

Diabetes and High Blood Pressure

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Did you know?

- If you have diabetes you are more likely to develop high blood pressure, also known as hypertension.
- A person with diabetes and hypertension is twice as likely to develop heart disease or have a stroke.
- If you have diabetes and hypertension, you are more likely to have diabetes complications, such as kidney disease, eye problems that may lead to blindness, and nerve problems.

What is blood pressure?

Blood pressure is the force of blood inside the arteries. This force is needed to move blood from the heart to other parts of the body.

What is high blood pressure?

High blood pressure is a condition in which the force with which blood flows through the blood vessels is above normal.

Understanding blood pressure terms and numbers

- Two numbers indicate a blood pressure reading:
 - The top number is called the systolic (sis-TOL-ik) pressure. It measures the pressure inside the artery as the heart beats and pumps blood to the blood vessels.
 - The bottom number is called the diastolic (di-a-STOL-ik) pressure. It measures the pressure between beats when the heart is resting.
- Both of these numbers are recorded as millimeters of mercury (mm Hg).
- If you have diabetes, a blood pressure reading of 130 over 80 (130/80) mm Hg is considered high. This reading is considered prehypertension for individuals without diabetes.

- When you keep your blood pressure below 130/80 mmHg you lower your risk of developing diabetes complications.
- If you have diabetes related complications such as kidney disease, your doctor may suggest a lower blood pressure goal.

What should I be aware of?

Two out of three adults living with diabetes also have high blood pressure. High blood pressure has no symptoms. It may be difficult to tell if your blood pressure is high. A person may have high blood pressure for years and not know it. If you have diabetes you should have your blood pressure checked each time you visit your doctor, or at least two to four times a year.

What can I do to control my blood pressure if I have diabetes?

Reduce the amount of salt I eat

- Reducing the amount of salt (sodium chloride) in the diet is helpful in controlling high blood pressure.
- Many Americans eat 2,900 to 4,300 mg (1¼ to 2 teaspoons) of sodium daily.
- Eat less than 1,500 mg of sodium each day. This is less than three-quarters of a teaspoon of salt.
- Eat foods with less than 400 mg of salt per serving.

If you have diabetes you should have your blood pressure checked each time you visit your doctor, or at least two to four times a year.

How much sodium do some foods contain?

The table below shows the amount of sodium in some common foods.

Food	Serving size	Sodium (mg)
Grains and grain products		
Cooked cereal, rice, pasta, unsalted	½ cup	0-5
Ready-to-eat cereal	1 cup	356-637
Bread, white	1 slice	175
Vegetables		
Fresh or frozen, cooked without salt	½ cup	70
Canned or frozen with sauce	½ cup	140-460
Tomato juice, canned	½ cup	330
Fruit		
Fresh, frozen, canned	½ cup	0-5
Low-fat or fat-free milk and milk products		
Milk	1 cup	107
Yogurt	1 cup	175
Natural cheeses	1½ oz	110-450
Processed cheeses	2 oz	600
Nuts, seeds, legumes		
Peanuts, salted	½ cup	120
Peanuts, unsalted	½ cup	0-5
Beans, cooked from dried or frozen, without salt	½ cup	0-5
Beans, canned	½ cup	400
Lean meats, fish, poultry		
Fresh meat, fish, poultry	3 oz	30-90
Tuna canned, water pack, no salt added	3 oz	35-45
Tuna canned, water pack	3 oz	230-350
Ham, lean, roasted	3 oz	1,300

Source: Lowering Your Blood Pressure with DASH from NIH.

The following foods are high in sodium. You should limit these foods in your diet.

- Salted snacks
- Canned or frozen, pre-breaded, pre-fried fish
- Cured or preserved meats (luncheon meats, sausage, hotdogs, corned beef)
- Canned foods
- Cheeses and buttermilk
- Seasoned salts
- Convenient and processed foods
- Ketchup, mayonnaise, soy sauce, and salad dressings

Ways to cut back on sodium

- Add little or no salt to your food at the table and during cooking.
- Season food with herbs and spices instead of salt.
- Lemon juice and hot chilies add flavor.
- Cut back on condiments such as mustard, relish, ketchup, soy sauce, and barbecue sauce.
- Rinse canned foods like tuna and salmon to remove some of the sodium.

Sometimes it is difficult to tell how much sodium is in a food. Reading food labels can help you choose foods that are low in sodium and can also help you compare the sodium present in different foods. When you look at the food label you should look at the amount of sodium in each serving.

Use the Percent Daily Value information found on food labels to see the percentage of the daily requirement you are getting for sodium.

- Choose foods that contain 5 percent of the Daily Value for sodium.
- Low-sodium foods contain 140 mg of sodium or less in each serving.
- High-sodium foods contain 20 percent of the Daily Value of sodium.

Being overweight may be the cause of high blood pressure for about half of all individuals who are both overweight and have high blood pressure

Choosing fresh fruits and vegetables and foods that are not processed are good ways to keep your sodium intake low.

Eat Healthfully by Following a Meal Plan

Studies have shown that high blood pressure can be reduced by following a **Dietary Approaches to Stop Hypertension (DASH)** eating plan.

Following such a plan has also been shown to lower LDL (“bad” cholesterol) and reduce a person’s risk for heart disease.

The DASH eating plan is high in:

- Fruits
- Vegetables
- Whole grains
- Fat free or low-fat milk or milk products

These foods provide nutrients such as potassium, calcium, magnesium, fiber, and protein, which have been shown to lower blood pressure.

The DASH plan is low in:

- Sodium
- Saturated fat
- Cholesterol
- Total fat
- Red meats
- Added sugar, sweets, and beverages that contain sugar

Maintain a Healthy Weight

Blood pressure rises as body weight increases. Being overweight may be the cause of high blood pressure for about half of all individuals classified as overweight. Losing weight is an effective means of reducing blood pressure.

Take Part in Physical Activity

Taking part in physical activity is one way to prevent or control high blood pressure. Always check with your doctor before you begin exercising. Thirty

minutes of physical activity on five or more days of the week is recommended. These 30 minutes could be broken up into 10 minutes segments and could include activities such as walking, dancing, and household and yard chores.

Limit Alcohol

Drinking too much alcohol can raise your blood pressure and add calories without adding nutrients. Alcohol should always be taken in moderation.

- No more than one drink per day for women
- No more than two drinks per day for men

A drink is measured as:

- 12 ounces of regular beer
- 5 ounces of wine
- 1½ ounces of 80-proof distilled spirits

Stop Smoking

Smoking injures the wall of the arteries and causes them to harden. Smokers have more problems controlling their diabetes, and they are more likely to experience serious complications.

Medication if Prescribed

Not everyone takes the same kind of blood pressure medicine, and many individuals take more than one type of medication. It is important that you take medication as prescribed by your doctor.

Resources

Kentucky Diabetes Network:

<http://www.kentuckydiabetes.net/>.

National Diabetes Education Program:

<http://www.ndep.nih.gov>.

American Diabetes Association:

<http://www.diabetes.org>.

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at <http://www2.niddk.nih.gov/>.

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References

- American Diabetes Association. Forecast. Hypertension (High Blood Pressure). Accessed April 21, 2015, at: <http://forecast.diabetes.org/diabetes-101/hypertension-high-blood-pressure>.
- American Heart Association. Diabetes. Accessed October 19, 2009 from <http://www.americanheart.org/presenter.jhtml?identifier=3044745>.
- American Heart Association. High Blood Pressure. Accessed April 18, 2015, at: <http://www.diabetes.org/are-you-at-risk/lower-your-risk/bloodpressure.html>.
- American Heart Association. Why Should I Limit Sodium? Accessed October 23, 2009, at: https://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_300625.pdf.
- U.S. Department of Health and Human Services. National Institutes of Health. Aggressively Lowering Cholesterol and Blood Pressure May Reverse Atherosclerosis in Adults with Diabetes. Accessed April 21, 2015, at: <http://www.nih.gov/news/health/apr2008/nhlbi-08.htm>.
- U.S. Department of Health and Human Services. National Institutes of Health. National Heart, Lung, and Blood Institute. Lower your blood pressure. Accessed April 21, 2015, at: http://http://www.nhlbi.nih.gov/files/docs/public/heart/hbp_low.pdf.
- U.S. Department of Health and Human Services. National Institutes of Health. Your Guide to Lowering Your Blood Pressure with DASH. Accessed on February 24, 2010, at: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.
- U.S. Department of Health of Human Services. Diabetes, Heart Disease, and Stroke. Accessed April 20, 2015, at: <http://diabetes.niddk.nih.gov/dm/pubs/stroke/#connection>.

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Revised 12-2015