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## Low-salt, DASH diet as effective as drugs for hypertension



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Both low-sodium and the heart-healthy DASH diets have long been known to prevent or lower high blood pressure. A new study shows that combining the two diets substantially lowers systolic blood pressure – the top number in a blood pressure test – especially in people with higher baseline systolic readings.

Results of the randomised clinical trial of the dietary combination, conducted by researchers at the Johns Hopkins University School of Medicine, were published in the *Journal of the American College of Cardiology*. The findings are further proof that "dietary interventions are as effective as – or more effective than – antihypertensive drugs in those at highest risk for high blood pressure, and should be a routine first-line treatment option for such individuals," says Stephen Juraschek, MD, an adjunct assistant professor at Johns Hopkins and an instructor of medicine at Harvard Medical School.

The Dietary Approaches to Stop Hypertension (DASH) diet, long promoted by the National Heart, Lung, and Blood Institute and the American Heart Association, is rich in fruits, vegetables and whole grains, along with low-fat or fat-free dairy, fish, poultry, beans, seeds and nuts.

For this study, researchers tested and followed 412 adults, including 234 women, ranging in age from 23 to 76 years and with a systolic blood pressure of 120-159 mm Hg and a diastolic blood pressure between 80-95 mm Hg (i.e., prehypertension or stage 1 hypertension). Fifty-seven percent of the participants were African-American.

At the start of the study, none of the participants was taking antihypertensive drugs or insulin, none had a prior diagnosis of or current heart disease, renal insufficiency, poorly controlled cholesterol levels or diabetes. All participants were then put on the DASH diet or a control diet for 12 weeks. The control diet was similar to that of a normal American diet based on the average macronutrient and micronutrient profile of the U.S. population. In addition, all participants were also fed 50 (low), 100 (medium) or 150 (high) mmol/day of sodium in random order over four-week periods. Fifty mmol/day is equivalent to 1,150 mg of sodium. A teaspoon of salt is equal to 2,400 mg of sodium.

After four weeks, the researchers found that the group with 150 or greater baseline systolic blood pressure on just the DASH diet had an average of 11 mm Hg reduction in systolic blood pressure compared to a 4 mm Hg reduction in those solely on the DASH diet, but whose baseline systolic pressures were less than 130.

When the researchers combined the DASH diet with the low-sodium diet and compared participants' blood pressures to those on the high-sodium control diet, they found that the group with less than 130 systolic blood pressure at baseline had a 5 mm Hg reduction in systolic blood pressure; the group with 130-139 mm Hg baseline systolic blood pressure had a 7 mm Hg reduction; and the group with baseline systolic blood pressure between 140-149 had a 10 mm Hg reduction.

Notably, a participant who had a baseline systolic blood pressure of 150 or greater and was consuming the combination low-sodium/DASH diet had an average reduction of 21 mm Hg in systolic pressure compared to the high-sodium control diet. This suggests that those at highest risk for serious hypertension benefit the most from the combination diet, says Juraschek.

To put the potential impact of the findings into context, Juraschek says, the U.S. Food and Drug Administration requires any new antihypertensive agent submitted for approval to lower systolic blood pressure by 3-4 mm Hg. Most established medications on the market, such as ACE inhibitors, beta-blockers, or calcium channel blockers, on average reduce systolic blood pressure by 10-15 mm Hg.

The researchers caution that the study did not address effects in people with systolic blood pressure of 160 or greater or in persons with prior cardiovascular disease or medication treated diabetes. Further studies with larger sample sizes are needed to investigate the impact of the low-sodium/DASH diet on these populations.

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Published on : Tue, 28 Nov 2017