

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

HYPERTENSION (HIGH BLOOD PRESSURE)

WHAT IS BLOOD PRESSURE?

Blood pressure readings reflect the force of blood pushing against the walls of the arteries, which transport blood from the heart to the body's organs and tissues.

Blood pressure is recorded using 2 numbers:

- ❖ The **systolic pressure** is the top number. It reflects pressure in the arteries when the heart contracts and pumps blood out to the body. This number tends to increase with age.
- ❖ The **diastolic pressure** is the bottom number. It measures arterial pressure when the heart is resting and filling up with blood between beats.

WHY IS IT IMPORTANT?

Hypertension is the medical term used to describe persistently elevated blood pressure. Left untreated, hypertension can result in life-threatening complications, such as heart disease, kidney disease, and stroke.

WHAT CAUSES HYPERTENSION?

Hypertension is categorized as primary or secondary depending on the cause.

- ❖ **Primary or essential hypertension** is the most common form of high blood pressure, in which no specific cause is found. Common risk factors include:
 - Family history (hypertension is twice as common in those with at least one hypertensive parent).
 - Race (hypertension tends to be more common and more severe in Black patients).
 - Advancing age.
 - Being overweight or obese.
 - High salt intake.
 - Having more than 1-2 alcoholic drinks per day.
 - Smoking.
 - Lack of physical activity.
- ❖ **Secondary hypertension** is a much less common form of high blood pressure. In these cases, a direct cause for high blood pressure can be identified. Causes can include:
 - Obstructive sleep apnea.
 - Medication side effects (eg. decongestants, birth control pills, ADHD medications, workout supplements containing caffeine, etc).
 - Substance use (eg. cocaine, amphetamines).
 - Kidney disease, vascular abnormalities.
 - Hormonal abnormalities, tumors of the adrenal gland.

WHO GETS HYPERTENSION?

Anyone with risk factors may develop hypertension. The more risk factors you have, the higher the probability. In the US:

- ❖ The prevalence of hypertension in adults (18 years and older) is approximately 45%.
- ❖ Hypertension is more common in males, older adults, Black adults, & those living in rural areas.

WHAT ARE THE SYMPTOMS?

Hypertension is known as a "silent" disease because it usually has no warning signs or symptoms. That is why it is important to have your blood pressure checked on a regular basis.

Symptoms often do not develop until your body's organs begin to suffer and complications develop. Symptoms may include chest pain, irregular heartbeats, shortness of breath, headache, changes in vision, etc.

HOW IS HYPERTENSION DIAGNOSED?

Blood pressure readings consistently 130/80 or higher are considered diagnostic for hypertension. Both numbers do not have to be elevated in order to have the diagnosis.

- ❖ The preferred method for confirming the diagnosis of hypertension is ambulatory blood pressure monitoring (ABPM), where the patient wears a device that measures blood pressure every 15-20 minutes during the day and every 30-60 minutes during sleep over a period of 24-48 hours. However, this option may not be covered by health insurance.
- ❖ Home blood pressure monitoring is a frequently used alternative to ABPM. An automated validated device (www.validatebp.org or stridebp.org/bp-monitors) is used to obtain at least 12-14 blood pressure readings (both morning and evening) over a period of one week. The average of these readings is used for diagnosis and decisions about treatment.
- ❖ If out-of-office blood pressure measurements are not feasible, in-office measurements can be used for diagnosis. At least 3 blood pressure readings (spaced at least 1 week apart) averaging $\geq 130/80$ are necessary for diagnosis.

Once a diagnosis of hypertension has been established, your medical provider will order baseline tests, including:

- ❖ Blood and urine tests to rule out other causes or complications of high blood pressure.
- ❖ An electrocardiogram (or ekg), a painless test that measures the electrical activity of your heart.

CLASSIFICATION OF BLOOD PRESSURE (BP) FOR ADULTS*

Blood Pressure Classifications	Systolic BP (mmHg)		Diastolic BP (mmHg)
Normal	< 120	and	< 80
Elevated	120-129	and	< 80
Stage 1 Hypertension	130-139	or	80-89
Stage 2 Hypertension	≥ 140	or	≥ 90

* If systolic & diastolic pressures fall into different categories, the higher category is used to classify blood pressure.

WHAT ARE POSSIBLE COMPLICATIONS?

In patients with high blood pressure, the constant abnormal force of blood pushing against the arterial walls causes damage to the blood vessels and eventually to the body's organs. This can lead to a wide range of health problems:

- ❖ **ARTERIOSCLEROSIS:** High blood pressure makes the arteries thick & stiff while also promoting the build-up of cholesterol & fats inside the blood vessels. This can block blood flow to organs, leading to life-threatening conditions like heart attack or stroke.
- ❖ **CHEST PAIN (ANGINA) & HEART ATTACK:** When arteries in the heart become blocked by arteriosclerosis, they are unable to carry enough blood and oxygen to the heart. This can result in a type of chest pain known as angina. If heart muscle dies because of a complete lack of oxygen, then a heart attack (or myocardial infarction) has occurred.
- ❖ **CONGESTIVE HEART FAILURE:** When the heart has to work harder to pump blood against high pressure, the heart muscles can enlarge and weaken over time. As the heart's ability to pump blood drops, fluid can back up into the lungs and cause shortness of breath.
- ❖ **STROKE:** Similar to a heart attack, blockage of an artery in the brain can lead to a "brain attack" or thrombotic stroke. A hemorrhagic stroke occurs when very high pressure causes a weakened artery to burst.
- ❖ **KIDNEY DISEASE:** Kidneys are particularly prone to injury from hypertension because they are primarily made up of blood vessels, which filter waste products out of the body. If blood pressure is not controlled, kidney function can drop, eventually leading to kidney failure, which will require dialysis or a kidney transplant.

CAN LIFESTYLE CHANGES PREVENT AND TREAT HYPERTENSION?

Healthy lifestyle habits, especially when used in combination, are key to preventing and treating high blood pressure. Maintaining healthy habits can be as effective as taking one blood pressure-lowering medication. Here's how much your systolic blood pressure could fall with the following lifestyle interventions:

EXERCISE & WEIGHT LOSS

- ❖ **BE PHYSICALLY ACTIVE → ↓ 5 points**
Aerobic exercise can improve blood pressure independent of weight loss. Work your way up to at least 30 minutes of aerobic exercise 5 times a week. This amount of exercise also helps improve cholesterol. It is important to see a healthcare provider prior to starting a vigorous exercise program if you have elevated blood pressure, chest/shoulder pain, lightheadedness, breathlessness following a mild workout, or if you are middle-aged or older.
- ❖ **LOSE WEIGHT → ↓ 1 point for every 2 lbs lost**
Being overweight increases your risk of developing hypertension. Even moderate weight loss can lead to significant improvements in blood pressure. The healthiest and longest-lasting weight loss is slow: 1/2 to 2 pounds per week. This can be accomplished by decreasing your intake by 500 calories per day (3,500 fewer calories per week = 1 lb of weight loss).

HEALTHY EATING

- ❖ **CUT BACK ON SALT (SODIUM) → ↓ 5 points**
Limiting salt in your diet can improve blood pressure and substantially reduce the risk of heart disease.

- A low-salt diet contains fewer than 2,300 mg of sodium per day (which is equal to about one teaspoon of table salt). However, most Americans consume many times that amount.
- 80% of our sodium intake comes from packaged foods & restaurant foods that don't even taste salty. Examples include snack foods, canned foods, frozen meals, ramen, lunch meat, cheese, bread, sauces, V8, sports drinks, and sodas (including diet!).

❖ **GET MORE POTASSIUM → ↓ 4-5 points**

Research has shown that potassium helps prevent and control high blood pressure. Aim for 3,500 to 5,000 milligrams of potassium per day. It is best to do this by eating potassium-rich foods, such as bananas, spinach, green beans, potatoes, tuna, salmon, milk, and yogurt.

❖ **EAT MORE FIBER.** Getting 20-35 grams of fiber a day may lower your blood pressure.

❖ **EAT MORE FISH.** Eating more fish, especially when combined with weight loss, can lower blood pressure.

❖ **FOLLOW THE DASH DIET → ↓ 11 points**

The **Dietary Approaches to Stop Hypertension (DASH)** diet is highly recommended because it combines many of the dietary recommendations mentioned above. It is rich in fruits, vegetables, low-fat dairy, fiber, poultry, fish, and nuts. This diet is also high in potassium, calcium, & magnesium. For detailed information, visit www.nhlbi.nih.gov/education/dash-eating-plan.

OTHER LIFESTYLE CHANGES

❖ **LIMIT ALCOHOL USE → ↓ 4 points.**

People who have more than 2 alcoholic drinks a day are at increased risk for hypertension. A "drink" is defined as 1.5 oz of 80-proof liquor, 1 oz of 100-proof liquor, 5 oz of wine, or 12 oz of beer (regular or light).

❖ **LIMIT CAFFEINE INTAKE.**

To avoid increasing blood pressure, limit caffeine to no more than 1 cup of coffee per day.

❖ **AVOID MEDICATIONS & SUPPLEMENTS THAT CAN INCREASE BLOOD PRESSURE.**

- NSAIDs (nonsteroidal anti-inflammatory drugs), like ibuprofen (Advil, Motrin) and naproxen (Aleve), can increase blood pressure in some individuals because they lead to sodium and fluid retention.
- Birth control pills containing estrogen can increase blood pressure in some women.
- Any stimulant (such as those found in ADHD medications, decongestants, weight loss products, exercise supplements, and illicit drugs) can increase blood pressure.

❖ **AVOID SMOKING AND/OR VAPING.**

Smoking damages blood vessels and accelerates hardening of the arteries. Nicotine increases blood pressure by causing your arteries to constrict and your heart to beat faster.

WHEN ARE MEDICATIONS NEEDED?

If office blood pressures remain consistently $\geq 140/90$ despite lifestyle changes, medication treatment may be necessary. Medications may be recommended at a lower blood pressure for high-risk patients, such as those with known cardiovascular disease, diabetes mellitus type 2, chronic kidney disease, older age (≥ 65 years), etc.

RECOMMENDED WEBSITES:

familydoctor.org, www.mayoclinic.org, www.nhlbi.nih.gov