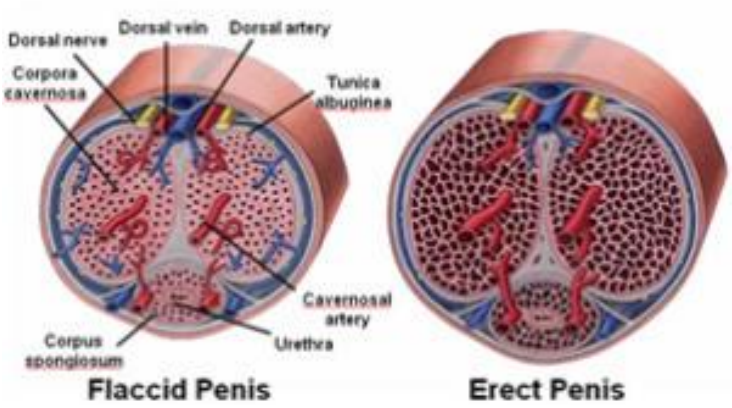
Can High Blood Pressure Cause Erectile Dysfunction?

The short answer is yes. In fact, a study in the *Journal of the American Geriatrics Society* reported that approximately 49% of men in the age category of 40-79, with high blood pressure, had erectile dysfunction (ED). To fully explain how this happens, I'm going to pretend that not all of my readers remember the basics of penile anatomy and function that they may have learned during health class in high school…if they were lucky enough to have that. After explaining the basic mechanics of how a penis functions, I can then explain why having your blood pressure in a healthy range is so important for sexual health.

Sex Ed 101: The Penis

Inside the shaft of the penis, there are three cylindrical chambers of spongy tissue. Two of these spongy chambers are side-by-side, at the top (a.k.a. upper surface or dorsal) of the shaft. They are called the corpora cavernosa. The third is just below, at the bottom (a.k.a. undersurface or ventral) of the shaft. It is called the corpus spongiosum. The urethra runs through the center of the corpus spongiosum and is responsible for moving and expressing urine from the bladder, as well as moving and expressing semen from the ejaculatory ducts. To make sense of all of this, see Figure 1. below.

Figure 1. Mechanism of Erections: Cross Section



Source: Advanced Urological Care, P.C. www.urologicalcare.com

Within the spongy tissue, the corpora cavernosa are made up of small arteries and veins, smooth muscle fiber, and empty space (when flaccid). As you can see from Figure 1. above, erections require adequate blood flow through the veins and arteries to the three cylindrical chambers of spongy tissue in the penis. For an erection to occur, nerve impulses, or signals, travel directly to the spinal cord, or to the brain and then to the spinal cord. The domino effect of this nerve signal initiates an erection reflex. The result is that the smooth tissue of the three chambers relaxes, and the arteries dilate or widen, allowing more blood to rush in and fill those empty spaces. This engorgement from the increased blood flow is what allows the penis to stiffen, or become erect. The increased pressure of the blood flow around the sheath of tissue

around the three chambers, causes a restriction to the veins that would normally allow blood to flow away from the penis, and back into the body. Without this restriction, a man would not be able to maintain an erection. Naturally, when the excitement phase ends, the smooth muscle contracts again, taking the pressure off of those veins and the blood flows back into the body and the penis returns to a flaccid state.

High Blood Pressure and ED

High blood pressure (also called hypertension) damages the walls of your arteries because the amount of force or pressure is higher than the walls were meant to handle. This can cause a thickening of the walls, and/or microscopic tears in the artery that over time could cause a buildup of scar tissue. The built up scar tissue can then become restrictive to blood flow. The restriction leads to a buildup of particles of fat, cholesterol, and other substances. Doctors refer to this built up collection as "plaque." Over time, the buildup of plaque causes a restriction in the blood flow, causing arteries to slowly narrow and harden (known as atherosclerosis). Note: As we age, our arteries will naturally lose their elasticity and harden over time, even in people with no history of high blood pressure.

As you now know, blood flow through the arteries is crucial for a male to achieve erections. The effects of high blood pressure adversely affect the arteries that carry blood into the penis, and prevent the veins and arteries from being able to dilate the way they are supposed to. As a result, not enough blood flows into the three cylindrical chambers of spongy tissue to make and keep the penis erect.

The Catch-22

Okay, here's the kicker: some medications for treating high blood pressure (HBP) can actually cause erectile dysfunction. Sounds crazy, right? I agree, but it's true. The two most common medications prescribed to treat HBP are diuretics (water pills, like hydrochlorothiazide) and beta-blockers (for example Atenolol). Diuretics decrease the force of blood flow to the penis. As we know, adequate force of blood flow is necessary to achieve an erection. Some research also suggests that diuretics can deplete the body of zinc. Zinc plays an important role in the production of testosterone in men. Thus, low levels of zinc could cause low testosterone production. Testosterone is a hormone necessary for the nerve impulses that are sent to the spine and to the brain, as discussed earlier.

Medications containing beta-blockers are problematic because beta-blockers interfere with the response to the nerve impulses required to lead to an erection. In addition, they can also inhibit the ability for arteries in the penis to dilate (widen) to let in adequate blood flow for an erection.

If you are taking medications for high blood pressure and are concerned about the side-effects, talk to your doctor. Never stop taking or modify the dosage of your medication without first talking with your prescribing physician. Talk to your doctor about other medications that are available that may be less likely to cause sexual side effects.

Ways to Take Control

The good news is that there are ways to take control of your blood pressure, before it becomes harmful for you, your body, and your sexual health. Several ways to try to control your blood pressure include: losing weight, exercising regularly, maintaining a healthy diet, taking a daily multivitamin (be sure it includes potassium and zinc), reducing sodium (salt) intake; avoiding tobacco and tobacco products, and decreasing alcohol intake to no more than one drink per day.

Until next time, have fun and be healthy!

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