

Stroke Education for You and Your Family

Information and Resources



Your stroke checklist

All about stroke

- TIA (transient ischemic attack)
- Ischemic stroke
- Hemorrhagic stroke

Risk factors

- High blood pressure (hypertension)
Recent blood pressure ____ / ____ Goal blood pressure ____ / ____
- Diabetes
Hemoglobin A1C ____
- High blood cholesterol (hyperlipidemia)
Total cholesterol ____ LDL ____ HDL ____ Triglycerides ____
- Irregular heartbeat (atrial fibrillation)
- Carotid or other artery disease
- Cigarette smoking
- Poor diet
- Physical inactivity and obesity
- Stress
- Substance misuse

Stroke education

- 2 Stroke warning signs and symptoms
- 3 What are the types of stroke?
- 8 Effects of stroke
- 9 Risk factors that you cannot change
- 10 Risk factors that you can change
- 14 Resources
- 16 Support groups

Stroke warning signs and symptoms

Few Americans know the symptoms of stroke. Learning them—and acting quickly when they occur—could save your life or the life of a loved one. Remember: BEFAST. **Call 911.**

Common stroke symptoms

Sudden numbness or weakness of the face, arm or leg—especially on one side of the body

Sudden confusion, or trouble speaking or understanding

Sudden trouble seeing in one or both eyes

Sudden trouble walking, dizziness, or loss of balance or coordination

Sudden severe headache with no known cause

If you think someone may be having a stroke, do this simple test:

B alance	Has the person had a sudden loss of balance?
E yes	Is there sudden loss of vision in one or both eyes?
F ace	Does one side of their face droop? Ask the person to smile.
A rms	Is one arm weak or numb? Ask the person to raise both arms. Does one drift downward?
S peech	Is their speech slurred? Ask the person to repeat a simple sentence. Did they repeat it correctly?
T ime	If the person shows any of these symptoms, call 911.

Stroke is an emergency! Every minute counts. BEFAST.

What are the types of stroke?

A stroke or “brain attack” occurs when blood flow to brain tissue is disrupted. This can happen one of two ways:

A clot develops in a blood vessel that carries blood from the heart to the brain. This prevents blood from reaching brain cells. This is called an **ischemic stroke.**

A blood vessel in the brain breaks open. This causes blood to leak into the brain. This is called a **hemorrhagic stroke.**

When either of these things happens, brain cells begin to die, and brain damage occurs. When brain cells die during a stroke, you lose abilities that are controlled by that part of the brain. These abilities might include speech, movement and memory. How a stroke affects a patient depends on where the stroke occurred in the brain. It also depends on how much the brain was damaged.

Transient ischemic attacks

A transient ischemic attack (TIA) is an event with stroke symptoms that last fewer than 24 hours before disappearing. This is sometimes called a warning stroke. TIAs generally do not cause permanent brain damage. But they are a serious warning sign of stroke. You should not ignore them.

Symptoms go away on their own. However, more than one-third of all people who have a TIA will go on to have an actual stroke.

Ask your clinician how to prevent a stroke. Then take responsibility and enjoy a healthy lifestyle. The lifestyle tweaks you make today, such as eating nutritious foods and quitting smoking, may reduce your stroke risk tomorrow.

Ischemic stroke

Ischemic stroke accounts for more than 80% of all strokes.

Ischemic strokes occur when blood supply to part of the brain is blocked.

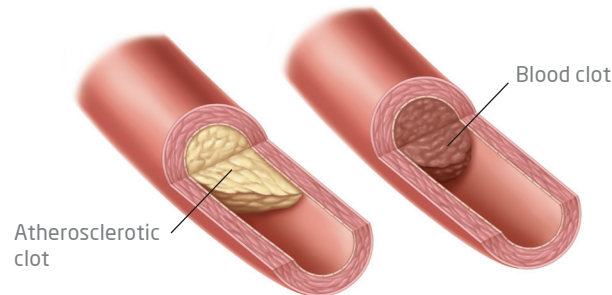
Cerebral thrombosis refers to a thrombus (blood clot) that develops at the clogged part of the blood vessel.

The blood clot develops due to **atherosclerosis**. This is a condition in which fatty deposits or plaque builds up inside the vessel walls.

Cerebral embolism refers to a condition caused by a blood clot that forms in another part of the body, usually the heart or large arteries of the upper chest and neck. A cerebral embolism occurs when a part of the blood clot breaks loose, enters the bloodstream and travels through the brain's blood vessels until it reaches vessels too small to let it pass.

In addition to atherosclerosis, patients with an irregular heartbeat, known as **atrial fibrillation**, also have a higher risk of a stroke. Atrial fibrillation creates conditions where clots can form more easily in the heart, then come loose and travel to the brain.

Ischemic stroke

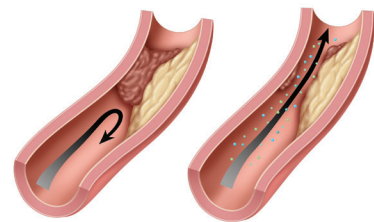


Treatment of ischemic stroke

Thrombolytics

Tissue plasminogen activator (tPA) is an enzyme found naturally in the body that helps dissolve a clot. Approved by the Food and Drug Administration (FDA) in 1996, tPA was the first acute treatment for ischemic stroke.

tPA is not appropriate for all patients. The most common complication associated with tPA is brain hemorrhage, or bleeding in the brain. However, studies show that tPA does not increase the death rate of patients following a stroke.



Thrombolytics help to open up closed arteries.

Mechanical thrombectomy system

A **mechanical thrombectomy device** may be able to reopen blocked vessels after an ischemic stroke in some patients. These devices help restore brain blood flow by removing blood clots in the brain. They are not appropriate for all patients.

Hemorrhagic stroke

Hemorrhagic stroke accounts for less than 20% of all strokes.

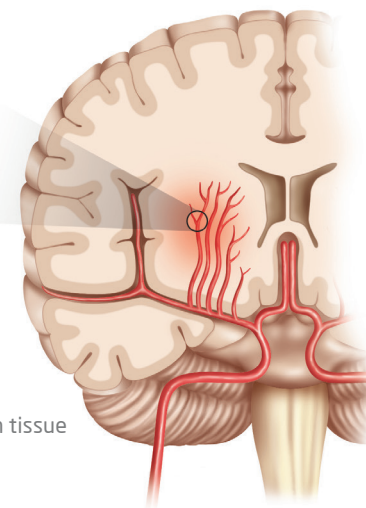
It results from a weakened blood vessel that breaks open and bleeds into the surrounding brain tissue. Hemorrhagic stroke can be caused by uncontrolled high blood pressure, aneurysms or abnormal blood vessels.

Hemorrhagic stroke



Weakened/diseased blood vessel rupture

Blood leaks into brain tissue



An **aneurysm** is a ballooning of a weakened region of a blood vessel. If left untreated, the aneurysm may continue to weaken until it breaks open and bleeds into the brain.

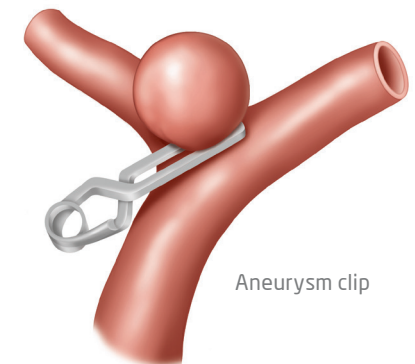
If an aneurysm breaks open, it can cause **vasospasm**. This is narrowing of the blood vessels. It may be caused by irritation to the blood vessel as the blood breaks down. Vasospasm can be treated by increasing certain medications, such as those that control blood pressure. You and your clinician can discuss your risk for vasospasm and your treatment options.

Treatment of hemorrhagic stroke

Aneurysm clipping

As an aneurysm grows, the artery wall becomes thinner and weaker. It can eventually leak or break open, releasing blood into the spaces around the brain. This is called a **subarachnoid hemorrhage**.

To stop or prevent an aneurysm from bleeding, a neurosurgeon can perform an aneurysm clipping. During this procedure, they place a tiny clip across the neck of the aneurysm to keep it from breaking open.

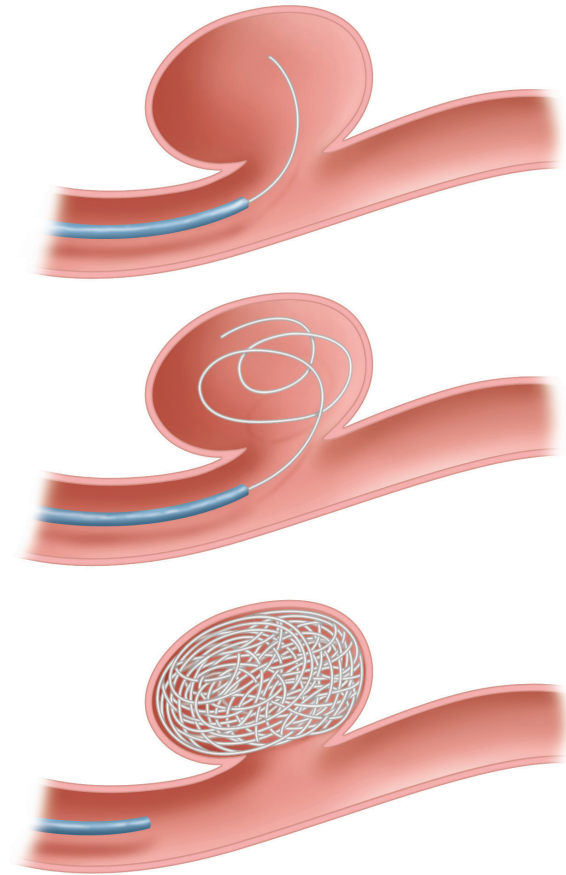


Aneurysm coiling

Endovascular therapy is a minimally invasive procedure that accesses the treatment area from within the blood vessel. In the case of aneurysms, this treatment is called **endovascular coiling**.

Endovascular coiling does not require open surgery. Instead, physicians use real-time X-ray technology, called **fluoroscopic imaging**, to view the patient's blood vessels. That way, they can treat the disease from inside the blood vessel. They insert a **catheter** (small plastic tube) into the femoral artery of the patient's leg. They carefully push it through the patient's blood vessels into the head and into the aneurysm. They thread tiny metal coils through the catheter and into the aneurysm. The coils block blood flow into the aneurysm, preventing it from breaking open. The coils are made of platinum, so they are visible on X-ray and flexible enough to bend into the shape of the aneurysm.

Coiling is not recommended for all patients. You and your physician will discuss your treatment options.



Aneurysm coil



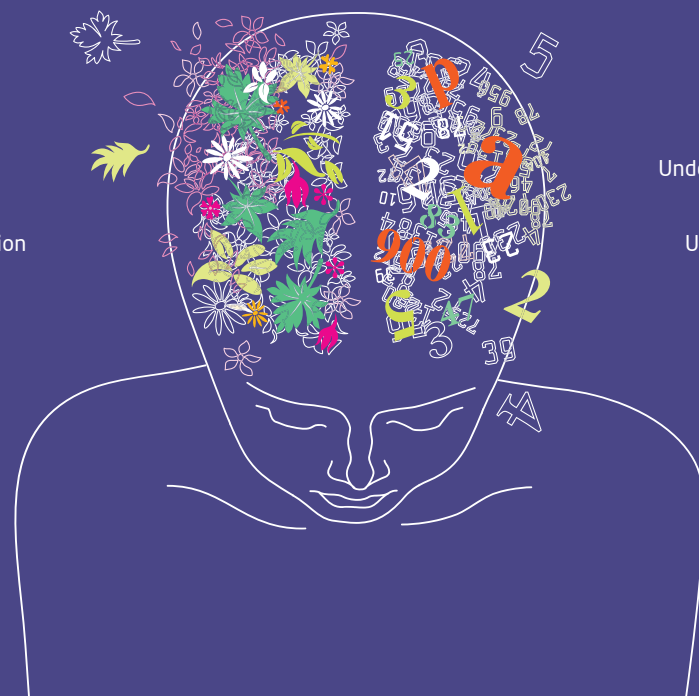
Effects of stroke

Arteries deliver blood that supplies oxygen to all areas of the brain, so any area can be affected by a stroke. If a stroke occurs in the right side of the brain, you will have symptoms on the left side of the body. If a stroke occurs in the left side of the brain, you will have symptoms on the right side of the body. The amount of damage depends on the size of the stroke, the area of the brain that is impacted and the amount of time it takes to receive treatment. You may have weakness or be unable to move one side of the body in the face, arm and/or leg. You may not be able to think clearly. You may have trouble with vision, speech or understanding. You may feel helpless, frustrated, irritable or depressed. The effects are worse right after the stroke. They may fade or completely disappear over time.

Different sides of the brain control different functions. The effect of stroke depends on where it occurs in the brain.

THE RIGHT BRAIN

- Uses feeling
- Sees the big picture
- Drives imagination
- Recognizes symbols and images
- Focuses on present and future
- Understands philosophy and religion
- Can "get it" (i.e., meaning)
- Believes
- Appreciates
- Controls spatial perception
- Knows object functions
- Embraces fantasy
- Presents possibilities
- Can be impulsive
- Is willing to take risks



THE LEFT BRAIN

- Uses logic
- Is detail-oriented
- Focuses on facts
- Understands words and language
- Grasps present and past
- Understands math and science
- Can comprehend
- Knows and acknowledges
- Sees patterns
- Knows object names
- Is rooted in reality
- Forms strategies
- Is practical

Risk factors that you cannot change

Age

The chance of having a stroke increases with age. While stroke is common among seniors, many people younger than 65 also have strokes.

Family history and race

Your stroke risk is greater if a parent, grandparent, sister or brother has had a stroke. If you are Black, you have a much higher risk of death from a stroke. This is partly because people in the Black community have higher risks of high blood pressure, diabetes and obesity.

Your risk of stroke is greater if a parent, grandparent, sister or brother has had a stroke.

Sex

Stroke is more common in women than in men. In most age groups, more women than men will have a stroke in a given year. Use of birth control pills and pregnancy pose special stroke risks for women.

Prior stroke, TIA or heart attack

The risk of stroke for someone who has already had one is many times higher than the risk for a person who has not.

Additionally, TIAs are strong predictors of stroke. A person who has had one or more TIAs is almost 10 times more likely to have a stroke than someone of the same age and sex who has not. Recognizing and treating TIAs can reduce your risk of a major stroke.

Finally, if you have had a heart attack, you are also at a higher risk of having a stroke.



Risk factors that you can change, treat or control

High blood pressure

High blood pressure is the most important controllable risk factor for stroke. Controlling high blood pressure is a key reason for lower death rates from stroke.

Tips to lower your blood pressure

Maintain a healthy weight

Be physically active

Follow a healthy eating plan that includes foods lower in salt

If you drink alcoholic beverages, do so in moderation

If you have high blood pressure and take medication, take it as directed

Diabetes mellitus

Diabetes is an independent risk factor for stroke. Many people with diabetes also have high blood pressure and high blood cholesterol, and are overweight. These conditions increase the risk even more. While diabetes is treatable, simply having diabetes increases your risk of stroke.

Tips to control your diabetes

Take medications as prescribed

Monitor your blood glucose

Reach and maintain a healthy weight

Improve your diet by eating more vegetables, fruits, complex carbohydrates and whole grains, and fewer processed, fatty, starchy and sugary foods

Get regular exercise

High blood cholesterol

People with high blood cholesterol have an increased risk for stroke. Also, it appears that low HDL (“good”) cholesterol is a risk factor for stroke in men. More data is needed to know if this is true in women.

To lower your cholesterol, your clinician may recommend changes, such as:

Reduce saturated fat intake to 7% of your daily calories

Reduce total fat intake to 25% to 35% of your daily calories

Limit dietary cholesterol to less than 200 milligrams per day

Eat 20 to 30 grams a day of soluble fiber, which is found in oats, peas, beans and certain fruits

Take medications as directed

Atrial fibrillation

If you have **atrial fibrillation**, or irregular heartbeat, the chaotic heart rhythm may cause blood to pool in your **atria**, or the upper cavities of your heart, and form clots. If a blood clot forms, it could break away from your heart and travel to your brain, where it might block blood flow and cause a stroke. Most people with atrial fibrillation have a much greater risk of stroke than those who do not have the condition. Medications, such as blood thinners, can greatly lower your risk of stroke caused by blood clots.

Carotid or other artery disease

The carotid arteries in your neck supply blood to your brain. A carotid artery narrowed by fatty deposits from **atherosclerosis**, or plaque buildup in your artery walls, may become blocked by a blood clot. Carotid artery disease is also called carotid artery stenosis.

Tips to help prevent carotid artery disease

Quit smoking

Exercise regularly

Eat a healthy diet

Maintain a healthy weight

Control factors that increase your risk, such as diabetes, high blood pressure and high cholesterol



Cigarette smoking

In recent years, studies have shown cigarette smoking to be an important risk factor for stroke. The nicotine and carbon monoxide in cigarette smoke damage the cardiovascular system in many ways. The use of oral contraceptives, or birth control pills, combined with cigarette smoking greatly increases stroke risk.

Tips for quitting smoking

Get lots of rest; you will feel tired for a while

Exercise

Maintain a positive attitude about the benefits of not smoking

Eat regular meals; hunger may be mistaken for a need to smoke

Start a money jar with the money you save from not smoking

Seek support and encouragement from family and friends

If you slip, do not get discouraged; it may take a few attempts to stay smoke-free

Poor diet

Diets high in saturated fat, trans fat and cholesterol can raise blood cholesterol levels. Diets high in sodium (salt) can contribute to increased blood pressure. Diets with excess calories can contribute to obesity. On the other hand, a diet containing five or more servings of fruits and vegetables per day may reduce the risk of stroke.

Tips to improve your diet

Eat a variety of foods

Eat frequent, small meals

Avoid skipping meals, especially breakfast

Increase your intake of fruits and vegetables

Increase your intake of fiber (beans, whole-grain breads and cereals)

Stay hydrated with non-caffeinated beverages

Decrease your alcohol intake

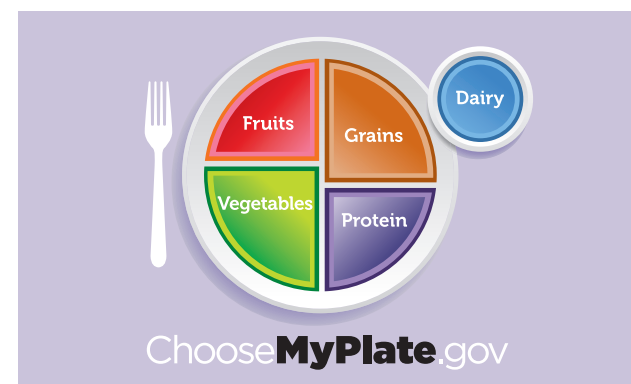
Eat fewer processed convenience foods

Decrease your intake of sweets

Read labels and be mindful of portion size

Decrease your saturated fat intake; eat more lean cuts of meat

Keep a food journal of everything you eat



Physical inactivity and obesity

Being inactive and/or obese can increase your risk of high blood pressure, high blood cholesterol, diabetes, heart disease and stroke. Go on a brisk walk, take the stairs and do whatever you can to make your life more active. Try to get in at least 30 minutes of activity on most or all days of the week.

Tips for increasing activity

Talk to your physician before starting an exercise program

Incorporate activity into your everyday life – park farther away, take the stairs, take short walks at lunch or after dinner

Encourage your loved ones to join you in adopting a more active lifestyle

Warm up for 5 to 10 minutes before exercise

Strive to get at least 30 minutes of exercise daily – sweating is a good indicator that you are exercising hard enough

Cool down 10 for minutes after exercising

Consider adding light weight training to your routine



Stress

If you think you are stressed, you probably are. Stress tends to make everything worse. When you are anxious, your heart rate and blood pressure increase. Over time, the heart and arteries become damaged. This leads to an increased risk for heart attack and stroke. Exercise, deep breathing and talking with friends are healthy ways to reduce stress and blood pressure.

Substance misuse

Regularly drinking excess alcohol can lead to health problems, including stroke. Men who drink alcohol should have no more than 2 drinks per day. Women who are not pregnant should have no more than 1 drink per day. (Women who are pregnant should not drink alcohol.)

Do not misuse drugs. Drug addiction can cause health problems. Misuse of drugs, including cocaine, amphetamines and heroin, is associated with an increased risk of stroke.

Resources

Here are phone numbers you may need after being discharged.

Northwestern Medicine Central DuPage Hospital

630.933.1600

25 North Winfield Road, Winfield

Northwestern Medicine Neurology

630.933.4056

25 North Winfield Road, Suite 424, Winfield

Northwestern Medicine Rehabilitation Services

630.933.1500

Diabetes Education Services

630.933.5000

7 Blanchard Circle, Suite 202, Wheaton

Physician Finder

630.933.4234

Follow-up testing

630.933.5000

If you need further tests, such as an MRI or bloodwork, please call this registration line to schedule.

Medical records

630.933.1900

If you need copies of your medical records for yourself or another clinician, please contact our Medical Records Department. The department is located on the lower level of the main hospital.

Northwestern Medicine Delnor Hospital

630.208.3000

300 Randall Road, Geneva

Northwestern Medicine Neurology

630.933.4056

302 Randall Road, Suite 104A, Geneva

Northwestern Medicine Rehabilitation Services

630.938.6400

Diabetes Education Services

630.938.5000

Northwestern Medicine Delnor Health & Fitness Center
296 Randall Road, Geneva

Physician Finder

630.933.4234

Follow-up testing

630.933.5000

If you need further tests, such as an MRI or bloodwork, please call this registration line to schedule.

Medical records

630.933.1900

If you need copies of your medical records for yourself or another clinician, please contact our Medical Records Department. The department is located on the lower level of the main hospital.

Marianjoy Rehabilitation Hospital, part of Northwestern Medicine

Inpatient Rehabilitation

630.909.8000

26w171 Roosevelt Road, Wheaton

Outpatient Rehabilitation Services

630.909.7150

26w171 Roosevelt Road, Wheaton

Regional Medical Group at Marianjoy

630.909.7000

26w171 Roosevelt Road, Wheaton

Northwestern Medicine Kishwaukee Hospital

815.756.1521

1 Kish Hospital Drive, DeKalb

Northwestern Medicine Neurology

630.933.4056

5 Kish Hospital Drive, Suite 203, DeKalb

Northwestern Medicine Rehabilitation Services

815.748.8900

2111 Midlands Court, Sycamore

Diabetes Education Services

815.748.8378

5 Kish Hospital Drive, Suite 202, DeKalb

Physician Finder

815.748.2974

Follow-up testing

815.756.1521

If you need further tests, such as an MRI or bloodwork, please call the registration line to schedule.

Medical records

815.756.1521 ext. 153365

If you need copies of your medical records for yourself or another clinician, please contact our Medical Records Department.

Northwestern Medicine Palos Hospital

Northwestern Medicine Neurology Palos Heights

708.226.2890

12255 South 80th Avenue, Suite 203, Palos Heights

Northwestern Medicine Neurosurgery Palos Heights

708.827.2021

12255 South 80th Avenue, Suite 203, Palos Heights

Northwestern Medicine Rehabilitation Services

708.923.5050

12251 South 80th Avenue, Palos Heights

15430 West Avenue, Orland Park

Follow-up testing

708.827.2030

12251 South 80th Avenue, Palos Heights

Medical records

708.923.4664

12251 South 80th Avenue, Palos Heights

Diabetes Education Services and Nutrition

708.226.2626

15300 West Avenue, Orland Park

Northwestern Medicine Valley West Hospital

815.786.8484

1302 North Main Street, Sandwich

Northwestern Medicine Neurology

630.933.4056

5 Kish Hospital Drive, Suite 203, DeKalb

Northwestern Medicine Rehabilitation Services

815.786.8550

1310 North Main Street, Suite 202, Sandwich

Diabetes Education Services

815.786.3684

1310 North Main Street, Suite 207, Sandwich

Physician Finder

815.786.3733

Follow-up testing

815.786.8484

If you need further tests, such as an MRI or bloodwork, please call this registration line to schedule.

Medical records

815.786.3741

If you need copies of your medical records for yourself or another clinician, please contact our Medical Records Department.

Stroke Support Group

For patients and caregivers

Recovery after a stroke is often a lifelong process for everyone impacted. Some people recover fully from a stroke. Others face challenges for the rest of their lives. Just as every stroke is different, life after stroke is different for everyone.

The Northwestern Medicine Stroke Support Group provides support, education and an opportunity for survivors, caregivers and family members to share their own experiences. Run by members of our comprehensive stroke team, meetings include expert discussions on different topics related to post-stroke care. There is also time for questions and an open forum.

Available sessions
Fourth Wednesday of every month

Time
4 to 5pm

Location
Northwestern Medicine Medical Offices
2900 Foxfield Road, St. Charles

RSVP
630.933.3278 (FAST)

Marianjoy Stroke Support Group

Speakers present information on improving the physical and mental health of people who have survived a stroke.

First Tuesday of each month
No meeting in January or February

Time
4 to 5pm

Location
Marianjoy Outpatient Pavilion, Conference Rooms 1 & 2

Contact
claire.vanacker@nm.org or elise.rohan@nm.org

SNAP: Stroke Network Activities and Programs

Run by a speech-language pathologist, this support group offers a friendly and accepting atmosphere to empower and motivate stroke survivors, caregivers and family members. You will learn more about recovery, rehabilitation and prevention, and meet others who have had similar experiences.

Available sessions
First Thursday of every month

Time
1:30 to 3:00pm

Location
Northwestern Medicine Kishwaukee Health & Wellness Center
Lower Level Conference Room
626 Bethany Road, DeKalb

RSVP
815.748.8900 ext. 156034

Brain Aneurysm Support Group

Every other month, Central DuPage Hospital hosts a support group for patients diagnosed with a brain aneurysm and for their caregivers.

Run by an aneurysm survivor and a nurse expert, this group provides support, education, awareness and an opportunity to share your own experience.

Each meeting includes time for questions and open discussion.

Available sessions
First Wednesday of every other month

Time
6:30 to 7:30pm

Location
Central DuPage Hospital
Winfield Room
25 North Winfield Road, Winfield

RSVP
630.933.2191

Northwestern Medicine offers the following rehabilitation services:

Occupational therapy

Physical therapy

Speech therapy

Aquatic therapy

Chronic pain therapy

Cognitive rehabilitation

Ergonomic assessment

Hand therapy

Language therapy, including articulation

Neurological rehabilitation

Sensory integration and processing

Northwestern Medicine Aphasia Center at Marianjoy**

Driver rehabilitation program**

Prosthetics and orthotics clinic**

Spasticity management

Swallowing disorders assessment and treatment, including videofluoroscopic evaluation and VitalStim therapy*

Tracheotomy rehabilitation*

Ventilator-dependency rehabilitation*

Vestibular and balance disorders treatment

Voice assessment and treatment

Wound care

*Available only at Central DuPage Hospital, Delnor Hospital and Marianjoy Rehabilitation Hospital

**Available only at Marianjoy Rehabilitation Hospital



Northwestern Medicine Central DuPage Hospital

25 North Winfield Road
Winfield, Illinois 60190
630.933.1600

Northwestern Medicine Delnor Hospital

300 Randall Road
Geneva, Illinois 60134
630.208.3000

Northwestern Medicine Kishwaukee Hospital

1 Kish Hospital Drive
DeKalb, Illinois 60115
815.756.1521

Northwestern Medicine Palos Hospital

12251 South 80th Avenue
Palos Heights, Illinois 60463
708.923.4000

Northwestern Medicine Valley West Hospital

1302 North Main Street
Sandwich, Illinois 60548
815.786.8484

**Marianjoy Rehabilitation Hospital,
part of Northwestern Medicine**

26w171 Roosevelt Road
Wheaton, Illinois 60187
630.909.8000

TTY for those who are deaf or hard of hearing: 711

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