



Understanding Stroke



Your life is our life's work.

What is a stroke?

A stroke occurs when a blood vessel in the brain is blocked or bursts. Without blood and the oxygen it carries, part of the brain starts to die. The part of the body controlled by the damaged area of the brain can't work properly.

Brain damage can begin within minutes. That's why it's so important to know the symptoms of stroke and to act fast. Quick treatment can help limit damage to the brain and increase the chance of a full recovery.

Stroke symptoms

These are the typical warning signs and symptoms of a stroke:

- Dimness or loss of vision in one or both eyes.
- Unexplained dizziness, trouble walking, or loss of balance or coordination.
- Weakness and/or numbness on one side of the body.
- Difficulty talking or understanding speech.
- Sudden severe headache.

Diagnosing a stroke

The first thing the doctor needs to find out is what kind of stroke it is: ischemic or hemorrhagic. This is important, because the medicine given to treat a stroke caused by a blood clot could be deadly if used for a stroke caused by bleeding in the brain.

To find out what kind of stroke it is, the doctor will do a type of X-ray called a CT scan of the brain, which can show if there is bleeding. The doctor may order other tests to find the location of the clot or bleeding, check the amount of brain damage, and check for other conditions that can cause symptoms similar to a stroke.



With stroke, **B.E.F.A.S.T.**

If you think someone you're with may be having a stroke, follow these B.E.F.A.S.T. steps:

B = Balance: Does the person complain of sudden onset unsteadiness, dizziness or difficulty walking?

E = Eyes: Does the person complain of narrowing vision, blurred vision, seeing dark or bright spots?

F = Face: Ask the person to smile & show their teeth. Is the smile even or lop-sided?

A = Arms: Ask the person to raise both arms and hold them straight out. Does one arm drift downward?

S = Speech: Ask the person to repeat a simple sentence. Do words sound slurred or garbled?

T = Time: Knowing the time when the person was last seen "normal" helps determine the course of treatment and improve outcomes.

Minutes matter. If a stroke is diagnosed immediately after symptoms start, doctors may be able to use medicines that can help the stroke victim recover quickly.



Types of stroke and treatments

The term stroke refers to a sudden loss of brain activity usually causing paralysis of an arm or leg, impairment of speech and consciousness. Depending on the type of stroke other brain activity can be affected, but paralysis and speech problems are the most common.

Ischemic stroke

The most common form of stroke is an ischemic stroke (“ih-skee-mik”) occurring when a blood clot blocks blood flow to a region of brain tissue. The blocking blood clot can form inside a brain blood vessel or, more commonly, can form elsewhere in the body and then travel to the brain. Ischemic stroke is the most common form of stroke and occurs most often in older adults.

A transient ischemic attack (TIA) occurs when blood flow to a region of the brain is temporarily blocked by a clot. The blocked blood flow causes short episodes of stroke like symptoms. Rapid recovery occurs because our body quickly dissolves the clot restoring brain blood flow.

TIA's are a very important warning sign of a future major stroke.

Types of ischemic strokes

- **Thrombotic strokes** are caused by a blood clot forming and blocking the inside of a brain blood vessel shutting off blood flow to a region of the brain.
- **Embolic strokes** are caused by a wandering clot forming elsewhere and traveling to, and blocking, a brain blood vessel. The traveling blood clot may come from a blood vessel in the neck or from the heart.
- **Low blood pressure** happens when the heart cannot pump enough blood to the brain or if medications cause low blood pressure.

Treatment

Ischemic stroke treatment focuses on restoring blood flow to the brain. If you get to the hospital right away after symptoms begin, doctors may use a medicine called t-PA that dissolves blood clots. Research shows that this medicine can improve recovery from a stroke, especially if given within 60 minutes of the first symptoms.

IV and IA treatment

Intravenous thrombolytics (IV) delivers the clot-busting drug through the patient’s vein. To qualify for this treatment, you must arrive at the hospital within three hours after experiencing the first stroke symptom. You must also meet certain criteria as determined by your attending physician.

Intra-arterial thrombolytics (IA) may be given as long as eight hours after the first stroke symptom. In this procedure, the doctor inserts a catheter into the patient's leg and guides it through the arteries and into the brain to the site of the clot. The clot-busting drug is then delivered directly onto the clot and, in some cases, a mechanical clot extraction device may be used to remove the blood clot, helping to restore blood flow.

Other medicines may be given to prevent blood clots and control symptoms.

☐ Hemorrhagic stroke

A hemorrhagic ("hem-uh-raj-ik") stroke develops when an artery in the brain leaks or bursts. This causes bleeding inside the brain or near the surface of the brain. Hemorrhagic strokes are less common but more deadly than ischemic strokes.

There are two types of hemorrhagic strokes:

- **Intracerebral hemorrhage** occurs when a blood vessel bleeds or ruptures into the tissue deep within the brain. This type of hemorrhage causes sudden bleeding within the skull. If not treated immediately, the buildup of blood and pressure can destroy tissues in and around the brain and cause long-term damage or even death.
- This type of hemorrhage is often caused by chronically high blood pressure or aging blood vessels.
- They may also result from an arteriovenous malformation (AVM). An AVM is a cluster of abnormally formed blood vessels. Any one of these vessels can rupture, also causing bleeding into the brain.

Symptoms of an intracerebral hemorrhage usually develop suddenly and become progressively worse within minutes to hours. Symptoms often include headache, nausea and vomiting, and loss of consciousness. Other symptoms, which depend upon the part of the brain affected, may include paralysis, vertigo, numbness, inability to speak (aphasia), or trouble speaking or understanding speech.

- **Subarachnoid hemorrhage** occurs when an aneurysm (a blood-filled pouch that balloons out from an artery) on or near the surface of the brain ruptures and bleeds into the space between the brain and the skull. This type of hemorrhage causes sudden bleeding into the space between the middle lining of the brain (arachnoid membrane) and the brain itself.

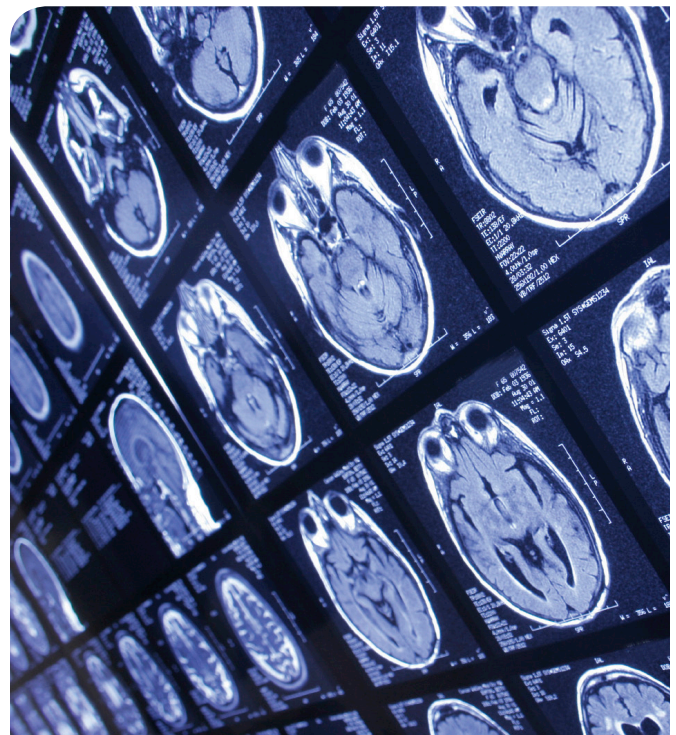
This type of hemorrhage is often caused by:

- High blood pressure
- Cigarette smoking
- Use of oral contraceptives (particularly those with high estrogen content)
- Excessive alcohol intake
- Use of illegal drugs

The patient will feel sudden, severe head pain. This condition requires immediate medical care to prevent brain injury and death.

Treatment

A hemorrhagic stroke can be hard to treat. Doctors may do surgery or use other treatments to stop bleeding or reduce pressure on the brain. Medicines may be used to control blood pressure, brain swelling and other problems.



How stroke affects you

You may experience a number of changes after a stroke. Those changes depend on what part of the brain has been damaged.

After **Frontal Lobe Damage**, you may:

- Have trouble thinking in sequence
- Keep repeating words, gestures or actions
- Have a shorter attention span
- Experience personality changes
- Have difficulty problem-solving
- Find it hard to express yourself verbally
- Be less spontaneous
- Be inflexible in your thinking
- Notice changes in emotional, social and sexual behavior
- Have difficulty making voluntary movements

After **Occipital Lobe Damage**, you may:

- Have a reduced field of vision
- Have trouble finding objects by sight
- Have trouble seeing colors
- Hallucinate or see distorted images
- Have trouble reading and writing
- Have trouble seeing objects move

After **Temporal Lobe Damage**, you may:

- Have trouble understanding spoken words
- Have trouble concentrating
- Find it difficult to identify and categorize objects
- Find it difficult to recognize faces and locate objects
- Have short-term memory loss
- Experience changes in sexual desire or function
- Talk persistently
- Act more aggressively

After **Brain Stem Damage**, you may:

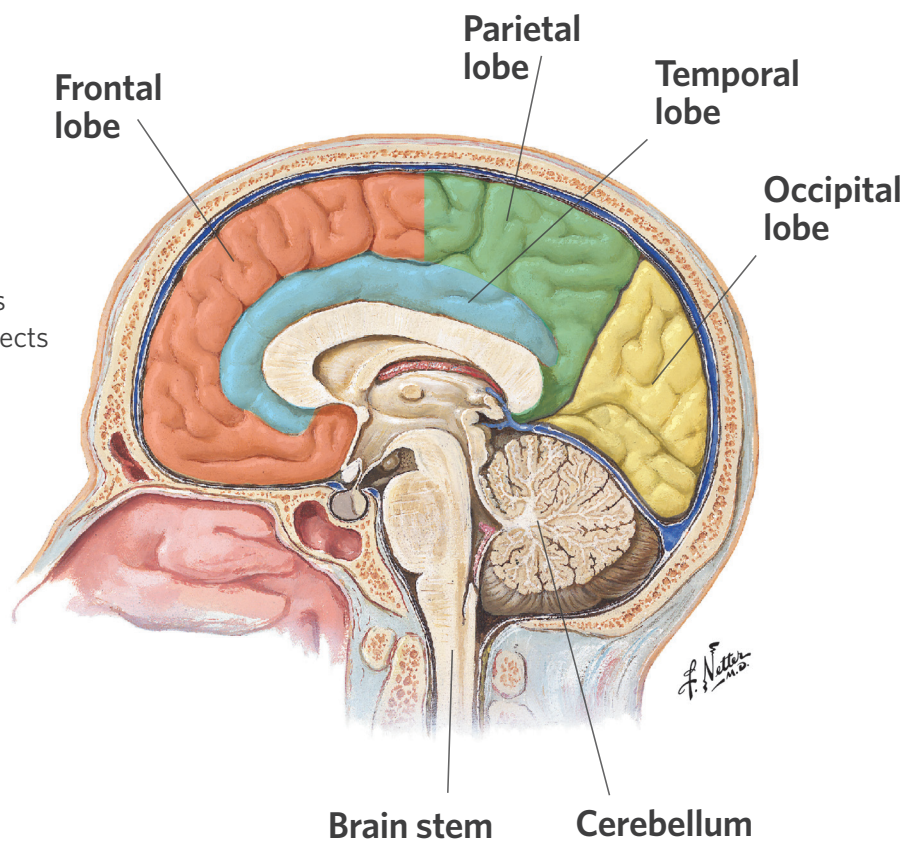
- Have trouble regulating temperature, heart rate and breathing
- Have difficulty swallowing food and liquids
- Have trouble with balance and movement
- Feel nauseous and dizzy (vertigo)
- Have difficulty with sleep and waking patterns

After **Parietal Lobe Damage**, you may:

- Have trouble with academic skills
- Struggle with naming objects
- Be unable to tell right from left
- Have trouble processing tactile (touch) input
- Be unable to focus attention visually
- Lack eye-hand coordination
- Lack awareness of body parts

After **Cerebellum Damage**, you may:

- Lose gross and fine motor coordination
- Be unable to walk
- Have less control over posture
- Be unable to make rapid movements
- Lack control of eye movements
- Experience tremors and/or dizziness
- Feel nauseous and dizzy (vertigo)
- Have trouble with balance and movement
- Slur your words
- Have trouble breathing
- Have difficulty swallowing food and liquids
- Be difficult to wake up





Your stroke risk factors

High blood pressure

Your target blood pressure should be 120/80. Take your blood pressure twice a day and record the measurement. Take this to your next appointment to show your doctor how your blood pressure is doing at home. If you have two or more readings of 150/90 or greater, contact your physician.

Medication can be an important part of controlling your blood pressure. Make sure you take your medications as prescribed.

Diabetes

Hemoglobin A1c is a test used to measure your average blood sugar over the past three months. Normal reading is typically less than 6.0. If your number is higher it could indicate that you are diabetic. Diabetes can be managed with diet modifications and medication. You will receive an inpatient consult with the Diabetic Educator to help you learn how to manage this issue if your lab results indicate this is necessary.

Your Hemoglobin A1c is _____

Cholesterol

Cholesterol is broken down into three different values:

- HDL (“helpful cholesterol” or good cholesterol)
This number should be above 50
- LDL (“bad cholesterol”)
This number should be below 70
- Triglycerides
This number should be less than 150

Your Cholesterol is:

HDL _____ LDL _____

Triglycerides: _____ Total Cholesterol _____

Your physician may prescribe a statin medication to help reduce your LDL. This medication can also help by “softening” the arteries and reducing your risk of having a stroke.

Atrial fibrillation

If you are diagnosed with this cardiac arrhythmia, you will be referred to a cardiologist for management. You may need to be placed on an anticoagulant such as Coumadin (warfarin) or other medication to control your heart rate.

Your cardiologist may also order 24 hour monitoring of your heart even while you’re away from the hospital. Mobile (ambulatory) monitors can be a piece of equipment that you wear, or they can be implanted in your chest. They are referred to by several names, including ambulatory electrocardiogram, ambulatory EKG, Holter monitoring, 24-hour EKG, or cardiac event monitoring. Your doctor will recommend the monitor that’s most appropriate for you and your condition.

Many heart problems become noticeable only during activity, such as exercise, eating, sex, stress, bowel movements, or even sleeping. Continuous 24-hour recording is more likely to detect any abnormal heartbeats that occur during these activities.

Carotid stenosis

A carotid Doppler study or possibly a CT scan to look at the arteries of your neck that supply blood to your brain.

Your results are: _____

Smoking

Many diseases are linked to smoking including: heart disease, stroke, lung cancer and respiratory problems. Stopping smoking greatly reduces your risk of these diseases. The U.S. government offers many resources to help you quit. Visit smokefree.gov or call the Tobacco Helpline at 1-800-QUIT NOW(1.800.784.8669).

Lifestyle

Being inactive or obese can increase your risk of stroke, high blood pressure, diabetes, high cholesterol and heart disease. Increasing your activity by 30 minutes daily can provide many health benefits and reduce your risk of these diseases.

Blood disorders

A high red blood cell count increases your chances of having clots, which can lead to stroke. Sickle cell anemia can cause blocked arteries, which also increases your risk for stroke.

Excessive alcohol use

Binge drinking can lead to stroke, as can regular alcohol use. Higher blood pressure occurs in women who average more than one drink per day, and men who drink an average of more than two drinks per day.

Illegal drug use

People who use intravenous drugs, cocaine and other illegal drugs are at high risk for stroke, especially hemorrhagic stroke.

Other risk factors



Preventing stroke

The best treatment for stroke is prevention. You can reduce your risk of having a stroke by taking action to improve your health.

Make healthy lifestyle changes.

Healthy lifestyle changes can help lower your risk of having a stroke. And they may help you feel better and live longer.

Here are some things you can do:

- **Quit smoking, and avoid secondhand smoke.** If you smoke, try to quit. Medicines and counseling can help you quit for good.
- **Be active.** You can still be physically active after a stroke. Doctors recommend ½ to 1½ hours a week of moderate exercise. One way to do this is to be active 30 minutes a day, one to three days a week. It's okay to be active in 10-minute blocks throughout the day. Your doctor can suggest a safe level of exercise for you.
- **Stay at a healthy weight.** Being overweight makes you more likely to have high blood pressure, heart problems and diabetes. These conditions make a stroke more likely.
- **Limit alcohol** to two drinks a day for men and one drink a day for women.
- **Eat heart-healthy foods.** These include fruits, vegetables, high-fiber foods, and foods that are low in sodium, saturated fat, trans fat and cholesterol. Eat fish at least 2 times each week. Oily fish, which contain omega-3 fatty acids, are best. These fish include salmon, mackerel, lake trout, herring and sardines.

Manage your cholesterol.

Controlling the types and amounts of fat in your diet is the first step. Harmful fats should be avoided because they can raise your cholesterol levels and your risk of cardiovascular disease.

Here's an easy way to remember what fats to avoid: saturated fats (bad) solidify or remain solid at room temperature. Unsaturated fats (good) do not; they are liquid at room temperature. Check the Nutrition Facts panel and ingredients list to look for hydrogenated fats and "partially hydrogenated vegetable oils."

Special considerations

- Remove the salt shaker from the table. Make meals tasty and flavorful with spices and herbs. Never use salt substitutes unless your physician approves it.
- Limit high-sodium processed foods. This includes cured and smoked meats, some pre-packaged frozen and canned foods, most soups and condiments. Avoid fast food restaurants because the foods served there tend to be very high in sodium.
- Read ingredient labels. Sodium compounds are often added to commercially processed foods. Select foods labeled low sodium, very low sodium or salt free. Watch out for ingredients that indicate a high sodium content (any ingredient with the word sodium in it). Baked goods made with baking powder or baking soda may also be high in sodium. Common medications contain sodium compounds. Ask your pharmacist for alternatives.

How to modify recipes

Using low-fat, low-cholesterol recipes makes it easier to cook healthful meals. However you can control the amount of fat and cholesterol in your favorite recipes by substituting low-fat ingredients when you cook

Other possible changes

A stroke can change the way you act or feel. Changes depend on what part of your brain is affected and how much damage the stroke causes.

People who have a stroke often have problems with:

- **Movement and sensation**
- **Vision**
- **Not being aware of one side of your body**

If you don't look to that side, you may forget or ignore that side of your body.

- **Language and thinking**
- **Feeling tired**
- **Emotional changes**

A stroke can cause you to feel afraid, anxious, angry or sad, whether you are the stroke survivor or their loved one.

Talk with your doctor to see if medications may help with any of these problems.





INSTEAD OF	TRY
Whole milk	Skim or 1% milk (can add 1 Tbsp. unsaturated oil for each cup of milk to replace fat)
Evaporated milk	Evaporated skim milk
Light cream	Equal amounts of 1% milk and evaporated skim milk
Butter	Polyunsaturated margarine or 3/4 Tbsp. polyunsaturated oil for every Tbsp. butter
Mayonnaise or salad dressing	Nonfat or light mayonnaise or salad dressing
Eggs	1 egg white plus 2 tsp. polyunsaturated oil for each egg or commercially made cholesterol-free egg substitute
Cream cheese	Nonfat or light cream cheese
Sour cream	Low-fat cottage cheese plus low-fat or nonfat plain yogurt or use lowfat or fat free sour cream
Fat to grease pan	Nonstick cooking spray or spray margarine
Baking chocolate	3 Tbsp. cocoa powder plus 1 Tbsp. vegetable oil
Pork sausage	Lean ground turkey
Fat back, neck bone, or ham hocks	Skinless chicken thighs
Ground beef or pork	Lean ground turkey
Chocolate chips	Raisins
Ice cream	Sherbet, ice milk, low-fat/fat free ice cream

FOODS TO AVOID	FOODS RECOMMENDED
Fats and oils to avoid:	Fats and oils to use in moderation:
Butter, lard, beef tallow, salt pork, bacon, bacon drippings, ham hock, animal fat	Oils: canola, safflower, sunflower, corn, soybean, olive, sesame or cottonseed oil
Shortening, suet, chocolate, cocoa butter, coconut, coconut oil, palm and palm kernel oil, margarine made with saturated fat or hardened (hydrogenated) vegetable oil	Margarine made with unsaturated fats, with liquid oil as the first ingredient. Spray and squeeze margarines are preferred over tub margarines
Regular salad dressings made with saturated oil and/or egg yolk	Spreads that help promote healthy cholesterol levels: Benecol, Take Control, Smart Balance
Gravies and cream sauces unless low sodium and made with one of the recommended fats or skim milk	Low sodium salad dressings made with unsaturated oil, low fat and fat free type
Sweet cream or sour cream	Sour cream and dips: low fat and fat free type
Non-dairy creamers and whipped topping made with coconut oil	Non-dairy creamers made with polyunsaturated fat
Salted nuts and seeds	Unsalted nuts and seeds
	Avocado
Desserts made with whole milk, cream, butter, chocolate, and egg yolk	Homemade baked goods made with unsaturated oils or margarine, skim or 1% milk and egg substitute or egg whites
Commercially prepared cakes, pies, cookies, pastries, ice cream, frozen cream pies, candies made with chocolate or cream fillings	Gelatin, angel food cake, ginger snaps, fruit ice, fruit whip, sorbet, sherbet, puddings and custards made with skim or 1% milk, and any commercially prepared desserts labeled low fat or fat free and low sodium

Blood sugar and blood pressure log sheet

		IDEAL WEIGHT:	MONTH:		
DAY OF MONTH	WEIGHT	BLOOD SUGAR	FASTING	BLOOD PRESSURE	PULSE
1			YES / NO		
2			YES / NO		
3			YES / NO		
4			YES / NO		
5			YES / NO		
6			YES / NO		
7			YES / NO		
8			YES / NO		
9			YES / NO		
10			YES / NO		
11			YES / NO		
12			YES / NO		
13			YES / NO		
14			YES / NO		
15			YES / NO		
16			YES / NO		
17			YES / NO		
18			YES / NO		
19			YES / NO		
20			YES / NO		
21			YES / NO		
22			YES / NO		
23			YES / NO		
24			YES / NO		
25			YES / NO		
26			YES / NO		
27			YES / NO		
28			YES / NO		
29			YES / NO		
30			YES / NO		
31			YES / NO		

DOCTOR: _____

PHONE NUMBER: _____



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