

# Why the DASH Eating Plan Works

Scientific studies show that following DASH and eating less sodium can help you lower your blood pressure and LDL cholesterol.



fish



apple



almonds



spinach



sweet potato



yogurt



barley

What you choose to eat affects your chances of developing hypertension, otherwise known as high blood pressure. Blood pressure can be unhealthy even if it stays only slightly above the optimal level of less than 120/80 mmHg. The more your blood pressure rises above normal, the greater the health risk.

Scientists supported by the National Heart, Lung, and Blood Institute (NHLBI) have conducted multiple scientific trials since the Dietary Approaches to Stop Hypertension—or DASH eating plan—was developed more than 20 years ago. Their findings showed that blood pressures were reduced with an eating plan that emphasizes vegetables, fruits, and whole grains and includes fish, poultry, beans, nuts, and healthy oils. It limits foods that are high in saturated fat, such as fatty meats, full-fat dairy products, and tropical oils such as coconut, palm kernel, and palm oils. It is also lower in sodium compared to the typical American diet and reduces sugar-sweetened beverages and sweets.

The DASH eating plan follows heart healthy guidelines to limit saturated fat and trans fat. It focuses on eating more foods rich in nutrients that can help lower blood pressure—mainly minerals (like potassium, calcium, and magnesium), protein, and fiber. It includes nutrient-rich foods so that it also meets other nutrient requirements as recommended by the National Academies of Sciences, Engineering, and Medicine.

## DAILY NUTRIENT LEVELS OF THE ORIGINAL DASH EATING PLAN

<b>Total Fat</b>	27% of calories
<b>Saturated Fat</b>	6% of calories
<b>Protein</b>	18% of calories
<b>Carbohydrate</b>	55% of calories
<b>Sodium</b>	2,300 mg*
<b>Potassium</b>	4,700 mg
<b>Calcium</b>	1,250 mg
<b>Magnesium</b>	500 mg
<b>Cholesterol</b>	150 mg
<b>Fiber</b>	30 g

\*Lower sodium to 1,500 mg for further reduction in blood pressure, if needed.

# The Science Behind the DASH Eating Plan

The importance of eating more vegetables, fruits, whole grains along with low-fat dairy, poultry, fish, beans, and nuts has been proven in multiple research trials. The combination of the DASH eating plan and reduced sodium creates the biggest benefit, lowering blood pressure significantly.

## STUDY 1 Original DASH eating plan

The first DASH trial involved 459 adults with systolic blood pressures of less than 160 mmHg and diastolic pressures of 80–95 mmHg. About 27 percent of the participants had high blood pressure. About 50 percent were women and 60 percent were African Americans. It compared three eating plans: one that included foods similar to what many Americans regularly eat; one that included foods similar to what many Americans regularly eat plus more fruits and vegetables; and the DASH eating plan. All three plans included about 3,000 milligrams of sodium daily. None of the plans were vegetarian or used specialty foods.

Results were dramatic. Participants who followed either the plan that included more fruits and vegetables or the DASH eating plan had reduced blood pressure. But the DASH eating plan had the greatest effect, especially for those with high blood pressure. Furthermore, the blood pressure reductions came fast—within 2 weeks of starting the plan.

## STUDY 2 Varied sodium levels

The second DASH trial looked at the effect on blood pressure of a reduced dietary sodium intake as participants followed either the DASH eating plan or an eating plan typical of what

many Americans consume. This trial involved 412 participants. Participants were randomly assigned to one of the two eating plans and then followed for a month at each of the three sodium levels. The three sodium levels were: a higher intake of about 3,300 milligrams per day (the level consumed by many Americans), an intermediate intake of about 2,300 milligrams per day, and a lower intake of about 1,500 milligrams per day.

Results showed that reducing dietary sodium lowered blood pressure for both eating plans. At each sodium level, blood pressure was lower on DASH than on the typical American eating plan. The greatest blood pressure reductions were for DASH at the sodium intake of 1,500 milligrams per day. Those with high blood pressure saw the greatest reductions.

## STUDY 3 Higher protein or healthy fats

As the science around DASH evolves over time, the overall benefits to heart health continue to be evaluated. The OmniHeart (Optimal Macronutrient Intake Trial for Heart Health) trial studied the effect of replacing some daily carbohydrates—or carbs—with either protein (about half from plant sources) or unsaturated fat. This trial included 164 adults who had systolic

blood pressure readings of 120 to 159 mmHg. The trial compared three dietary patterns, each containing 2,300 mg of sodium per day—the original DASH plan, substituting 10 percent of daily carbs with protein, and substituting 10 percent of total daily carbs with unsaturated fat.

OmniHeart found that participants who followed either variation of DASH, partially substituting carbs with protein (about half from plant sources) or unsaturated fat, had greater reductions in blood pressure and improvements in blood lipid levels than those who followed the original DASH eating plan.

## Success with DASH

DASH along with other lifestyle changes can help you prevent and control high blood pressure. In fact, if your blood pressure is not too high, you may be able to control it entirely by changing your eating habits, losing weight if you are overweight, getting regular physical activity, and cutting down on alcohol. **DASH also has other benefits, such as lowering LDL (“bad”) cholesterol, and replacing some carbs with protein or unsaturated fat can have an even greater effect. Along with lowering blood pressure, lower cholesterol can reduce your risk for heart disease.**