foods, drinks, vitamins or supplements, or any other medicines while you are taking blood pressure medicine.

Hypertension - medicines

Review Date: August 20, 2023.

Reviewed By: Jacob Berman, MD, MPH, Clinical Assistant Professor of Medicine, Division of General Internal Medicine, University of Washington School of Medicine, Seattle, WA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

Hypertensive heart disease

Definition

Hypertensive heart disease refers to heart problems that occur because of high blood pressure that is present over a long time.

Causes

High blood pressure means the pressure inside the blood vessels (called arteries) is too high. As the heart pumps against this pressure, it must work harder. Over time, this causes the heart muscle to thicken.

Because there are often no symptoms with high blood pressure, people can have the problem without knowing it. Symptoms most often do not occur until after many years of poor blood pressure control, when damage to the heart has occurred.

Eventually, the muscle may become so thick that it does not get enough oxygen. This can cause angina (chest pain). Without appropriate blood pressure control, the heart can weaken over time and heart failure may develop.

High blood pressure also leads to thickening of the blood vessel walls. When combined with cholesterol deposits in the blood vessels, the risk of heart attack and stroke increases.

Hypertensive heart disease is the leading cause of illness and death from high blood pressure.

When to Contact a Medical Professional

Contact your health care provider if you have high blood pressure and develop any symptoms.

Prevention

Diagnosing high blood pressure early can help prevent heart disease, stroke, eye problems, and chronic kidney disease.

All adults over the age of 18 should have their blood pressure checked every year. More frequent measurement may be needed for those with a history of high blood pressure readings or those with risk factors for high blood pressure.

Guidelines can change as new information becomes available, Therefore, your health care provider may recommend more frequent screenings based on your blood pressure levels and other health conditions.

If your blood pressure is high, you need to lower it and keep it under control.

- Do not stop or change high blood pressure medicines without talking to your provider.
- Carefully control diabetes and high cholesterol.

Hypertension - hypertensive heart; High blood pressure - hypertensive heart

Review Date: January 09, 2022.

Reviewed By: Michael A. Chen, MD, PhD, Associate Professor of Medicine, Division of Cardiology, Harborview Medical Center, University of Washington Medical School, Seattle, WA. Also reviewed by David Zieve, MD, MHA, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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Malignant hypertension

Definition

Malignant hypertension is very high blood pressure that comes on suddenly and quickly.

Causes

The disorder affects a small number of people with high blood pressure, including children and adults. It is more common in younger adults, especially African American men.

It also occurs in people with:

- Collagen vascular disorders (such as systemic lupus erythematosus, systemic sclerosis, and periarteritis nodosa)
- Kidney problems
- Pregnancy-induced high blood pressure (toxemia of pregnancy also called preeclampsia)

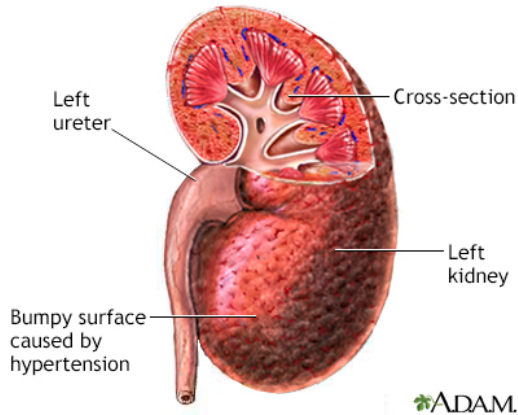
You are at high risk for malignant hypertension if you smoke and if you have had:

- Kidney failure
- Renal hypertension caused by renal artery stenosis

Symptoms

Symptoms of malignant hypertension include:

- Blurred vision
- Change in mental status, such as anxiety, confusion, decreased alertness, decreased ability to concentrate, fatigue, restlessness, sleepiness, or stupor
- Chest pain (feeling of crushing or pressure)



- Cough
- Headache
- Nausea or vomiting
- Numbness of the arms, legs, face, or other areas
- Reduced urine output
- Seizure
- Shortness of breath
- Weakness of the arms, legs, face, or other areas

Exams and Tests

Malignant hypertension is a medical emergency.

A physical exam commonly shows:

- Extremely high blood pressure
- Swelling in the lower legs and feet
- Abnormal heart sounds and fluid in the lungs
- Changes in thinking, sensation, and reflexes

An eye exam may reveal changes that indicate very high blood pressure, including:

- Bleeding of the retina (back part of the eye)
- Narrowing of the blood vessels in the retina
- Swelling of the optic nerve
- Other problems with the retina

Tests to determine damage to the kidneys may include:

- Arterial blood gas analysis
- BUN (blood urea nitrogen)
- Creatinine
- Urinalysis
- Kidney ultrasound

A chest x-ray may show congestion in the lungs and an enlarged heart.

This disease may also affect the results of these tests:

- Level of aldosterone (a hormone from the adrenal gland)
- Cardiac enzymes (markers of heart damage)
- CT scan of the brain
- Electrocardiogram (ECG)
- Renin level

- Urinary sediment

Treatment

You will need to stay in the hospital until your severe high blood pressure is under control. You will receive medicines through a vein (IV) to reduce your blood pressure.

If there is fluid in your lungs, you will be given medicines called diuretics, which help the body remove fluid. Your doctor may give you medicines to protect your heart if you have signs of heart damage.

After your severe high blood pressure is under control, blood pressure medicines taken by mouth can control blood pressure. Your medicine may need to be changed sometimes. High blood pressure can be difficult to control.

Outlook (Prognosis)

Many body systems are at serious risk from the extreme rise in blood pressure. Organs including the brain, eyes, blood vessels, heart, and kidneys may be damaged.

The blood vessels of the kidney are very likely to be damaged by high blood pressure. Kidney failure may develop, which may be permanent. If this happens, you may need dialysis (machine that removes waste products from blood).

If treated right away, malignant hypertension can often be controlled without causing permanent problems. If it is not treated right away, it can be fatal.

Possible Complications

These complications may occur:

- Brain damage (stroke, seizures)
- Heart damage, including: heart attack, angina (chest pain due to narrowed blood vessels or weakened heart muscle), heart rhythm disturbances
- Kidney failure
- Permanent blindness
- Fluid in the lungs

When to Contact a Medical Professional

Go to the emergency room or call the local emergency number (such as 911) if you have symptoms of malignant hypertension. This is an emergency condition that can be life threatening.

Contact your health care provider if you know you have poorly controlled high blood pressure.

Prevention

If you have high blood pressure, carefully monitor your blood pressure and take your medicines properly to help reduce your risk. Eat a healthy diet that is low in salt and fat.

Accelerated hypertension; Arteriolar nephrosclerosis; Nephrosclerosis - arteriolar; Hypertension - malignant; High blood pressure - malignant

Review Date: April 12, 2023.

Reviewed By: Walead Latif, MD, Nephrologist and Clinical Associate Professor, Rutgers Medical School, Newark, NJ. Review provided by VeriMed Healthcare Network. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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This SmartCare article is prepared exclusively for:

Institute Of Endocrinology Diabetes Health And Hormones

Sodium in diet

Definition

Sodium is an element that the body needs to work properly. Salt contains sodium.

Function

The body uses sodium to control blood pressure and blood volume. Your body also needs sodium for your muscles and nerves to work properly.



Nutrition Facts	
1 serving per container	
Serving size 1 can (163mL)	
Amount per serving	
Calories	35
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1180mg	34%
Total Carbohydrate 15g	5%
Dietary Fiber 3g	12%
Total Sugars 12g	
Includes 0g Added Sugars	0%
Protein 3g	

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Food Sources

Sodium occurs naturally in most foods. The most common form of sodium is sodium chloride, which is table salt. Milk, beets, and celery also naturally contain sodium. Drinking water also contains sodium, but the amount depends on the source.

Sodium is also added to many food products. Some of these added forms are monosodium glutamate (MSG), sodium nitrite, sodium saccharin, baking soda (sodium bicarbonate), and sodium benzoate. These are in items such as Worcestershire sauce, soy sauce, onion salt, garlic salt, and bouillon cubes.

Processed meats like bacon, sausage, and ham, along with canned soups and vegetables also contain added sodium. Processed baked goods such as packaged cookies, snack cakes, and doughnuts, are also often high in sodium. Fast foods are generally very high in sodium.

Side Effects

Too much sodium in the diet may lead to:

- High blood pressure in some people
- A serious buildup of fluid in people with heart failure, cirrhosis of the liver, or kidney disease

Recommendations

Sodium in the diet (called dietary sodium) is measured in milligrams (mg). Table salt is 40% sodium. One teaspoon (5 milliliters) of table salt contains 2,300 mg of sodium.

Healthy adults should limit sodium intake to 2,300 mg per day. Adults with high blood pressure should have no more than 1,500 mg per day. Those with congestive heart failure, liver cirrhosis, and kidney disease may need much lower amounts.

There are no specific sodium restrictions for infants, children, and teens. However, certain levels of daily adequate intake for healthy growth have been established. These include:

- Infants younger than 6 months: 110 mg
- Infants age 6 to 12 months: 370 mg
- Children ages 1 to 3 years: 800 mg
- Children ages 4 to 8 years: 1,000 mg
- Children and teens ages 9 to 18 years: 1,500 mg

Eating habits, taste, and attitudes about food that are formed during childhood are likely to influence food choices for life. For this reason, it is a good idea for children to avoid consuming too much sodium.

Diet - sodium (salt); Hyponatremia - sodium in diet; Hypertatremia - sodium in diet; Heart failure - sodium in diet

Review Date: June 22, 2022.

Reviewed By: Stefania Manetti, RD/N, CDCES, RYT200, My Vita Sana LLC - Nourish and heal through food, San Jose, CA. Review provided by VeriMed Healthcare Network. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.



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