

## Overview

The circulatory system is made up of the heart and blood vessels. Each time the heart beats (contracts,) it pumps oxygen-rich blood out through the arteries. The arteries supply blood to all parts of the body. Blood returns to the heart through vessels called veins. This circulatory system works because of blood pressure. Pressure is needed to push the blood through the arteries. The heart supplies some of the pressure when it beats. The heart forces blood into the arteries. The arterioles (smallest branch of the arteries) also supply pressure. Arterioles are lined with a layer of muscle. When this muscle layer is relaxed, blood pressure is normal. Blood flows easily through the arterioles. At times, this muscle layer tightens and the arterioles close. As a result, blood pressure in the arterioles is increased.



# High blood pressure

**OBJECTIVE: Explain causes, symptoms, prevention and control of high blood pressure**

## How is high blood pressure measured?

Blood pressure readings consist of two numbers. The first number is called the systolic pressure. This refers to the amount of pressure in the arteries when the heart is beating. The second number refers to the amount of pressure in the arteries when the heart is relaxed. It is called the diastolic pressure. Your blood pressure may rise with strenuous exercise. Blood pressure will decrease if you are resting. Temporary changes in blood pressure are normal. The goal for people with diabetes is to keep blood pressure at or below 140/80.<sup>1</sup> Uncontrolled high blood pressure can increase your risk for heart disease, kidney damage and stroke. If you have kidney disease, high blood pressure can make it worse. Keeping your blood pressure within the normal range can slow the course of kidney damage.

**Important note about proper measurement of blood pressure:** Blood pressure readings can be affected by the size of the cuff used. Talk with your doctor about what size cuff should be used to check your blood pressure.

## Important things to remember

1. Ask your doctor for your blood pressure readings at each visit. Record them in your logbook. The goal is 140/80 or lower, if you have diabetes.
2. If you need medicine to lower your blood pressure, ask your doctor about using an ACE inhibitor or angiotension receptor blocker (ARB). Studies show these medicines provide extra protection to your kidneys.<sup>2</sup>
3. Keep your weight under control. Ask your doctor or dietitian what is a good weight for you.
4. Keep your blood sugar under control. Ask your doctor what your blood sugar levels should be.
5. Exercise regularly. Speak with your doctor before beginning any exercise program.

# QUIZ

6. Take all medicines as ordered by your doctor.
7. Lower your intake of foods high in saturated and trans fats and cholesterol. Decrease your salt intake. See a dietitian for a meal plan that meets your needs.
8. Have your urine checked for protein at least once per year. Ask your doctor for the results of your tests and record them in your logbook.

## How can your doctor help?

Your blood pressure should be checked at each visit. If you check your blood pressure at home, keep a record in a logbook. Your doctor can review these and change your medicines as needed. Good control of high blood pressure is important for reducing your risk for heart disease, kidney damage and stroke.

## QUESTIONS

1. Uncontrolled high blood pressure can increase your risk for:
  - a) Stroke
  - b) Heart disease
  - c) Kidney damage
  - d) All of the above
  - e) None of the above
2. The blood pressure goal for people with diabetes is \_\_\_\_\_ or lower.
3. True or False: Keeping your weight under control may help to control high blood pressure.

## ANSWERS

1. d
2. 140/80
3. True

<sup>1</sup> American Diabetes Association: Diabetes Care Volume 37, Supplement 1, January 2014 S36

<sup>2</sup> <http://nkfpressurepoint.wordpress.com/2014/01/06/new-blood-pressure-recommendations-and-kidney-patients/#more-72> Accessed 02/17/2014