

Understanding the DASH Diet

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by J. Clifford and K. Maloney*

What is the DASH Diet?

The DASH diet, or Dietary Approaches to Stop Hypertension, was developed through research funded by the National Heart, Lung, and Blood Institute. It has been shown to be effective in lowering blood pressure and blood lipid levels, which ultimately reduces the risk for cardiovascular disease. This plan emphasizes fruits, vegetables, whole grains, lean protein, low-fat dairy, and seeds, nuts, and legumes. It also recommends limiting sugary beverages, sweets, sodium, and red meats. The DASH diet is rich in magnesium, potassium and calcium, which are protective against high blood pressure.

Benefits of the DASH Diet

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. Approximately 1 in 3 American adults have hypertension. 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. The DASH eating plan, in combination with a sodium restricted diet (1500mg/day), can produce even greater results in lowering blood pressure. This is

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great news, especially considering that diet can be a safer alternative to medication, and often costs less.

Research has also shown that following a DASH diet can be beneficial for numerous other medical concerns. To begin, the DASH diet is inversely associated with the risk for type II diabetes mellitus. When combined with exercise, it can result in significant weight loss, which improves insulin sensitivity, and can decrease the risk for diabetes by as much as 37 percent.

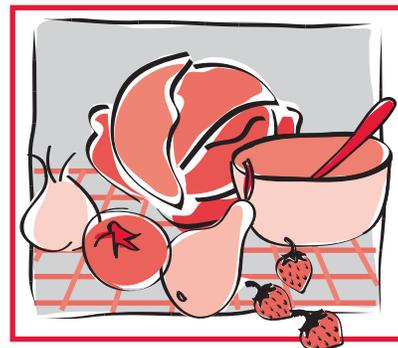
Eating a DASH diet has also been shown to improve symptoms of gestational diabetes, improving the glucose tolerance and lipid profiles of patients. Furthermore, in studies it was associated with a decreased need to continue insulin therapy after delivery, and a decreased risk for caesarian section.

The DASH diet also appears to be beneficial for the brain. Not only does a DASH eating pattern decrease the risk for stroke by decreasing hypertension, but it is also associated with decreased risk for cognitive decline. Research has shown that eating a DASH style diet is protective against losses in episodic and semantic memory.

Furthermore, the DASH diet is supportive of digestive health, and decreases the risk of the development of colorectal cancer. This may be due to an increased level of fiber or higher consumption of dairy.

The DASH eating pattern has also been shown to support kidney health. Studies have shown that a DASH diet decreases the risk for urinary albumin excretion and protects against rapid decreases in glomerular filtration, both of which are indicators of decreasing kidney function. It is also protective against the development of kidney stones.

However, it is important to note that aspects of the DASH diet may be



Quick Facts

- DASH stands for Dietary Approaches to Stop Hypertension.
- The DASH eating plan is rich in fruits, vegetables, and whole grains. It focuses on consuming low-fat and fat-free dairy products, along with nuts, seeds, 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.

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Table 1. The DASH Eating Plan.

Food Group	Daily Servings (Except as noted)	Serving Sizes
Whole Grains	6-8	1 slice 100% whole grain bread 1 cup whole grain cereal ½ cup cooked rice, quinoa, or whole grain pasta
Vegetables	4-5	1 cup raw leafy vegetables ½ cup cooked vegetable ½ cup vegetable juice
Fruits	4-5	1 medium whole fruit ½ cup fresh or frozen fruit ¼ cup unsweetened dried fruit
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 lean meats, poultry, or fish 1 egg
Nuts, seeds, and legumes	4-5 <i>per week</i>	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 tablespoon mayonnaise 2 tablespoons salad dressing 1 teaspoon olive oil or vegetable oil
Sweets and added sugars	5 or less <i>per week</i>	1 tablespoon sugar 1 tablespoon jelly or jam, or syrup ½ cup sorbet, 1 cup lemonade

contraindicated by certain medical conditions. Speak with a doctor or registered dietitian before making the switch to a DASH eating plan, especially if suffering from chronic illness or disease.

How to Follow the DASH Eating Plan

The DASH Eating Plan is similar to many of the recommendations included in the 2010 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.

Choose Whole Grains

Whole grains are higher in fiber, vitamins, and minerals compared to refined grains. Whenever possible, choose whole grains, such as wild rice, oatmeal, quinoa, or buckwheat. When buying bread, cereals, pasta, or tortillas, look for products that list '100% whole grain' on the label. Otherwise, choose products that name 'whole grain' as the first item in the ingredient list. When baking, try

substituting whole wheat flour for at least half the amount of all-purpose flour in a recipe.



Increase 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 and magnesium, as well as many other nutrients that are required for healthy bodily function. Focus on fresh or frozen fruits and vegetables. Canned products typically contain more sodium and sugar. When purchasing canned products, look for low sodium options and choose fruit canned in its own juice to reduce sugar intake.

Try these easy approaches to add more fruits and vegetables throughout the day:

- Top oatmeal or yogurt with fresh banana slices, berries, or peaches.
- Have sliced fresh fruit or vegetable for a snack. (Add a yogurt dip)
- Cover a sandwich with lettuce, tomatoes, and a few thin avocado slices.
- Center meals around vegetables. Try a meatless meal several times a week.
- Stir some cooked veggies, like broccoli, zucchini, or carrots, into a spaghetti sauce, soup, or casserole.
- Reduce the amount of meat in a recipe and then replace it with vegetables.

Try new and different fruits and vegetables to add variety. Smoothies are a fun way to experiment with a variety of fruit flavors and add a serving of dairy to the meal.

Fruit Smoothie Recipe

Yield: 1 serving

- 1 cup of fruit (berries, mango, peaches, or any combination of fruits)
- ½ cup low-fat or fat-free yogurt (plain, vanilla, or fruit flavor)
- ½ 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. Use frozen fruit for a thicker smoothie. When experimenting with new combinations, consider adding greens, nut butter, avocado or fresh herbs to smoothies.

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, vegetable
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), sala
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)

Include 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. Cheese can be a considerable source of sodium in the diet, so be mindful of its consumption. When choosing yogurt, be sure to read the nutrition label and monitor the sugar content. Some yogurts are often very high in added sugar. For this reason, consider purchasing plain yogurt and add any fruit or desired flavoring on your own.

Boost fat-free and low-fat dairy product intake with the following tips:

- Try a cup of low-fat or fat-free plain yogurt mixed with fruit and nuts, oats, or granola.
- Sprinkle low-fat mozzarella cheese on homemade pizza, quesadilla, or salad.
- Grab a cool, refreshing glass of low-fat or fat-free milk with a snack or a meal.

If dairy products are difficult 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. Dairy-free milk alternatives, such as soy milk, may not provide the same nutrients. If struggling with lactose-intolerance, work with a registered dietitian to ensure that dietary needs are being met.

Select Lean Meats, Fish & Poultry

The DASH eating plan also emphasizes on consuming lean meats, poultry, and fish rather than meats with a high saturated fat content. Meats contribute protein and magnesium to the diet. Eggs are also an excellent source of lean protein. Red meat can be included in the DASH Eating Plan, but consumption should be limited and leaner varieties, such as strip steak or 90 percent lean ground beef are recommended. Grass-fed beef can be a preferable selection because it can be lower in fat. When preparing a meal, trim the fat from meats beforehand, 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 these less often.

Incorporate Nuts, Seeds & Legumes

Nuts, seeds and legumes contribute magnesium and potassium, along with protein, omega-3 fatty acids and fiber, to the diet. Legumes include beans, peas, lentils, and peanuts. Dry legumes are preferable to canned products due to the sodium content. When selecting nuts and seeds, choose the raw or dry roasted variety, which have lower sodium and sugar content. Nuts that are honey roasted or salted are often very high in sugar and sodium, so be sure to look at the label and eat these varieties less often. Also,

consume reasonable portion sizes (one serving is approximately a small handful, or 1/3 of a cup); nuts are high in calories.

Incorporate foods from this group in a variety of ways:

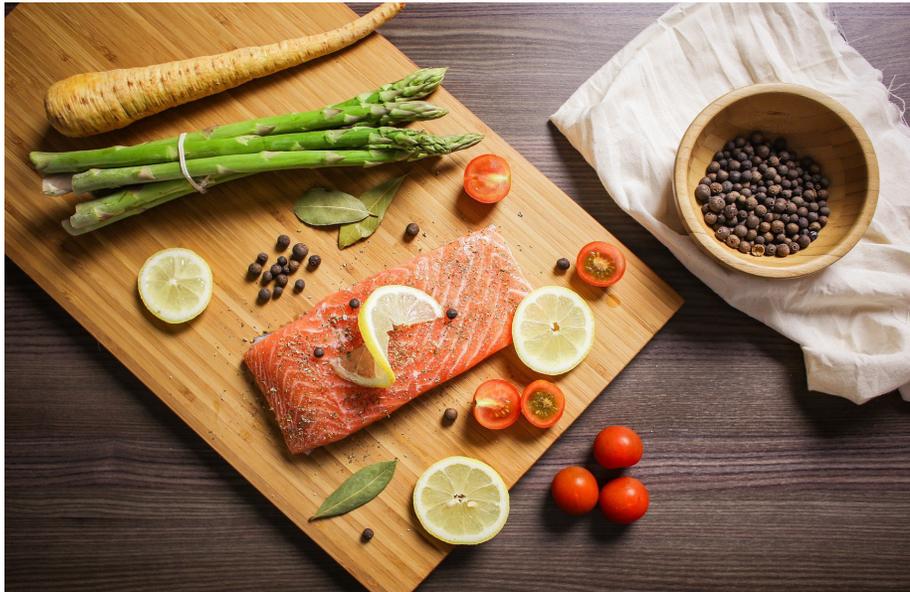
- Spice up salads by adding raw or unsalted dry-roasted nuts or seeds, such as walnuts or sunflower seeds.
- Coat chicken or fish with a crushed nut mixture.
- Try breads with nuts or seeds in them.
- Grab a handful of unsalted nuts for a snack.



Consider Types of Fats and Oils

The DASH eating plan includes approximately 27 percent of calories from fat. Aim to consume only 6% of daily calories from saturated fats. Saturated fats are often solid at room temperature, and are found in foods such as butter, coconut oil, meat, cheese, and whole fat dairy. Furthermore, avoid trans fats, which are found in some fried foods, baked goods, snack foods, shortenings, and margarines. Foods containing trans fats are becoming less common in grocery stores, but check ingredient lists for “partially hydrogenated oil” before choosing to purchase a product.

Saturated fats and trans fats have been shown to raise blood cholesterol levels. Monitoring intake of foods containing these fats can be an effective way to manage cholesterol levels in some individuals.



Focus on eating mono- and poly-unsaturated fats, which are typically liquid at room temperature, and are found in foods such as fish, vegetable oils, nuts, and avocado. In an American diet, it is important to be mindful of consuming adequate amounts of omega-3 fatty acids. Canola oil, flaxseed oil, walnuts, and soybeans are all excellent sources of omega-3 fatty acids, as are cold water fish such as salmon, herring, and mackerel.

Fat is an important part of our diet, providing essential energy and nutrients. However, like any macronutrient, eating excessive amounts of fat can contribute to unwanted weight gain. Eating excessive amounts of fat may also increase the risk

for developing chronic diseases, like heart disease.

Reduce Sodium

Blood pressure decreases in response to a sodium-restricted diet. For the greatest benefit, a maximum of 1500 mg of sodium/day is recommended. Processed foods are often high in sodium. They are the greatest contributor of sodium to the diet (77 percent). Naturally occurring sodium accounts for approximately 12 percent of sodium in the diet, while 11 percent comes from food added while cooking and eating. Foods high in sodium include snack foods, canned foods, prepared tomato products, frozen pizza and microwave dinners, cheese, processed meats (deli and breakfast meats), condiments, salad dressings, and instant cereals. Baked

goods such as bread, bagels, and English muffins also contribute sodium to the diet. However, low-sodium alternatives are becoming more readily available. Additionally, home-baked foods generally have less sodium than processed versions. When the option exists, choose low-sodium and no-sodium products.

Read labels to determine the sodium content in foods. Products labelled “low sodium” have 140 mg of sodium or less per serving, whereas products labelled “reduced sodium” have at least 25% less sodium than the original product. If a low-sodium option for a food isn’t available, consider substituting with a different variety. For example, choose fresh or

frozen green beans instead of canned green beans. Another great option is to prepare low sodium alternatives at home. Make homemade baked goods, marinades, and soups to considerably decrease the sodium content.

Instead of adding salt to your food, enhance the flavor through the use of herbs and spices. This is one very useful approach to add nutrients and reduce the sodium in a meal.

Limit Sweets and Added Sugars

The DASH eating plan also recommends limiting sweets and added sugars to five or fewer servings per week. Be aware of the amount of sugar consumed from desserts, sweetened beverages, and other sweets. Also, be mindful that there are many hidden sources of added sugar in the diet, such as sauces, soups, breads and other baked goods, breakfast cereals, and flavored yogurt.

Below are some tips to cut sugar consumption.

- Make marinara and other sauces at home
- Read nutrition labels carefully and purchase items with lower amounts of sugar
- Replace jelly, jams, and syrup with nut butter or other alternatives
- Replace dessert options with those that are naturally lower in sugar and fat, such as replacing ice cream with sorbet
- Make fruit-based desserts
- Replace sweetened tea with a flavorful herbal tea
- Drink water or milk in place of soda or juice.

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. Start small and be patient.

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, a pattern in eating habits. will likely emerge.

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 to success. Obstacles may include lack of time, junk food in the work environment, or emotional eating. Once barriers have been identified, come up with practical solutions to navigate past each of these roadblocks.

Additionally, transitioning to the DASH eating plan may mean eating more fruits, vegetables, and whole grain products than before. 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.

Sample One-Day Menu

Menu Item	Sodium (mg)
BREAKFAST	
Scramble with 1 egg, ½ cup of mixed vegetables, and 1 tsp extra virgin olive oil	98
1 slice 100% whole wheat toast	149
1 tsp vegetable oil spread, unsalted	0
1 plum	0
1 cup low-fat milk	107
LUNCH	
1 100% whole wheat tortilla (medium)	280
½ cup (cooked) brown medium-gran rice	1
¼ cup (cooked) dry black beans	2
1½ oz low sodium, low fat cheese	150
¼ cup homemade pico de gallo (salt-free)	4
½ cup shredded romaine lettuce	2
½ medium avocado	5
1 orange	0
DINNER	
3 oz (cooked) grilled salmon	60
½ cup grilled asparagus	3
½ cup quinoa	6
1 cup raw spinach	24
½ cup mixed vegetables	15
1 tbsp balsamic vinaigrette	99
½ cup cantaloupe	13
SNACK	
1 ox. raw or dry-roasted almonds (unsalted)	1
1 cup plain low-fat yogurt	160
1 cup mixed berries	2
1 cup air-popped popcorn	1
TOTAL	1182

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 breaking the bank is possible.

Try these money saving options:

- Look for grocery coupons and specials.
- Stock up on items that are on sale.
- Choose generic brands.
- Buy produce that is in season to save money.
- Grow fresh produce in the backyard.
- Can or freeze produce in the summer to save it for the winter when the prices are higher.

Many individuals can benefit from following a DASH eating plan, not only those who are currently suffering from health concerns. A DASH eating pattern can prevent the development of numerous chronic illnesses. Be proactive and choose a nutritious eating habit today, to promote long term health and longevity.

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