



## *X-Plain* Strokes

# Reference Summary

### Introduction

A stroke or a “brain attack” is a very serious condition that can result in death and significant disability. This disease is ranked as the third leading cause of death in the United States and is the most common cause of adult disability.

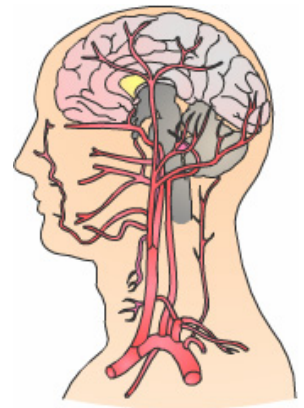
This reference summary explains what strokes are. It discusses their causes and signs and when to go to the emergency room. You will also learn about treatment options and hospital discharge instructions, as well as tips for preventing strokes.

### What is a Stroke?

The brain controls most functions of the body. It allows us to think, understand, speak, move and feel. To work correctly, the brain constantly needs oxygen and glucose. Oxygen and glucose are carried to the brain in the blood.

A stroke happens when blood is not able to reach the brain. When the brain does not receive its needed blood supply, brain cells begin to die and the brain can't function correctly.

Since the brain controls most functions of the body, a stroke can affect the entire body. The effects of a stroke range from mild to severe. A stroke can cause paralysis, emotional problems and problems with thinking and speaking.



There are 3 basic types of stroke.

1. One type of stroke is called a Transient Ischemic Attack, or TIA. A TIA is a “little stroke” or a “mini stroke.” It happens when an artery that goes to the brain is temporarily blocked. This causes stroke-like symptoms that last from a few seconds to a few hours.

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2. A second type of stroke is called an Ischemic stroke. An ischemic stroke can occur when a blood vessel is blocked or narrowed by fatty deposits called plaque. Blood cells may build up around the plaque and form a blood clot, stopping the flow of blood to the brain.
3. A third type of stroke is called a hemorrhagic stroke. A hemorrhagic stroke occurs when a blood vessel in the brain breaks. This causes blood to leak into the brain, killing cells and preventing other cells from receiving blood they need to keep them alive.

## **Causes**

Strokes may be caused by heart problems, high cholesterol or a build-up of plaque in the arteries. They can also be caused by high blood pressure and diseases that cause blood to clot more easily than usual.

Cholesterol can build up and clog the carotid and the vertebral arteries with fatty deposits, or plaque. This can lead to decreased blood flow to the brain and cause strokes.

Parts of the plaque can also get dislodged and move through the arteries to the brain. This clogs smaller arteries, which also leads to strokes. This is known as an embolus.

When a blood clot blocks blood vessels in the brain or neck it is called thrombosis.

Heart problems can cause blood clots to form inside the heart. Some of these clots can get dislodged and move to the brain, blocking blood vessels in the brain and causing strokes. This is called an embolism.

When a person has high blood pressure, or hypertension, for a long time, blood vessels in the brain can become damaged. Hypertension can cause the blood vessels to narrow. This could lead to a stroke. When arteries become narrow, it's called stenosis.

High blood pressure can also make blood vessels become weak, which could cause bleeding inside the brain. Smoking and drug abuse increase the chances of blood vessel problems and strokes.

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To reduce your risk of death or disability from stroke you should:

1. Be able to recognize the warning signs of a stroke so you can seek immediate treatment.
2. Change certain lifestyle habits that damage the blood vessels of the body.



Both of these measures will be discussed in the next section.

## Signs

To reduce your risk of death or disability from stroke, learn to recognize the warning signs of a stroke so you can seek immediate treatment.

The symptoms of stroke are fairly noticeable because they happen quickly. The signs of a stroke include the following 5 elements.

1. Sudden numbness or weakness of the face, arm or leg especially on one side of the body
2. Sudden confusion, trouble speaking or understanding
3. Sudden trouble seeing in one or both eyes
4. Sudden trouble walking, dizziness, or loss of balance or coordination
5. Sudden, severe headache with no known cause



Sometimes the warning signs may only last a few moments and then disappear. These short strokes are known as “mini-strokes,” transient ischemic attacks or TIAs. Even if they last for a short period, you should not ignore them. You should check with your doctor.

If not treated, “mini-strokes” can be followed by more severe strokes that can cause permanent disability. Severe strokes can also lead to death or a coma.

## Emergency

Stroke is a medical emergency, so learn to recognize signs and symptoms of stroke! Do not ignore the signs of stroke, even if they go away.

Check the time. When did the first symptom start?

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If you or someone with you has one or more signs or symptoms of stroke, take action! Immediately call 9-1-1 or the emergency medical services. Treatment can be more effective if it's given quickly. Every minute counts.

If you cannot access 9-1-1 or the emergency medical services, have someone drive you to the nearest hospital emergency room right away.



## Treatment

Ischemic stroke is the most common type of stroke, and can be treated with a drug called t-PA that dissolves blood clots that are stopping blood flow to the brain.

To be evaluated and receive treatment, it is very important to get to the hospital quickly.

If a stroke or TIA occurs, here are the most important things to remember:

- Do not ignore signs of stroke, even if they go away!
- Check the time. When did the first symptom start?
- If one or more stroke symptoms are present, and last more than a few minutes, do not wait! Call 9-1-1 immediately!

In the hospital emergency room, tests will determine if a TIA, a stroke or another medical problem caused the symptoms. Treatment for a stroke will be different if an artery is blocked or a blood vessel has ruptured.

At the hospital, you may be given a prescription for aspirin or blood thinners to help prevent clots from forming. Blood thinners are also called antiplatelet medications. When you take blood thinners, you may need regular blood tests.

You might also be given prescriptions for other medications when you're at the hospital. These may include medicine for high blood pressure, high cholesterol, heart problems and diabetes.

At the hospital, your healthcare team will discuss the following with you.

- If you smoke, why you should stop smoking



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- What you should be eating or drinking for your health after discharge
- Any equipment that you may need to help you move around
- The stroke support groups in the community
- Other medical appointments you may need with a physical therapist, occupational therapist or speech therapist
- The importance of going to follow-up visits with your doctor

Before leaving the hospital, make sure to ask any questions you have about your diagnosis and treatment options.

## **Prevention**

Preventing strokes is much easier than treating them after they happen. You can also prevent strokes from happening again if you've already had one. This section discusses how to prevent strokes.

There are certain factors that increase your chance of having a stroke. These are called stroke risk factors. Risk factors are different for everyone.

Some risk factors of stroke are things you cannot change. These include factors, such as age, gender and race. For example, an older person generally has more risk of having a stroke than a younger person.

Other risk factors of stroke are things you CAN change. You can reduce your chances of having a stroke by controlling:

- High blood pressure
- High cholesterol
- Smoking and drinking habits
- Weight and activity level

It is important to work closely with your health care providers to control the risk factors you are able to. Making healthy changes to your lifestyle could help decrease your chance of having a stroke.

## **Controlling High Blood Pressure**

High blood pressure is also called hypertension. This is the most important factor that causes strokes. It is best to try to keep your blood pressure less than 120/80 mmHg.

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In people with high blood pressure, artery walls are narrower than usual, increasing the chances of a stroke.

Here are some ways you can control your blood pressure.

- Maintain proper body weight and avoid obesity.
- Avoid drugs known to raise blood pressure. Such drugs may be found in herbal supplements or over-the-counter medications for allergies and colds.
- Cut down on salt.
- Eat fruits and vegetables.
- Exercise frequently under the supervision of your doctor.
- Take any blood pressure medication prescribed by your doctor.
- Controlling blood pressure will also help you avoid heart disease and kidney failure.



## Controlling Cholesterol

Cholesterol is a fatty substance in the body. When the body has more cholesterol than it needs, the extra cholesterol can deposit in the walls of blood vessels and block them. This condition is called atherosclerosis.

Atherosclerosis causes heart disease. Heart disease is the number one cause of death in the U.S. Coronary artery disease causes many complications. By controlling your cholesterol, you improve the health of the blood vessels in your heart and brain.

When the blood vessels of your heart are healthy, it is less likely that a stroke will occur because of an embolism. It is best to keep your total cholesterol less than 200 mg/dL and your LDL less than 100 mg/dL.

You can lower your blood cholesterol by

- Eating less egg yolk
- Exercising and losing weight, if you are overweight
- Eating more white meat than red meat



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If your cholesterol level is still high after trying those things, your doctor may prescribe cholesterol-lowering medications for you.

Blood thinners may be given to patients who have heart problems. Surgery to open the arteries of the neck may be necessary to prevent strokes. This operation is called carotid endarterectomy.

## Smoking Cessation

Cigarette smoking has been linked to the buildup of fatty substances in the carotid artery. The blockage of this artery is one of the main causes of strokes.

Scientists believe that smoking damages the inner lining of the arteries, making it easier for fatty substances to deposit and block the artery.



The nicotine in cigarettes and other tobacco products raises blood pressure.

Cigarette smoke makes the blood thicker and more likely to clot.

If you have diabetes, heartbeat or blood clot problems, managing these medical conditions can help you reduce your chance of stroke. See your doctor and follow his or her advice regarding how to manage these conditions.

## Conclusion

Strokes are common and could cause permanent disability or death. Recent medical advances have helped improve the chance of survival and the quality of life for stroke victims.

Stroke is a medical emergency. If you have signs of a stroke, take action fast! Every minute counts when someone is having a stroke.

The longer the blood flow is cut off to the brain, the greater the damage. Immediate treatment can save a life and enhance the chance for a successful recovery.



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