

A Needs Assessment of Hypertensive Patients

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Abstract

Hypertension (high blood pressure) affects 31% of adults, and it is estimated that 33% of adults have prehypertension. Hypertension can lead to other health issues such as heart disease, stroke, and kidney disease. Adult Medicine patients at Matthew Walker Comprehensive Health Center, a federally qualified health center, were given a survey with questions on diet, exercise, medication, and lifestyle. Participants were also asked to give suggestions that would help them manage their hypertension. When asked how they manage their hypertension, 23.8% stated that they exercise, eat a healthy diet, and take medication as prescribed. Patients understand what choices are healthy, but they are not making them. Combatting obesity will help patients manage their health condition and or chronic illnesses. More clinic educators should be present to engage patients and promote healthy lifestyles. The One Million Hearts initiative by the United States Department of Health and Human Services is a good resource to recommend to patients.

Keywords: Hypertension, high blood pressure, heart disease, stroke, obesity, Community Health Center, clinic educators, One Million Hearts

Introduction

Hypertension (HTN) or high blood pressure is a chronic disease that affects 31% of Americans, and it is estimated that an additional 33% of adults have prehypertension (CDC 2012, Egan et al 2010). HTN is defined by having a systolic pressure ≥ 140 mmHg and a diastolic pressure ≥ 90 mmHg, while prehypertension is defined as a systolic pressure > 120 mmHg and ≤ 139 mmHg and a diastolic pressure > 80 mmHg and ≤ 90 mmHg (CDC 2014). HTN costs the nation 47.5 billion dollars each year, and was the cause of death for 348,000 Americans in 2009 (Go et al 2013). Comorbidities associated with HTN include heart disease, stroke, and kidney disease. The Control of the disease may require exercise, diet, and/or medication. When counseling patients to control HTN, interventions include reduced sodium intake, reduced consumption of saturated fats, increased consumption of fiber, fruit and vegetables, increase in exercise, and weight loss (Fernandez et al 2011). It is also known that refraining from unhealthy activities such as smoking tobacco and drinking too much alcohol can help reduce blood pressure (CDC 2014).

HTN disproportionately affects African Americans in prevalence, treatment and control rates, and it is implicated that the reason for the racial disparity in cardiovascular outcomes is due to poor blood pressure control (Giles et al 2007). According to a study funded by the National Heart, Lung and Institute (NHLBI), the effectiveness of patient- and-provider intervention are untested among hypertensive African Americans because they receive their healthcare from low resource centers such as Community Health Centers (Fernandez et al 2011).

Healthcare professionals are instrumental in helping patients control their blood pressure, but developing team-based care has shown to be as effective. The team consists of the patient, primary health care provider, nurse, pharmacists and additional recruited individuals

such as dietitians, health educators, and social workers (Guide to Community Preventive Services 2014).

Matthew Walker Comprehensive Health Center (MWCHC) is a Federal Qualified Health Center (FQHC) located in Nashville, TN, and there are additional sites in Clarksville, TN, and Smyrna, TN. The Center offers services in Pediatrics, Family Medicine, Internal Medicine, Obstetrics and Gynecology, Behavioral Health, Nutrition, Pharmacy, Dentistry, Laboratory services, and a specialty in sickle cell anemia. It offers services to insured and uninsured patients regardless of their ability to pay. Its mission is to provide healthcare services, health education, and to promote wellness. Patients seen at the center are 42% African Americans, 32% white, 19% Latino, and 2% Asian, and about 72% of the patients that receive services are uninsured.

Nashville is the capital of Tennessee located in the central part of the state. Tennessee has the tenth highest obesity rate in the nation at 31.1% and third highest in hypertension at 38.6%. There were 396,752 cases of heart disease in 2010 (Robert Wood Johnson Foundation 2013). In Nashville, Davidson County 27% of the population has HTN, 23.4% are obese, and 27.9% are physically inactive (United States Department of Health and Human Services 2014). The three leading causes of death in Nashville in 2007 were heart disease, cancer and stroke. The mortality rate (per 100, 000) for those with heart disease was 217.6 with a rate of 209.4 for whites and 255.3 for blacks, and deaths resulting from strokes with all races included occurred at a rate of 49.5 with a rate of 45.8 for whites and 64.1 for blacks (Metropolitan Public Health Department of Nashville and Davidson County, TN 2012).

Methodology

Convenience sampling was used to complete the cross-sectional study of hypertensive patients at the Matthew Walker Comprehensive Health Clinic from June 16, 2014 through July, 10, 2014. Patients who came in for a scheduled visit were asked to participate if they had hypertension listed in their medical history. I approached the patients while they were in the exam room waiting for the provider. I explained that the responses were anonymous and assured them that their healthcare would not be compromised if they declined. A total of 46 patients were asked to complete the survey, but 4 patients refused to participate. There were 42 adults surveyed at the clinic ranging from age 37 to 86. All of the adult patients were verbally given the questionnaire and their responses were recorded. The survey (shown in Appendix A) included 20 multiple choice questions about diet, exercise, medication and lifestyle, and patients were asked additional free response questions allowing them to give feedback on their level of satisfaction of the clinic and improvements that could be made to help them better manage their hypertension. The patients were then educated on basic health information and given handouts shown in Appendix B. The data from the multiple choice questions was entered in Microsoft Excel and later analyzed by editing the cells and inputting the proper functions.

Results

The number of individuals in each age range is shown in Figure 1.

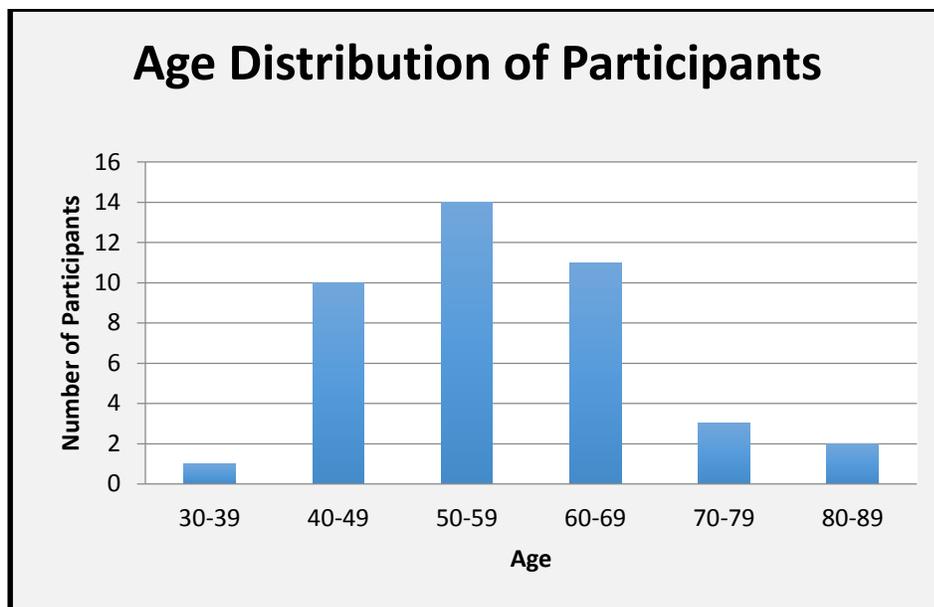


Figure 1.

The majority of the patients were in their 40s, 50s, and 60s, and males made up 52.4% of the total population. The make-up of the sampled population was 76.2% black, 14.3% white, 7.1% Asian and 2.4 Hispanic with black males representing 42.9% of all of those surveyed. Of all those that participated, 47.6% had no form of health insurance. When questioned about the rate of blood pressure checks done at home, 16.7% stated that they checked it each day while 45.2% admitted that they never check it. When asked about the maintenance of their hypertension, 61.9% considered it controlled, 23.8% uncontrolled, and 11.9% unsure. It was positive that 95.2% of respondent reported that they take their medication as prescribed by a health care provider, and 23.8% stated that they managed their condition through diet, exercise and medication as shown in Figure 2.

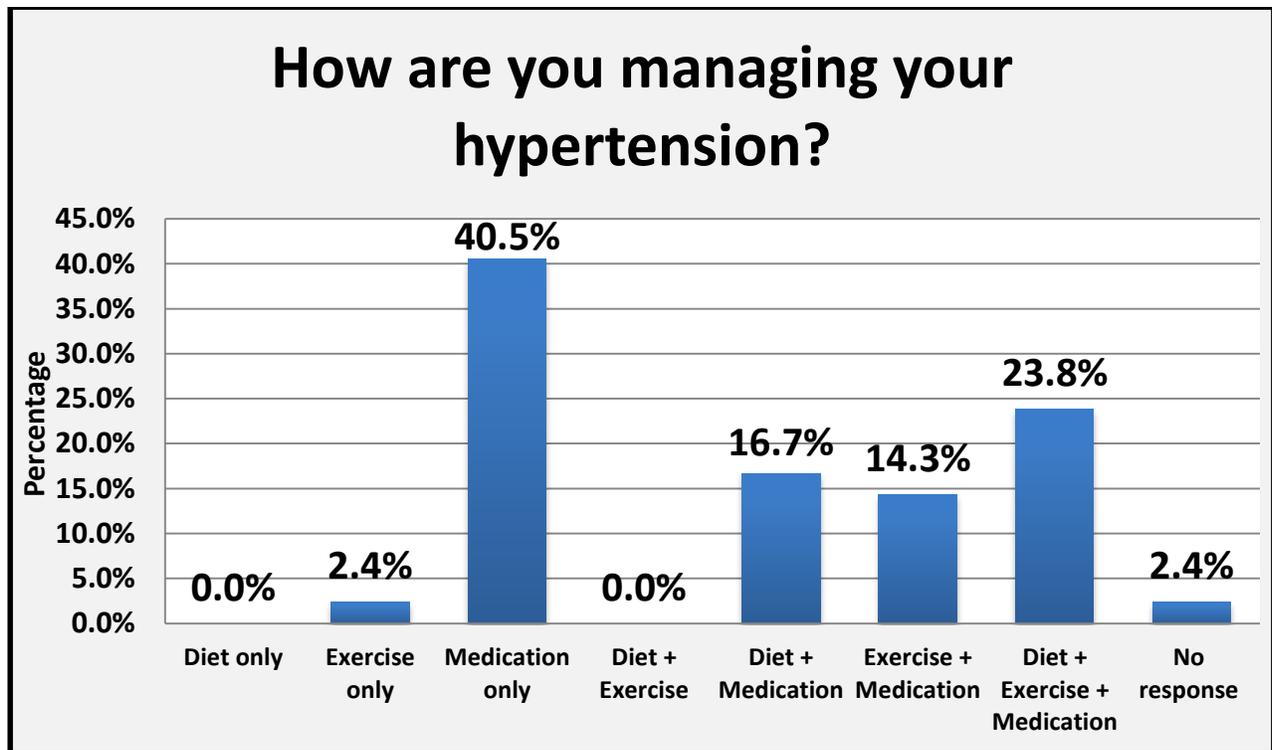


Figure 2.

A great portion (40.5%) of the patients relies on medication only to keep their blood pressures down. It is recommended that those over 50 take an aspirin a day, and 43.3% (13/30) of those over 50 admitted to taking an aspirin a day. The highest comorbidity present was high cholesterol at 35.7% followed by obesity at 31.0%, diabetes at 26.2%, cardiovascular disease at 4.8%, and kidney disease at 2.4%. It was shown that 66.7% of respondents had at least one comorbidity. Figure 3 shows the amount exercise report each week.

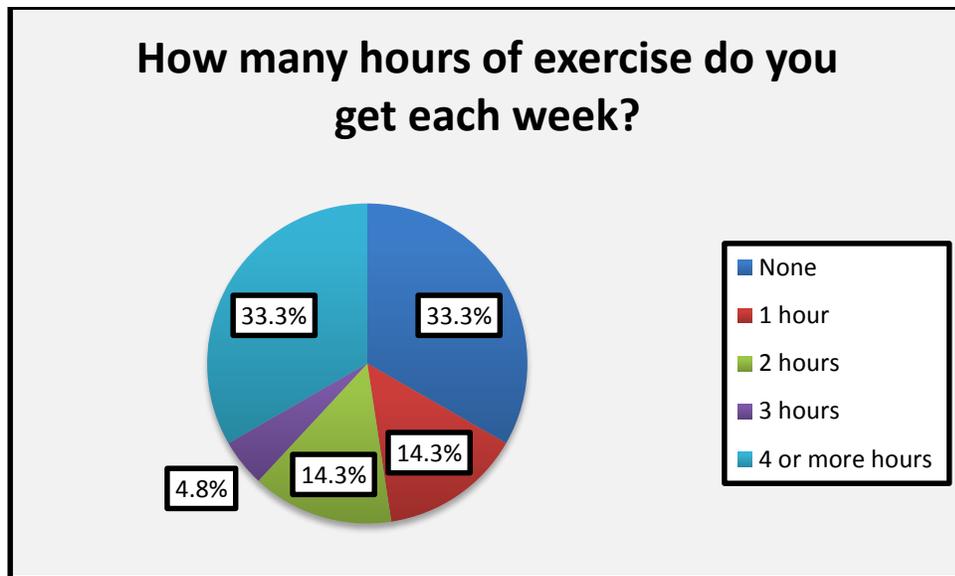


Figure 3.

About 62% of the adults reported getting 2 or less hours of exercise outside of work each week.

It is worth noting that 33% got no exercise, while another 38.1% got 3 or more hours of physical activity.

The results for the consumption of 8 ounce glasses of water each day were 0 to 2 at 21.4%, 3 to 4 at 26.2 %, 6 to 7 at 21.4%, and 8 or more at 31.0%. When asked if they sprinkle salt on food, 29% chose often, 29% rarely, and 41% never. The participants were asked how many servings of fruits and vegetable they consume each day, and 57.1% chose 0 to 2 servings, 38.1% chose 3 to 4 servings, and 4.8% chose 7 or more. When asked what percentage of a plate should consist of fruits and vegetables, the patients went with one-fourth at 33.3%, one-half at 50%, and three-fourths at 16.7%. Based on the guidelines set by the National Institute of Health, 16.7% were normal weight, 30.9% were overweight, and 52.4% were obese. While many patients knew the weight range they should be for their height, only 2.4% of patients knew their body mass index (BMI). The participants were asked if they considered themselves underweight (BMI under 18.5), normal weight (BMI 18.5 to 24.9), overweight (BMI 25-29.9) or obese (30

and over). Those who were overweight but considered themselves normal weight totaled 11.9% of all surveyed, and those who were obese but considered themselves normal weight totaled 9.5% of all surveyed. Those who were obese but considered themselves overweight totaled 35.7%, and those who correctly considered themselves obese were 4.8%.

When asked what would be the best medium to receive information that will help control your HTN, they chose a handout at 61.9%, MWCHC website at 26.2%, workshop at 4.8% and social media at 4.8%. The ages of the patients would explain why they would prefer to receive information on paper rather than through technology. Many patients stated that they did not have the money or resources to purchase fresh fruits and vegetables. Patients understood how they developed hypertension. One stated, “It is genetic,” and another stated, “It is when you are overweight and your heart has to pump harder.” Respondents addressed that time constraints prevent them from exercising and preparing healthy meals.

Discussion

Data for blood pressures is not a good representation of patients’ control of their hypertension. Some patients came to the office, because they had run out of medication and others had not taken medicine before coming in. Since most of the blood pressures recorded were over 120/80, future work in this area should focus on getting realistic measures of blood pressures to decide whether the patient’s HTN is controlled. From the responses to the questionnaire, it is evident patients know what choices are healthy, but they are not making those choices. It would be beneficial to explore ways to increase patient compliance in this population. When counseling African American in a network of CHCs in New York using a multicomponent intervention including home blood pressure readings, patient education, lifestyle counseling, and

HTN case rounds, there was no significant difference in the decrease of blood pressure when compared to those who only receive printed education and treatment guidelines (Ogedegbe et al 2014). There needs to be more research in this area to give a reason for this occurrence and to help decrease the disparity in health. It was shown in Figure 3 that only 23.8% of respondents manage hypertension through diet, exercise, and medication. Studies show that those entered into trials in which their progress in controlling their HTN is tracked there are positive health outcomes. Adding staff members such as students, clinic educators, or volunteers to track patients outside of normal office visits could be effective in helping patients manage their HTN.

The Center for Disease Control and Prevention recommends that adults receive 2 hours and 30 minutes or 150 minutes of aerobic exercise and 2 days of muscle-strengthening activities each week. About 1/3 of the adults surveyed received no exercise and 38.1% got the recommended amount of aerobic exercise. All of the patients were advised to get aerobic exercise and a couple of them were advised to perform strength training. The latter should also be suggested to both males and females. Those who get a greater amount of exercise receive great health benefits, and it has been proven to lower blood pressure (CDC 14).

According to the United States Department of Agriculture when preparing a plate of food, half of the plate should consist of fruits and vegetables. The respondents chose the correct choice of 50% half of the time. It is arguable that the 16.7% that chose $\frac{3}{4}$ of the plate are correct as well. Humans can consume more than the recommended amount, since they are not as high in calories, but the only concern would be if they are received the nutrients needed from other food groups. Additionally, 43% stated that they incorporated at least 3 to 4 servings of fruits and vegetables into their daily diet. Also recommended are portion of protein, whole grains, and low fat dairy (United States Department of Agriculture (2014). When asked about the consumption of

water, it was explained that a 16 ounce bottle of water was 2 servings. Patients were advised to drink more water and other drinks sparingly, and it was later concluded that only 31.0% stated that they drink 8 or more 8 ounce glasses of water.

Areas that patients needed education in included sodium intake and an understanding of weight classification. Sodium intake had to be addressed since patients admitted to adding salt to food often-29% and rarely-29%. Generally, patients understood that they should not sprinkle salt over prepared foods, and they were not paying attention to the sodium content of packaged foods. They had the misconception that other seasoning did not have salt when in fact they did. Based on patient classification of themselves, 57.1% incorrectly considered themselves to be in lower weight categories. The patients would make their decision by comparing their body to other adults, which may have misleading since 1/3 of adult Americans are obese (CDC 2014). Thirty one percent of the patients chose obesity as comorbidity, but 52.4% of the patients' medical histories showed that they had been diagnosed with the condition. Physicians should address obesity as serious health condition. Combatting obesity will help patients manage/prevent HTN and other chronic illnesses.

The management of HTN can become difficult when paired with other chronic conditions. Physician have to prescribe medication for each condition and have to meticulously choose medication for the other conditions to makes sure the drugs are compatible and effective. Individual respond differently to medication, so the trial and error may be utilized affecting HTN. There are situations when disease is managed well and others are not. This applies to the participants since it was shown that 66.7% had at least one other chronic illness which causes complexities when managing HTN with medication. With the creation of new drugs and the

utilization of personalized medicine, hopefully patients can be prescribed medicine in combinations that can control all conditions.

A weakness was the small sample size (n=42) making it impossible to know if the responses are representative of the entire hypertensive population of the clinic, and no surveys were given to patients at the other clinic locations. A more comprehensive needs assessment should be done to determine additional needs of the patients. It would be helpful to give a survey adopted from a source such as the Behavioral Risk Factor Surveillance System (BRFSS) rather a self-generated one. For example, a question I asked only asked patients if they were insured or uninsured; if I would have asked specifically about the type of insurance such as Medicare and Medicaid it would have given a more details about the population. About 20% of those that receive care from MWCHC have Medicaid or Medicare. When asked if they had health insurance, 52.4% said yes, which could be misleading.

Recommendations

More clinic educators should be present to engage patients and promote healthy lifestyles. It is possible that undergraduate students, graduate researchers, and volunteers could serve as clinic educators to prevent an increase in the budget allocated for employees. The educators can schedule exercise classes in the clinic or at other locations and give healthy cooking demonstrations to those who need it. They can cover health education and contact patients between scheduled appointments to keep patients engaged and empower them to take control of their health. There may be some individuals in the underserved population that may have undetected mental health issues that hinders their physical health. Educators could help

screen patients and works with other members of the healthcare team to refer the patients to behavioral health professionals.

The Million Hearts initiative by the United States Department of Health and Human Services is a good resource to recommend to patients. The goal is to prevent 1 million heart attacks and strokes by 2017 by bringing together a number of programs, policies and campaigns. It focuses on increasing awareness, using health information technology to improve the delivery of care for high blood pressure and high cholesterol, promoting smoke free air policies, and reducing sodium supply in food (CDC 2014).

Conclusion

Patients know what choices are healthy, but need to be encouraged to make those choices. The health risks associated with obesity need to be emphasized to help patients control their hypertension. More effort needs to be made to get patients to take medication as prescribed, eat healthy diet, and get the recommended amount of physical activity. Clinic educators will engage patients and promote healthy lifestyles resulting in increased patient compliance.

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Appendix

Appendix A

Hypertension Survey

Please take a brief moment to complete this anonymous survey about hypertension (high blood pressure). Thanks for your participation.

Sex__

Age __

Race __

1. Do you have health insurance?
 - a. Yes
 - b. No
2. What was your last blood pressure? _____
3. How often do you check your blood pressure?
 - a. Daily
 - b. A couple times a week
 - c. At least once a week
 - d. Only when needed
 - e. Never
4. Do you consider your hypertension (high blood pressure)
 - a. Controlled
 - b. Uncontrolled
 - c. Unsure
5. How are you managing your hypertension? Check all that apply
 - a. Diet __
 - b. Exercise __
 - c. Medication __
 - d. Other __
6. What will be most useful in helping you control your hypertension?
 - a. Handouts/brochures
 - b. Workshops
 - c. Resources on the Matthew Walker Comprehensive Health Center website
 - d. Social media

- 7. Do you have any other illnesses (comorbidities)?**
- a. Obesity
 - b. Diabetes
 - c. Kidney disease
 - d. Cardiovascular disease
 - e. High cholesterol
 - f. Eye disease
 - g. Other __
- 8. How much exercise do you get each week?**
- a. None
 - b. 1 hour
 - c. 2 hours
 - d. 3 hours
 - e. 4 hours or more
- 9. Do you smoke?**
- a. Yes
 - b. Smoked, but quit
 - c. no
- 10. How often do you take aspirin?**
- a. Never
 - b. Once a day
 - c. Once a week
 - d. Once a month
- 11. How many 8 ounce glasses of water do you consume each day?**
- a. 0-2
 - b. 3-4
 - c. 5-7
 - d. 8 or more
- 12. What is the recommended amount of calories that you should consume each day?**
- a. 1000
 - b. 1500
 - c. 2000
 - d. 2500
 - e. 3000
- 13. Do you sprinkle salt over your food?**
- a. Often
 - b. Rarely
 - c. Never

- 14. How many servings of fruit a vegetables do you eat each day?**
- a. 0-2
 - b. 3-4
 - c. 5-6
 - d. 7 or more
- 15. What percentage of your plate should consist of fruits and vegetables?**
- a. 0%
 - b. 25%
 - c. 50%
 - d. 75%
- 16. What is the correct size for a portion of meat?**
- a. Deck of cards
 - b. Your hand
 - c. A brick
- 17. Do you read nutrition labels before consuming food?**
- a. Yes
 - b. No
- 18. Do you know your Body Mass Index (BMI)?**
- a. Yes
 - b. No
- 19. Do you consider yourself**
- a. Underweight
 - b. Normal weight
 - c. Overweight
 - d. Obese
- 20. Since your last visit, have you?**
- a. Lost weight
 - b. Stayed the same
 - c. Gained weight
 - d. Not sure

Other Optional Questions

What is high blood pressure? Describe what is happening in your body.

Do you have any symptoms while managing your blood pressure?

Does lack of money affect your health choices?

Would you like to see more social workers or health educators in the clinic?

Would you attend fitness classes offered by Matthew Walker Comprehensive Health Center?

What would best help you manage your hypertension?

What is your overall satisfaction of the clinic?

What is your overall satisfaction of your primary care provider?

Is there anything that I did not ask you that you think is important to share in regards to hypertension (high blood pressure)?

Appendix B

Females 19-30 yrs	2000 cal	260
Males 19-30 yrs	2400 cal	330
Females 31-50 yrs	1800 cal	160
Males 31-50 yrs	2200 cal	265
Females 51+ yrs	1600 cal	120
Males 51+ yrs	2000 cal	260

ADULTS

(18 to 64 years)

Adults should do at least 2 hours and 30 minutes each week of aerobic physical activity at a moderate level OR 1 hour and 15 minutes each week of aerobic physical activity at a vigorous level. Being active 5 or more hours each week can provide even more health benefits. Spreading aerobic activity out over at least 3 days a week is best. Also, each activity should be done for at least 10 minutes at a time. Adults should also do strengthening activities, like push-ups, sit-ups and lifting weights, at least 2 days a week.



Body Mass Index Chart

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salt and sodium

10 tips to help you cut back



It's clear that Americans have a taste for salt, but salt plays a role in high blood pressure. Everyone, including kids, should reduce their sodium intake to less than 2,300 milligrams of sodium a day (about 1 teaspoon of salt). Adults age 51 and older, African Americans of any age, and individuals with high blood pressure, diabetes, or chronic kidney disease should further reduce their sodium intake to 1,500 mg a day.

1 think fresh

Most of the sodium Americans eat is found in processed foods. Eat highly processed foods less often and in smaller portions—especially cheesy foods, such as pizza; cured meats, such as bacon, sausage, hot dogs, and deli luncheon meats; and ready-to-eat foods, like canned chili, ravioli, and soups. Fresh foods are generally lower in sodium.

2 enjoy home-prepared foods

Cook more often at home—where you are in control of what's in your food. Preparing your own foods allows you to limit the amount of salt in them.

3 fill up on veggies and fruits—they are naturally low in sodium

Eat plenty of vegetables and fruits—fresh or frozen. Eat a vegetable or fruit at every meal.

4 choose dairy and protein foods that are lower in sodium

Choose more fat-free or low-fat milk and yogurt in place of cheese, which is higher in sodium. Choose fresh beef, pork, poultry, and seafood, rather than those with salt added. Deli or luncheon meats, sausages, and canned products like corned beef are higher in sodium. Choose unsalted nuts and seeds.

5 adjust your taste buds

Cut back on salt little by little—and pay attention to the natural tastes of various foods. Your taste for salt will lessen over time.



6 skip the salt

Skip adding salt when cooking. Keep salt off the kitchen counter and the dinner table. Use spices, herbs, garlic, vinegar, or lemon juice to season foods or use no-salt seasoning mixes. Try black or red pepper, basil, curry, ginger, or rosemary.

7 read the label

Read the Nutrition Facts label and the ingredients statement to find packaged and canned foods lower in sodium. Look for foods labeled "low sodium," "reduced sodium," or "no salt added."

8 ask for low-sodium foods when you eat out

Restaurants may prepare lower sodium foods at your request and will serve sauces and salad dressings on the side so you can use less.

9 pay attention to condiments

Foods like soy sauce, ketchup, pickles, olives, salad dressings, and seasoning packets are high in sodium. Choose low-sodium soy sauce and ketchup. Have a carrot or celery stick instead of olives or pickles. Use only a sprinkling of flavoring packets instead of the entire packet.

10 boost your potassium intake

Choose foods with potassium, which may help to lower your blood pressure. Potassium is found in vegetables and fruits, such as potatoes, beet greens, tomato juice and sauce, sweet potatoes, beans (white, lima, kidney), and bananas. Other sources of potassium include yogurt, clams, halibut, orange juice, and milk.