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Our November 2019 Newsletter for Healthy Living

Mind Your Blood Pressure

According to the Centers for Disease Control and Prevention, 1 in 3 American adults (about 75 million people) have high blood pressure, and about 46% have uncontrolled high blood pressure, which increases your risk for a number of serious health problems, including heart disease, stroke, kidney disease and dementia. With regard to dementia, previous research has found that high blood pressure disrupts regulatory mechanisms in your brain by impeding blood flow, thereby causing neuronal damage and dysfunction.

A study published in the August 2019 issue of JAMA concluded intensive blood pressure treatment helped limit the progression of cerebral small vessel ischemic disease — referring to common age-related changes in the small blood vessels in your brain — thereby lowering the risk for dementia. Other common terms for this condition are "white matter disease" and "age-related white matter changes." Previous research has found 95% of seniors between the ages of 60 and 90 have lesions in the white matter of their brains, and several studies have shown people with high blood pressure tend to have more white matter lesions and a higher risk for dementia in their later years.



In the featured JAMA study, participants were randomly selected to receive intensive treatment to reach a systolic blood pressure goal of 120 mm Hg, or standard treatment,

which required maintaining systolic blood pressure below 140 mm Hg. The primary outcome was the change in total volume of white matter lesions from baseline. The secondary outcome was the change in total brain volume. Follow-up was scheduled to take place at four-year intervals, but the study was stopped early, after just five years, as the primary outcome benefit for those in the

volume and a greater decrease in total brain volume, although the differences were small."

Dr. Walter J. Koroshetz, director of the National Institute of Neurological Disorders and Stroke, which funded the study, commented on the findings in an NIH press release: "These initial results support a growing body of evidence suggesting that controlling

"...know your blood pressure and discuss (it) with your doctors. It may be a key to your future brain health."

intensive treatment group was deemed to be higher, leaving those in the standard treatment group at a disadvantage.

The researchers stated: "In the intensive treatment group, based on a robust linear mixed model, mean white matter lesion volume increased from 4.57 to 5.49 cm³ (difference, 0.92 cm³) vs an increase from 4.40 to 5.85 cm³ (difference, 1.45 cm³) in the standard treatment group (between-group difference in change, -0.54 cm³)." As for the secondary outcome, the study noted: "Mean total brain volume decreased from 1134.5 to 1104.0 cm³ (difference, -30.6 cm³) in the intensive treatment group vs a decrease from 1134.0 to 1107.1 cm³ (difference, -26.9 cm³) in the standard treatment group (between-group difference in change, -3.7 cm³). Among hypertensive adults, targeting an SBP of less than 120 mm Hg, compared with less than 140 mm Hg, was significantly associated with a smaller increase in cerebral white matter lesion

blood pressure may not only reduce the risk of stroke and heart disease but also of age-related cognitive loss. I strongly urge people to know your blood pressure and discuss with your doctors how to optimize control. It may be a key to your future brain health."

A blood pressure reading gives you two numbers. The upper or first number is your systolic blood pressure reading. The lower or second number is your diastolic pressure. For example, a blood pressure reading of 120 over 80 (120/80 mm Hg) means you have a systolic arterial pressure of 120 and a diastolic arterial pressure of 80. Your systolic pressure is the highest pressure in your arteries. It occurs when your ventricles contract at the beginning of your cardiac cycle. Diastolic pressure refers to the lowest arterial pressure, and occurs during the resting phase of your cardiac cycle.

The guidelines for healthy blood pressure appear to be a bit of a moving

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Never Too Late to Start

Exercise is clearly a foundational aspect of optimal health, and the good news is that it's never too late to start, even if you've never exercised before and/or are older. Studies have repeatedly shown even the elderly can make significant headway when taking up a fitness routine, and research adds further support to this notion. A recent study, undertaken by researchers at the University of Birmingham in England, pitted lifelong athletes in their 70s and 80s against men of the same age who had never participated in a structured fitness program. The goal was to find out whether untrained individuals have the capacity to build muscle to the extent that lifelong exercisers can.



As noted in Neuroscience News, "The researchers ... expected that the master athletes would have an increased ability to build muscle due to their superior levels of fitness over a prolonged period of time." The answer is encouraging, to say the least, as muscle

biopsies taken before and after exercise revealed both groups had the identical capacity to build muscle in response to exercise. The researchers stated: "*Our study clearly shows that it doesn't matter if you haven't been a regular exerciser throughout your life, you can still derive benefit from exercise whenever you start. Obviously, a long-term commitment to good health and exercise is the best approach to achieve whole-body health, but even starting later on in life will help delay age-related frailty and muscle weakness.*"

It's important to realize that without resistance training, your muscles will atrophy and lose mass. Age-related loss of muscle mass is known as sarcopenia, and if you don't do anything to stop it you can expect to lose about 15% of your muscle mass between your 30s and your 80s. Other benefits of resistance training include: **•Improved walking ability** — After 12 weeks of weight training, seniors aged 65 and over improved leg strength and endurance, and were able to walk 38% farther without resting; **•Improved ability to perform**

daily tasks — After 16 weeks of "total body" weight training, women aged 60 to 77 years substantially increased their strength, improved their walking velocity and their ability to carry out daily tasks, such as rising from a chair and carrying groceries; **•Relief from joint pain** — Weight training strengthens the muscles, tendons and ligaments around your joints, which takes stress off the joint and helps ease pain. It can also help increase your range of motion; **•Improved blood sugar control** — Weight training helps to control blood sugar levels in people with Type 2 diabetes; **•Improved brain health and slowed brain aging** Working your muscles also benefits your brain and helps prevent dementia. Walking is another form of exercise that lends itself to people of all ages, including the elderly. Walking can also be turned into a high-intensity exercise, simply by picking up your speed intermittently. So let's get moving!

Reference: *Frontiers in Physiology* August 30, 2019 DOI: 10.3389/fphys.2019.01084. *Neuroscience News* August 30, 2019. *Journal of the American Geriatric Society* July 1995; 43(7):756-60. *Journal of Strength and Conditioning Research* October 2012; 26(10):2806-11.

Quercetin for Immunity

Your immune system is your first-line defense against bacterial and viral infections, so the most effective way to prevent infectious illness is maintaining robust immune function. Your diet and other lifestyle factors are foundational for this, but certain supplements can also be helpful. One such supplement is quercetin, an antioxidant flavonol found naturally in apples, plums, red grapes, green tea, elder flower and onions, just to name a few.

Quercetin is one of those compounds with a wide range of benefits, making it useful for a variety of different conditions. It's perhaps most known for its strong antioxidant and antiviral activity. Elderflower extract, which is rich in quercetin, is also a traditional tonic used to boost immunity. In supplement form, quercetin has been used to ameliorate obesity, type 2 diabetes, circulatory dysfunction, chronic inflammation, hay fever and mood disorders. Several studies have also highlighted quercetin's ability to prevent and treat the common cold and influenza. In fact, its antiviral capacity appears to be the primary focus of many studies looking at quercetin's benefits. But there are also other, less known uses for this sup-

plement, including blood pressure control. For example, there's evidence to suggest quercetin benefits the heart, and can help lower blood pressure in patients with Stage 1 high blood pressure.

As noted in one 2007 study; "*Epidemiological studies report that quercetin ... is associated with reduced risk of coronary heart disease and stroke ... Men and women with prehypertension and stage 1 hypertension were enrolled in a randomized, double-blind, placebo-controlled, crossover study to test the efficacy of 730 mg quercetin/d for 28 d[ays] vs. placebo. Blood pressure at enrollment was ... 148 +/- 2/96 +/- 1 in stage 1 hypertensive subjects ... [R]eductions in systolic (-7 +/- 2 mm Hg), diastolic (-5 +/- 2 mm Hg), and mean arterial pressures (-5 +/- 2 mm Hg) were observed in stage 1 hypertensive patients after quercetin treatment ... These data are the first to our knowledge to show that quercetin supplementation reduces blood pressure in hypertensive subjects.*" In human studies, quercetin has been shown to: reduce total sick days and symptom severity associated with upper-respiratory tract infection; significantly reduce risk of illness, inflammation and oxidative

stress after intense exercise; augment innate immune function in exercise-stressed athletes; reduce viral illness and boost mental performance after extreme physical stress that might otherwise undermine your immune function (in one study, 45% in the placebo group got sick with a cold or influenza after a strenuous three-day exercise routine, compared to just 5% in the treatment group, which received 1,000 milligrams quercetin combined with vitamin C and niacin to improve absorption); protect against broad spectrum of pathogens, including rhinoviruses, adenoviruses and coronaviruses. Quercetin's powerful antiviral effects can be attributed to three main mechanisms of action: inhibiting the virus' ability to infect cells, inhibiting replication of already infected cells and reducing infected cells' resistance to treatment with antiviral medication. Considering the powerful antiviral effects of quercetin, it may be sensible to make use of it first, before resorting to antiviral drugs. Studies have repeatedly found quercetin to be nontoxic and safe.

Reference: *Fitoterapia* 2015 Oc; 106:256-71. *Superfoodly: 100 Quercetin Foods*. *Viruses* 2016 Jan; 8(1):6. *Medicinenet.com* August 13, 2013. *Journal of Nutrition* 2007 Nov; 137(11):2405-11. *Nutrients* 2016 March; 8(3):167. 5.2.3 Clinical Studies. *Quercetin.com Scientific Studies*

target, having gone through a bewildering number of changes over the past several years. In 2014, the blood pressure goal for healthy patients over 60 was 150/90, and 140/90 for those between the ages of 18 and 59. As of 2017,

in sugar. As your insulin level elevates, so does your blood pressure; avoid fructose. Aside from raising your insulin, fructose also elevates uric acid, which drives up your blood pressure by inhibiting nitric oxide in your blood ves-

Tech Predictive Health Institute, even if you're considered generally "healthy," if you're deficient in vitamin D then your arteries are likely stiffer than they should be. As a result, your blood pressure may run high due to your blood vessels being unable to relax.

Exercise regularly A comprehensive fitness program can go a long way toward regaining your insulin sensitivity and normalizing your blood pressure.

“A growing body of evidence suggest(s) that controlling blood pressure may...reduce the risk of stroke and heart disease.”

American College of Cardiology and American Heart Association's clinical guidelines call for a blood pressure goal of 120/80. Elevated blood pressure or prehypertension is defined as a systolic blood pressure between 120 and 129. Stage 1 high blood pressure is 130 and 139 systolic, and 80 to 89 diastolic. Stage 2 high blood pressure is anything over 140 systolic and 90 diastolic. Anything over 180 systolic and/or 120 diastolic is considered a hypertensive crisis.

To avoid a false hypertension diagnosis, keep in mind that your blood pressure reading can vary significantly from day to day, and even from one hour to the next, so don't overreact if you get one high reading here or there. It's when your blood pressure remains consistently or chronically elevated that significant health problems can occur. The following variables can also affect the validity of your blood pressure reading: blood pressure cuff size; arm position (should be horizontal), and stress.

Some of the factors that have been identified as contributing to high blood pressure include: **Insulin and leptin resistance** (as your insulin and leptin levels rise, it causes your blood pressure to increase); **elevated uric acid levels** (like insulin and leptin, high uric acid is also significantly associated with high blood pressure, so any program adopted to address high blood pressure needs to normalize your uric acid level as well. One effective way to do this is to minimize fructose in your diet); **poor nutrition in childhood** (which has been shown to raise the risk of high blood pressure in adulthood); **lead exposure**; **air pollution** (which affects blood pressure by causing inflammation).

Some of the key lifestyle strategies for lowering your blood pressure are:

Address insulin resistance As mentioned, high blood pressure is typically associated with insulin resistance, which results from eating a diet too high

in sugar. (Uric acid is actually a byproduct of fructose metabolism. In fact, fructose typically generates uric acid within minutes of ingestion.);

increase your nitric oxide levels

Nitric oxide helps your vessels maintain their elasticity, so nitric oxide suppression increases blood pressure. A specific food that has been found to have a beneficial effect on blood pressure is beetroot juice, thanks to its ability to convert the nitrate in the beetroot juice into bioactive nitric oxide;

Optimize your magnesium and sodium-to-potassium level Magnesium inhibits high blood pressure by combating inflammation, relaxing your arteries and helping prevent thickening of your arteries, allowing for smoother blood flow. Magnesium stored in your cells relaxes muscles, including your blood vessels. Also, maintaining a proper potassium to sodium ratio in your diet is very important, and hypertension is but one of many side effects of an imbalance. A processed food diet virtually guarantees you'll have a lopsided ratio of too much sodium and too little potassium. Making the switch from processed foods to whole foods will automatically improve your ratios.

Optimize your omega-3 index

Research also highlights the importance of animal-based omega-3 fats for healthy blood pressure — especially in young adults. In one 2018 study, those with the highest serum levels of omega-3 also had the lowest blood pressure readings. The best way to boost your omega-3 is to eat plenty of oily fish that are low in mercury and other pollutants. Good options include wild caught Alaskan salmon, sardines and anchovies.

Alternatively, take a high-quality krill oil supplement.

Optimize your vitamin D level Vitamin D deficiency, associated with both arterial stiffness and hypertension, is another important consideration. According to researchers from the Emory/Georgia



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Address pollution and stress Smoking is known to contribute to high blood pressure, as are other forms of air pollution, and even noise pollution.

Eat real food Being high in sugar, unhealthy seed oils and synthetic chemicals, a processed food diet is a recipe for high blood pressure. Instead, make whole, ideally organic foods the focus of your diet. This will address not only insulin and leptin resistance but also elevated uric acid levels. One 2010 study discovered that those who consumed 74 grams or more per day of fructose (the equivalent of about 2.5 sugary drinks) had a 77% greater risk of having blood pressure levels of 160/100 mmHg. Also remember to swap non-fiber carbs for healthy fats such as avocados, butter made from raw grass fed organic milk, organic pastured egg yolks, coconut oil, raw nuts such as pecans and macadamia, grass fed meats and pastured poultry.

Reference: CDC.gov, *High Blood Pressure*. JCI November 14, 2016. JAMA August 13, 2019; 322(6):524-34. NIH *Mind Your Risks, Research*. Medicinenet.com August 13, 2019. NIH Press release August 13, 2019. Cleveland Clinic Journal of Medicine 2019 January; 86(1):47-56. *How the Goals Evolved*. JAMA 2014; 311(5):507-20. Heart.org *Hypertension Guideline Resources*. Diabetes Care 2003 March; 26(3):805-09. Journal of the American Society of Nephrology September 2010; 21(9):1543-9. The Journal of Nutrition June 2013; 143(6):818-26. Vitamin D Council, Hypertension. Emory/Georgia Tech Predictive Health Institute Press Release April 4, 2011