

YOUR COMPLETE GUIDE TO UNDERSTANDING A

BRAIN ATTACK



STROKE CENTER
**The Reading Hospital
and Medical Center**
www.readinghospital.org



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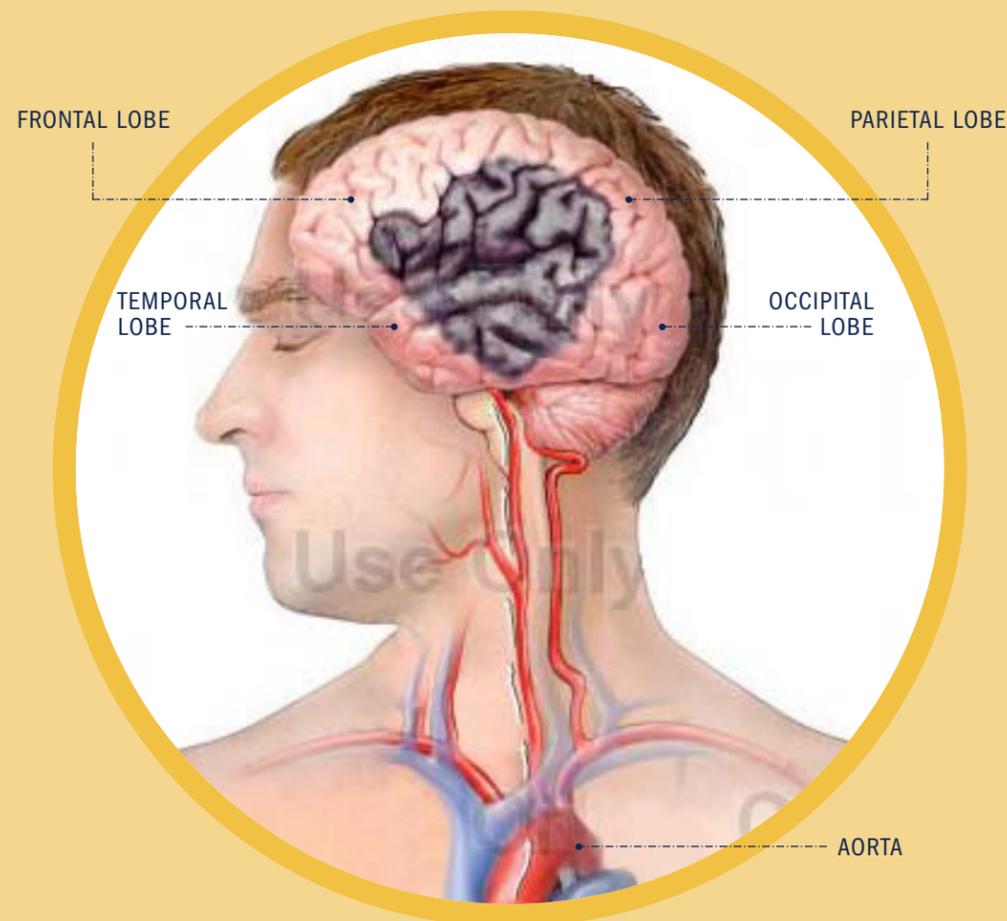
WHAT IS A BRAIN ATTACK?

The words **stroke**, **cerebrovascular accident** or **CVA**, and **brain attack** all mean the same thing. We choose to call it a brain attack to better explain what is going on in the body.

Just like a heart attack, a brain attack can change a person's life in a matter of minutes.

During a brain attack, blood carrying oxygen and nutrients stops flowing to an area of the brain. This happens when blood vessels get blocked or break open. The brain cells cannot work without oxygen.

When the brain cells do not work, the part of the body controlled by these cells will not work either. If the blood flow is lost for more than several minutes, brain tissue around this area dies. When brain tissue dies, there is usually also a loss of function in other areas of the body.



BRAIN ATTACK WARNING SIGNS: WHEN DO I NEED MEDICAL HELP?

There are six common warning signs of a brain attack. If you have one or more of these warning signs, it could mean a brain attack is about to happen.

- **Sudden** numbness or weakness of the face, arm, or leg, especially on one side of the body
- **Sudden** confusion; trouble speaking or understanding
- **Sudden** trouble seeing in one or both eyes
- **Sudden** trouble walking; dizziness, loss of balance or coordination
- **Sudden** severe headaches with no known cause
- **Sudden** difficulty swallowing

The key word in each of these warning signs is **sudden**. The sudden occurrence of any of these symptoms could mean a brain attack.

REMEMBER: Brain attack is a medical emergency – call 911.

WHAT ARE THE TYPES OF BRAIN ATTACK?

There are two types of brain attack: **ischemic**, caused by a blood flow blockage, and **hemorrhagic**, caused by bleeding in the brain.



ISCHEMIC (BLOCKAGE)

- Most common type of brain attack
- Caused by blood not reaching the brain due to a build up of plaque on the inside of blood vessels
- Thrombus, or blood clot, blocks the blood vessel
- Brain tissue beyond the blockage dies



A **thrombus** is a blood clot that forms inside a blood vessel. Fatty deposits called **plaque** form on the inside wall of the vessels. Over time, more plaque continues to form, making a narrow path for blood flow. When the path for blood flow is completely blocked, a brain attack occurs.

Sometimes a clot or piece of plaque can break off and flow into the blood stream. This is called an **embolus**. If this clot gets stuck in the vessel, it will stop the blood flow. A brain attack will occur.



HEMORRHAGIC (BLEEDING)

- Blood vessels become damaged due to plaque, high blood pressure, and/or smoking
- Damaged blood vessels in the brain may weaken and burst
- Blood spills into areas of the brain, killing tissue

TIA

You may also hear the term TIA, or mini stroke. TIA stands for a Transient Ischemic Attack, and occurs when blood vessels are blocked, but only for a short time.

TIA's can be strong predictors for having a major brain attack.

REMEMBER: TIA is a medical emergency – call 911.

HOW IS A BRAIN ATTACK DIAGNOSED?

Timing is very important. To find out if you have had a brain attack and what treatment is best, you may have several tests.



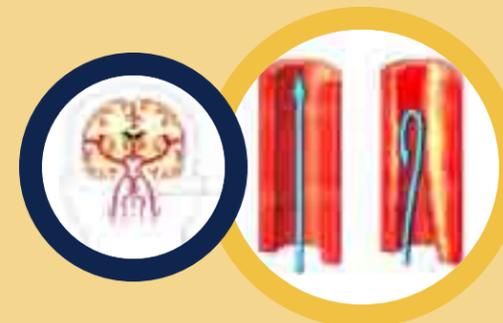
- **Computed Tomography Scan (CT scan)** – one of the first tests that will be performed. It gives the doctor details about the location, cause, and extent of the brain injury.



- **Magnetic Resonance Imaging (MRI)** – a large magnet shows a detailed image of the brain. This image is more detailed than a CT scan. It may be needed to show deep or small brain injuries.



- **Magnetic Resonance Angiography (MRA)** – dye is injected into the blood vessels of the brain. This is also how clot-busting drugs are given.



- **Carotid Arteries Test** – done to measure the amount of blockage in the main arteries that take blood to the brain. It may help the doctor decide if any treatment is needed to increase the blood flow in those arteries.



EFFECTS OF A BRAIN ATTACK: WHAT'S HAPPENING?

The effects of a brain attack depend on a number of things. What areas of the body are affected depends on where in the brain the problem has occurred, and how much brain tissue has been affected.

Different parts of the brain control different parts of the body.

The **right** side of the brain controls:

- The left side of the body
- The ability to judge distances
- Safety
- Memory

The **left** side of the brain controls:

- The right side of the body
- Speech
- Reading
- Writing
- Memory

The **front** of the brain controls:

- Personality
- Emotions
- Reasoning

The **back** of the brain controls:

- Vision
- Balance
- Coordination

The amount and area of brain cells affected may cause different problems. You may have problems with:

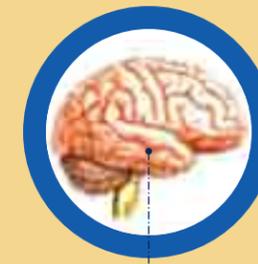
- Movement
- Breathing
- Speech
- Swallowing
- Hearing
- Emotions
- Balance
- Sensation
- Feeling tired
- Seeing
- Thinking
- Feeling down

If you have had a **right side brain attack**, you may have these problems:

- Paralysis or weakness of left side
- Quick, impulsive behavior
- Problems judging distances
- Memory loss

If you have had a **left side brain attack**, you may have these problems:

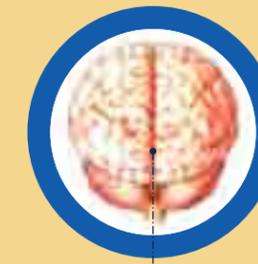
- Paralysis or weakness of right side
- Slow, cautious behavior
- Problems speaking and understanding
- Memory loss



RIGHT VIEW



LEFT VIEW



FRONT VIEW



BACK VIEW

RISK FACTORS FOR BRAIN ATTACK

Many people have studied why a person may or may not have a brain attack. These are called **risk factors**.

A person with many risk factors is more likely to have a brain attack than a person with less risk factors. Some risk factors are things we can change. Some we cannot change.

To lower your chances of having a brain attack, it is important to begin to change things in your life that put you at risk. **The best treatment for brain attack is prevention.**

Risk factors you cannot change

Brain attack risk factors that cannot be changed are:

AGE

SEX

RACE

HAVING A PRIOR BRAIN ATTACK

FAMILY HISTORY OF BRAIN ATTACK



Risk factors you can change

HIGH BLOOD PRESSURE

WHAT YOU CAN DO

Top number is the pressure in your arteries when the heart beats. Should be less than 130. **Bottom number** is the pressure in your arteries when the heart rests. Should be less than 80.

- See your doctor regularly
- Take medicine as ordered
- Maintain a healthy weight
- Follow a low salt meal plan

HEART DISEASE

WHAT YOU CAN DO

Blocked blood vessels can lead to a heart attack. Untreated heart rhythm problems can lead to a stroke. How you deal with stress can lead to heart disease.

- See your doctor regularly
- Follow a low salt, low fat meal plan
- Exercise regularly
- Take medicines as ordered
- Find healthy ways to cope with stress

SMOKING

WHAT YOU CAN DO

Damages the artery wall. Speeds up plaque formation. Reduces HDL (good cholesterol). Encourages blood clots to form.

- Get help to quit
- Smoking Cessation counseling and/or classes are available
- Call the Pennsylvania Quitline toll-free at 1-877-724-1090

TIAS — Transient Ischemic Attacks

WHAT YOU CAN DO

A blood clot blocks a blood vessel for a short time. These mini strokes are warning signs that a major stroke may be coming.

- Call 911
- Monitor and control high blood pressure
- Follow a low salt meal plan

Risk factors you can change

DIABETES

WHAT YOU CAN DO

Makes plaque form faster in blood vessels. Raises cholesterol and triglycerides. Causes good cholesterol (HDL) to decrease.

- Monitor and control high blood pressure
- Exercise regularly
- Follow your meal plan
- Enroll in Diabetes Education Classes. Call your primary care doctor for a referral.

HIGH BLOOD CHOLESTEROL

WHAT YOU CAN DO

Total cholesterol under 200mg/dL is the goal. Good cholesterol (HDL) should be greater than 35mg/dL. Bad cholesterol (LDL) should be less than 130mg/dL. High triglyceride levels may contribute to heart disease.

- Follow a low fat meal plan
- Exercise regularly
- Maintain a healthy weight
- Take cholesterol-lowering medication as directed by your doctor
- Attend The Reading Hospital Heart Health and Fitness Community Lectures; call 484-334-6761 to register.

CAROTID BRUIT

WHAT YOU CAN DO

Partly blocked carotid arteries in the neck area cause a noise when listened for with a stethoscope. This is called a bruit. If you have a bruit, you may need further tests to see how bad the blockage is.

- Visit your doctor regularly



REHABILITATION: HOW DO I GET BETTER?

Once someone has suffered a brain attack, it is important to begin rehabilitation as soon as possible.

Rehabilitation helps the brain attack survivor to:

- Regain lost functions
- Perform daily living activities
- Return to prior activities
- Deal with issues such as depression and adjust to life with a disability

For rehabilitation to be most effective:

- Rehabilitation must begin as soon after the brain attack as possible
- Good family and social support is needed
- Rehabilitation is a team effort with the doctor, nurse, and other specialists working with the person and the family

QUESTIONS/CONCERNS

Use this space to write down questions or concerns that you or your family may have. Discuss these with your stroke care team.



TEAMWORK: WHO IS ON MY TEAM?

FAMILY

Friends or family members help by giving encouragement and support. Sometimes it is necessary for them to learn how to help you with general care. Healthcare providers will teach your family ways to help you move, exercise, and be safe.

PHYSICIAN

Your doctor will check your medical condition, and may ask specialists to assist with your care. The attending physician may ask a physiatrist, who is a doctor trained and certified in clinical rehabilitation, to work with you. The physiatrist directs the treatment team and determines when a person is ready to increase activity with therapy. The team will work with you to set goals for recovery.

NURSES

Nurses will assess your needs around the clock, assist you with your daily care, and report your progress to other team members. Nurses will also teach you to care for yourself. They will help you and your family prepare for the future.

CASE MANAGER

The case manager is a specially trained nurse who will communicate with you, your family, and other team members to make sure you receive the services you need in the Hospital. The case manager will also help with what you might need when you leave the Hospital.

This plan is determined by your healthcare needs, the need for continued therapy (inpatient or outpatient), and home care service needs. Financial coverage for these services is also considered.

SOCIAL WORKER

The social worker works with the case manager, and will also communicate with you and your family. Social workers are trained to help with a variety of social issues that can impact your discharge plan. Some issues are financial support, community services, home nursing care and equipment, or placement in a nursing home or rehabilitation unit.

PHYSICAL THERAPIST

Physical therapists will work with you to regain independence in moving, getting in and out of bed or a chair, and improving strength, balance, and coordination.

OCCUPATIONAL THERAPIST

Occupational therapists will help you relearn how to take care of yourself. This may include help with eating, bathing, dressing, and caring for the home. These therapists also work to improve your skills with thinking, problem solving, and safety.

SPEECH THERAPIST (SPEECH-LANGUAGE PATHOLOGIST)

Speech therapists may work with you to improve speech, language, swallowing, and thinking.



NUTRITION SERVICES

The registered dietitian will help create a meal plan to meet your nutritional needs. This plan may be low fat and low salt. If you are having trouble chewing or swallowing, the speech therapist will work with the dietitian to adjust your diet. The food can be soft or chopped. To help swallowing, liquids may also be changed. The dietitian also provides counseling on how to control risk factors, such as diabetes and high cholesterol.

SUPPORTIVE SERVICES

Chaplain services are available 24 hours a day to help meet your spiritual needs. Your own clergy is also welcome to visit.

Ask your nurse if you would like to schedule a visit from the Hospital chaplain.

PATIENT REPRESENTATIVES

Patient representatives can answer questions or concerns about Hospital services or procedures. Call 610-988-8663 to speak with a patient representative.

HOME CARE

Some patients may require care at home. There are agencies that provide home care including nursing and therapy. Your case manager or social worker will assist with setting up these services if needed.

OUTPATIENT PROGRAMS

Some patients live at home but may attend outpatient therapy to continue to progress to independence. There are Hospital-based outpatient programs, as well as many community-based programs.

AFTER A BRAIN ATTACK: WHAT'S NEXT?

ACTIVITY

After a brain attack, you will be asked to stay in bed at first. You will need to call staff for help with most of your needs.

Early rehabilitation, such as turning and exercising in bed, helps improve circulation, maintains movement, and prevents other problems. When you are more stable, activity can be increased.

First you may sit at the edge of the bed, then progress to getting out of bed with help. Physical and occupational therapy will be performed in your room. Your therapy will increase as you are able to handle it.

EXERCISE

Exercises are important while you are recovering. They prevent your muscles from getting tight, and they help you regain full use of your body. Since each brain attack survivor is different, no single exercise program or walking program will work for all people. That is why you should stick to the exercise and walking programs developed just for you.

TRANSFERS

A transfer is a move from one location to another. Moving from a chair to a bed, or from a wheelchair to a toilet, bathtub, or car are all examples of transfers. A nurse, physical therapist, or occupational therapist will teach you the proper way to perform transfers.

TOILETING NEEDS

Sometimes after a brain attack, the bowel and bladder may not work as well as before. There may be problems with getting to the toilet in time, or there may be trouble emptying the bladder or bowel. The nurses will work closely with you to go to the bathroom on a schedule to retrain these body functions.

DRESSING

Because of changes after a brain attack, your therapists may teach you to use helping devices to dress yourself. Your family will also be included in this training.

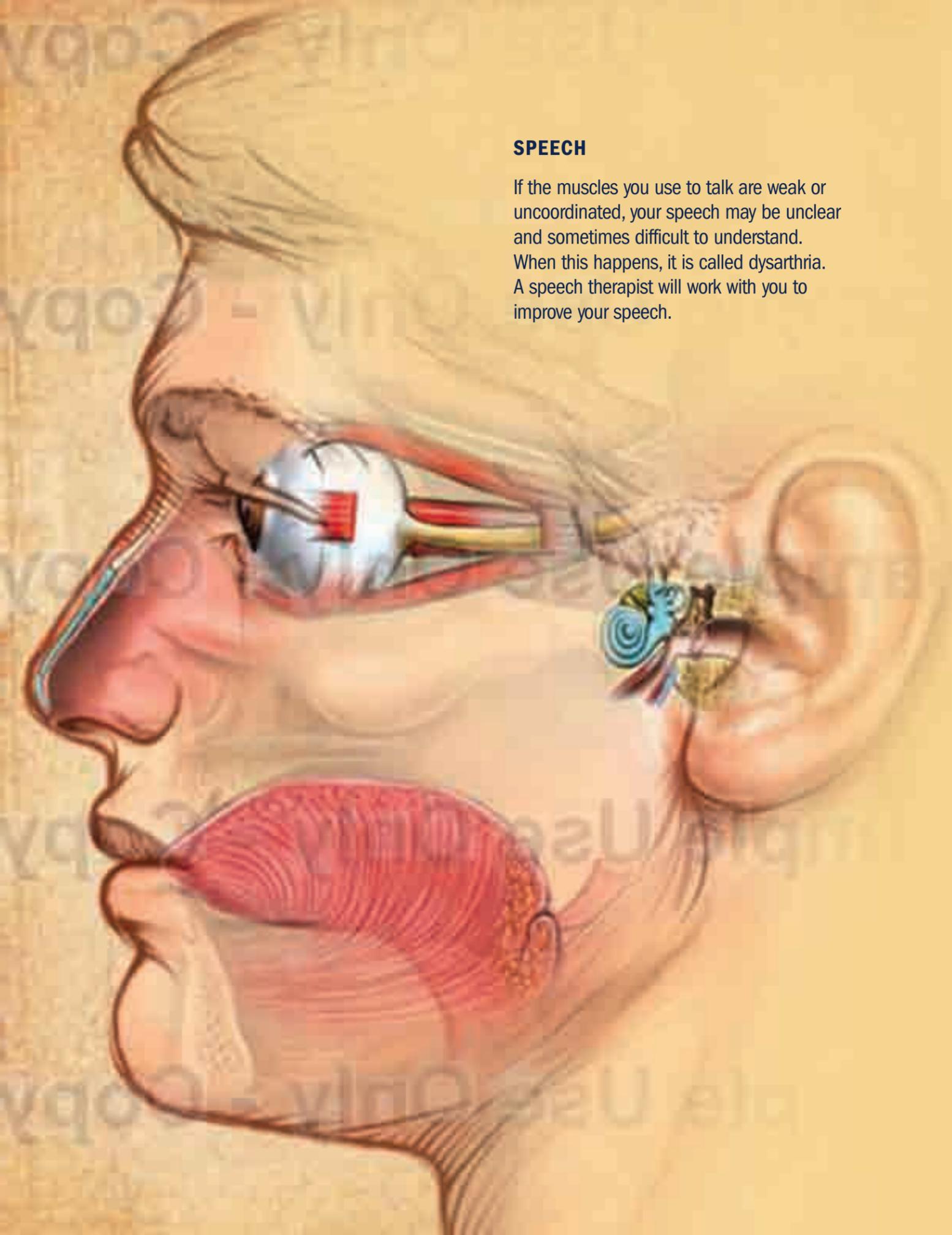
WALKING

Early on, you may require help from one or more people to walk and may even require the use of a device, such as a rolling walker, standard walker, or cane. Walking or gait training sessions may occur once or twice daily, and will focus on walking with or without a helping device.

As you continue to get better, your activity will increase to include walking longer distances, going around obstacles, and safely taking ramps, curbs, and stairs. Your family members will be encouraged to attend therapy sessions so that they can be instructed in ways to help keep you safe and active.

If you cannot walk, you will be taught ways to move in bed and how to use a wheelchair.





SPEECH

If the muscles you use to talk are weak or uncoordinated, your speech may be unclear and sometimes difficult to understand. When this happens, it is called dysarthria. A speech therapist will work with you to improve your speech.

SWALLOWING

Chewing and swallowing may be a problem after a brain attack. Difficulty in swallowing is called dysphagia. It is not uncommon for one or both sides of a person's mouth to lack feeling. If you are having trouble swallowing, tell the nurse or your doctor. The speech therapist may recommend a change in your diet.

LANGUAGE

After a brain attack, some people have trouble speaking or understanding words. This problem is called aphasia, and can affect a person's ability to talk, listen, read, and write. Aphasia could happen when a brain attack causes weakness or paralysis on the right side of the body.

HEARING

Usually a brain attack does not cause hearing loss. It may, however, make it hard for you to understand what others are saying.

If you have trouble hearing on the telephone, try switching the receiver to the other ear. Turning down the television or radio or asking people in the room to speak more softly may help you hear while talking on the phone.

If you wore a hearing aid before a brain attack, continue to do so. Be sure to keep it clean and operating properly. If, after a brain attack, you find that you do have hearing problems, get a hearing test. Your doctor can recommend a professional to help you.

SEEING

Several visual problems can happen after a brain attack. Any of them may make it hard for you to do your daily tasks. You may have to practice your tasks before you can do them properly.

With a loss of visual field, you may be unable to see things on your affected side when you are looking straight ahead. If you have lost feeling on that side, you may lose your awareness of that side of your body. As a result, you may ignore objects placed on that side, have trouble reading, or dress only one side of your body.

To keep safe, train yourself to turn your head, and look toward this side. Your friends can also remind you to turn your head toward your affected side. Look toward your affected side when you walk to avoid bumping into things.

If a brain attack has affected your vision, some objects may look closer or farther away than they really are. You may notice this problem mostly when you are trying to eat or dress. You may over-reach or under-reach for an object.

Visual problems may also cause you to bump into objects while walking.

THINKING

A brain attack may affect your ability to think clearly, so planning and carrying out even simple activities may be hard. You may not know how to start a task or you may have trouble sorting out the steps required to do something. Sometimes you won't remember how to do a particular task, even if you have done it before.

Problems in thinking can be frustrating, even discouraging, since they affect your problem-solving and decision-making abilities. Still, with help, you will learn to cope.

Here are some suggestions that may help:

- Simple, step-by-step directions will make it easier for you to complete a task
- Be patient and practice an activity many times to learn how to do it correctly
- For your own safety, slow down, and accept that routine tasks will take longer

Your doctor can prescribe occupational and speech therapy to help you learn new skills.

PERCEPTION

Perception is the ability to recognize and understand familiar objects through your senses. Because seeing, hearing, touching, and thinking can all be affected by a brain attack, it is possible that your perception of everyday objects may also be different. In fact, several problems may happen depending on the areas of the brain affected.

To deal with perception problems:

- Keep your home neat and free from hazards
- Set a daily routine
- Eliminate distractions such as radio or TV when you are performing difficult tasks
- Get help if you are working on a task that seems too hard for you
- Slow down and focus all of your attention on one task

Ask your doctor or get occupational or other appropriate therapy if these problems continue.

SENSATION

After a brain attack, you may not feel temperature, touch, pain, or degrees of sharpness on your affected side. For example, you may feel numbness, tingling, or painful reactions to touch or temperature. Also, you may not be able to tell objects are sharp.

This loss of sensation can be a real safety hazard. Be alert to injuries that could happen from sharp utensils, electric appliances, machinery, stoves, or hot water.

Here are some safety hints to follow if you can't feel heat:

- Test the temperature of water on your stronger side, or have someone do it for you
- Bathe and do dishes in lukewarm water
- Use potholders whenever you work near the stove
- Stabilize pots and pans to avoid spills

FEELING TIRED

Fatigue is a common complaint in the first few months following a brain attack. Energy levels decrease because of poor sleep, lack of exercise, decreased nutrition, or side effects of medicines. You also use your energy differently because everyday activities take more effort. You may need to adjust your daily routine to include rest periods until energy levels return.

FEELING DOWN

So many changes may make you feel depressed. You may feel frustrated if your body and your mind are not always working together. These feelings are common, but may need treatment if they continue. Talk with your doctor about these feelings.

Even though these challenges may seem like too much to bear, accepting help from your family, friends, and healthcare team can help. Having a daily activity schedule can be a simple way to get started. Setting goals for yourself can help you measure your progress. Your therapist will help with this.

REHABILITATION PROGRAMS

When you are ready to leave the Hospital, but not quite ready to return home, there may be places for you to go to continue rehabilitation. There are various types of rehabilitation programs available.

Acute rehabilitation programs

- take place in a hospital or rehabilitation facility
- provide three to five hours of therapy each day
- provide nursing care
- provide physical, occupational, speech, and recreational therapies

Sub-acute rehabilitation programs

- less intense than acute programs
- provide one to two and a half hours of therapy each day
- takes place in hospitals or in nursing homes
- provide physical, occupational, and speech therapies

The Reading Hospital offers both an inpatient acute rehabilitation unit (The Rehabilitation Center) and a sub-acute unit (our Transitional Care Center) for patients who require more care following a brain attack. For more information or a tour, ask your case manager or social worker, or call us at 610-988-9066.

SKILLED NURSING FACILITIES

Nursing homes may provide patients with either sub-acute rehabilitation or long-term care. Long-term care is an option if the patient is unable to return home.



GLOSSARY OF TERMS

Aphasia – trouble speaking or understanding what is being spoken

Brain Attack – another name for a stroke

Carotid Artery – the major artery in the neck that carries oxygen and blood to the brain

CVA – Cerebrovascular Accident – another name for brain attack or stroke

Dysarthria – unclear speech

Dysphagia – trouble swallowing

Embolus – a traveling blood clot

HDL – High Density Lipoprotein (good cholesterol). Goal is greater than 35 mg/dL

Hemorrhagic – a blood vessel bursts, blood goes outside the blood vessels and damages surrounding tissue

Hypertension – high blood pressure. Goal is less than 130/80mmHg

Ischemic – not enough blood flow

LDL – Low Density Lipoprotein (bad cholesterol). Goal is less than 130 mg/dL

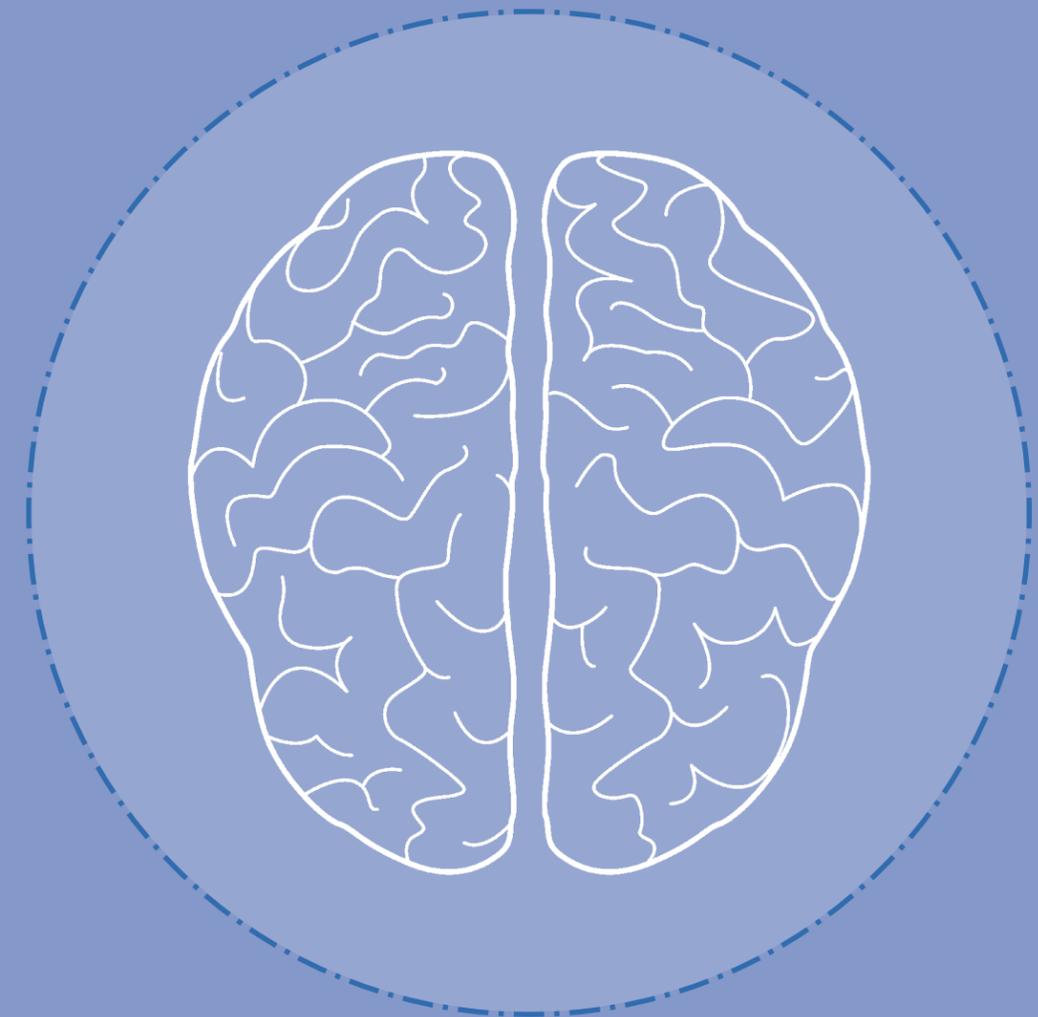
Plaque – fatty deposits that build up inside blood vessels

Rehabilitation – the process of helping a person to become the most independent he or she can be following a brain attack (to rehabilitate means “to restore”)

Thrombus – blood clot

TIA – Transient Ischemic Attack. Blood flow is temporarily stopped or decreased.

Visual Field – what is seen. Sometimes after a brain attack, the visual field is not complete in one or both eyes. Sometimes double vision or other vision problems are present.





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