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 between beats and filling up with blood.

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?
- Primary or essential hypertension is the most common form of high blood pressure. In these cases, no specific cause is found. Common risk factors include:
  - A family history of hypertension
  - Tobacco use
  - High cholesterol
  - Being overweight or obese
  - High salt intake
  - Having more than 1-2 alcoholic drinks per day
  - Lack of physical activity
  - High stress
  - Advancing age

Other risk factors for essential hypertension that have been recently implicated include a low potassium diet and low vitamin D levels.

- Secondary hypertension is a much less common type of high blood pressure. In these cases, a direct cause for high blood pressure can be identified. Causes can include kidney disease, hormonal abnormalities, tumors of the adrenal gland, medications (such as birth control pills and decongestants), and pregnancy.

WHO GETS HYPERTENSION?
Anyone with risk factors may develop hypertension. The more risk factors you have, the higher the probability.

- 29-31% of adults in the US have high blood pressure, including more than 50% of Americans over age 65.
- African Americans tend to develop hypertension earlier in life and have more severe disease.

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, resulting in conditions like heart disease, kidney disease, and stroke. Symptoms may include chest pain, irregular heartbeats, shortness of breath, fatigue, headache, and changes in vision.

HOW IS HYPERTENSION DIAGNOSED?
Blood pressure readings of 140/90 or higher are concerning for high blood pressure.

- Both numbers do not have to be elevated in order to have high blood pressure.
- Because fluctuations in blood pressure are normal, you should have 3-6 abnormal readings on at least 2 different days before being diagnosed with hypertension.

Once a diagnosis of hypertension has been established, your healthcare 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.

WHAT IS PREHYPERTENSION?
Prehypertension refers to blood pressure readings that are above the normal range but not high enough to be hypertensive. Although prehypertension is not considered an actual disease, it doubles the risk of progression to hypertension compared to those with normal blood pressure.

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**CLASSIFICATION OF BLOOD PRESSURE FOR ADULTS**

<table>
<thead>
<tr>
<th>Blood Pressure Classifications</th>
<th>SBP (mmHg)</th>
<th>DBP (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt; 120</td>
<td>&lt; 80</td>
</tr>
<tr>
<td><strong>Prehypertension</strong></td>
<td>120-139</td>
<td>80-89</td>
</tr>
<tr>
<td>Stage 1 Hypertension</td>
<td>140-159</td>
<td>90-99</td>
</tr>
<tr>
<td>Stage 2 Hypertension</td>
<td>≥ 160</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>

* If systolic and diastolic blood 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. This can lead to a wide range of health problems:

■ ARTERIOSCLEROSIS
Elevated blood pressure makes the arteries thick and stiff while also promoting the build-up of cholesterol and fats inside the blood vessels. This can block blood flow in the arteries, leading to life-threatening conditions like heart attack or stroke.

■ CHEST PAIN (ANGINA) AND 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.

■ 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. Over time, as high blood pressure damages these blood vessels, kidney function will drop, and waste products can build up in the blood and cause multiple complications. Eventually, the kidneys may fail completely, requiring dialysis (mechanical filtering) or a kidney transplant.

WHAT CAN BE DONE TO PREVENT AND TREAT HYPERTENSION?
Implementing healthy lifestyle habits is key to preventing high blood pressure and is an important component in the treatment of hypertension.

■ MAINTAIN A HEALTHY WEIGHT.
Being overweight can increase your risk of developing hypertension by 2 to 6 times. Even relatively small amounts of weight loss can make a huge difference in preventing or treating high 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).

■ BE PHYSICALLY ACTIVE.
Physically active people have a 20-50% lower risk of getting hypertension. Additionally, aerobic activity for at least 30 minutes 4 or 5 times a week helps raise HDL (good cholesterol) and helps to lower total cholesterol. It is important to see a healthcare provider prior to starting a vigorous exercise program if you have elevated blood pressure, pains or pressure in the chest or shoulder areas, lightheadedness, breathlessness following a mild workout, or if you are middle-aged or older.

■ EAT FOODS LOW IN SALT OR SODIUM.
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 processed foods and restaurant food. Examples include snack foods, canned foods, pre-packaged frozen meals, lunch meat, cheese, bread, sauces, V8, sports drinks, & sodas (including diet!).

■ ADOPT A HEALTHY DIET.
The DASH (Dietary Approaches to Stop Hypertension) diet is rich in fruits, vegetables, and low-fat dairy products (with a reduced content of saturated and total fat). This diet is also rich in potassium and calcium. Research has shown that potassium helps prevent and control high blood pressure. Many fruits, vegetables, fish, and dairy products are rich sources of potassium (eg. bananas, spinach, sweet potatoes, green beans, milk).

■ LIMIT ALCOHOL USE.
There is limited information suggesting that light to moderate consumption of alcohol may reduce the risk of heart disease.
- 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).
- Light to moderate alcohol consumption is 0-1 drinks per day for a woman or 0-2 drinks per day for a man.
- Women who drink 2 or more alcoholic beverages per day and men who have 3 or more drinks per day have a higher incidence of hypertension.
- Chronic or excessive alcohol use can lead to diseases of the liver and pancreas, as well as increased risk of certain cancers.

■ STOP SMOKING.
Smoking damages blood vessel walls and accelerates hardening of the arteries already caused by hypertension. Nicotine also increases blood pressure by causing your arteries to constrict and your heart to beat faster.

■ LIMIT CAFFEINE INTAKE.
To avoid increasing blood pressure, limit caffeine use to no more than 1 cup of coffee per day.

■ LIMIT THE USE OF NSAIDS.
NSAIDs are nonsteroidal anti-inflammatory drugs like ibuprofen (Advil, Motrin) and naproxen (Aleve). When used on a frequent basis, these drugs can cause sodium and fluid retention, which increases blood pressure.

■ EAT MORE FIBER.
Increasing the amount of fiber in your diet may lower blood pressure. Shoot for 20-35 grams of fiber a day.

■ EAT MORE FISH.
Including more fish in your diet can lower blood pressure, especially when combined with weight loss.

■ GET ENOUGH VITAMIN D.
Supplementation is suggested if bloodwork shows low vitamin D levels.

■ MEDICATIONS
If hypertension cannot be controlled with lifestyle changes, medication treatment is commonly recommended. Talk to your healthcare provider for more information.

RECOMMENDED WEBSITES:
- www.familydoctor.org
- www.mayoclinic.org
- www.nhlbi.nih.gov

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