



Stroke

Protecting Your Brain



This year alone, nearly **800,000 Americans will have strokes**, and about **150,000 will die as a result**. Although young people can also have strokes, **almost 75% of stroke patients are older than age 65**. Strokes are slightly more common in women than men, and the risk is double for African Americans.

Most people have one or more of the following risk factors:

• High blood pressure	• Heart disease
• Smoking	• Diabetes
• Lack of exercise	• Obesity
• Abnormal cholesterol levels	• Drug abuse

Warning Signs

Strokes develop when a blood clot, or something else, blocks the brain's blood supply. If the interruption is brief, brain cells are stunned. However, they will recover when blood flow is restored. During the interruptions, the patient develops symptoms much like those of a stroke. When the brain cells recover, the symptoms clear, and the patient returns to normal. These warning attacks are called *transient ischemic attacks*, or TIAs. Recovery usually takes less than an hour, and the symptoms are gone within 24 hours.

Table 1 Typical Symptoms of TIAs and Strokes

Tingling, numbness, or loss of feeling in the face, arm, or leg, especially on one side of the body
Weakness or being unable to move the muscles of the face, arm, or leg, especially on one side of the body
Trouble finding words or speaking clearly
Trouble understanding spoken words
Loss of vision, especially in one eye
Severe dizziness, lack of coordination, or loss of balance
A sudden, very severe headache

About 10% of TIA patients go on to have a true stroke within the next 3 months. Contact your doctor right away if you have symptoms of a possible TIA. In most cases, you'll be checked for stroke risk factors and:

- You'll have a carotid ultrasound to check for blockages in the arteries in your neck that carry blood to your brain.
- You'll also have an EKG (electrocardiogram) and possibly an echocardiogram (ultrasound of the heart) to check for problems that can cause blood clots.

What To Do

For stroke treatment to work best, it should be started as soon as possible. Call 911 and go to the hospital as soon as symptoms listed in Table 1 occur (see page 2).

A stroke is a medical emergency, but emergencies make it hard to remember all the possible symptoms. Remember these four simple tests to help you act **FAST**:

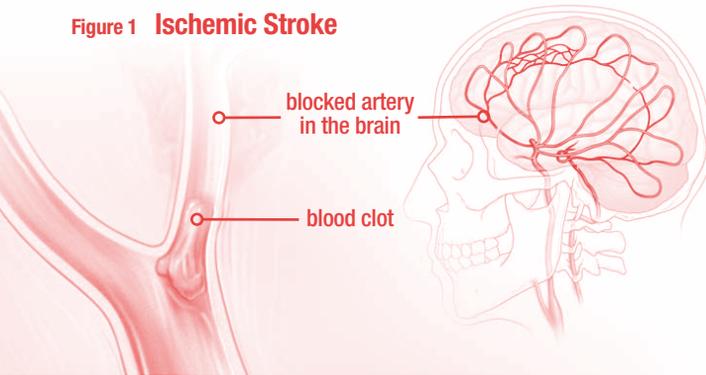
Face	Ask the person to smile. If one side droops, it may suggest a TIA or stroke.
Arms	Ask the person to hold out both arms in front of the body. If one arm droops, it may suggest a TIA or stroke.
Speech	Ask the person to repeat a simple sentence. Slurred speech, garbled words, or other errors may suggest a stroke or TIA.
Time	If any warning signs are present, call 911.



Types of Strokes

There are 2 types of major strokes: *ischemic* and *hemorrhagic*. About 90% of strokes are **ischemic strokes**, which develop when a blood clot blocks an artery in the brain (Figure 1). This blockage deprives brain cells of oxygen-rich blood. In some cases, the clot develops right in the brain artery.

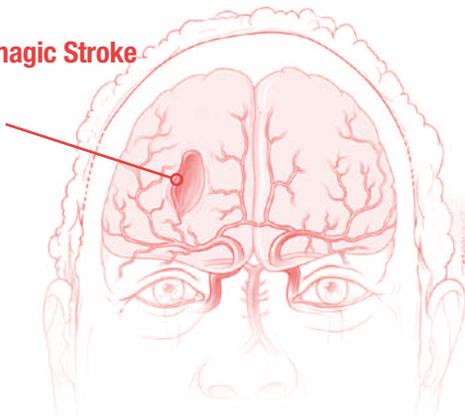
Figure 1 Ischemic Stroke



The other 10% of strokes are **hemorrhagic strokes** that develop when a blood vessel in the brain leaks or bursts (Figure 2). In some cases, blood spills into the brain tissue. In others, the blood seeps into the fluid that surrounds the brain. Hemorrhagic strokes often cause a horrible headache and collapse. Often, the culprit is a tiny area of damage in one of the brain's arterial walls.

Figure 2 Hemorrhagic Stroke

burst blood vessel causing blood to spill into the brain



Evaluating Stroke Patients

Strokes are complex problems, and diagnostic testing is high-tech. If you have symptoms that could indicate a stroke, your doctors will decide what tests are best, often with the help of specialists.

Treatment

When possible, patients should be treated in a stroke center where neurologists, neurosurgeons, and neuroradiologists work together. All patients need to have their blood pressure, heart and lung function, and metabolism checked. Additional treatment must be tailored to each patient's needs.

Ischemic strokes:

"Clot-busting drugs" can help some patients by opening blocked brain arteries.

Antiplatelet therapy can reduce the risk of new clots and more strokes. It does not dissolve clots or open blocked arteries. The main antiplatelet therapy is low-dose aspirin.

Patients who have severe narrowing of the carotid artery may benefit from an operation (*carotid endarterectomy*) or an angioplasty with a stent to open the artery and prevent further strokes.

"Blood thinners" (*anticoagulants*) can reduce the risk of stroke for patients whose clots develop in the heart.

Hemorrhagic strokes:

Urgent treatment requires four steps: **1)** Diagnosing the cause of bleeding. **2)** Controlling blood pressure. **3)** Monitoring fluid pressure in the brain. **4)** Stopping drugs that can increase bleeding.

Patients with high brain pressure may need fluid drained from the brain to lower pressure.

Patients whose bleeding can be traced to abnormal blood vessels in the brain may benefit from operations to repair the blood vessels. Other options include threading a tiny tube (*catheter*) into the artery and using a coil or glue-like material to seal the leak.

Certain patients with pooled blood in the brain may benefit from an operation to drain the blood.

Prevention

Most strokes are predictable and preventable. Here's how you can protect your brain and your life:

Control your blood pressure. Normal blood pressure is below 120/80. Most people with high blood pressure should aim for 140/90 or lower, but people with diabetes, heart or blood vessel disease, kidney problems, or previous strokes should aim for 130/80 or lower.

Stop smoking and avoid secondhand smoke.

Control your weight and exercise.

Control your blood sugar.

Improve your cholesterol levels. If diet and exercise don't bring you to your goal, a statin drug can reduce your risk of stroke.

Limit alcohol to 1 (*for women*) to 2 (*for men*) drinks a day.

Protect your heart and take medication to prevent clots if you have problems such as the irregular pumping rhythm, atrial fibrillation.



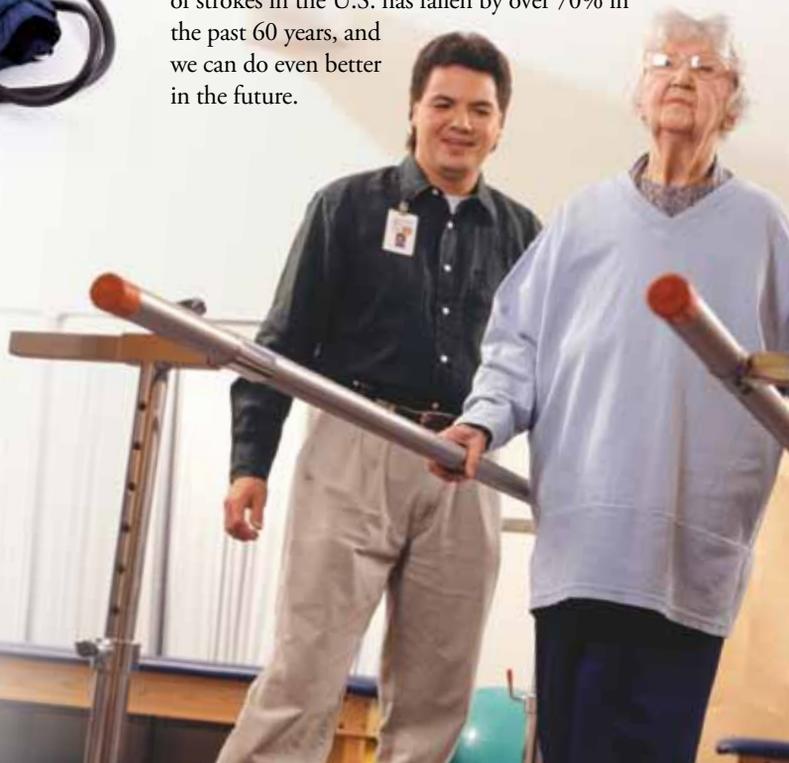
Rehabilitation

Many stroke patients are left with mild-to-severe impairments. During rehabilitation, a team approach can help to prevent complications and restore as much function as possible. Key elements include:

- Physical therapy to retrain the brain and body
- Speech therapy to improve speech and swallowing
- Nursing care to prevent infection and bed sores
- Support devices, such as a walker, and training to prevent falls
- Good nutrition
- Medication to prevent blood clots in the legs of patients who cannot walk

Striking Back

Every 40 seconds someone in the United States has a stroke, and someone dies from stroke every 3 to 4 minutes. But strokes can be prevented. The incidence of strokes in the U.S. has fallen by over 70% in the past 60 years, and we can do even better in the future.





To learn more about stroke,
visit the Patient Education Center
at www.patientedu.org/stroke.

Brought to you by:



Katrina
THERAPY CENTRE
T • R • I • N • I • D • A • D

18 Marcano Avenue, Manahambre Road
Princes Town, Trinidad, W.I.
1-868-655-5132 / 1-868-463-3070
www.katrinatherapy.com
facebook.com/katrinatherapy
katrinatherapycentre@gmail.com

About This Brochure: This brochure was written by practicing physicians from Harvard Medical School. It is part of a series developed and distributed by the Patient Education Center.

All the information in this brochure and on the associated Web site (www.patientedu.org) is intended for educational use only; it is not intended to provide, or be a substitute for, professional medical advice, diagnosis, or treatment. Only a physician or other qualified health care professional can provide medical advice, diagnosis, or treatment. Always consult your physician on all matters of your personal health.

Harvard Medical School, the Patient Education Center, and its affiliates do not endorse any products.

Consulting Physician: Anthony L. Komaroff, MD
Editorial Director: Keith D’Oria
Creative Director: Jon Nichol

© Copyright Harvard Medical School.



Printed on 10%
post-consumer
recycled paper.

PEC-PC-STR-003