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Eat to Lower Blood Pressure — Nutrition Strategies for Counseling Patients

By Juliann Schaeffer

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At age 53, Alexandra was diagnosed with hypertension after her blood pressure remained dangerously high for several weeks. She wasn't overweight, and she didn't eat a diet that was particularly high in fat, so the diagnosis was surprising.

Concerned by what this could mean for her future health, her physician urged her to lower her salt intake; eat more fruits, vegetables, and whole grains; and begin taking daily prescription medication.

Like Alexandra, millions of people suffer from hypertension.

The most recent data from the Centers for Disease Control and Prevention report that approximately one-third of the adult population (an estimated 76 million Americans), and 73% of those with diabetes (almost 20 million), have high blood pressure. An additional 25% of U.S. adults have prehypertension.¹

It's a concern for both men and women, and it disproportionately affects minorities (41% of blacks vs. 27% of whites) and older adults, says Paula Ackerman, MS, RD, CDE, a diabetes program coordinator at Munising Memorial Hospital in Michigan.

Its prevalence is clear. But what's worse is the lack of control many people seem to have over the condition, according to Janet Brill, PhD, RD, LDN, a cardiovascular disease prevention expert and author of the upcoming book *Blood Pressure Down!*

"Fully half of these people [who have hypertension] aren't being treated effectively and don't have their high blood pressure under control," Brill says. "One-third of the [roughly] 76 million Americans don't get any treatment whatsoever and [about] 30% aren't even aware they have it."

Add to this the fact that hypertension usually is a silent disease, meaning people suffering from it often experience no adverse signs or symptoms, yet disastrous, even deadly, consequences can follow. "If left untreated, high blood pressure can lead to heart failure, heart attack, stroke, vision loss, and kidney failure," Ackerman says.

"These diseases kill more than 800,000 Americans each year—more than any other condition," Brill says. "Yet high blood pressure is a low-cost, highly treatable disease. Get the blood pressure down and you can prevent premature morbidity and mortality."

As Brill alludes, there's hope for getting blood pressure under control. With the right dietary and lifestyle modifications, patients can lower their blood pressure and avoid unwanted health consequences. In addition to sodium restriction and the DASH (Dietary Approaches to Stop Hypertension) diet, standard treatment recommendations for hypertension, Brill and Ackerman discuss what recent research says about how particular nutrients and foods also may help in the fight against high blood pressure.

Lifestyle Modifications

Brill and Ackerman agree: Before considering pharmaceutical medications, lifestyle modifications should serve as first-line treatment recommendations for hypertensive clients.

"Lifestyle intervention should be the first line of treatment and is the foundation for treating this disorder, the base for which further drug treatment should be built upon," Brill explains, noting that lifestyle interventions that include dietary modifications have proven to be highly effective in decreasing blood pressure and can achieve reductions similar to those achieved by medications.

In fact, when it comes to treating hypertension, it's strength in numbers—as in the more lifestyle modifications, the better. Brill explains: “Randomized controlled clinical studies have demonstrated a powerful additive effect of combination lifestyle therapy. Therefore, health professionals should recommend several lifestyle therapies in combination as the ideal prescription for maximum reductions in blood pressure through nonpharmaceutical lifestyle therapy.”

Limiting alcohol intake, weight loss, regular physical activity, and reducing sodium to no more than 1,500 mg/day are the lifestyle modifications considered best to treat hypertension, according to the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. In addition to these lifestyle modifications, dietitians can use the following dietary strategies for patients looking to eat their way to lower blood pressure.

DASH Diet

For most nutrition and other health professionals, the DASH diet is known as the No. 1 lifestyle recommendation for reducing blood pressure.

The DASH meal plan focuses on increasing whole foods and low-fat dairy while limiting total and saturated fat. It's “rich in fruits, vegetables, and whole grains, with the additional inclusion of legumes, nuts, lean poultry, fish, and low-fat or fat-free dairy products,” Brill says. “The diet allows only a small amount of red meat, sweets, and added sugars. The DASH diet is exceptionally high in potassium, calcium, magnesium, and fiber, particularly when compared to the typical American diet.”

The National Heart, Lung, and Blood Institute-funded DASH trial in 1995 was the first study “to provide convincing scientific evidence that a nonpharmaceutical lifestyle treatment could significantly reduce blood pressure,” Brill says, with follow-up studies demonstrating additional blood pressure reductions when the DASH diet was combined with other lifestyle strategies, such as sodium restriction or weight management.

However, the DASH diet has fallen out of favor with Americans in the past decade. Less than 20% of Americans follow a DASH meal plan, Ackerman says. But she stresses that the diet is appropriate for all patients, so it should sit at the top of an RD's list for ways clients can control blood pressure.

Minerals

As Brill explains in *Blood Pressure Down!* the minerals calcium, magnesium, and potassium in particular are thought to lower blood pressure by promoting sodium and fluid release from the body. “[Foods rich in these minerals] ... lower blood pressure directly by helping arteries dilate, relax, and become more flexible,” she says.

Ackerman agrees, adding that diets low in both magnesium and calcium have been linked to high blood pressure levels. Here's how clients can incorporate more of these nutrients into their diets.

- **Calcium:** To increase calcium intake, advise clients to buy canned sardines (with bones), fat-free milk and dairy products, calcium-enriched orange juice, cabbage, and broccoli. Brill recommends hypertensive patients shoot for a daily calcium intake of 1,200 mg.

- **Magnesium:** Ideally, patients should include 350 mg/day of magnesium in their diet. Good sources of this mineral include spinach, Swiss chard, high-fiber cereal, lentils, and whole-grain bread, Brill says. Other magnesium-rich foods include almonds, cashews, mixed nuts, soybeans, legumes, halibut, and oatmeal, Ackerman adds.

- **Potassium:** Clients should strive for 4,700 mg/day of potassium in light of several studies that demonstrate how potassium supplementation can reduce blood pressure, Ackerman says. “Food sources include bananas, melons, dried fruit, orange juice, potatoes, tomatoes, dried beans/peas, spinach, milk, yogurt, and fish,” she says.

One caveat: Brill cautions that potassium intake must be monitored and restricted for patients with renal disease. She also warns that before RDs recommend any changes to a patient's diet, they should ensure that no known drug-nutrient interactions exist to avoid any adverse effects.

Ackerman adds that while calcium, magnesium, and potassium have been shown to lower blood pressure, the effect of adding more of these nutrients to the diet is minimal, so make sure clients are incorporating other blood pressure-lowering eating strategies as well as incorporating physical activity.

Dark Chocolate

Brill says dark chocolate, eaten in moderation, also can help patients lower blood pressure. "Cocoa and dark chocolate contain flavanols, compounds that widen arteries by boosting production of nitric oxide, a chemical made by cells that line artery walls," she says. "Nitric oxide helps arteries relax, widen, and become more flexible."

Indeed, research has shown that consuming moderate amounts (stress "moderate" to patients with a penchant for chocolate) of either unsweetened cocoa or dark chocolate with a cocoa content of at least 70% can reduce blood pressure.² Brill says clients can reap the benefits of chocolate by baking their own chocolate confections with unsweetened cocoa powder.

Soy

Soybeans and other soyfoods also have an abundance of heart-healthy nutrients that can decrease blood pressure, Brill says. In addition to the amino acid arginine—the body's building block for nitric oxide—Brill says soyfoods offer "isoflavones, plant chemicals that are structurally similar to the human hormone estrogen." Soybeans also contain potassium, fiber, and calcium, all of which play a role in the blood pressure-lowering action of diets containing a plenitude of soy, Brill adds.

Randomized clinical trials have supported the blood pressure-lowering effect of eating soyfoods, especially when substituting vegetable protein for animal protein in postmenopausal normotensive and hypertensive women.³

The FDA currently recommends Americans aim to consume 25 g of soy protein per day. Brill's favorite sources include soymilk, unsalted dry roasted soy nuts, and edamame.

Omega-3s

Clients who love to eat fish might like to know that a small body of research has shown that omega-3 polyunsaturated fatty acids (PUFAs) are inversely related to blood pressure.⁴ "The study examined intake of both marine and plant omega-3 fatty acids," Brill says.

While increasing omega-3 intake doesn't seem to do as much as the DASH diet or sodium restriction in treating hypertension, Brill says omega-3s lower blood pressure a few millimeters. "Keep in mind that with blood pressure, every millimeter counts," she explains.

Ackerman says there's been no consensus on the amount of omega-3s necessary to achieve this benefit, but she sees no harm in recommending clients consume a moderate amount of omega-3 foods in their diet. Beyond the usual fish sources such as mackerel, salmon, herring, and tuna, omega-3s also can be found in flaxseed, cod liver and canola oils, ground flaxseeds, and walnuts. "For supplements, look for one with a DHA:EPA ratio of 2:1," Ackerman says.

Whichever combination of dietary and lifestyle modifications patients follow, Brill says RDs should stress the importance of controlling blood pressure. "We can no longer remain passive by failing to actively promote blood pressure-lowering lifestyle strategies—an action that will ultimately help to control the mass public health problem of rampant hypertension," she says. "Instituting populationwide modest lifestyle changes is a cost-effective and practical means of helping to solve the blood pressure problem and, in so doing, will contribute greatly to improving the health and longevity of our nation."

— Juliann Schaeffer is an associate editor at Great Valley Publishing Company and a frequent contributor to *Today's Dietitian*.

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