

## Make Decreases to Decrease Your Blood Pressure

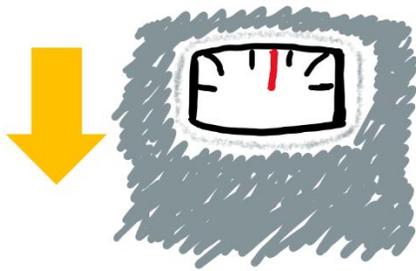
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High blood pressure, commonly known as hypertension ( $\geq 140$  mm Hg systolic/ $\geq 90$  mm Hg diastolic), is a major risk factor for cardiovascular disease, including heart attack and stroke. It is especially important to manage hypertension as many people may have no symptoms. In addition, there is a high prevalence in the United States. According to the American Heart Association, almost half of adults living in the United States have high blood pressure, of which 45.6% are not controlled under the 2017 Hypertension Guidelines (1). Fortunately, hypertension can be diagnosed easily in the clinic, and can be prevented or treated in a variety of ways. One of the best ways to maintain blood pressure is making lifestyle changes with or without antihypertensive medication. Such changes may also be beneficial when it comes to low compliance with antihypertensive medication regimens, which may be further decreased due to lack of debilitating symptoms (2). While there are several lifestyle changes that can be implemented, this post highlights three well-studied “decreases” that can help decrease blood pressure.

**Decreasing sodium consumption.** While the recommended daily sodium consumption is 2,300 milligrams per day, American males and females consume 1.5 to 2 times the recommended amount with an average of 3,400 milligrams (3). Most of the sodium is salt (sodium chloride), followed by sodium bicarbonate and monosodium glutamate (MSG); all these may be found in increased amounts from packaged and restaurant foods (4). Decreasing sodium intake also has other health benefits, such as decreasing the risk of kidney stones and osteoporosis (5). One way that one can decrease sodium consumption is to prepare meals on your own with little to no salt. Another option is to opt for low-sodium options at restaurants.



*Influencing patients' efforts in decreasing sodium consumption can be done in one of two ways. First, health care providers can recommend the Dietary Approaches to Stop Hypertension, or DASH, which focuses on consumption of foods lower in sodium and foods higher in potassium, magnesium and calcium. The DASH diet has also been shown to decrease blood pressure even when patients didn't strictly restrict sodium intake and ate the recommended fruits and vegetables (6). Second, health care providers can influence patients' efforts by counseling during the appointment. Some elements that providers can discuss include reading food labels regularly and cooking without salt when asked about dietary habits during the social history gathering (7). Providers may also refer patients to nutritionists for further management if they do not have enough time during the appointment, or if patients desire more diet-specific appointments.*



**Decrease weight.** Losing weight can be beneficial in many ways, including lowering blood pressure and reducing the risk of developing other health conditions. Findings from the Framingham Heart Study found that obesity increases heart disease, whereas losing weight decreases it. Furthermore, high blood pressure was two times as more likely for both males and females who were obese compared to those who are non-obese (8). There are various ways to help lose weight, including but

not limited to having a healthy diet, exercising regularly, taking certain medications and undergoing bariatric surgery. When it comes to losing weight, it is important to aim for slow and steady weight loss over time.

*Health care providers can play a role in instigating change and motivating patients to lose weight. For instance, providers can develop a rapport with patients to help keep patients accountable. Developing long-term relationships with providers can help patients implement lifestyle changes, where providers can routinely follow up with patients in future clinic appointments. A good starting point in helping to address lifestyle changes in terms of decreasing weight can be determined by first calculating the weight and height of patients and determining a BMI (9). By identifying the BMI, providers can then talk to patients about establishing a sustainable weight loss goal and options on how to achieve this goal. Some options may include making changes in diet as well as using medications in conjunction with diet and exercise. Providers can also enlist the help of other health care professionals, such as dietitians, nutritionists and behavioral health specialists, to implement changes appropriate for the patient.*

**Decrease stress levels.** There are different kinds of stresses that can increase the risk of hypertension in patients. Some of these stressors include work-related stress, relationship stress, low socioeconomic status and racial discrimination (10). Regardless of whether the stress is biological or physiological in nature, there are a certain type of molecules, called catecholamines, that play an important role in the human body. Catecholamines are both neurotransmitters and hormones produced by the adrenal glands, which are glands that lie on top of the kidneys (11). Stress has been shown to impact the sympathetic nervous system (which is also activated in the ‘fight or flight’ response), where catecholamines, including norepinephrine and epinephrine, may be responsible for increasing heart rate and blood pressure. Over time with repeated stressors, individuals may become hypertensive from increased catecholamine production and release (10). There are many ways to help lower stress, including engaging in stress reduction programs, yoga classes and meditation. One study in 2008 showed that meditation can help lower the systolic and diastolic blood pressure by up to 4.7 mm Hg and 3.2 mm Hg, respectively (12). Stress reduction techniques, in combination with other lifestyle changes, can therefore benefit patients with hypertension.



*Hospital settings or clinics can cause great distress to the patient, especially when they are about to undergo procedures or surgeries (13). One important thing health care providers can do is to*

*identify patients who are undergoing stress. Stress can manifest in different ways, including experiencing functional symptoms such as headaches and fatigue. Different levels of interventions can take place, including taking several minutes during the appointment to counsel the effects of stress and allowing the patient to identify external and internal stressors, all while being empathetic (14). Furthermore, discussing relaxation techniques and stress reduction techniques with the patients may be beneficial in helping to alleviate stress, and thus ultimately decrease blood pressure over time (14).*

There are multiple ways to help lower blood pressure, some of which include lifestyle changes and taking antihypertensive medications. It is important to note that medications may be essential in helping those with consistently high blood pressure. Regardless of whether or not antihypertensive medications are prescribed, it is worthwhile to also implement lifestyle changes to not only help lower blood pressure, but also to decrease the likelihood of developing other chronic conditions. There are many lifestyle changes that one can take, some of which are not discussed above. However, taking the initial step by decreasing three specific things may be a great start in both lowering blood pressure over time and the risk of health problems in the future.

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**Figures drawn by Elysia Tjong, OMS-III**

**Note: The italicized paragraphs are pertinent for health care providers. They may be omitted for adaptability as patient hand-outs, if desired.**