

Understanding Blood Pressure

Simply put, blood pressure is the force of blood against the walls of arteries (blood vessels that carry oxygenated blood to tissues throughout the body). To understand how blood pressure is measured and what each component means, we must first understand some basic things about the heart.

The heart is comprised of 4 chambers: 2 atria (left and right) and 2 ventricles (left and right). The left ventricle (LV) is the chamber responsible for ejecting blood into your aorta (the main blood vessel leaving the heart) which then branches off into smaller arteries that will supply the body with oxygenated (nutrient rich) blood. When the LV contracts, subsequently pushing blood into the aorta, the pressure in the aorta rises; the maximal pressure in the aorta following this ejection is termed **systolic pressure**. When the LV starts to relax and refill with blood (to eventually go through this entire process again), the pressure in the aorta falls (no blood is currently being squeezed into it). The lowest pressure that is recorded in the aorta, just before the LV ejects blood into it again, is called **diastolic pressure**.

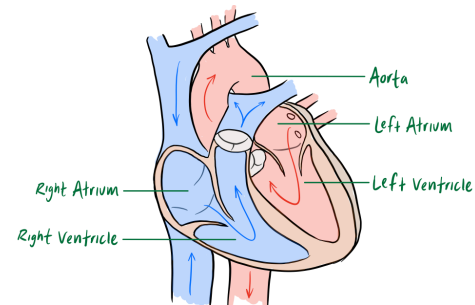


Image 1: Illustration of the human heart. Blue color represents deoxygenated blood. Red color represents oxygenated blood.

Blood Pressure (BP) can be measured several different ways, but most commonly is measured with a sphygmomanometer (the all too familiar uncomfortable cuff that physicians fasten onto your upper arm) and is measured in units of millimeters of Mercury (mmHg). The systolic pressure is the numerator of this fraction and the diastolic pressure is the denominator (e.g. 120/80 mmHg).

Interestingly enough, the guidelines to determine whether someone has high blood pressure have just been changed - what used to be considered “pre-hypertension” is now considered “stage 1 hypertension”.

Old Blood Pressure Guidelines			
Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Normal	<120	OR	<80
Pre-HTN	120-139	OR	80-89
Stage 1 HTN	140-159	OR	90-99
Stage 2 HTN	≥160	OR	≥100

New Blood Pressure Guidelines			
Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Normal	<120	OR	<80
Stage 1 HTN	120-159	OR	80-99
Stage 2 HTN	≥160	OR	≥100

Under the old guidelines, 32% of U.S. adults (about 72 million people) were considered to have high blood pressure (stage 1 or 2). However, these new guidelines will shift that to ~46% of U.S. adults (about 103 million people). That means almost half of the adults in the United States are considered to have high blood pressure! Of course nothing has changed other than a definition, but will this aberration have unintended consequences?

High blood pressure or Hypertension (HTN) increases the risk of heart disease as well as many other harmful sequelae. To prevent these dangerous possibilities, it's important to keep your blood pressure under control. HTN can be prevented by lowering sodium (salt) intake, being active, and keeping a healthy weight (to name a few factors). If lifestyle modifications fail to lower blood pressure, your doctor may prescribe a drug to help.

With a huge increase in the numbers of Americans (approximately 30 million) that are now ‘diagnosed’ with high blood pressure, it is safe to assume that we will see a parallel increase in prescribed hypertensive medications. Could this have been a possible driving factor in determining whether or not to change the guidelines?

Regardless of the motivation behind this change, self-education remains crucial to understanding whats occurring inside and around you. Don't be afraid to probe your doctor and ask a few more questions than usual - you must be your own advocate when it comes to personal health.

