

Homework Help – Stroke

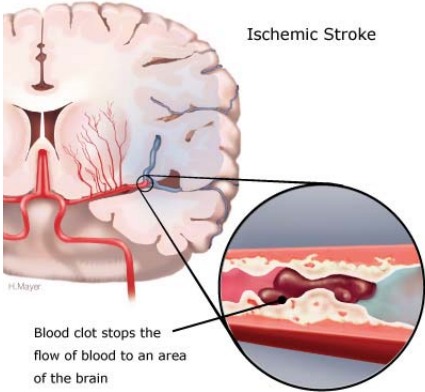
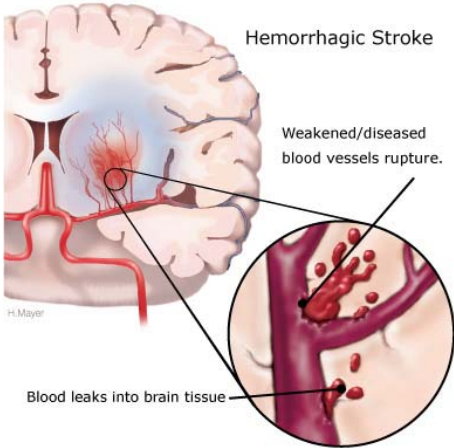
The Brain & Strokes

Your brain is the most complex organ in your body. It is the command centre for everything you do, think, sense and say! It has over 100 billion special nerve cells called neurons. Neurons depend on the blood vessels in your brain to bring oxygen and nutrients. Without oxygen, neurons will die or be damaged. Unfortunately, they can't duplicate or repair themselves. When a neuron dies, it is gone forever.

What is a stroke?

A stroke is a sudden loss of brain function. This means the brain can't send orders to the rest of the body.

A stroke happens when neurons don't get oxygen-rich blood from the heart. Without this oxygen, the brain cells die or are damaged. Strokes happen in two ways:

<p>1. The blood that is going to the brain gets stopped (when this happens, it is called an "ischemic stroke")</p>	<p>Ischemic Stroke</p>  <p>H. Mayer</p> <p>Blood clot stops the flow of blood to an area of the brain</p> <p>© Heart and Stroke Foundation of Canada</p>
<p>2. The blood vessels in the brain break open and blood escapes (when this happens, it is called a hemorrhagic stroke).</p>	<p>Hemorrhagic Stroke</p>  <p>H. Mayer</p> <p>Weakened/diseased blood vessels rupture.</p> <p>Blood leaks into brain tissue</p> <p>© Heart and Stroke Foundation of Canada</p>

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Because your brain controls everything you say, do and think a stroke can have a lot of different effects. The seriousness of a stroke depends on three things:

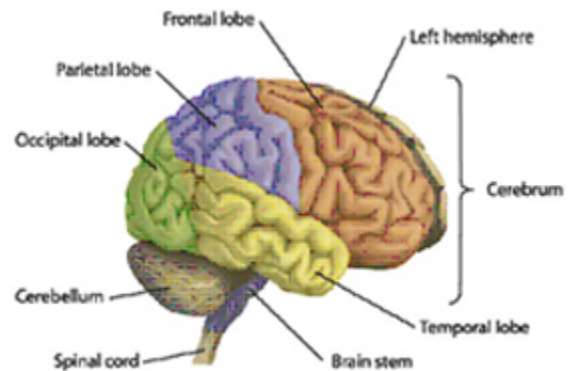
1. which part of the brain is damaged
2. how much damage is done
3. how healthy the person was before they had a stroke

What are the parts of the brain?

The brain has three main parts:

1. brain stem
2. cerebellum
3. cerebrum

These parts of the brain control different functions in the body. When a specific part of the brain is injured or die, it affects a specific body function, like the ability to remember things or see.



What happens when you have a stroke?

Learning what the different parts of the brain do can help you understand why the effects of a stroke can be so different among different people.

1. Brain Stem

The brain stem connects your brain to the top of your spine (backbone). It controls important body functions like breathing, swallowing, digestion, eye movement and your heartbeat.

Brain stem strokes are rare. When it happens, it can be deadly!

If you have a stroke in the brain stem, you might have problems with:

- Breathing and heart function
- Body temperature control
- Balance and coordination
- Weakness or paralysis of your arms and legs on both sides of the body
- Chewing, swallowing and speaking
- Vision

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2. Cerebellum

The cerebellum is at the bottom of the brain at the back of your head. It is attached to the brain stem and looks like a miniature brain. It helps control some automatic responses and behaviours, simple movements such as picking up a small object, and things like balancing.

Strokes aren't very common in the cerebellum, but the effects can be severe.

If you have a stroke in the cerebellum, you might have:

- Inability to walk and problems with coordination and balance
- Clumsiness, shaking
- Dizziness
- Headache
- Nausea and vomiting

3. Cerebrum

The cerebrum is the main part of your brain. It is where thinking and intelligence takes place. It also controls your muscles. The cerebrum is made up of **hemispheres** and **lobes**.

Hemispheres (sides of the brain):

The cerebrum has two parts: a left side (hemisphere) and a right side (hemisphere). Our body's nervous system is set up in a cross-over design. The left side of the brain controls the right side of your body. The right side of the brain controls the left side of your body. [graphic]

The **left hemisphere of the brain** lets us understand math, numbers, science and logic. It also lets us understand language – speaking, reading and writing.

If you have a stroke on the left hemisphere of your brain, you might have:

- Weakness or paralysis on the right side of your body.
- Trouble reading, talking, thinking or doing math.
- Your behaviour may become more slow and cautious than usual.
- You may have trouble learning or remembering new information.
- You may need frequent instructions and feedback to finish tasks.

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The **right hemisphere of the brain** is more artistic. It lets us appreciate art and music and gives us insight. It also controls the ability to understand spatial relations (like how far away an object is), recognize faces and focus your attention on something.

If you have a stroke on the right hemisphere of your brain, you might have:

- Weakness or paralysis on the left side of your body.
- Vision problems.
- Problems distinguishing distance, depth, between up and down, or between front and back. This can make it hard to pick up objects, button a shirt, or tie your shoes.
- Problems understanding maps.
- Problems with short-term memory. You may be able to remember something that happened several years ago, but not something you did a few minutes ago.
- Forgetting or ignoring objects or people on your left side (this is called “neglect”). You may even ignore your own left arm or leg.
- Judgment difficulties. This means you might act impulsively.

Lobes (areas of the brain):

The left and right hemispheres of the cerebrum are covered by a gray, wrinkly layer called the cerebral cortex. There are three very deep wrinkles in the cerebral cortex that divide the brain into **four special lobes** (areas). Each of the lobes has a specific job.

1. The **frontal lobe** (the front area of the brain) is responsible for movement.

If you have a stroke in the frontal lobe, it makes it difficult for them to move. Remember that the nervous system is set up in a cross-over design. This means that if a person has a stroke in the right side of the frontal lobe, the left side of their body won't be able to move like normal.

2. The **parietal lobe** (just behind the frontal lobe) is responsible sensing things that are happening and understanding them.

If you have a stroke in the parietal lobe, you can feel, see and hear things, but may not be able to understand what you are feeling, seeing and hearing.

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3. The **temporal lobe** controls hearing and memory. This is where memories are stored.

If you have a stroke in the temporal lobe, memories can be lost. Fortunately, memory loss usually isn't permanent. People often get their memories back.

4. The **occipital lobe** (at the back of the head) is responsible for your ability to see.

If you have a stroke in the occipital lobe, you might lose your vision, even if the eyes are perfect. The problem lies with the brain's ability to get information from the eyes.

Important!

People who have strokes can work with specialists and loved ones to help them recover and live as normally as possible.