



# HEALTH

## DASHing to Lower Blood Pressure no. 9.374

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### Quick Facts...

DASH stands for Dietary Approaches to Stop Hypertension.

The DASH Eating Plan is rich in fruits, vegetables, and whole grains and focuses on consuming low-fat and fat-free dairy products, along with nuts, seeds, dry beans, and limited amounts of lean meats, poultry, and fish.

Compared to the typical American diet, the DASH Eating Plan is lower in saturated fat, cholesterol, and total fat and higher in potassium, magnesium, calcium, fiber, and protein.

The DASH Eating Plan has been shown to be effective for the prevention and management of hypertension. Hypertension is a clinical term used for high blood pressure. Even if a person does not have hypertension at the age 55, they have a 90 percent lifetime risk of developing the condition at some point in their life. This “silent killer,” which often lacks overt symptoms, can increase the risk for heart disease, stroke, kidney disease, and blindness.

Often, hypertension, a chronic disease, is treated with prescription medications. However, diet and lifestyle changes can significantly reduce blood pressure. Research shows that in some individuals, the DASH Eating Plan may reduce blood pressure as much or more than prescribed drugs (See fact sheet 9.318, *Diet and Hypertension*). The DASH Eating Plan, in combination with a sodium restricted diet (1500mg/day), can produce even greater results in lowering blood pressure. This is great news, especially considering that diet is a safer alternative to medication, and also costs less!

**Table 1. The DASH Eating Plan.**

Food Group	Daily Servings (Except as noted)	Serving Sizes
Grains	7-8	1 slice bread 1 cup read-to-eat cereal ½ cup cooked rice, pasta, or cereal
Vegetables	4-5	1 cup raw leafy vegetables ½ cup cooked vegetable ½ cup vegetable juice
Fruits	4-5	1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen or canned fruit ½ cup fruit juice
Fat-free or low-fat dairy products	2-3	1 cup milk 1 cup yogurt 1½ ounces cheese
Lean meats, poultry, and fish	6 or less	1 ounces cooked meats, poultry, or fish 1 egg
Nuts, seeds, and legumes	4-5 per week	1/3 cup or 1 ½ ounces nuts 2 tablespoons or ½ ounce seeds ½ cup cooked legumes (dried beans or peas)
Fats and oils	2-3	1 teaspoon soft margarine 1 tablespoon low-fat mayonnaise 2 tablespoons light salad dressing 1 teaspoon vegetable oil
Sweets and added sugars	5 or less per week	1 tablespoon sugar 1 tablespoon jelly or jam ½ cup sorbet, gelatin 1 cup lemonade



As you may notice, the DASH Eating Plan is similar to many of the recommendations included in the 2005 Dietary Guidelines for Americans (See fact sheet 9.353, *Dietary Guidelines for Americans*). The 2005 Dietary Guidelines for Americans based many recommendations on the DASH Diet Eating Plan. Take note, however, that the DASH Eating Plan measures food intake by ‘daily servings’ in each food group, whereas the Dietary Guidelines focus on total ‘amounts’ of foods from each group, rather than numbers of daily servings.

### Sample One-Day Menu

Menu Item	Sodium (mg)
<b>BREAKFAST</b>	
1 cup spoon-size Shredded Wheat	4
1 slice whole wheat bread	149
1 medium banana	1
½ cup fruit yogurt, fat-free, no sugar added	86
1 cup low-fat milk	107
1 tsp soft (tub) margarine, unsalted	0
<b>LUNCH</b>	
<u>Chicken breast sandwich:</u>	
2 slices (3 oz) chicken breast, skinless	65
2 slices whole wheat bread	299
1 slice (3/4 oz) Swiss cheese, reduced sodium	3
1 large leaf romaine lettuce	1
2 slices tomato	2
1 Tbsp mayonnaise, low-fat	101
1 cup cantaloupe	26
1 cup apple juice	21
<b>DINNER</b>	
3 oz cod baked with:	70
1 tsp olive oil	0
1 tsp lemon juice	1
1 cup spinach, sautéed with:	184
1 tsp canola oil	0
1 Tbsp almonds, slivered	0
1 small corn bread muffin made with canola oil	119
1 tsp soft margarine	26
1 cup milk, low-fat	107
<b>SNACK</b>	
2 Tbsp peanuts, unsalted	1
2 graham cracker squares	156
¼ cup dried apricots	3
<b>TOTAL</b>	<b>1532</b>

Adapted from “Your Guide to Lowering Blood Pressure,” NHLBI available at [www.nhlbi.nih.gov/health/public/heart/hbp/dash/new\\_dash.pdf](http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf)

## Making the Change

For many Americans, the DASH Eating Plan is dramatically different from their normal diet. If a person chooses to adopt the DASH Eating Plan, the road to change can seem quite daunting. However, the most successful and lasting changes are a result of gradual change. So, first things first:

**1. Start by creating a food diary.** This simply means writing down everything (including amounts) of what, when, and why you eat and drink throughout the course of the day. After several days of record-keeping, you will probably start to notice a pattern emerging in your eating habits.

**2. Identify areas which need improvement.** Chances are it will be easy to spot areas where your diet does not meet DASH Diet recommendations. Identify these areas for improvement.

**3. Choose what you want to change.** Based on your identified areas for improvement, choose the places where you feel the most motivated and committed to change. Many factors could influence this decision, such as food preferences or time/preparation required to make the change. Chances are you will experience a greater degree of success if you make gradual changes, rather than overhauling your entire diet. When in doubt, make small changes, rather than drastic ones.

**4. Make a plan.** In order to reach your goal, you will need a plan. Try to identify barriers which may keep you from success. Then, come up with practical solutions which will help you navigate past these roadblocks. As you transition to the DASH Eating Plan, you may be eating more fruits, vegetables, and whole grain products than you typically do. These foods are rich in fiber, which can cause bloating and diarrhea in some individuals. So again, make gradual changes to prevent negative side-effects.

## Choosing Whole Grains

Whole grains are higher in fiber, vitamins, and minerals compared to refined grains (See fact sheet 9.333, *Dietary Fiber*). Whenever possible, choose whole grain bread, cereals, pasta, tortillas, and rice. ‘Whole grain’ should be the first ingredient listed if the product is truly whole grain. When you bake, try substituting whole wheat flour or whole white flour for at least half the amount of all-purpose flour in your recipe.

## Increasing Fruits and Vegetables

Like whole grains, fruits and vegetables are an excellent source of fiber in the diet. Fruits and vegetables are also a rich source of potassium, which is protective against high blood pressure (See fact sheet 9.355, *Potassium and Health*). This food group is a source of magnesium, as well. Focus on fresh or frozen vegetables, as they do not contain as much sodium as canned products. Also, choose fruits canned in their own juice to reduce sugar intake. If you’re struggling to add more fruits and vegetables to your diet, try these easy approaches:

- Top your cereal or yogurt with fresh banana slices, berries, or dried fruit.
- Have a fresh fruit or vegetable for a snack. (Add a yogurt dip!)
- Cover your sandwich with lettuce, tomatoes, or a few thin avocado slices.

### **Fruit Smoothie Recipe**

Yield: 4 servings

2 cups of fruit (berries, melon, peaches, or any combination of fruits)

1 ½ cups low-fat or fat-free yogurt (plain, vanilla, or fruit flavor)

1 cup milk

Directions: Puree fruit in a blender. Add yogurt and milk. Blend until smooth.

Yogurt may be replaced by milk for a thinner smoothie.

- Center your meal around vegetables: try a meatless meal several times a week.
- Stir some cooked veggies, like broccoli, zucchini, or carrots, into your spaghetti sauce, soup, or casserole.
- Reduce the amount of meat in a recipe and then replace it with vegetables.

Also, be adventurous: try new fruits and vegetables to add variety to the choices you normally select. Smoothies are a fun way to experiment with a variety of fruit flavors and add a serving of dairy to your diet.

### **Including Fat-free or Low-fat Dairy Products**

Low-fat and fat-free dairy products are an excellent source of calcium and protein. Potassium and magnesium are also found in dairy products. Remember, cheese is a considerable source of sodium in the diet, so go easy on cheese. Boost your fat-free and low-fat dairy product intake with the following tips:

- Have a cup of low-fat or fat-free fruit yogurt mixed with granola.
- Sprinkle low-fat mozzarella cheese on your pizza, quesadilla, or salad.
- Grab a cool, refreshing glass of low-fat or fat-free flavored milk with a snack.
- Enjoy low-fat frozen yogurt for dessert.

If dairy products are difficult for your body to digest, try cultured dairy foods, such as buttermilk, yogurt, or cottage cheese. Lactose-free milk or milk which has added lactase enzyme are available, as well. If problems persist, lactase enzyme pills or drops (found at drug store or grocery store) are several options.

### **Selecting Lean Meats**

The DASH Eating Plan also emphasizes consuming protein from lean meats. Meats contribute protein and magnesium to the diet. Red meat can be included in the DASH Eating Plan, but limit the amount you consume and choose more lean varieties, such as 90 percent lean ground beef. Also, trim the fat from your meats before cooking or set up a pan for fat to drip into during cooking. Processed meats, such as hot dogs, breakfast meats, and deli meats are a significant source of sodium, so choose wisely.

### **Incorporating Nuts, Seeds, and Legumes**

Nuts, seeds and legumes contribute magnesium and potassium, along with protein and fiber, to the diet. Legumes include dry beans, peas, lentils, and peanuts. Be careful to select no-salt added nuts and seeds. Also, go easy on portion sizes (one serving is approximately the palm of your hand, or 1/3 of a cup); nuts are high in calories! You can incorporate foods from this group in a variety of ways:

- Spice up your salads by adding roasted nuts or seeds, such as walnuts or sunflower seeds.
- Coat chicken or fish with a crushed nut mixture.
- Add nuts to low-fat or fat-free yogurt.
- Try breads with nuts or seeds in them.
- Grab a handful of unsalted nuts for a snack.

### **Other DASH Eating Plan Guidelines**

The DASH Eating Plan includes approximately 27 percent of calories from fat. Fat is an important part of our diet, but too much may contribute to unwanted weight gain and increase the risk for developing chronic diseases, like heart disease. Refer to fact sheet 9.319, *Cholesterol and Fats*, to learn more about the types of fat and how to reduce fat in the diet.

#### **For more information:**

• National Heart, Lung, and Blood Institute: [www.nhlbi.nih.gov/health/public/heart](http://www.nhlbi.nih.gov/health/public/heart)

#### **References:**

• National Heart, Lung, and Blood Institute. *Your Guide to Lowering Blood Pressure*. NIH Publication NO 03-5232. May 2003. Available at [www.nhlbi.nih.gov/health/public/heart](http://www.nhlbi.nih.gov/health/public/heart)

• National Heart, Lung, and Blood Institute. *Facts about the DASH Eating Plan*. NIH Publication NO 03-4082. May 2003. Available at [www.nhlbi.nih.gov/health/public/heart](http://www.nhlbi.nih.gov/health/public/heart)

• "The Enspiclopedia." McCormick and Company, Inc. 2006. Available at [www.mccormick.com/content.cfm?ID=8219](http://www.mccormick.com/content.cfm?ID=8219)

The DASH Eating Plan also recommends limiting sugars and added sweets. So, be mindful of the amount of sugar you consume from desserts, sweetened beverages, and other sweets (see fact sheet 9.301, *Sugar and Sweeteners*).

## What about cost?

One common misconception is that eating according to the DASH Diet results in higher grocery bills. However, reaching the daily serving recommendation for each food group in the DASH Eating Plan without emptying your wallet is possible. Look for grocery coupons and specials; stock up on items which are on sale. Choose generic brands and produce which is in season to save money.

**Table 2: Savor the flavor in your food.**

Herb/Spice	Flavor and Aroma	Uses
Allspice	Blend of cinnamon and clove	Sauces, pumpkin, roasts, baked goods, teas, seasonings
Anise	Licorish-like (similar to fennel)	Baked goods (cookies, cakes, breads), cheese, stews, fish, shellfish
Basil	Sweet fragrance	Tomato-based sauces, pesto, pizza, cheese, vegetables
Bay Leaves	Aromatic, pungent	Soups, stews, stocks, tomato dishes, meats
Black Pepper	Hot, biting	Almost any food
Celery Seed	Celery-like	Vegetables, salad dressings, breads, soups
Cilantro	Waxy, citrus	Mexican dishes (salsa, chutney, beans, soups), salads
Cinnamon	Sweet, pungent	Baked dishes, fruits
Coriander	Mildly sweet, spicy	Beans, lentils, onions, potatoes, stews
Cumin	Aromatic, pungent	Mexican, Thai, Vietnamese, Indian dishes
Dill Weed	Fresh, green	Fish, shellfish, cottage and cream cheese, tomatoes
Ginger	Pungent, aromatic	Curries, fruits
Marjoram	Minty, aromatic, slightly bitter	Meats (lamb, beef, pork, chicken, fish), tomato dishes, breads, salad dressings, chowders
Nutmeg	Strongly aromatic, citrus, piney	Sweet foods, baked goods
Oregano	Strongly aromatic, slightly bitter	Italian dishes (tomato based), Mexican dishes
Parsley	Clean, "green" vegetable	Soups, stews, stocks, egg dishes (often used as a garnish)
Rosemary	Sweet and fresh	Poultry, lamb, vegetables
Thyme	Warming and pungent	Meats, fish, stews, stuffings

(Adapted from McCormick Spice Encyclopedia, available at: [www.mccormick.com/content.cfm?ID=8219](http://www.mccormick.com/content.cfm?ID=8219))

## Reducing Sodium

Blood pressure decreases in response to a sodium-restricted diet. For the greatest benefit, 1500 mg of sodium/day is recommended. Processed foods contribute the greatest amount of sodium to the diet (77 percent); foods which naturally contain sodium account for approximately 12 percent of sodium in the diet. Of course, adding salt to foods during cooking or at mealtime is yet another source of dietary sodium. Foods high in sodium include canned foods (i.e., vegetables), tomato products, frozen pizza and microwave dinners, cheese, processed meats (deli and breakfast meats), and some condiments, salad dressings, snack foods, and instant cereals. Bread, bagels, and English muffins also contribute sodium to the diet. However, low-sodium alternatives are becoming more readily available. Whenever you have the choice, choose low-sodium and no-sodium products!

Read labels to determine which foods are lower in sodium. If you can't find a low-sodium option, consider substituting with a low-sodium food. For example, choose fresh or frozen green beans instead of canned green beans. Refer to fact sheet 9.354, *Sodium in the Diet*, to learn more about choosing low-sodium alternatives, sodium content in various foods, and approaches to reduce sodium in your diet, including seasoning ideas. Enhancing the flavor of your food through the use of herbs and spices is one very useful approach to reducing sodium in your diet.

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