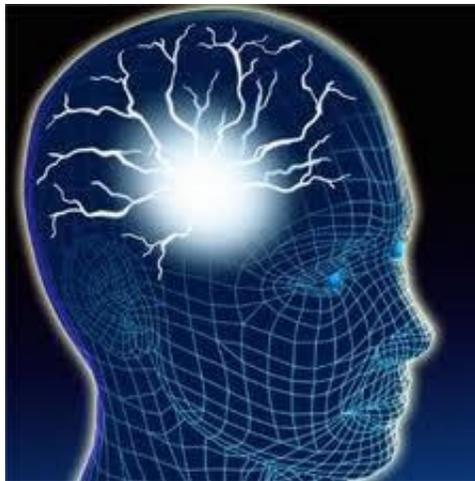


Stroke Information For Patient and Family



ACT FAST at the **First Sign of STROKE**



www.strokemn.org

Minnesota Stroke Association
Chapter of the National Stroke Association 

TABLE OF CONTENTS

WHAT IS A STROKE?.....	4
Definition of a stroke	4
What are the symptoms?	4
MEDICATIONS TO TREAT AND PREVENT STROKE.....	5
Anticoagulant and Antiplatelet Medicines.....	5
Statin Medicines.....	5
REDUCING THE RISK.....	6
What increases the risk for stroke?	6
How can I lower my risk for a stroke?.....	6
MEDITERRANEAN-STYLE EATING PLAN.....	8
TYPES OF STROKES.....	9
Ischemic & Hemorrhagic Strokes	9
TIA (Transient Ischemic Attack)	10
DIAGNOSING STROKE	11
How is it diagnosed?.....	11
How is it treated?	11
BRAIN ANATOMY & FUNCTION	12
Skull (Cranium)	12
Spinal Fluid (Cerebrospinal Fluid)	12
Cerebral Blood Supply	12
Brain	12
Cerebrum.....	13
Cerebellum	13
Brain Stem.....	13
BRAIN DIAGRAM.....	14
WHERE IS MY STROKE LOCATED.....	15
LOBES AND HEMISPHERES OF THE BRAIN	15
RIGHT VERSUS LEFT-SIDED STROKE	17
Characteristics of left hemisphere stroke.....	17

Characteristics of right-hemispheric stroke..... 18

Left-sided neglect carries over to other areas 19

GENERAL PROBLEMS ASSOCIATED WITH STROKES 20

 Quality Control/Social Judgment 20

 Memory..... 20

 Incontinence 20

 Loss of Emotional Control 20

 Sensory Deprivation..... 21

 Depression and post stroke fatigue 21

REHABILITATION AFTER STROKE 23

 What will I do in rehabilitation? 23

 When does rehabilitation begin? 23

 Who will be part of my rehabilitation? 23

 How will I choose the right setting?..... 24

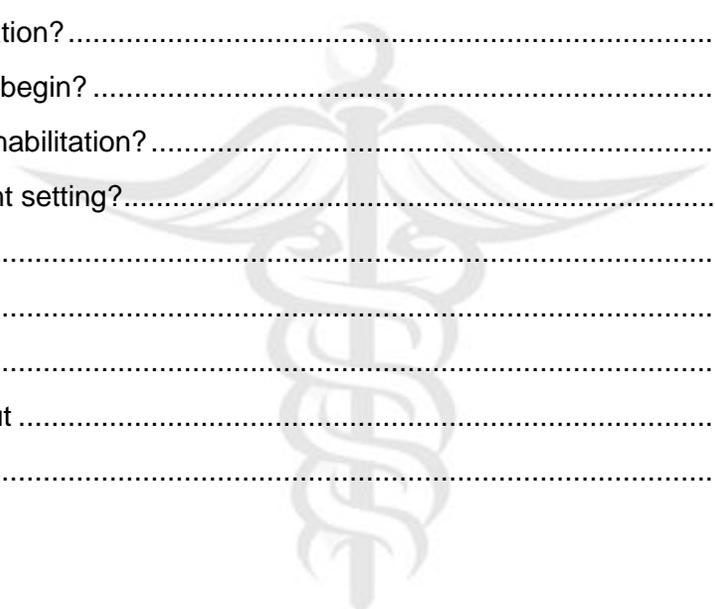
CAREGIVERS..... 25

 Tips for caregivers 25

 Rights of a caregiver 25

 Signs of caregiver burnout 26

REFERENCES 27



WHAT IS A STROKE?

Definition of a stroke

A stroke happens when blood flow to part of the brain is suddenly slowed or stopped. The part of the brain that loses its blood supply stops working. You may have trouble using the part of the body that is controlled by the part of the brain that is damaged.

A small stroke may cause little damage. Sometimes you may have problems right after a stroke but they may then go away completely within less than a day. These types of small strokes are called transient ischemic attacks, or TIAs. Bigger strokes can cause life-long damage. Sometimes they cause death.

How much you recover from a stroke depends on how much of the brain was damaged. Some people recover fully from a stroke. Others keep having problems, like weakness in an arm or leg on one side, inability to speak, or paralysis. Full recovery from a stroke is more likely if you get medical care right away.

A stroke is also called a cerebral vascular accident, or CVA.

What are the symptoms?

It helps to think of the word FAST (face, arm, speech, and time) to remember stroke symptoms and what to do. Stroke symptoms come on FAST and may include:

- **Face/Head**
 - Weakness, numbness, drooping, or tingling of face (may just be on one side)
 - Trouble seeing (one or both eyes)
 - Severe headache
 - Trouble thinking
 - Trouble swallowing
 - Feeling dizzy along with one or more of the symptoms listed above
- **Arm/Leg**
 - Weakness, numbness, or tingling in your arm or leg (may be on just one side of your body)
 - Trouble walking or moving your arm or leg
- **Speech**
 - Trouble talking or understanding speech
- **Time**

Call 911 for emergency help right away if you have symptoms of a stroke.

MEDICATIONS TO TREAT AND PREVENT STROKE

The choice of medication for stroke depends on your individual condition. These are some commonly prescribed medications that are used to help treat and prevent ischemic stroke. Hemorrhagic strokes are not treated with the medications listed below, but rather with medications to control blood pressure and other risk factors.

Anticoagulant and Antiplatelet Medicines

Anticoagulants and antiplatelets are medicines that help treat or prevent blood clots and can help prevent serious medical problems, like heart attack or stroke.

Normally, blood clotting keeps the body from losing too much blood from wounds. However, blood clots in your blood vessels can cause problems if they block the flow of blood, oxygen, and nutrition to a part of your body. Some clots may form in the heart or the brain. Others may form somewhere else, like the leg, and then travel to another part of the body, like a lung.

You may be at higher risk for blood clots if you:

- Have had a heart attack or stroke
- Have an artificial heart valve
- Have a certain kind of irregular heartbeat
- Have a blood problem that makes your blood clot too easily
- Are on bed rest for a long time, like after an injury
- Have had certain types of surgery

These medicines may be given into a vein (IV), as a shot just under the skin, or as a tablet you take by mouth. The right amount and type of anticoagulant or antiplatelet can prevent many problems.

Statin Medicines

Statins are a group of medicines used to lower cholesterol. Lowering your cholesterol can lower your risk of heart disease, heart attack, and stroke. Diet and exercise can also lower cholesterol but sometimes not enough. Statins may be used alone or with other medicines, usually when changes in your diet and exercise have not lowered your cholesterol level.

REDUCING THE RISK

What increases the risk for stroke?

You are more likely to have a stroke if you have a medical condition that puts a strain on your heart and blood vessels, such as:

- High blood pressure
- Diabetes
- High cholesterol
- Blood vessel disease
- Heart rhythm or heart valve problems
- Sickle cell anemia
- Sleep apnea

Some unhealthy lifestyle habits can increase your risk for a stroke. You are more likely to have a stroke if you:

- Smoke.
- Eat an unhealthy diet.
- Are overweight.
- Don't get enough exercise.
- Use illegal drugs or too much alcohol.

How can I lower my risk for a stroke?

Some of the risks for a stroke cannot be prevented, such as age, race, and family history. Other risks, such as smoking, high blood pressure, high cholesterol, diabetes, and heart disease can be controlled with the help of your healthcare provider.

- Take all prescribed medicines carefully, following your provider's instructions. Check with your healthcare provider before taking nonprescription medicines, supplements, or natural remedies.
- If you have heart disease, follow your treatment plan.
- If you have diabetes, keep good control of your blood sugar.
- Keep your blood pressure and cholesterol levels under control. Talk to your healthcare provider about how to do this.

Lifestyle changes can also help prevent a stroke:

- Eat a healthy diet that is low in sodium (salt) and saturated and trans-fat and includes at least 5 servings of fruits and vegetables every day.
- Try to keep a healthy weight. If you are overweight, lose weight.
- Stay fit with the right kind of exercise for you.

- Learn ways to manage stress. Ask for help at home and work when the load is too great to handle. Find ways to relax, for example take up a hobby, listen to music, watch movies, or take walks. Try deep breathing exercises when you feel stressed.
- If you smoke, try to quit. Talk with your provider ways to quit smoking.
- If you want to drink alcohol, ask your healthcare provider how much is safe for you to drink.
- If you abuse drugs, get help to stop.
- Ask your healthcare provider if you should take a daily aspirin. Because it's not right for everyone, taking a daily aspirin is something you should do only after talking with your provider. Aspirin can make some types of stroke worse.
- For more more information on lifestyle changes, see booklet titled "Preventing strokes through lifestyle changes" located in your stroke folder.



MEDITERRANEAN-STYLE EATING PLAN

Following a diet plan that is rich in fruits, vegetables, whole grains, and lean meats such as the Mediterranean Diet can help to reduce cholesterol levels, decrease elevated blood pressures, and help you to lose excess weight. These three things are among the modifiable risk factors for stroke.

Nine steps for good health to make your meals more Mediterranean-like:

1. **Increase your intake of fruits and vegetables.** Include a variety of fruits and vegetables with your meals. Enjoy fruit for a snack or dessert.
2. **Change the way you think about meat.** If you eat meat, have smaller amounts and favor poultry. Eat red meat only occasionally. Have smaller portions, similar to the size of a deck of cards, when eating chicken or lean meat as a main course.
3. **Consume low fat dairy products.** Eat Greek or plain yogurt, low fat milk, and try smaller amounts of a variety of cheeses.
4. **Eat fish and seafood at least twice a week.** Fish such as tuna, trout, salmon, herring, and sardines are rich in heart-healthy omega-3 fatty acids, good for brain and heart health. Avoid breaded and deep fried fish.
5. **Fix a vegetarian meal one night a week.** Build these meals around beans, legumes, whole grains, and vegetables. When one night feels comfortable, try two nights per week.
6. **Use good fats.** Replace butter with healthier oils. Include sources of healthy fats in daily meals like olive or canola oil, nuts, peanuts, sunflower seeds, nut butters and avocados.
7. **Choose whole grains.** Include whole grain breads, pasta, brown rice, and other grains like bulgur. Whole grains are rich in many important nutrients and the extra fiber they contain will help you feel more satisfied than refined grains.
8. **Limit sweets and desserts.** Have fruit with meals and snacks in place of sweets. Save sweets for a special treat or celebration.
9. **Use herbs and spices instead of salt to flavor foods.** Use different herbs, spice blends, and vinegars in food preparation and cooking for added flavor.

Recent studies have shown that the Mediterranean way of life (daily exercise, not smoking, limited alcohol, and maintaining a healthy weight) have just as much to do with good health as what we eat. Try to incorporate these things into your lifestyle as well.

TYPES OF STROKES

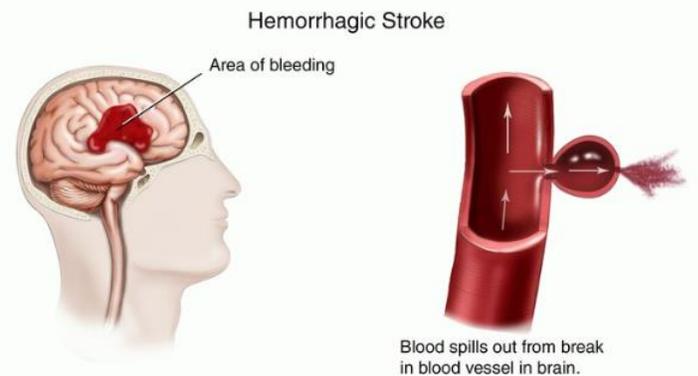
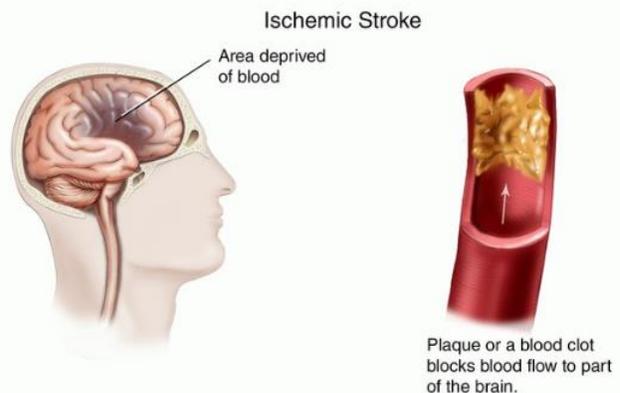
Ischemic & Hemorrhagic strokes

A stroke can be caused by anything that stops or slows down blood flow to part of the brain. Blood can be kept from reaching brain tissue when a blood vessel gets blocked (an ischemic stroke) or bursts (a hemorrhagic stroke).

- An **ischemic stroke** is the most common kind of stroke. A blood vessel in the brain can be blocked in different ways.
 - Fatty deposits called plaque may build up in blood vessels that bring blood to the brain. The plaque makes the blood vessels narrower. The narrowing decreases the amount of blood flow to the brain. Small pieces of plaque may break off from the wall of a blood vessel and completely block a smaller blood vessel.
 - Blood clots or fat from other parts of the body may travel to the brain or neck and block a blood vessel in the brain.

- A **hemorrhagic stroke** happens when an artery in the brain tears open and causes bleeding into the brain. A hemorrhage often happens without warning. High blood pressure can cause hemorrhagic strokes. Sometimes a blood vessel defect present since birth can cause this type of stroke. There are two kinds of hemorrhagic strokes: intracerebral and subarachnoid.
 - Intracerebral: Means “within the brain.” In this kind of hemorrhage, an artery bursts and floods the surrounding brain tissue with blood. The problems resulting from an intracerebral hemorrhage occur not only because of the lack of blood to the brain tissue, but because of the pressure on the brain tissue from the blood in the area.
 - Subarachnoid: Occurs when a blood vessel on the surface of the brain bursts and blood flows into the fluid that surrounds the brain. The most common cause of subarachnoid hemorrhage is from an aneurysm. As with intracerebral hemorrhages, a major problem that can occur from this type of stroke is pressure on the brain. The extent of damage from a subarachnoid hemorrhage depends on the amount of pressure in the brain. For more information on subarachnoid hemorrhages, ask your nurse for the supplemental education sheet.

Types of Stroke



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TIA (Transient Ischemic Attack)

TIA can be characterized as a “warning stroke.” The signs of TIA are identical to stroke. TIA is caused by a clot, the only difference between a stroke and a TIA is that with TIA the blockage is temporary. TIA symptoms occur suddenly and last a short time, usually 8-10 minutes. A TIA will resolve within 24 hours. Unlike a stroke, when TIA is over, there’s no permanent damage to the brain. About a third of people who experience TIA go on to have a stroke within a year so it is very important to follow up with your providers.

Risk factors for TIA are similar to risk factors for stroke and include obesity, high cholesterol, advanced age, high blood pressure, and atherosclerosis. As with stroke, call 9-1-1 immediately if signs of TIA are present.



DIAGNOSING STROKE

How is it diagnosed?

Your healthcare provider will ask about your symptoms and your medical history and examine you. Sometimes other problems such as brain tumors or infections can cause these types of symptoms so you need to have tests such as:

- CT scan, which uses X-rays and a computer to show detailed pictures of the brain and blood vessels
- MRI, which uses a strong magnetic field and radio waves to show detailed pictures of the brain and blood vessels
- Ultrasound, which uses sound waves to show pictures of the blood vessels in the neck and brain
- Cerebral angiogram, which uses dye injected into a vein and X-rays to look at how blood flows through the brain
- ECG (also called an EKG), which measures and records your heartbeat
- Echocardiogram, which uses sound waves (ultrasound) to show pictures of the inside of the heart

Your healthcare provider will not know for sure what type of stroke you had until you have a CT or MRI scan. If either test shows bleeding in the brain, the stroke is more likely to be hemorrhagic. If tests show damage without much bleeding, then the stroke is likely to be ischemic. Since treatment is different for these 2 types of stroke, it's important to have these tests as soon as possible so you can get the right treatment.

How is it treated?

A stroke is a medical emergency. If you think that you or someone near you is having a stroke, call 911 right away. Don't do anything else before you call 911.

Don't take aspirin if you think you are having a stroke unless a healthcare provider tells you to do so. Aspirin can make a hemorrhagic stroke worse.

Strokes need to be treated in a hospital. The treatment depends on what kind of stroke you are having.

- A stroke caused by blood clots may be treated with clot-dissolving medicine that goes into your IV or a procedure known as a thrombectomy that removes the clot from the artery.
- When a stroke is caused by bleeding in the brain, your healthcare provider will try to stop the bleeding and fix the torn blood vessel causing the problem.
 - You may need surgery to repair a blood vessel, correct blood flow problems, or remove a blood clot.

BRAIN ANATOMY & FUNCTION

The brain is the control center for the body. It controls everything you do such as breathing, moving, and seeing. The brain also controls thinking, emotions, and behavior. As a result, a stroke can sometimes change a person's personality. Thus, a stroke can affect almost any function of the body.

You may better understand strokes by learning more about the brain and how it works.

Skull (Cranium)

The skull serves as bony protection for the delicate brain underneath. It shields the brain from everyday bumps and bruises. Under the skull and surrounding the brain are thin layers of tissue called membranes. These membranes separate sections of the brain and help to protect the brain. The outermost covering is the dura mater. The middle is the arachnoid mater. The layer closest to the surface of the brain is the pia mater.

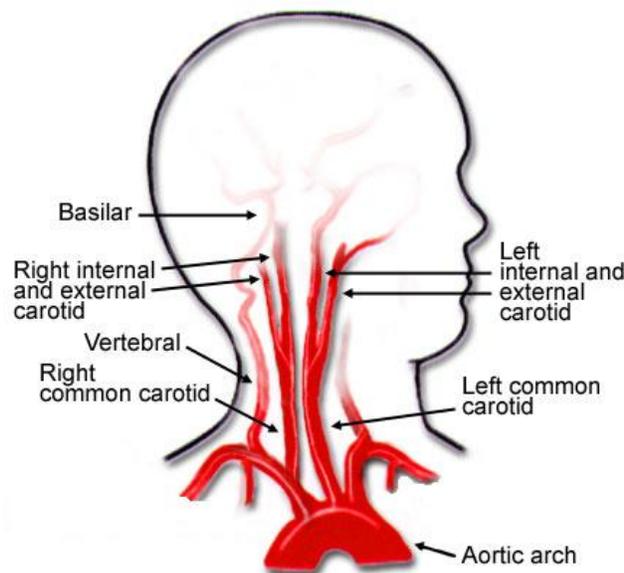
Spinal Fluid (Cerebrospinal Fluid)

A clear fluid called cerebrospinal fluid (CSF) surrounds the brain and spinal cord. It protects the brain and moves nutrients between blood vessels and the brain. Four cavities called ventricles produce the cerebrospinal fluid.

Because the skull is a rigid structure, the space within it remains fixed. Nearly 20 percent of this space contains membranes, blood and cerebrospinal fluid. The remaining 80 percent consists of brain matter.

Cerebral Blood Supply

Knowing about the blood supply to the brain is particularly important in understanding stroke. The brain uses the largest percentage of blood of any human organ. The brain is supplied with blood from the vertebral and carotid arteries. The vertebral arteries, which are located on the back of the neck, supply the brainstem, cerebellum, and back portions of the cerebrum. The carotid arteries, which can be felt along the front and sides of the neck, supply the rest of the brain. When these arteries become blocked or damaged a stroke occurs in the area that the artery supplies.



Brain

The brain is the control center for the entire body. It directs all functions, such as breathing, digestion, temperature and motion. Signals from our senses, such as sight and touch, are sent to our brain and processed there. The brain also is responsible for higher human abilities, including thought, comprehension, memory, speech, emotion and personality. The brain consists of three main sections: the cerebrum, the cerebellum and the brain stem.

CEREBRUM

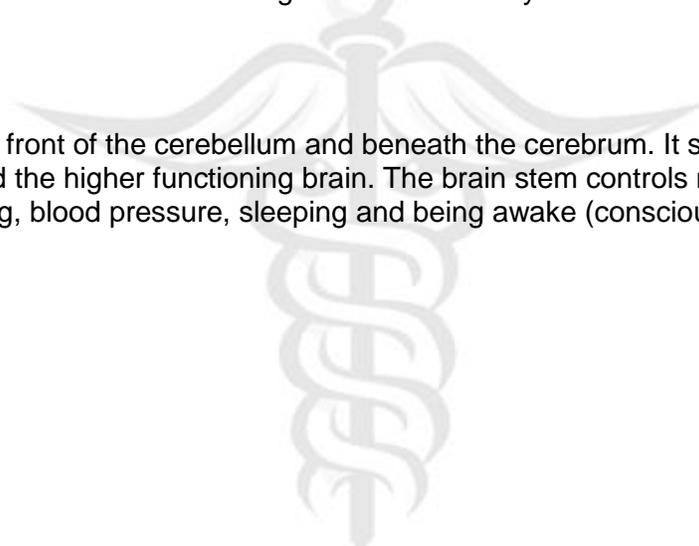
The cerebrum (cortex) is the largest part of the brain. It is divided into two sides called the right and left hemispheres. The left hemisphere controls movements for the right side of the body. The right hemisphere handles the left half of the body. The brain shares information between the two sides. Each hemisphere of the cerebrum is divided into four distinct lobes: frontal, parietal, temporal and occipital. Specific areas in the cerebrum regulate different functions. It is hard to find the exact location of all brain functions. The picture that follows shows some general functions of the lobes of the brain.

CEREBELLUM

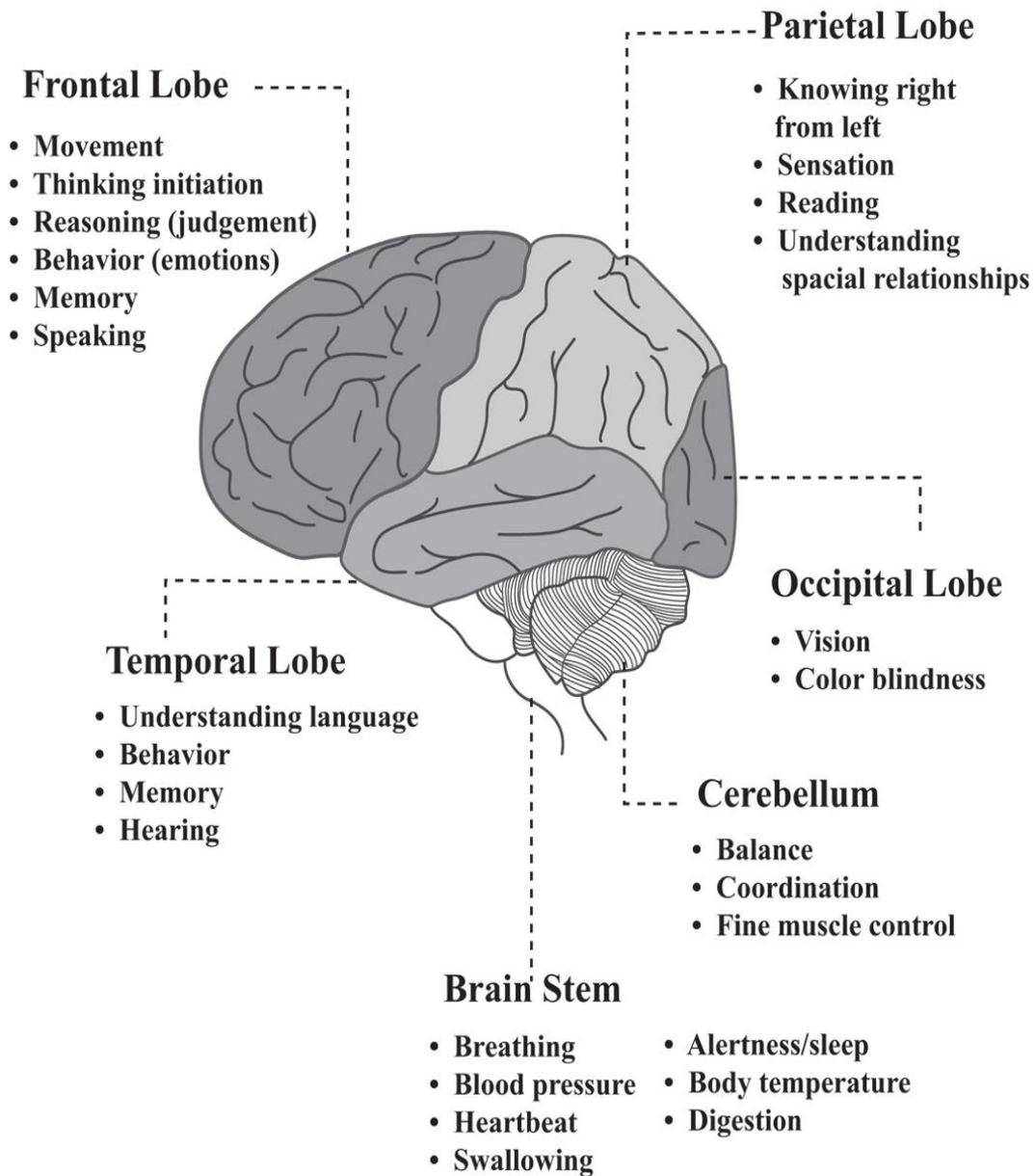
The cerebellum is located behind and below the cerebrum. It is a much smaller area of the brain. It receives signals from the cerebrum. The cerebellum manages intentional body movement. It also plays an important role in balance and posture.

BRAIN STEM

The brain stem is located in front of the cerebellum and beneath the cerebrum. It serves as a relay station between the spinal cord and the higher functioning brain. The brain stem controls many unintentional body functions, such as: breathing, blood pressure, sleeping and being awake (consciousness).

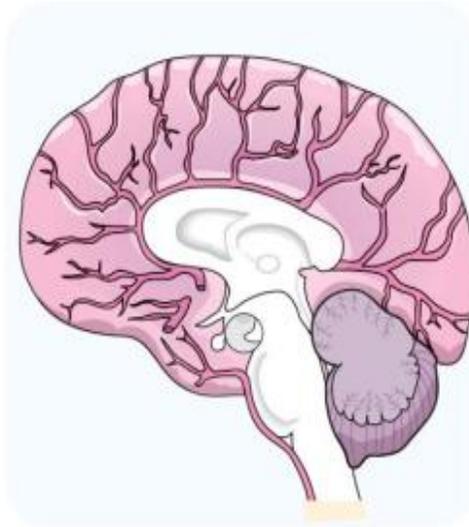


BRAIN DIAGRAM

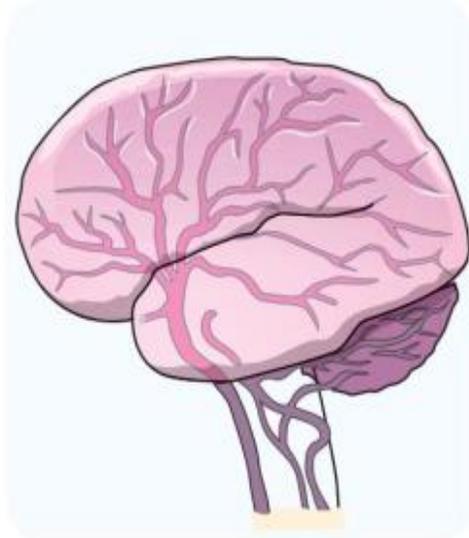
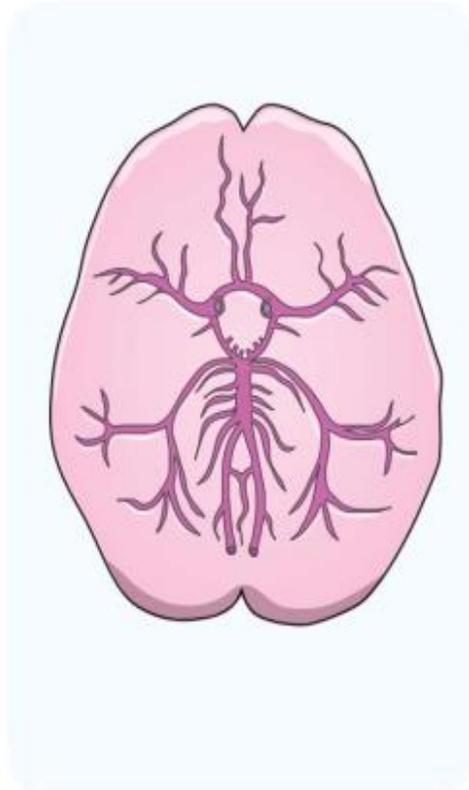


WHERE IS MY STROKE LOCATED?

Brain seen from side

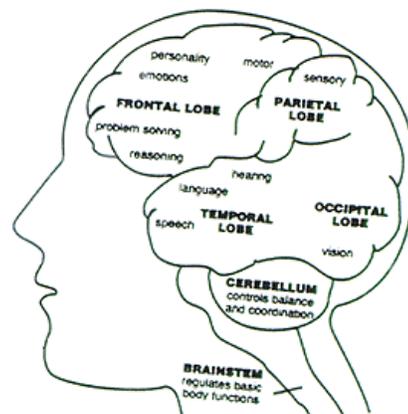


Brain seen from below



LOBES AND HEMISPHERES OF THE BRAIN

LOBE	LEFT HEMISPHERE	RIGHT HEMISPHERE
Temporal lobe	<ul style="list-style-type: none"> Understanding speech Understanding of speech and language Reading and writing Verbal memory Recognizing letters 	<ul style="list-style-type: none"> Understanding nonverbal patterns Interpreting musical abilities Visual decoding Interpreting visual information Remembering visual information Understanding 3-D images and shapes
Parietal lobe	<ul style="list-style-type: none"> Smooth speech Reading and writing skills Locating body in space Understanding math and numbers Naming of objects Verbal memory 	<ul style="list-style-type: none"> Awareness of left side of body Awareness of left side of environment Recognizing faces Spatial tasks Drawing skills
Occipital lobe	<ul style="list-style-type: none"> Object recognition Visual recognition Eye motor movements Reading numbers and letters Memory for written information 	<ul style="list-style-type: none"> Understanding distances between objects Appreciation of complex patterns Attending to left visual field
Frontal lobe	<ul style="list-style-type: none"> Speech control Expressive speech Memory for verbal information Right-sided body movements Understand different points of view Impulse and emotion control Planning and performing voluntary behavior 	<ul style="list-style-type: none"> Planning and performing voluntary behavior Understand different points of view Maintaining attention Impulse and emotional control Left-sided body movements Initiation of activities How to tell how far an object is away Memory for verbal information



RIGHT VERSUS LEFT-SIDED STROKE

The most visible sign of stroke is paralysis on one side of the body. The term for paralysis on one side of the body is called hemiplegia. The location of the stroke determines which side of the body is affected. If the injury is in the right hemisphere of the brain, the left side of the body will be affected. If the injury is in the left hemisphere of the brain, the right side of the body will be affected.

In addition to the hemiplegia, certain other deficits may be present depending on the side of the brain affected by the stroke.

- **Right-Hemisphere Stroke:** The person with a stroke involving the right hemisphere may have difficulty with spatial perceptual tasks. This term refers to the person's ability to judge distance, size, position, and the relation to his or her own abilities and safety. These people often have impulsive behavior.
- **Left-Hemisphere Stroke:** The person with a stroke involving the left hemisphere often has aphasia which is problems with speech and language. The person may have trouble speaking, which is called expressive aphasia, or trouble understanding what is spoken, which is called receptive aphasia. Some people have trouble with both speech and understanding. This is called global aphasia. Behaviorally, the person with a stroke involving the left hemisphere is slow and cautious.

Characteristics of left hemisphere stroke

Left hemispheric stroke can lead to right-sided paralysis. People with right-sided paralysis are likely to have difficulty with speech and language (aphasia). Many people with aphasia quickly develop their own means of communication without the use of speech.

Other common characteristics of people with a left hemisphere stroke are:

- impairment of swallowing (dysphagia) or the gag reflex
- a tendency to hold food in one cheek
- the ability to speak or understand but not read or write
- a loss of the right visual field (homonymous hemianopsia)
- sitting and standing balance problems
- good motor-planning skills and problem-solving abilities
- good awareness of their surroundings and remembering objects when not impaired by a vision field cut
- a tendency to be slow, cautious, and disorganized when approaching unfamiliar problems
- good judgment about level of skill
- memory difficulties that often are related to or associated with language
- short retention span and limited attention span
- marked difficulty with new as opposed to old learning
- preference for more habitual ways of doing things

- inability to generalize information in order to solve a problem

Characteristics of right-hemispheric stroke

The most visible sign of damage from right-hemispheric stroke is paralysis or weakness of the left side of the body. Other common characteristics of people with right-hemispheric stroke are as follows:

- Seldom have speech problems but may have facial droop and may keep food in their cheek because of the inability to feel the left side of the face.
- May have a profound loss of spatial-perceptual ability-the ability to judge distance, size, position, rate of movement, form and relation of parts to wholes.
- May not be able to steer a wheelchair through a large doorway without bumping the frame.
- May confuse the inside and the outside of their clothes, or right from left, or misperceive how far away an object is.
- May not be able to read a newspaper or add a column of figures because they lose their place on the paper.
- Can have severe balance problems with both sitting and standing because of a loss of vertical perception; they may feel that they are sitting or standing straight when actually they are leaning 45 degrees to the left. When this is a factor and they are assisted to standing, they tend to panic because they feel they are being pushed over.
- May have a loss of the left visual field, which is called a field cut.
- May have poor motor-planning skills and problem-solving abilities
- Tend to have poor judgment about their level of skill and a tendency to overestimate their abilities
- May be impulsive and move quickly
- May have difficulty understanding the visual cues they receive from the environment
- May have problems with short retention span, new learning and generalization of problems
- May not recognize their own arm or leg as parts of their own body; they may look at their own arm or leg in bed and become angry because someone is in bed with them. This is called left-sided neglect.
- Tend to ignore anyone who is speaking to them from their impaired side.
- If beds are turned so a person with left-sided paralysis can see out the window, the rest of the room ceases to exist for them. At night, with no view, these people feel totally isolated. The unimpaired side of the individual should be placed so that he or she can respond to the activities going on in the room. It is useful to place the impaired side facing the activity so as to get better concentration. People should not be left isolated.

Left-sided neglect carries over to other areas

- People with left-sided paralysis may be able to eat only what is on one side of the plate; if the plate is turned around, they will eat what is on the other half.
- Can become easily lost or confused while driving.
- When the neglect is persistent and disabling, a person will perform better when the environment is modified to compensate for his or her deficits. Furniture and personal items may have to be moved so that they are on the unaffected side. The person should receive food from the unimpaired side. Guests should be invited to sit on the unimpaired side.



GENERAL PROBLEMS ASSOCIATED WITH STROKES

Many problems associated with strokes depend on whether the stroke resulted in injury to the right brain or the left brain. The problems listed below, however, can occur following strokes affecting either side of the brain.

Quality Control/Social Judgment

One problem for people who have had a stroke is the lack of quality control, or the ability to guide and check their own behavior. This sometimes is called social judgment, or the ability to respond appropriately.

Typically, the quality control problem is identified by family or close friends. They see changes in behavior that would go unnoticed by others unfamiliar with the person. A once tidy person may become sloppy and may say inappropriate things that embarrass family and friends. The shy person may become noisy, aggressive. The cautious, prudent person may become a big spender. The aggressive or outgoing, talkative person may become brooding, reclusive and uncommunicative.

Memory

Some memory problems can be expected in most people who have had a stroke. When working with memory problems, caregivers can help by:

- Establishing a fixed routine with familiar objects and old relationships
- Presenting new information one step at a time and keeping messages short
- Using memory aids such as appointment books, written notes, and schedule cards

Incontinence

Bowel and bladder control is a function that originates mostly in the brainstem. Sometimes a stroke affecting only one hemisphere leaves people with control of bowel and bladder. However, memory deficits may interfere with continence. People who have had a stroke may know when they need to urinate or defecate, but forget and then are incontinent. They may have a problem with being able to tell someone that they need help to the bathroom. When the stroke affects the brainstem or is a bilateral or multiple stroke, there may be actual impairment of both bowel and bladder control.

Loss of Emotional Control

People who have had a stroke may show some loss of emotional control. They may go from laughing to crying for no reason, most often it is crying. Sometimes people who have had a stroke cry because they are depressed. Excessive or unpredictable crying is a result of the brain damage suffered and is not connected with perceived losses.

This loss of emotional control because of brain damage is termed emotional lability. It is characterized by little or not obvious relationship between the start of emotional expression and what is happening around the person. People who stop crying when a caregiver calls their name or otherwise distracts them probably have emotional lability rather than depression. Crying caused by depression is not easy to interrupt.

Similarly, people who are laughing are not necessarily happy, nor are angry persons particularly hostile. Even patients who have behaved as if they were extremely angry are surprised that they are seen as hostile to others. In people who have had a stroke, feelings and the expressions of emotion are not always related as cause and effect. It is usually a good idea to break up the labile behavior when possible since the person has little control, and the interruption may save him or her from fatiguing or embarrassing activity.

Sensory Deprivation

Sensory deprivation occurs when signals from the outside world are cut off. Sensory deprivation can lead to hallucinations, delusions, confusion, irritability, and psychoses. These same sensory deficits are seen in people who have had a stroke. They may well have decreased vision; decreased sensation of touch, pressure, and position; and pain in the affected side of the body. They may have lost the ability to interpret some of the information received and may be confined to bed out of the mainstream of activity. They may also have weakness and experience extreme fatigue.

The night is often the most difficult time for those people with deprivation effects. During the day, there is a certain amount of hustle and bustle. People are around doing things, making noises, touching, feeding, and moving. At night, the sensory environment may become a blank screen. They may hear nothing, see nothing, and be isolated in bed. Some people respond to this by becoming restless, confused, and irritable. They may be more comfortable when their sensory environment is enriched with a night light, a radio playing softly, and so forth.

Obviously some people who have had a stroke are overwhelmed by too much stimulation, too many friends, or too much group activity. Each person needs to be observed and evaluated individually. It is important to recognize that environment and sensory deprivation play a significant role in behavior.

Depression

It is normal for a stroke survivor to feel sad over the problems caused by stroke. However, some people experience a major depressive, which should be diagnosed and treated as soon as possible. A person with a major depressive disorder has a number of symptoms nearly every day, all day, for at least two weeks. These always include at least one of the following:

- Feeling sad, blue, or down in the dumps
- Loss of interest in things that the person used to enjoy

A person may also have other physical or psychological symptoms, including:

- Feeling slowed down or restless and unable to sit still
- Feeling worthless, guilty or hopeless
- Increase or decrease in appetite or weight, or digestive problems
- Problems concentrating, thinking, remembering, or making decisions
- Loss of energy, feeling tired all the time, or having trouble sleeping
- Headaches, or other aches and pains
- Being anxious or worried
- Thoughts of death or suicide

If a stroke survivor has the symptoms of depression, especially thoughts of death or suicide, professional help is needed right away. Once depression is properly treated, these thoughts will go away. Depression can be treated with medication, therapy, or both. If it is not treated, it can cause needless suffering and also makes recovering from a stroke more difficult.

Post-Stroke Fatigue

Everyone feels tired sometimes but usually it can be explained by a busy day or lack of sleep. Post-stroke fatigue for stroke survivors is different and is one of the most common effects of stroke. Post-stroke fatigue is not necessarily related to activity level or quality of sleep and does not always improve with rest.

Post-stroke fatigue, the invisible symptom, affects between 40 and 70 percent of stroke survivors. It can make you feel unwell and like you are not in control of your recovery. The lack of energy and the need for frequent rest breaks can make it difficult for you to participate in rehabilitation and other everyday activities.

Post-stroke fatigue is often confused with “being tired.” It is not necessarily the same as tiredness, because it arrives without warning and rest does not always make it better. It occurs differently in every individual. It may feel like you are hitting the wall, physically, emotionally, and/or mentally.

Many factors can influence your level of fatigue following a stroke, including:

- **Depression.** You may feel tired because of depression which is very common after a stroke
- **Sleep.** Irregular sleep cycles and disrupted sleep is also common after stroke
- **Medications.** Some medications may make you more tired than usual
- **Post-stroke affects.** Physical post-stroke symptoms such as upper limb weakness, paralysis make movement and activities of daily living require more energy
- **Pain.** If you are experiencing pain following your stroke it requires energy to cope

There is no specific treatment or medication to treat post-stroke fatigue. Talk to your healthcare professional to get an accurate diagnosis for the cause of your fatigue. If fatigue is a side effect of medications you are taking perhaps doses, time of day, or an alternative medication might help. If depression seems to be the root cause of your fatigue it can be treated in a number of ways. An accurate picture of the cause of the post-stroke fatigue is necessary for proper treatment.

TIPS TO LIVE WITH POST-STROKE FATIGUE

Most stroke survivors start feeling less tired after a few months. Making changes to some of your activities can help reduce the grinding burden of fatigue and promote recovery. Being tired is very common after a stroke, so remember it is not your fault. Here are some ideas to incorporate into your daily life that can help as you move forward with recovery:

- **Communicate.** Your fatigue may not be obvious to others so talk to your friends, family and employer about what you are experiencing.
- **Rest.** Give yourself plenty of time to rest, including naps or scheduled rest periods during the day.
- **Moderation.** Don't push yourself too hard, especially not if you are having a good day, it will leave you exhausted the next day.
- **Journal.** Keep a diary of how much you are doing every day. Celebrate your successes as you look back and see how far you have come.
- **Take your time.** Give yourself plenty of time. It may take you longer to get ready to go places. Rushing is exhausting.
- **Start small.** Build up stamina and strength slowly. Maintain some level of regular exercise and gradually increase it.
- **Watch what you eat.** Eat a healthy diet. Include plenty of fruits, vegetables and whole grains. Consult your healthcare professional if you have questions about what diet is best for you.
- **Listen to your body.** You are the expert on how you feel.

REHABILITATION AFTER STROKE

Rehabilitation is a critical part of recovery for many stroke survivors. The effects of stroke may mean that you may need to change, relearn or redefine how you live. Stroke rehabilitation can help you to return to independent living. Rehabilitation doesn't reverse the effects of a stroke. The goals of rehabilitation are to increase independence, improve physical functioning, help you gain a satisfying quality of life after stroke and help you prevent another stroke.

What will I do in rehabilitation?

What you do in rehabilitation depends on what you need to become independent. You may work to improve your independence in many areas. These include:

- Self-care skills such as feeding, grooming, bathing and dressing
- Mobility skills such as transferring, walking or self-propelling a wheelchair
- Communication skills in speech and language
- Cognitive skills such as memory or problem solving
- Social skills for interacting with other people

When does rehabilitation begin?

Rehabilitation will begin when your doctor determines that you're medically stable and able to benefit from it.

Who will be part of my rehabilitation?

Your rehabilitation team may include:

- **Physiatrist:** a medical doctor who specializes in rehabilitation
- **Physical therapist:** a healthcare provider who specializes in maximizing a stroke survivor's mobility and independence to improve major motor and sensory impairments such as walking, balance and coordination.
- **Occupational therapist:** a therapist who focuses on helping stroke survivors rebuild skills in daily living activities such as bathing, toileting, and dressing.
- **Rehabilitation Nurse:** a nurse who coordinates the medical support needs of stroke survivors throughout rehabilitation.
- **Speech therapist:** a specialist who helps to restore language skills and also treats swallowing disorders.
- **Psychiatrist or psychologist:** specialists who help stroke survivors adjust to the emotional challenges and new circumstances of their lives.

How will I choose the right setting?

Rehabilitation services are provided in many different places. It depends on your needs and what type of rehabilitation program will be best for you.

INPATIENT REHABILITATION FACILITY (IRF)

An IRF can be a separate unit of a hospital or a free-standing building that provides hospital-level care to stroke survivors who need intensive rehabilitation.

IRFs provide at least three hours a day of active rehabilitation at least five days a week with:

- Physical Therapists
- Occupational Therapists
- Speech Therapists
- Nurses (available 24/7)
- Doctors typically visit daily

The American Heart/American Stroke Association recommends IRF care if you can tolerate at least three hours a day of stroke rehabilitation.

SKILLED NURSING FACILITY (SNF) /SUB-ACUTE STAY

A SNF provides rehabilitation care and skilled nursing services for patients who:

- Are not well enough to be discharged to home and cannot tolerate the more intensive amount of therapy provided by an IRF.
- Can benefit from having a registered nurse on site for a minimum of eight hours a day (on a physician's plan). Need nursing and/or rehabilitation.
- Don't need daily supervision by a physician, although the care provided must still be based on a physician's plans.
- Have shorter length of stay than a general SNF or Long-Term Care facility.

LONG-TERM CARE FACILITY

- Long-term care facilities (nursing home) provide long-term basic nursing care and assistance for people who need help with everyday activities, such as dressing or bathing. This is residential care for people who can't live in the community.
- Long-term care facilities provide limited rehabilitative services except for those receiving care through a separate SNF wing or unit.

LONG-TERM ACUTE CARE HOSPITAL

- Provide extended care to those with complex medical needs (such as those on a ventilator) due to a combination of acute and chronic conditions.
- The average length of stay is 25+ days.

HOME-BASED OR OUTPATIENT CARE

- Provided by home healthcare agencies or in outpatient office.

CAREGIVERS

Tips for caregivers

- Choose to take charge of your life, and don't let your loved one's illness or disability take center stage.
- Remember to be good to yourself. Love, honor, and value yourself. You are doing a very hard job and you deserve some quality time just for you.
- Watch for signs of depression and don't delay in getting professional help when you need it.
- When people offer to help, accept the offer and suggest specific things they can do.
- Educate yourself about your loved one's condition. Information is empowering.
- There's a difference between caring and doing. Be open to new technologies and ideas that promote your loved one's independence and help you do your job easier.
- Trust your instincts. Most of the time they'll lead you in the right direction.
- Grieve for your losses, and then allow yourself to dream new dreams.
- Stand up for your rights as a caregiver and as a citizen.
- Seek support from other caregivers. There is great strength knowing that you are not alone.



Rights of a caregiver

- Take care of myself. This is not an act of selfishness. It will enable me to take better care of my loved one.
- Seek help from others even though my loved one may object. I recognize the limits of my own endurance and strength.
- Maintain the facets of my own life that do not include the person I care for, just as I would if he or she were healthy. I know that I do everything that I reasonably can for this person, and I have the right to do some things for myself.
- Get angry, be depressed and express other difficult emotions occasionally.
- Reject any attempt by my loved one (either consciously or unconsciously) to manipulate me through guilt, anger or depression.
- Receive consideration, affection, forgiveness, and acceptance from my loved one for as long as I offer these qualities in return.
- Take pride in what I am accomplishing and to applaud the courage it sometimes takes to meet the needs of my loved one.
- Protect my individuality and my right to make a life for myself that will sustain me when my loved one no longer needs my full-time help.
- Expect and demand that as new strides are made in finding resources to aid physically and mentally impaired persons in our country, similar strides will be made toward aiding and supporting caregivers.

Signs of caregiver burnout

- Excessive use of alcohol, medications, or sleeping pills
- Appetite changes
- Depression, hopelessness, lack of energy, trouble sleeping
- Thoughts of death
- Losing control either physically or emotionally
- Neglecting or treating roughly the person for whom you are caring
- Difficulty concentrating, missing appointments

If you show signs of caregiver burnout, get help. Your healthy body, mind, and spirit benefit your loved one as much as they benefit you.



REFERENCES

Information and images included in this packet were obtained from:

American Stroke Association	www.strokeassociation.org
American Heart Association	www.heart.org
Mayfield Clinic	www.mayfieldclinic.com
Mayo Clinic	www.mayoclinic.com
Minnesota Stroke Association	www.strokemn.org
National Stroke Association	www.stroke.org
Relay for Health	

