

PROTECTING our FAMILY and COMMUNITY

What Goes Up Can Come Down: How to Prevent High Blood Pressure

High blood pressure is sometimes called the “silent killer” because most people who have it do not feel sick. The heart and blood vessels gradually become weakened as the heart works hard to pump blood through narrowed vessels. Serious heart and blood vessel disease develop if high blood pressure is undetected and untreated.

LESSON OBJECTIVES

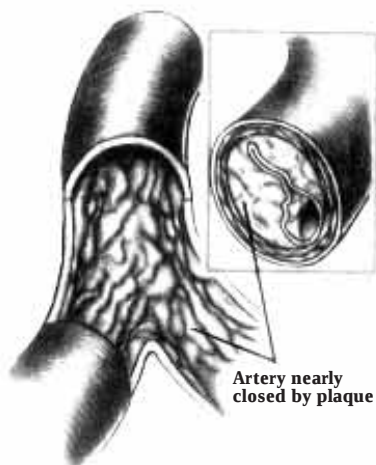
At the conclusion of the lesson, participants will be able to:

- *describe normal and high blood pressure.*
- *define the two main categories of high blood pressure.*
- *describe the diseases or conditions caused by hypertension.*
- *explain the difference between controllable and non-controllable risk factors.*
- *explain the treatment methods used for high blood pressure.*

High blood pressure affects approximately one out of every four Kansans. Of those people with hypertension, nearly one-half do not know they have it, and only 11 percent are estimated to be receiving adequate therapy.

What is “Normal” Blood Pressure?

In the past, “normal” blood pressure was defined as 120/80 mm Hg (millimeters of mercury). Today, normal is usually referred to as any blood pressure less than 140/90 mm Hg. The chart on Page 2 of the fact sheet, “How to Prevent High Blood Pressure,” lists a third number which is technically correct—any blood pressure less than 130/85 mm Hg. For the purpose of this lesson, normal blood pressure is defined as less than 140/90 mm Hg.



PLANNING THE LESSON: 90 minutes of materials are included in this lesson. Carefully choose which information you will teach in order to fill your time allotment.

This lesson will provide your group with an overview of the problems associated with uncontrolled high blood pressure. It will help motivate participants to have their own blood pressure checked, and get it under control if it is high.

- Review the teaching guide, “What Goes Up Must Come Down,” and the fact sheet, “How to Prevent High Blood Pressure.”
- Prepare to teach or answer questions related to: blood pressure, diseases or conditions caused by hypertension, non-controllable risk factors as compared to controllable factors, hypertension treatment, etc.
- Be prepared to encourage participants to have their blood pressure checked, to work on controllable risk factors, and to expect an evaluation telephone call in one month. You may want to prepare the participants for the call by reading the program evaluation questions to them.

This lesson is written in a question/answer format—different teaching options are listed below.

- The questions can be addressed in a discussion format. The teacher should allow time for participants to answer a question before he or she gives a prepared answer.
- The content of the answers from the teaching guide and fact sheet can be taught in a lecture-type method.

What is High Blood Pressure?

In medical terms, “hyper” simply means “above average.” If a person is said to have hypertension, it simply means that his or her blood pressure is 140/90 or above. If either number is higher than that, for example 142/86 or 138/92, the pressure is still considered hypertensive.

Types of hypertension

There are many specific types of hypertension. The two main categories are **primary** and **secondary** hypertension. Primary is responsible for 90 percent of the known cases, and there is no known cause. Secondary hypertension is caused by another condition such as kidney disease, diabetes or hyperthyroidism.

Whatever the cause, high blood pressure takes its toll on the endothelial lining of cells in the arteries. It causes damage or tears in this cell layer. Circulating cholesterol and plaque collect at these sites of damage. Persons with high cholesterol and high blood pressure have a greater chance of developing these plaques. This pathological process is called atherosclerosis. Atherosclerosis can block part of the lumen (opening) of the artery which reduces its effective volume. The artery can be further damaged as it hardens and loses its elasticity. This condition is called arteriosclerosis. The plaque build-up and hardening of the arteries cause blood pressure to increase, especially diastolic pressure.

What are the diseases or conditions caused by hypertension?

High blood pressure is never content to just “be.” It creates all sorts of havoc within other body organs.

- **Blindness.** If hypertension is allowed to continue unchecked, tiny blood vessels in the back of the eye may break and cause bleeding into the eye. Even though the vessels can be repaired with a laser, each of these breakage sites becomes a “blind” spot.
- **Cardiac Problems.** Heart conditions which hypertension can cause are:
 - MI—Myocardial infarct or heart attack. Hypertension harms the inside of the arteries, creating sites where plaque can build up. The build-up of plaque in the arteries reduces blood flow and makes it possible for blood clots to form, causing a heart attack.
 - Aneurysms—If a water hose is kinked, the hose balloons out behind the kink and then “blows.” This can happen when blood can’t flow through an artery which has narrowed to due cholesterol build-up on its walls.
 - CHF—Congestive heart failure. This can develop from years of elevated blood pressure. The heart simply wears out from having to pump so hard to circulate the blood.
- **Kidney Damage/Failure.** Hypertension can cause arteries in the kidneys to thicken. This decreases the blood supply to the many glomeruli, the tiny structures in the kidneys that filter wastes from the blood. Eventually, the glomeruli are damaged and can no longer form urine.
- **Stroke.** High blood pressure can harm arteries in the brain. It causes arteries to narrow, and may also form blood clots. Blood vessels may break due to the weakened condition.
 - If a person doesn’t die from a stroke, mental or physical damage usually results. This can be as simple as a slight limp, or as devastating as a complete one-sided paralysis and no speech.

What are the Risk Factors Associated with High Blood Pressure?

Three non-controllable risk factors:

1. **Age**—As a person gets older, blood pressure usually rises.
2. **Race**—Incidence of hypertension among African-Americans is about 8 percent higher than other races. In Kansas, 1-in-4 persons of all other races have hypertension, whereas 1-in-3 African-Americans are affected.
3. **Family History**—If one or both parents or grandparents have hypertension, the children or grandchildren are twice as likely as others to develop hypertension.

Eight controllable risk factors:

If you have high blood pressure, you can control it with proper treatment. If you don’t have high blood pressure now, you can take steps to prevent it from developing. There are at least eight risk factors which a person can control in order to help regulate his or her high blood pressure.

1. **Salt or sodium intake.** Try seasoning foods with herbs, spices and lemon juice. Keep in mind that sodium, an ingredient in salt, is “hidden” in many packaged and processed foods. Check product labels for the amount of sodium, and talk with your doctor.
2. **Cholesterol and fatty food intake.** Cholesterol (the fats from animals) should be limited to about 10 percent of your daily intake of fats and oils. Cholesterol comes from fatty deposits on any kind of meat; organ meats such as liver; milk products that aren’t made from skim milk, including cheese, ice cream and cottage cheese; eggs; seafood, including “fatty” fish; and any other source of animal fats. Daily fat intake should not exceed 30 percent of your daily caloric allowance. For example, if you are on a 2,000 cal/day diet, no more than 600 of those calories should come from fats.
3. **Smoking.** If you do smoke—STOP! When cigarette smoke goes into a person’s lungs, atherosclerosis progression, as well as other factors leading to hypertension, are accelerated.
4. **Sedentary life.** Even a low-to-moderate intensity activity, if done repeatedly, can help control and prevent high blood pressure. Examples are: walking for pleasure, gardening, yard work, moderate-to-heavy housework, dancing and home exercise. Try to do one or more of these activities every day.
5. **Stress.** Too much stress makes the blood pressure elevate. Consciously take a break two or three times per day to relax, think good thoughts, and maybe do some simple exercises. You return to work refreshed and ready to handle life again.
6. **Alcohol.** Limit alcohol intake to no more than two drinks per day. For overall health, the “Dietary Guidelines for Americans” recommends that women limit their alcohol to no more than one drink per day. Remember: two cans of 5 percent beer, one 12-ounce glass of wine, and one 2-ounce shot of whiskey each contain about the same amount of

alcohol. If a person drinks over a period of time, even in moderate amounts, the alcohol may cause the arteries to constrict. This in turn may cause hypertension.

7. **Obesity.** Individuals who are 20 percent over their ideal weight, based on their height, are considered obese and are much more likely to develop hypertension. Ask your doctor or dietitian if he or she will recommend a reliable program to help get your weight under control.
8. **Diabetes.** People with diabetes often have problems with hypertension. Blood pressure can be lowered by controlling the diabetes through diet, exercise, insulin or medicine.

“How are you doing at controlling your risk factors to prevent high blood pressure? I challenge you to do something about these controllable risk factors. If I ask you next month if you have done better with sodium, fat, and cholesterol intake; smoking; activity level; stress; alcohol; or obesity—could you answer, ‘yes’?”

The following section is optional teaching material. The information may be too technical for some audiences.

How is Hypertension treated?

At first, hypertension is usually treated by the following methods:

1. Decrease sodium intake, but increase potassium intake.
2. Change your lifestyle—incorporate more activity.
3. Change your diet—cut down on sodium and fats.
4. Stop smoking and/or drinking alcoholic beverages.

If these lifestyle changes don't lower your blood pressure, your doctor will probably put you on medication. There are many different types of medicines:

1. **Diuretics.** These cause the body to eliminate excess water and sodium, and are usually the first type of medication tried. When using diuretics, a person must remember to have an adequate potassium intake. Otherwise, he or she will feel “washed out” from the potassium depletion in the body. Potassium is found in bananas, dark green leafy vegetables, fresh tomatoes, or in over-the-counter pill form.
2. **Beta blockers.** These medications counteract a hormone called noradrenaline which stimulates the heart. They reduce blood pressure by slowing the heart rate, making it less forceful. Side effects may include insomnia, slow pulse, dizziness, and cold hands and feet.
3. **ACE (angiotensin converting enzyme) Inhibitors.** These medications restrain the enzymes which cause arterial constriction. With this pathway blocked, arteries are allowed to dilate and blood pressure is reduced.
4. **Calcium Channel Blockers.** These inhibit excess amounts of calcium from going into the heart muscles (and thus making them contract more), without changing the concentration of calcium in the blood. Side effects may be dizziness, swelling of the legs and feet, headaches, face flushes and constipation.

Miscellaneous medications include Aldomet, Apresoline, Loniten, Catapres and Minipress. As with all hypertension medications, your doctor's directions must be followed carefully. Whether you think you need it or not, the medication *must* be taken as prescribed. You can never know what your blood pressure is just by how you feel!

Community Activity

As a teacher, you can extend the influence of this lesson through community activities. You can work with others to:

- Create a media-awareness campaign encouraging people to have their blood pressure checked. Involve the local health departments and extension offices with the campaign.
- Assist the health department in their monthly blood pressure screening activities.
- Organize a community blood pressure screening activity for a group of older people who may be difficult to reach. It may be a church group, or a group who is not available at regular clinic hours.

References

Appreciation is expressed to the following persons who contributed to the writing and review of this publication:

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What Goes Up Must Come Down

Program Evaluation Form

(to be completed at the end of the lesson)

Note to Teachers:

Please help us gather information about the impact this lesson is having on the participants. Please follow the instructions listed below:

1. Pass out paper (or 3" x 5" notecards) and pencils.
2. Have each person write down his or her name and telephone number if they are willing to work on one or more of the eight controllable risk factors.
3. Approximately one month after the lesson:
 - ☐ telephone each participant.
 - ☐ ask he or she the following questions (A – E).
 - ☐ record the final total responses on the blank lines.
- A. Have you read the publication *High Blood Pressure*?
 - ☐ Yes _____
 - ☐ No _____
- B. During the past week have you made a conscious effort to reduce salt or sodium in your diet?
 - ☐ Yes _____
 - ☐ No _____
- C. During the past week did you try to reduce your cholesterol or fatty food intake?
 - ☐ Yes _____
 - ☐ No _____
- D. Have you been able to maintain a low-to-moderate intensity activity level during this past week?
 - ☐ Yes _____
 - ☐ No _____
- E. Have you worked on any other lifestyle risk factors during the past week? Check those that apply.
 - ☐ Smoking _____
 - ☐ Stress _____
 - ☐ Alcohol _____
 - ☐ Obesity _____
 - ☐ Diabetes _____
- F. Write in the total number of participants called: _____ *total called*

Thank you! We appreciate your help with this evaluation! When you have all the information tallied, send a copy of this sheet to: Dr. Michael H. Bradshaw, Extension Specialist, Health and Safety, Kansas State University, 343 Justin Hall, Manhattan, KS 66506. Your response is important to your County Extension Council and Kansas State University. It helps show the kind of information county residents learn through our educational programs.

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