

What is a stroke?

A stroke involves a sudden interruption of blood supply to part of the brain, leading to permanent damage to the brain.

The most common type of stroke occurs when a blood clot blocks the blood flow in a blood vessel supplying oxygen and nutrients to the brain. This most often occurs in a part of the artery that is already affected by hardening of the arteries, or [atherosclerosis](#). Less commonly, a blood vessel in the brain can suddenly rupture, allowing blood to leak into brain tissue. About 80% of strokes are due to blocked blood vessels and are called “ischemic” strokes. The other 20% are due to bleeding in or around the brain and are called “hemorrhagic” strokes.

Strokes are sudden events, occurring over seconds or minutes, and can cause a wide range of symptoms, depending on which part of the brain is damaged. The severity of the damage that results depends on how long the brain cells are deprived of blood. If they are deprived for only a brief time, they may recover. However, if they are deprived of blood for longer (even if only for several minutes), brain cells die and the functions done by that part of the brain may be lost.

A temporary kind of stroke can also happen, in which the blood flow to part of the brain is interrupted briefly but returns to normal in a few hours with no permanent damage. This is called a transient (short-lived) ischemic attack, or TIA. A TIA or “mini-stroke” is usually considered a warning that the person is at risk for a permanent stroke, and urgent medical care is required.

How common are strokes?

In 2004, cardiovascular diseases were the leading cause of death for Canadians (32.1%). Stroke and other cerebrovascular diseases caused 20.1% of CVD deaths. Currently, approximately 300,000 people are living with the effects of a stroke in Canada.

Strokes occur much more commonly among older adults than younger ones, usually because the underlying problems that can lead to strokes become worse over time. Over two thirds of all strokes occur in people over 65 years of age.

Who is at risk of having a stroke?

Risk factors for stroke are very similar to those for other circulatory problems such as [angina](#) or [heart attack](#). Male sex, increasing age, smoking, [diabetes](#), [high blood pressure](#), and high levels of [cholesterol](#) are all important risk factors. High blood pressure is an especially powerful risk factor for hemorrhagic stroke, and better medical treatment of [high blood pressure](#) in the last couple of decades has led to a significant decline in the rate of death due to stroke in Canada. [Atherosclerosis](#) (narrowing or blockage of arteries by fatty deposits in the walls of arteries) is a more important risk factor for ischemic stroke. A family history of stroke, drinking too much alcohol, or using cocaine or amphetamines can also increase the risk of stroke.

How to avoid a stroke

Some strokes, unfortunately, are unavoidable, sudden, and catastrophic. However, the most common type of stroke (ischemic stroke) is related to [atherosclerosis](#), which is largely preventable. Healthy lifestyle choices such as stopping smoking, losing weight, and exercising regularly are important. If you have [high blood pressure](#), high [cholesterol](#) or [diabetes](#), it is crucial that you and your doctor work together to control them. Regular checkups will allow your doctor to identify risk factors for stroke so that they can be managed quickly.

People who have had an ischemic stroke can reduce their risk of having another one by taking antiplatelet drugs, which make platelets less likely to clump together into clots. Aspirin, clopidogrel or the combination of aspirin and dipyridamole are examples of antiplatelet drugs used to prevent a second stroke.

What are the signs and symptoms?

Stroke is a medical emergency. Recognizing and responding **immediately** to the warning signs of stroke by calling 9-1-1 or your local emergency number can significantly improve survival and recovery. If a person is diagnosed with a stroke caused by a blood clot, doctors can administer a clot-busting drug available only at a hospital, and only within a few crucial hours after symptoms begin.* That's why it is very important to be able to recognize the 5 warning signs of stroke and **immediately** call 9-1-1 or your local emergency number.

The five signs

Stroke can be treated. That's why it is so important to recognize and respond to the warning signs.



Weakness -

Sudden loss of strength or sudden numbness in the face, arm or leg, even if temporary.



Trouble speaking -

Sudden difficulty speaking or understanding or sudden confusion, even if temporary.



Vision problems -

Sudden trouble with vision, even if temporary.



Headache -

Sudden severe and unusual headache.



Dizziness -

Sudden loss of balance, especially with any of the above signs.

If you experience any of these symptoms, CALL 9-1-1 or your local emergency number immediately.

A TIA or transient ischemic attack is a “warning stroke” or “mini-stroke” that produces stroke-like symptoms but no lasting damage. Recognizing and treating TIAs can reduce your risk of a major stroke. The usual TIA symptoms are the same as those of stroke, only temporary. The short duration of these symptoms and lack of permanent brain injury is the main difference between TIA and stroke.

How is the disease diagnosed?

The diagnosis of a stroke is primarily based on symptoms, but tests are needed to confirm that a stroke has occurred, to identify it as ischemic or hemorrhagic, and to tell doctors whether immediate treatment is needed. These tests may include a CT scan (which stands for “computed tomography”), an MRI (which stands for “magnetic resonance imaging”) and blood tests. Other tests may also be done, depending on the patient and the type of stroke.

How are strokes treated?

Immediately after a stroke, doctors will first check the affected person's vital signs (temperature, breathing, heart rate and blood pressure) and take steps to correct any problems they find. For example, someone not breathing well may be put on a mechanical ventilator. Depending on the type of stroke, other treatments may include drugs (such as anti-clotting drugs and drugs to control high blood pressure) and surgery.

Long-term treatments are designed to prevent another stroke, to treat and prevent problems that strokes can cause, and to help the affected person regain as much function as possible.

Living with having had a stroke

Recovery after a stroke depends on many factors, including the person's age, their general health and the location and amount of damage to the brain. Some function is usually regained, partly because some damaged brain cells have not died and will recover, and partly because other parts of the brain can sometimes learn to fulfil the functions done by the damaged parts. The recovery time and need for long-term treatment differs from person to person. Problems related to moving, thinking, and talking often improve in the weeks to several months after a stroke. A number of people who have had a stroke will still continue to improve in the months or years after a stroke.

The purposes of rehabilitation are to help the affected person regain as much normal function as possible, to maintain and improve his or her physical condition, and to help him or her relearn old skills and learn new ones that may be needed. Intensive rehabilitation can help many people overcome significant disabilities after a stroke, but persistence and patience are vital.

Rehabilitation is usually begun in hospital as soon as possible—usually within 1 or 2 days of admission. After leaving the hospital, the affected person can continue rehabilitation therapy as an outpatient.

Depression after stroke is relatively common as you or your loved one learns to live with the changes due to the stroke. It may develop soon after a stroke, but symptoms may not be present for up to 2 years after the stroke. If symptoms of depression persist for longer than two weeks, talk to your physician about it.

Resources

Patient/caregiver empowerment

Family members and friends can make a real difference to a person's rehabilitation if they keep in mind the stroke's effects and try to understand and be supportive. Community or online support groups can provide emotional encouragement and practical advice for people who have had a stroke and for their caregivers.

Patient Associations

[Heart and Stroke Foundation of Canada](#)

[Stroke Recovery Canada](#)

[Stroke Survivors Association of Ottawa](#)

[Association for the Neurologically Disabled \(AND\) of Canada](#)

Congress

[Canadian Stroke Network](#)



Other sites

[Heart and Stroke Foundation of Canada](#)

[Public Health Agency of Canada](#)

Resources

Heart and Stroke Foundation of Canada. Stroke warning signs. Available from the Word Wide Web at www.heartandstroke.com, cited January 13, 2010.

American Stroke Association. Learn to recognize a stroke. . Available from the Word Wide Web at www.strokeassociation.org, cited January 13, 2010.