



The DASH Eating Plan

D IETARY

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S TOP

H YPERTENSION

An Eating Plan Clinically Proven to
Reduce High Blood Pressure

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What is the DASH eating plan?

Studies done by the National Heart, Lung, and Blood Institute (NHLBI) revealed that a new diet reduced blood pressure as much as some medications. Reductions in blood pressure occurred quickly, within two weeks of starting the plan. This eating plan is now known as DASH, or **D**ietary **A**pproaches to **S**top **H**ypertension. DASH focuses on increasing servings of fruits, vegetables, and lowfat dairy products, while decreasing sodium and saturated fat. DASH is rich in magnesium, potassium, and calcium, as well as protein and fiber. Scientists believe it is the effect of these nutrients working together, as they occur naturally in whole foods, that lowers blood pressure. **Please note that if you take medication to control your high blood pressure, you should keep taking it while you follow the DASH eating plan.** In addition to nutritious eating, regular exercise is recommended. Talk to your physician about getting started on an appropriate exercise plan.

Who should follow the DASH eating plan?

Any adult who wants to eat healthier can follow the DASH eating plan; it contains no hard-to-follow recipes or special foods. However, DASH was developed for those who have or are at risk for high blood pressure. It is especially good for those patients who are motivated to reduce their cardiovascular health risks in a natural and healthy way.

How do I start?

The great thing about the DASH eating plan is that you don't need to invest a lot of money in special products. You don't need to spend all your time fixing hard-to-follow recipes or special foods just for you. This is an eating plan your whole family can participate in and everything you'll need is in your local grocery store.

DASH Eating Plan

The DASH eating plan is shown below for two different calorie levels. The number of daily servings in a food group may vary depending on your caloric needs*. For best results, follow the DASH eating plan *and* lower your intake of salt or sodium. For recommended salt or sodium levels see page 6.

Food Group	Servings/Day	
	1,600 calories	2,000 calories
Grains and grain products	6	7-8
Vegetables	3-4	4-5
Fruits	4	4-5
Lowfat or fat free dairy foods	2-3	2-3
Meats, poultry, and fish	1-2	2 or less
Nuts, seeds, and dry beans	3 per week	4-5 per week
Fats and oils	2	2-3
Sweets	2 per week	5 per week

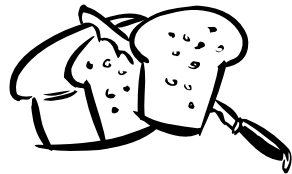
*If unable to estimate your caloric needs or if you would like to lose weight on the DASH eating plan, talk to your physician or a registered dietitian.

What Can I Eat?

Grains and Grain Products

Serving Sizes

- 1 slice bread
- 1 oz dry cereal
- ½ cup cooked rice, pasta, or cereal
- ½ small bagel



Examples

Whole wheat bread, English muffins, pita bread, bagels, cereal, grits, oatmeal, crackers, unsalted pretzels, popcorn

Major sources of energy and fiber

Vegetables

Serving Sizes

- 1 cup raw leafy vegetables (about the size of a baseball)
- ½ cup raw or cooked vegetables
- 4 oz vegetable juice



Examples

Tomatoes, potatoes, carrots, green peas, squash, broccoli, artichokes, green beans, sweet potatoes, bell peppers

Rich sources of potassium, magnesium, and fiber

Fruits



Serving Sizes

- 4 oz fruit juice
- 1 medium fruit
- ¼ cup dried fruit
- ½ cup fresh, frozen, or canned fruit

Examples

Apricots, bananas, dates, grapes, oranges, orange juice, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, prunes, raisins, strawberries, tangerines

Important sources of potassium, magnesium, and fiber

Lowfat or Fat Free Dairy Foods

Serving Sizes

- 8 oz milk
- 1 cup yogurt
- 1 ½ oz cheese



Examples

Fat free (skim) or lowfat (1%) milk, fat free or lowfat buttermilk, fat free or lowfat regular or frozen yogurt, fat free or lowfat cheese

Major sources of calcium and protein

Meats, Poultry, and Fish



Serving Sizes

3 oz cooked meats, poultry, or fish

Examples and tips

Select only lean cuts; trim away visible fats; broil, roast, or boil, instead of frying; remove skin from poultry

Rich sources of protein and magnesium

Nuts, Seeds, and Dry Beans

Serving Sizes

1/3 cup or 1 1/2 oz nuts

2 Tbsp or 1/2 oz seeds

1/2 cup cooked dry beans or peas

Examples

Almonds, mixed nuts, peanuts, walnuts, sunflower seeds, kidney beans, lentils

Rich sources of energy, magnesium, potassium, protein, and fiber

Fats and Oils*

Serving Sizes

1 tsp soft margarine

1 Tbsp lowfat mayonnaise

2 Tbsp light salad dressing

1 tsp vegetable oil

DASH has 27 percent of calories as fat, including fat found in or added to food



*Fat content changes serving counts for fats and oils: For example, 1 Tbsp of regular salad dressing equals 1 serving; 1 Tbsp of a lowfat dressing equals 1/2 serving; 1 Tbsp of a fat free dressing equals 0 servings.

Sweets

Serving Sizes

- 1 Tbsp sugar
- 1 Tbsp jelly
- ½ oz jelly beans
- 8 oz lemonade



Examples*

- Maple syrup, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch, sorbet, ices

Sweets should be low in fat

*Feed your craving for sweets with fresh or dried fruits, lowfat chocolate milk, or fruit filled gelatin. Instead of a soda, alcohol, or sugar-sweetened tea, grab a carton of lowfat yogurt for a snack.

Salt or Sodium

Along with the DASH eating plan, a sodium intake of **1,500 milligrams** per day provides the biggest blood pressure reductions. Begin by adopting an intermediate intake of **2,400 milligrams** of sodium per day and then gradually lower your sodium intake to **1,500 milligrams** per day.



1,500 milligrams = 2/3 teaspoon of table salt

2,400 milligrams = 1 teaspoon of table salt

These amounts include all salt consumed, including salt in food products, salt used in cooking, and salt added at the table. Processed foods account for most of the sodium Americans consume. You may be surprised to learn that many foods have sodium, including soy sauce, seasoned salts, monosodium glutamate (MSG), and baking soda. Because the DASH eating plan is rich in fruits and vegetables, which are naturally lower in sodium than many other foods, it's easier to consume less salt and sodium.

Tips for Getting Started

Change gradually. One way to begin is by looking at how DASH compares with your current eating habits. The DASH eating plan has more daily servings of fruits, vegetables, and whole grain foods than you may be used to eating. Because the plan is high in fiber, it can cause bloating and diarrhea in some people. Gradually increase your intake of fruit, vegetables, and whole grains to avoid these problems. Your body will eventually adjust to eating more fiber.



Don't worry too much if you slip. Some days the foods you eat may add up to more than the recommended servings from one food group and less from another. Similarly, you may have too much sodium on a particular day. Don't worry. Just be sure that the average of several days or a week comes close to what is recommended.

Write it down. Use the table on pages 17 and 18 to keep track of what you eat. You may want to make photocopies of the table so you can track your eating for several weeks in a row. If it helps you, as well as noting what you eat, also record: where you are, what you're doing, and how you feel. Keep track for several days. This will help you find the problem times and then help you come up with a solution.

Celebrate success. Treat yourself to a nonfood treat for your accomplishments.

Break the process down into small steps.

Start with the DASH eating plan first, then as you get more comfortable with the DASH food group amounts, start to cut down on your sodium intake. Change one or two things at a time. Slowly but surely is the best way to succeed.

The First Steps

Make it easy on yourself. Plan ahead. Plan your meals and snacks and shop on the weekend so that you have everything you need to keep on track during the busy week.

Increase your fruit and vegetable intake. If you now eat one or two vegetables a day, add a serving at lunch and another at dinner. If you don't eat fruit now or have only juice at breakfast, add a serving to your meals or have it as a snack. Use fruits canned in their own juice. Fresh fruits require little or no preparation. Dried fruits are a good choice to carry with you or have ready in the car.



Bump up the dairy. Drink milk for lunch or dinner, instead of soda, sugar-sweetened tea, or alcohol. Choose lowfat (1 percent) or fat free (skim) dairy products instead of high fat varieties. If you have trouble digesting dairy products, try taking lactase enzyme pills or drops (available at drugstores and groceries) with the dairy foods. Another alternative is purchasing lactose-free milk or milk with lactase enzyme added to it.

Choose whole grain foods. For example, choose whole wheat bread and whole grain cereals instead of white bread and sugar-sweetened cereals.

Treat meat as one part of the whole meal, instead of the focus.

Limit meat to 6 ounces a day (2 servings). As a guide, 3 to 4 ounces is about the size of a deck of cards. If you now eat large portions of meat, cut them back gradually, by a half or a third at each meal. Increase servings of vegetables, rice, pasta, and dry beans in meals. Try casseroles, pasta, and stir-fry dishes, which have less meat and more vegetable, grains, and dry beans.



Sodium

The next few pages will contain information and tables to assist you in cutting back on sodium.

Where's the Sodium?

Only a small amount of sodium occurs naturally in foods. Most sodium is added during processing. This chart gives examples of the varying amounts of sodium in some foods. Use this table to estimate sodium amounts if the food item is not labeled.

	Sodium (mg)
Grains and grain products	
Cooked cereal, rice, pasta, unsalted, 1 cup	0-5
Ready-to-eat cereal, 1 cup	100-360
Bread, 1 slice	110-175
Vegetables	
Fresh or frozen, cooked w/out salt, 1/2 cup	1-70
Canned or frozen with sauce, 1/2 cup	140-460
Tomato juice, canned, 6 oz	820
Fruit	
Fresh, frozen, canned, 1/2 cup	0-5
Lowfat or fat free dairy foods	
Milk, 1 cup	120
Yogurt, 8 oz	160
Natural cheeses, 1 1/2 oz	110-145
Processed cheeses, 1 1/2 oz	600
Nuts, seeds, and dry beans	
Peanuts, unsalted, 1/3 cup	0-5
Peanuts, salted, 1/3 cups	120
Beans, canned, 1/2 cup	400
Meats, fish, and poultry	
Fresh meat, fish, poultry, 3 oz	30-90
Tuna canned, water pack, 3 oz	250
Ham, lean, roasted, 3 oz	1,020

Comparing Food Labels

Canned diced tomatoes, no salt added

Nutrition Facts

Serving Size 1/2 cup
Servings Per Container about 3 1/2

Amount Per Serving		
Calories 25	Calories from Fat 0	% Daily Value*
Total Fat 0 g		0%
Saturated Fat 0 g		0%
Cholesterol 0 mg		0%
Sodium 20 mg		1%
Total Carbohydrates 6 g		2%
Dietary Fiber 2 g		8%
Sugars 4 g		
Protein 1 g		
Vitamin A 10%	•	Vitamin C 15%
Calcium 2%	•	Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet

Canned diced tomatoes

Nutrition Facts

Serving Size 1/2 cup
Servings Per Container about 3 1/2

Amount Per Serving		
Calories 25	Calories from Fat 0	% Daily Value*
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Cholesterol 0 mg		0%
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Total Carbohydrates 6 g		2%
Dietary Fiber 2 g		8%
Sugars 4 g		
Protein 1 g		
Vitamin A 10%	•	Vitamin C 15%
Calcium 2%	•	Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet

Compare the sodium content of the two Nutrition Facts labels above, noting both the milligrams of sodium and the percent Daily Value. **The regular canned tomatoes (right) have 10 times as much sodium as the unsalted canned tomatoes.** Aim for foods that are less than 5 percent of the Daily Value of sodium. The following phrases regarding sodium and fat may be on food labels. It is important to understand what they mean so that you can make wise choices.

Phrase	What it Means
Sodium free or salt free	Less than 5 mg per serving
Very low sodium	35 mg or less of sodium per serving
Low sodium	140 mg or less of sodium per serving
Low sodium meal	140 mg or less of sodium per 3 1/2 oz (100 g)
Reduced or less sodium	At least 25 percent less sodium than the regular version
Light in sodium	50 percent less sodium than the regular version
Unsalted or no salt added	No salt added to the product during processing

Phrase	What it Means
Fat free	Less than 0.5 g per serving
Low-saturated fat	1 g or less per serving
Lowfat	3 g or less per serving
Reduced fat	At least 25 percent less fat than the regular version
Light in fat	Half the fat of the regular version

Tips to Reduce Sodium

1. Use reduced sodium or no-salt-added products. For example, choose low- or reduced-sodium or no-salt added versions of food and condiments when available.
2. Buy fresh, plain frozen, or canned with “no-salt-added” vegetables.
3. Use fresh poultry, fish, and lean meat, rather than canned, smoked, or processed types.
4. Choose ready-to-eat breakfast cereals that are lower in sodium.
5. Limit cured food (such as bacon and ham), food packed in brine (such as pickles, pickled vegetables, olives, and sauerkraut), and condiments (such as MSG, mustard, horseradish, catsup, and barbecue sauce). Limit even low sodium versions of soy sauce and teriyaki sauce. Treat these condiments as you do table salt.
6. Use spices instead of salt in cooking and at the table. Flavor foods with herbs, spices, lemon, lime, vinegar, or salt-free seasoning blends. Start by cutting the salt in half.
7. Cook rice, pasta, and hot cereals without salt. Cut back on instant or flavored rice, pasta, and cereal mixes, which usually have added salt.
8. When eating out move the salt shaker away, and know the terms that indicate high sodium content, pickled, cured, soy sauce, and broth.
9. Ask how foods are prepared when ordering at a restaurant. Ask that they be prepared without added salt, MSG, or salt-containing ingredients. Most restaurants are willing to accommodate requests.

DASH Sample Menu

Here is a sample menu from the DASH eating plan. This menu is calculated for a sodium level of 2,400 milligrams (mg). To change to 1,500 mg sodium follow the tips suggested on pages 9-11. This menu is based on 2,000 calories a day. Serving sizes should be increased or decreased for other calorie levels. To make the calculations easier, some of the serving sizes have been rounded off. Also, some items may be in too small a quantity to have a listed food group serving.

Sample Menu	# of DASH Food Group Servings								Sodium (mg)
	Grains	Vegetables	Fruits	Dairy	Meat, poultry, fish	Nuts, seeds, beans	Fats and oils	Sweets	
Breakfast									
2/3 cup frosted shredded wheat	1								3
2 slices whole wheat bread	2								299
1 medium banana			1						1
1 cup fat free milk				1					126
1 cup orange juice			1 1/3						5
1 tsp soft margarine							1		51
2 tsp jelly, no sugar added									0
Lunch: Salad Plate									
1/2 cup tuna salad*					1				158
1 large leaf romaine lettuce		1/4							1
6 wheat crackers, fat free	1								107
1/2 cup cottage cheese				1/4					459
1 cup canned pineapple, juice packed			2						59
4 small celery sticks		1/2							59
2 Tbsp ranch dressing, fat free									306
Dinner									
3 oz turkey meatloaf*					1				62
1 Tbsp catsup									178
1 small baked potato:		1							7
1 tsp soft margarine							1		51

(menu continued on next page)

* Recipes are given on page 14

Sample Menu (continued)	# of DASH Food Group Servings							Sodium (mg)	
	Grains	Vegetables	Fruits	Dairy	Meat, poultry, fish	Nuts, seeds, beans	Fats and oils		Sweets
Dinner (continued)									
1 Tbsp sour cream, lowfat									15
1 scallion stalk, chopped									2
1 cup broccoli steamed from frozen		2							44
1 medium peach			1						0
1 cup fat free milk				1					126
Snack									
1 Tbsp peanut butter, reduced fat						1/2			101
1/2 medium bagel (3-inch diameter)	1								152
1/2 cup fruit yogurt, fat free, no added sugar				1/2					53
Totals	5	3 3/4	5 1/3	2 3/4	2	1/2	2	0	

Nutrients Per Day for Sample Menu	
Calories	1,947
Total Fat	38 g
Percent calories from fat	17%
Saturated Fat	9 g
Percent calories from saturated fat	4%
Cholesterol	153 mg
Sodium	2,524 mg
Calcium	1,293 mg
Magnesium	429 mg
Potassium	4,609 mg
Fiber	27 g

For sample menus and recipes in addition to those on pages 12-16 go to www.nhlbi.nih.gov/health/public/heart/hbp/dash. For a variety of recipes with emphasis on fruits and vegetables go to www.fruitsandveggiesmorematters.org. For other DASH information go to www.hearthighway.org or call the Heart Disease and Stroke Prevention Program at 801-538-6141.

Recipes

Tuna Salad

- 2 6-oz cans tuna, packed in water
- 1/2 cup raw celery, chopped
- 1/3 cup green onions, chopped
- 6 1/2 Tbsp mayonnaise, reduced fat



1. Rinse and drain tuna for 5 minutes. Break apart with a fork.
2. Add celery, onion, and mayonnaise and mix well.

Makes 5 servings. Serving size: 1/2 cup

Per Serving:

Calories	146	Sodium	158 mg
Total Fat	7 g	Calcium	15 mg
Saturated Fat	0 g	Magnesium	19 mg
Cholesterol	25 mg	Potassium	201 mg
Fiber	1 g		

Turkey Meatloaf

- 1 pound ground turkey, lean
- 1/2 cup oats, regular, dry
- 1 large egg, whole
- 1 Tbsp onion, dehydrated
- 3/4 cup catsup

1. Combine all ingredients and mix well.
2. Bake in a loaf pan at 350 degrees F for 25 minutes or to internal temperature of 165 degrees F.
3. Cut into five slices and serve.

Makes 5 servings. Serving Size: 1 slice (3 oz)

Per Serving:

Calories	196	Sodium	217 mg
Total Fat	7 g	Calcium	33 mg
Saturated Fat	2 g	Magnesium	35 mg
Cholesterol	103 mg	Potassium	292 mg
Fiber	1 g		

Chicken Salad

- 3 1/4 cups chicken, cooked, cubed, skinless
- 1/4 cup celery, chopped
- 1 Tbsp lemon juice
- 1/2 tsp onion powder
- 1/8 tsp salt
- 3 Tbsp mayonnaise, lowfat



1. Bake chicken, cut into cubes, and refrigerate.
2. In a large bowl, combine all ingredients with chilled chicken and mix well.

Makes 5 servings. Serving size: 3/4 cup

Per Serving:

Calories	183	Sodium	201 mg
Total Fat	7 g	Calcium	17 mg
Saturated Fat	2 g	Magnesium	25 mg
Cholesterol	78 mg	Potassium	240 mg
Fiber	0 g		

Yogurt Salad Dressing

- 8 oz plain yogurt, fat free
- 1/4 cup mayonnaise, fat free
- 2 Tbsp chives, dried
- 2 Tbsp dill, dried
- 2 Tbsp lemon juice

1. Mix all ingredients in bowl and refrigerate.

Makes 8 servings. Serving Size 2 Tbsp

Per Serving:

Calories 23	Sodium	84 mg
Total Fat 0 g	Calcium	72 mg
Saturated Fat 0 g	Magnesium	10 mg
Cholesterol 1 mg	Potassium	104 mg
Fiber 0 g		

Chicken and Spanish Rice

- 1 cup onions, chopped
- 1/4 cup green peppers
- 2 tsp vegetable oil
- 1 8 oz can tomato sauce
- 1 tsp parsley, chopped
- 1/2 tsp black pepper
- 1 1/4 tsp garlic minced
- 5 cups cooked rice (in unsalted water)
- 3 1/2 cups chicken breast, cooked (skin and bone removed), diced

1. In a large skillet, sauté onions and green peppers in oil for 5 minutes on medium heat. Add tomato sauce and spices. Heat thoroughly. Add cooked rice and chicken, and heat thoroughly.

Makes 5 servings. Serving size: 1 1/2 cups

Per Serving:

Calories	406	Sodium	367 mg	Potassium	527 mg
Total Fat	6 g	Calcium	45 mg	Cholesterol	75 mg
Saturated Fat	2 g	Magnesium	57 mg	Fiber	2 g

New Potato Salad

- 16 small new potatoes (5 cups)
- 2 Tbsp olive oil
- 1/4 cup green onions, chopped
- 1/4 tsp black pepper
- 1 tsp dill weed, dried



1. Thoroughly clean the potatoes. Boil potatoes for 20 minutes or until tender. Drain and cool potatoes for 20 minutes. Cut potatoes into quarters and mix with olive oil and spices.

Makes 5 servings. Serving size: 3/4 cup

Per Serving:

Calories	183	Sodium	201 mg	Potassium	240 mg
Total Fat	7 g	Calcium	17 mg	Cholesterol	78 mg
Saturated Fat	2 g	Magnesium	25 mg	Fiber	0 g

Use these forms to track your food habits before you start on the DASH copy the forms. Total each day's food groups and compare what you ate

Meal	Amount (serving size)	# of DASH Food Group Servings							Sodium (mg)	
		Grains	Vegetables	Fruits	Dairy	Meat, poultry, fish	Nuts, seeds, beans	Fats and oils		Sweets
Breakfast										
Lunch										
Dinner										
Snacks										
Day's Total										
Compare your totals with the DASH eating plan		7-8 / day	4-5 / day	4-5 / day	2-3 / day	2 or less / day	4-5 / week	2-3 / day	5 / week	2,400 mg

eating plan and while following it. To record more than two days, just with the DASH eating plan. Refer to serving sizes on pages 3-6.

Meal	Amount (serving size)	# of DASH Food Group Servings								Sodium (mg)
		Grains	Vegetables	Fruits	Dairy	Meat, poultry, fish	Nuts, seeds, beans	Fats and oils	Sweets	
Breakfast										
Lunch										
Dinner										
Snacks										
Day's Total										
Compare your totals with the DASH eating plan		7-8/ day	4-5/ day	4-5/ day	2-3/ day	2 or less/ day	4-5/ week	2-3/ day	5/ week	2,400 mg



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