

Quick Guide to Stroke Prevention

Many strokes can be prevented. Even if you have had one stroke or TIA already, you can take steps to prevent another. Preventing strokes is largely a matter of healthy living and having regular check-ups to detect and manage any health problems that can lead to a stroke, such as high blood pressure, heart disease, high cholesterol, and diabetes.

Changing your daily habits offers the greatest benefit of all approaches to stroke prevention. The following lifestyle changes may take some effort and perseverance, but they're worth the work. These changes will reduce your stroke risk dramatically, as well as your risks of heart disease, dementia, and an early death.

Avoid smoking

Smoking doubles the risk of ischemic stroke and quadruples the risk of hemorrhagic stroke. Smoking also contributes to many of the other stroke risk factors: it raises blood pressure, reduces the level of beneficial HDL cholesterol, damages the protective lining of the blood vessels, and makes blood more likely to clot by promoting inflammation in the body. The

more and the longer you smoke, the greater your risk of stroke. Exposure to other people's tobacco smoke also substantially increases the risk of stroke, almost as much as active smoking.

Quitting smoking is one of the cornerstones of stroke prevention. In one study, people who had smoked fewer than 20 cigarettes daily before quitting low-

ered their risk after quitting to the level of those who had never smoked. Although heavier smokers who quit did not entirely eliminate their risk, they did reduce it. More recently, many people have switched to e-cigarette use or "vaping" as a substitute for traditional tobacco-based smoking. While there are less data about how this habit affects stroke risk, inhaling the toxic vapor created by these products is not considered safe and should be avoided.

There are a number of ways to quit, including quitting on your own, joining a smoking cessation group, or using a nicotine-substi-



It usually takes people several tries before they're able to quit smoking for good, but it's worth the effort. Smoking doubles the risk of ischemic stroke.

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tution product. Although these heavily promoted products—which include nicotine patches, lozenges, gums, and nasal sprays—can help allay the physical symptoms of nicotine withdrawal, they maintain the body’s dependence on nicotine. Two prescription medications, bupropion (Zyban) and varenicline (Chantix), can help override the urge to smoke.

Beyond to the physical addiction to nicotine, the psychological addiction can be even more challenging to overcome. Behavior modification techniques (known as cognitive behavioral therapy, or CBT), counseling, and support groups can be important tools in ensuring your success. Using counseling and medication together is more effective than either one alone. Be aware that it usually takes several attempts to quit smoking for good.

Boost physical activity

Lack of physical activity makes you more prone to having a stroke. People who are physically active are 25% to 30% less likely to have a stroke than inactive people. The cardiovascular benefits of exercise include making blood less likely to clot, lowering blood pressure, and increasing levels of protective HDL cholesterol. It can also help you control your weight.

Current federal guidelines recommend at least 150 minutes per week of moderate exercise (such as brisk walking) or 75 minutes a

Table 1: Examples of moderate and vigorous activity

MODERATE-INTENSITY ACTIVITIES	VIGOROUS-INTENSITY ACTIVITIES
Walking fast	Jogging or running
Doing water aerobics	Swimming laps
Riding a bike on level ground or a few hills	Riding a bike fast or on hills
Playing doubles tennis	Playing singles tennis
Pushing a lawn mower	Playing basketball

week of vigorous exercise (such as running), or a combination of the two. (See Table 1, above, for suggestions.) If you have already had a stroke or TIA and you are capable of exercising, try to exercise at a moderately intense pace for at least 30 minutes a day to reduce the risk of another stroke. Always check with your doctor before beginning an exercise program.

Eat a healthy diet

For stroke prevention, eating less sodium and more potassium is a smart strategy. A diet high in sodium (a main component of salt) raises blood pressure and increases stroke risk. The average American consumes about 3,400 milligrams (mg) of sodium daily—nearly 50% more than the recommended federal guideline of 2,300 mg, and more than double the American Heart Association’s recommendation of just 1,500 mg per day.

To scale back on sodium, try to avoid the leading sources of salt in the American diet (see “Where’s the salt?” on page 3) and processed foods in general.

While cutting sodium, try to

increase potassium, which helps lower your blood pressure. Women whose diets contain plentiful amounts of potassium have a 27% lower risk of ischemic stroke compared with those whose diets are deficient in this mineral. Federal guidelines recommend 4,700 mg of potassium per day, but studies suggest that few people meet that goal.

Potassium is abundant in many fruits and vegetables and some fish (see Table 2, page 4). Two diets that emphasize fruits and vegetables—the DASH (Dietary Approaches to Stop Hypertension) diet and the heart-healthy Mediterranean diet supplemented with nuts—are especially helpful for stroke prevention. In addition to at least four servings of fruit and four to five servings of vegetables a day, the DASH diet features

- whole-grain breads and cereals instead of processed varieties
- low-fat or nonfat dairy instead of full-fat versions
- small portions of poultry, fish, and nuts instead of red meat
- fat content limited to 27% of total calories.

The Mediterranean diet is

similar but somewhat more lenient regarding fat, allowing up to 35% of total calories as fat. But the emphasis is on healthy, unsaturated fats in olive oil and nuts.

A hybrid of the two diets—the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet—seems to help prevent cognitive decline in the general population. Preliminary evidence suggests that this eating pattern may also benefit stroke survivors. The MIND diet identifies 10 healthy food groups and how often they should be eaten: green leafy vegetables (every day),

other vegetables (at least once a day), nuts (as a snack, five servings a week), berries (two or more times a week), beans (every other day or so), whole grains (three or more servings a day), fish (at least once a week), poultry (two or more times a week), olive oil (as your main cooking oil), and wine (one glass or less a day).

Watch your weight

Excess pounds strain the entire circulatory system and predispose you to other stroke risk factors such as high blood pressure, diabetes, high cholesterol, and

obstructive sleep apnea. You are considered obese if your body mass index (BMI), a ratio of weight to height, is 30 or greater—or overweight if you have a BMI of 25 to 29. You can find your BMI by using the online calculator at www.health.harvard.edu/BMI.

If you need to lose weight, it may help to know that research increasingly shows that, between diet and exercise, diet is more powerful for weight loss—though exercise is crucial for keeping the pounds off. Any of the dietary plans mentioned earlier—the Mediterranean, DASH, or MIND

Where's the salt?

Salt plays many roles in food, from acting as a preservative or a binder to helping yeast rise. It is also a cheap way to make food tastier. More than 40% of the sodium Americans consume each day comes from only 10 types of food, ranked here according to sodium content and how often people eat these foods.

- 1. Breads and rolls.** This category tops the list not because bread is especially salty (a slice of bread contains only about 100 to 200 mg of sodium), but because we eat so much of it.
- 2. Pizza.** Everything in pizza—the crust, sauce, cheese, and meat toppings—contains a lot of salt.
- 3. Sandwiches.** Like pizza, most sandwiches contain salty ingredients (bread, cheese, and cold cuts or cured meat).
- 4. Cold cuts and cured meats.** Even low-sodium deli meats are pretty salty; a 2-ounce serving of low-salt turkey breast (about six thin slices) has 440 mg of sodium.
- 5. Soups.** Some varieties of canned soup have as much as 940 mg of sodium per serving.
- 6. Burritos and tacos.** Similar to pizza, these Mexican foods combine several salty items, including cheese, beans



prepared with salt, and seasoned meats. Also, an 8-inch flour tortilla may contain more than 400 mg of sodium.

7. Savory snacks. Salt is a key ingredient in such snacks as chips and pretzels.

8. Chicken. This popular protein is often prepared in commercial kitchens, which means added salt. Rotisserie or fried chicken from a

grocery store or restaurant contains up to four times the sodium of plain chicken prepared at home.

9. Cheese. Popular cheeses such as cheddar contain about 240 mg of sodium per ounce. Feta and blue cheese are among the saltiest varieties, while goat cheese, ricotta, and Neufchatel (which is similar to cream cheese) tend to be far lower in sodium.

10. Eggs and omelets. An egg contains only 62 mg of sodium, so this category again reflects other ingredients added to eggs in cooking. For example, most fast-food egg breakfast sandwiches are made with cheese and ham on an English muffin, and omelets are also often full of cheese, bacon, or ham.

Source: Centers for Disease Control and Prevention.

diets—can help you lose weight. That’s because a healthy diet based on unprocessed or minimally processed food—think colorful, vitamin-packed fruits and vegetables; whole grains; and lean protein such as fish—fills you up on relatively few calories, compared with a diet that’s loaded with sweets, sodas, refined grains, unhealthy fats, and fried and fast foods.

You might also consider an intensive lifestyle intervention program. This approach involves targeted behavior coaching that teaches you how to transform your eating, exercise, and other habits. The goal is to lose at least 1% of your body weight a week for the first four weeks. Losing 5% to 10%

of your starting weight can lower your blood pressure and other stroke risk factors. Your doctor may be able to recommend one of these programs, which are available at many major medical centers. Most involve individual and group sessions with one or more trained experts, including dietitians, nutritionists, exercise professionals, health educators, and psychologists.

Note that the key to reducing stroke risk is to keep the weight off for good, not just a short time. For examples of strategies to help you shed pounds, see “Tips for losing weight,” page 5. Another Harvard Special Health Report, *Lose Weight and Keep It Off*, includes dozens of strategies for weight loss, from reorganizing your kitchen to learning to distinguish hunger from cravings.

Moderate your drinking

Compared with people who don’t drink alcohol, light-to-moderate drinkers appear to have a lower risk of ischemic stroke. Possible explanations include alcohol’s ability to inhibit blood clotting and raise protective HDL cholesterol.

However, the evidence is largely observational, and therefore subject to what scientists call “confounding”—a situation where an association between two things seems to represent cause and

effect, but might actually be caused by a third factor. For example, people who are ill or taking certain medications often avoid alcohol. So, when researchers compare drinkers and nondrinkers, the drinkers seem to live longer and have fewer health problems. In such a case, it may not be the alcohol leading to longer life, but the fact that the drinkers are in better health to begin with than those who avoid alcohol, if the cause for that abstention is that alcohol would interfere with their medications. Similarly, light-to-moderate drinkers tend to be educated and relatively wealthy and have other habits that could explain their lower risk of stroke.

What’s clear is that heavy drinking raises the risk of all types of strokes (especially hemorrhagic), probably because excessive alcohol consumption tends to increase blood pressure and thin the blood too much, and can boost the likelihood of heart rhythm disturbances such as atrial fibrillation.

If you drink alcohol, you should always limit yourself to moderate amounts (no more than two drinks a day for men or one drink a day for women).

Don’t use illicit drugs

A number of illegal drugs, including cocaine, amphetamines, ecstasy (MDMA), and heroin, are associated with a higher risk of stroke. Possible reasons include the rapid, sharp increases in blood pressure,

Table 2: Good sources of potassium

FOOD (SERVING)	POTASSIUM (MILLIGRAMS)
Potato with skin, baked (1 medium)	926
Halibut, baked (4 ounces)	654
Raisins (½ cup)	543
Banana (medium)	422
Acorn squash, cooked (½ cup)	448
Spinach, cooked (½ cup)	419
Tomato sauce (½ cup)	405
Lentils, cooked (½ cup)	365
Cantaloupe (¼ medium)	365
Kidney beans, cooked (½ cup)	356
Orange juice (6 ounces)	354
Bran breakfast cereal (½ cup)	340
Milk, low-fat, 1% (1 cup)	290
Orange (1 whole)	260

Source: USDA National Nutrient Database.

Tips for losing weight

Weight loss comes down to the simple fact that you have to burn off more calories than you consume. The tough part is actually doing that over the long haul. Your body has evolved to protect you against famine and starvation and will fight against sustained weight loss, either by slowing metabolism or by pumping up hunger hormones to get you to eat more once you go off a weight-loss diet. Here are some strategies to help you fight back.

1 Boost your routine, everyday activity. Exercise is one obvious way to burn off calories, and it has countless benefits for your overall health. Weight loss may even be one of them. But all too often, any potential weight loss is offset by the extra calories you wolf down afterward in order to replenish your energy. So yes, by all means, exercise. But also try to increase your everyday activity—gardening, walking, fidgeting, hanging laundry up to dry, pacing while talking on the phone, climbing stairs instead of taking the elevator. The body doesn't seem to feel the same need to boost food intake in response to this type of activity. In some studies, the sole difference between lean and obese people was the amount of everyday activity in their lives.

2 Skip the sipped calories. Your body needs plenty of fluids, but it pays to be selective when pouring. Soda, lattes, sports drinks, energy drinks, and even fruit juices are all packed with unnecessary calories—and it's surprising how quickly they all add up. Worse, your body doesn't seem to account for liquid calories the same way it registers solid calories, so you can keep right on chugging them

before your internal satiety mechanisms tell you to stop. Instead, try unsweetened coffee or tea, or flavor your own sparkling water with a slice of lemon or lime, a sprig of fresh mint, a few raspberries, or an ounce or two of 100% fruit juice.

3 Eat more whole foods. Processed foods—think ice cream, cookies, and the like—can pack a lot of calories into a small amount of food that is quickly digested and soon leaves you hungry again. If your road to weight loss is simply to restrict these foods, you will soon feel deprived and start eating more. But if you substitute unprocessed foods—think fruits, vegetables, and whole grains—you can eat a great quantity of food and fill yourself up on meals that take a long time to digest. You'll feel fuller longer. Plus, whole foods have more vitamins, minerals, and fiber—and because they're much lower in salt, they're better for your blood pressure, too.

4 Find healthier snacks. Snack time is many people's downfall. Don't let it be yours. Most nutritionists today support the idea of snacking during the day to keep your blood sugar levels steady—but do it wisely. For example, carrot sticks are sweet and crunchy and make a fine substitute for potato chips or crackers (and without the salt in crackers and chips). Air-popped popcorn also makes a good, low-calorie snack, provided you skip the butter. (It doesn't have to taste bland. Instead of adding butter and salt, try seasoning it with your favorite spices.) Snacks that provide some carbs and some protein seem to be particularly satisfying, so try a dollop of sunflower seed butter on apple slices.

blood vessel spasms, or blood clotting problems that can occur when people take these drugs. There are also case reports linking marijuana use with strokes, likely attributable to a violent spasm of the cerebral arteries leading to what's known as reversible cerebral vasoconstriction syndrome. Despite its name, this problem is often accompanied by irreversible stroke-like brain damage.

Consider taking aspirin

Aspirin makes blood platelets less “sticky” and therefore less likely to clump together—an early stage in blood clot formation. As a result, taking aspirin lowers the risk of ischemic stroke. But because aspirin can cause gastrointestinal bleeding—and more rarely, other types of bleeding in the body (including a very small risk of a brain bleed)—the risks may outweigh the benefits, depending on your situation. If you've had an ischemic stroke, taking a daily low-dose aspirin can lower your risk of a second one. But for people who have not had a stroke, the 2014 AHA/ASA guidelines recommend aspirin only for people at high risk of cardiovascular disease, which includes stroke. High risk is defined as greater than 10% over the next 10 years. Aspirin may be more effective for preventing a first stroke in women than in men. ♥