Central South Regional Stroke

Patient and Family Education Resources

February 2025

Index

Signs and Symptoms of Stroke

Learn the signs of stroke so you can act quickly!

FACE drooping

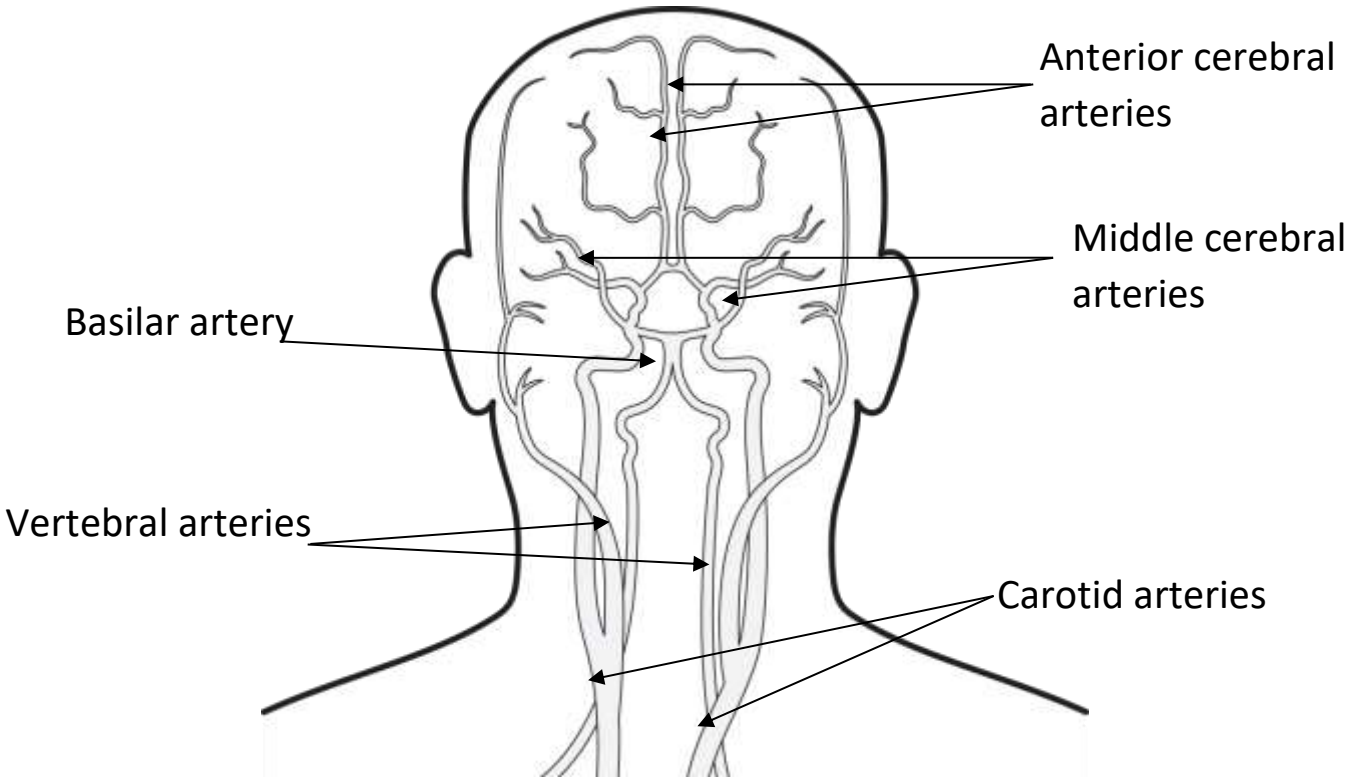
ARM weakness

SPEECH difficulty

TIME is critical

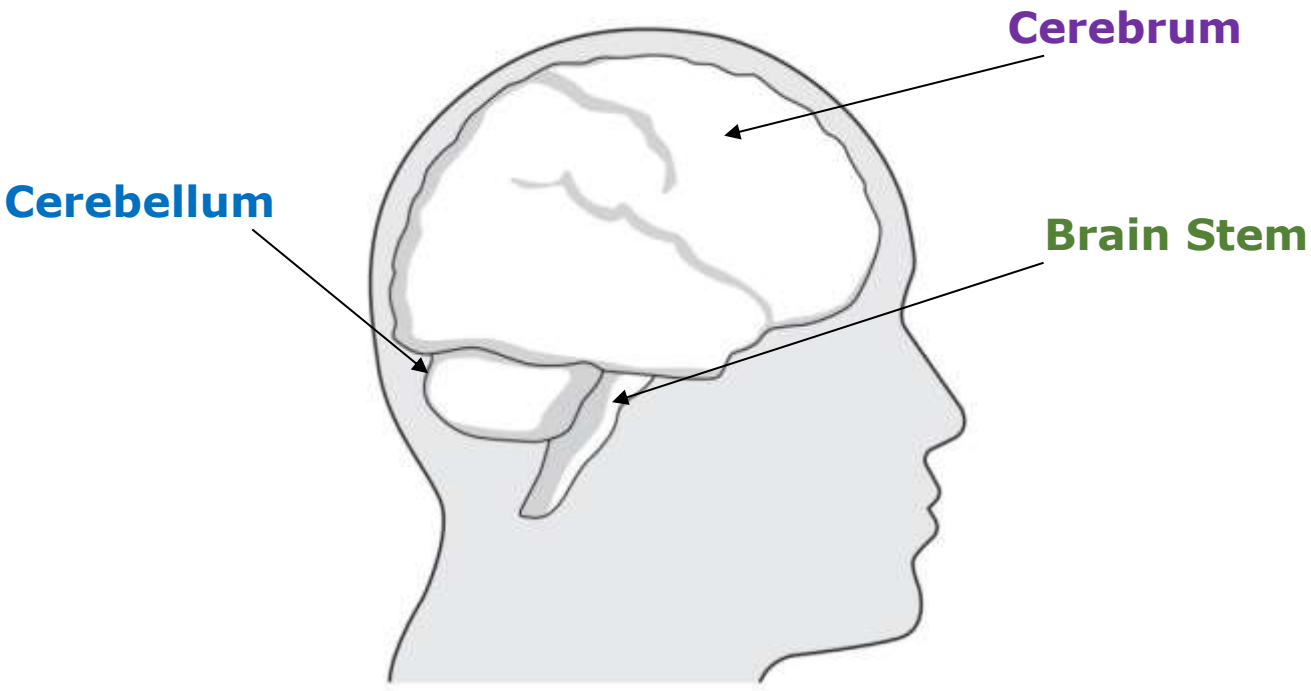
What is a stroke?

Stroke is a sudden loss of brain function caused by the blockage of blood flow to the brain or the rupture of arteries in the brain.



Each stroke is different. The effects of the stroke depend on where and how much of the brain was injured.

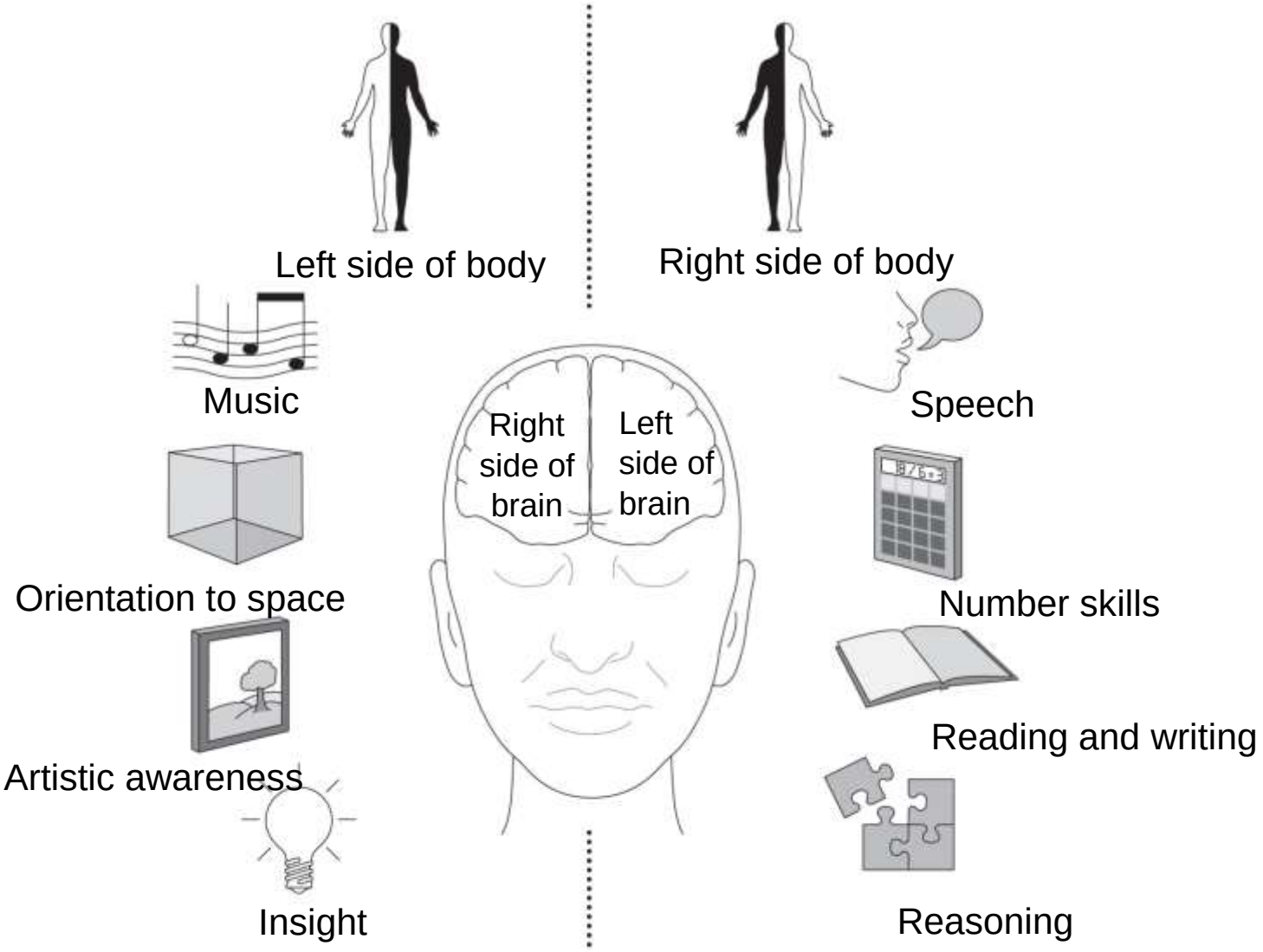
Location of Stroke



Stroke in the Cerebrum

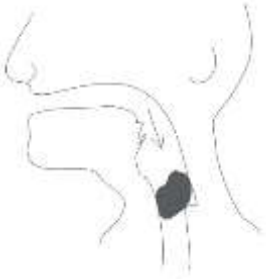
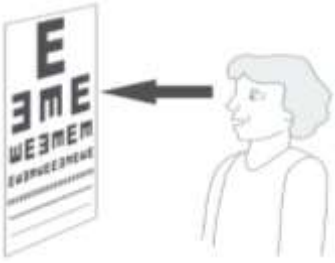
The cerebrum is the largest part of the brain divided into right and left sides. It controls speech, thinking, reasoning, memory, motor movement, vision and emotions.

Effects from your stroke depend on which side of the brain was injured.



Stroke in the Brain Stem

Can cause problems with:

 Weakness in both arms and legs	 Breathing	 Heart
 Controlling body temperature	 Balance and coordination	 Chewing and swallowing
 Speaking	 Seeing	

Stroke in the Cerebellum

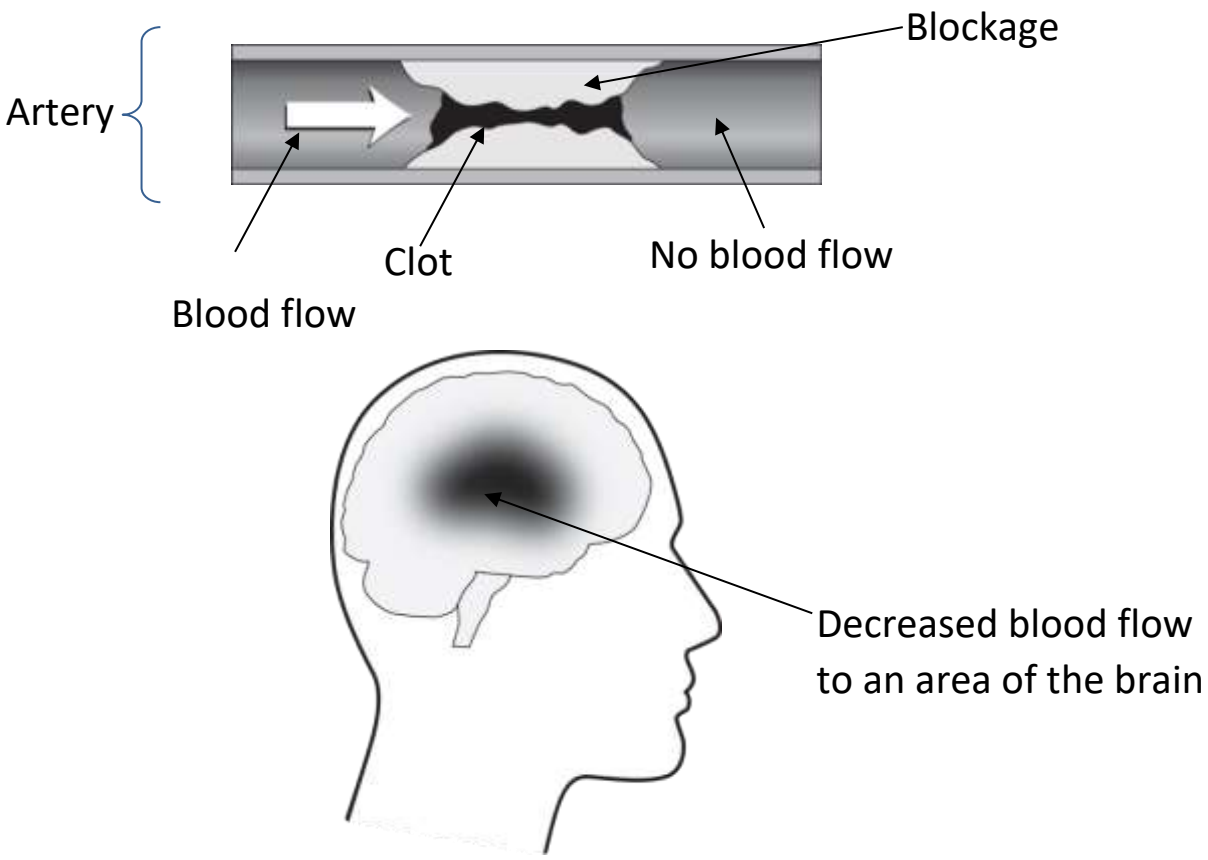
Can cause:

 Walking, co-ordination and balance problems	 Dizziness	 Headache
 Nausea	 Vomiting	

Types of Stroke

Ischemic Stroke

Caused by a blood clot or an artery blockage leading to the brain cutting off blood flow.

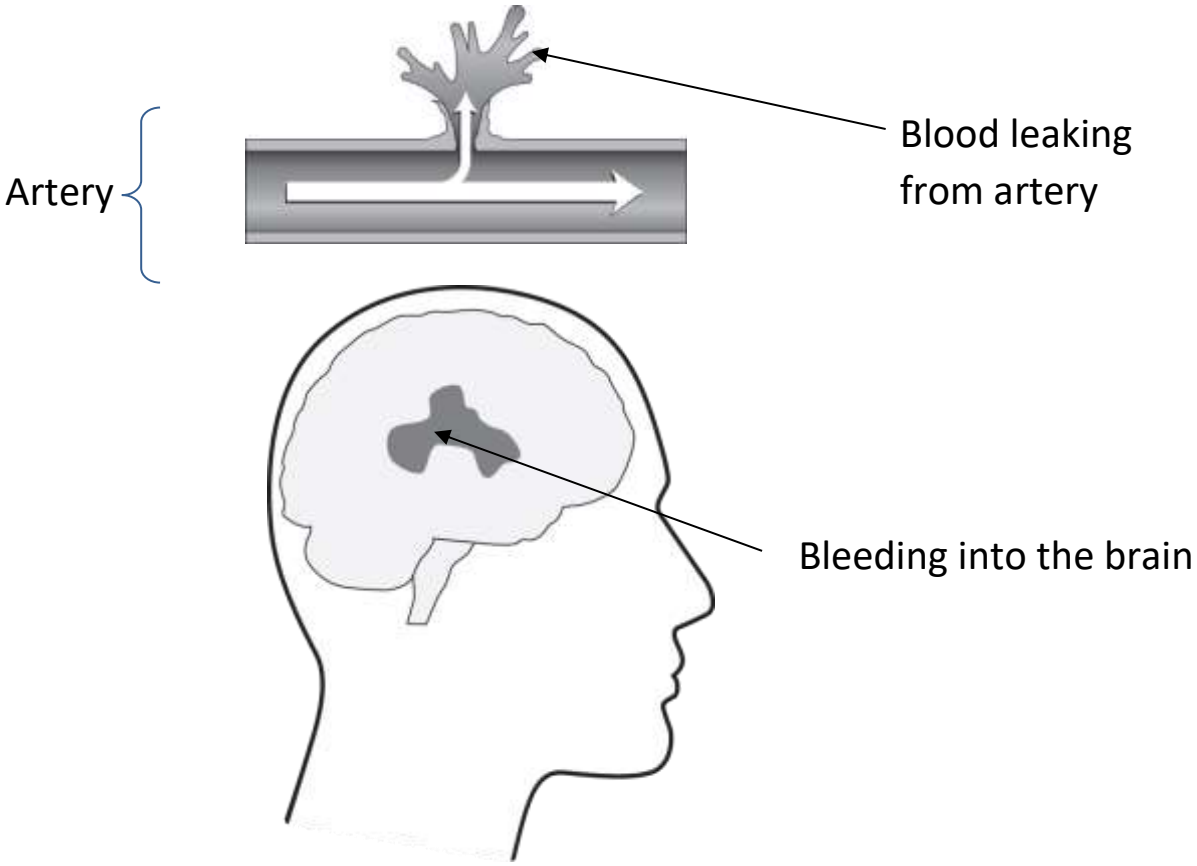


Types of Ischemic Stroke:

- **Embolic Stroke**: blood clot that is formed outside of the brain that travels and lodges in the brain arteries.
- **Thrombotic Stroke**: damaged brain arteries become blocked by the formation of a blood clot.

Hemorrhagic Stroke

Burst artery in the brain allowing blood to leak inside the brain causing damage.



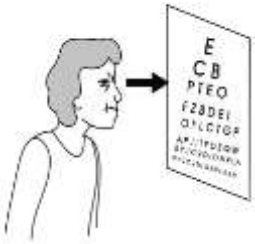
Types of Hemorrhagic Stroke

- **Intracerebral Hemorrhage:** artery in the brain breaks and the blood enters the brain.
- **Subarachnoid Hemorrhage:** a weakened wall (aneurysm) of the brain artery breaks causing bleeding into the space surrounding the brain (subarachnoid space).

Transient Ischemic Attack (TIA)

Caused by a small clot that briefly blocks blood supply to the brain. TIAs are a serious sign of an increased risk of stroke.

Signs of TIA are the same as a stroke but are temporary.

 Weakness	 Vision problems	 Trouble speaking
 Dizziness	 Headache	

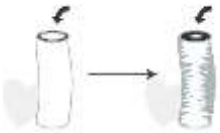
Stroke Risk Factors

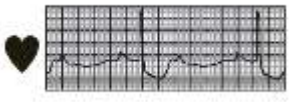
These risk factors **cannot** be controlled:

- Increasing age
- Women at greater risk than men
- Family history of stroke or heart disease
- Ethnicity – Indigenous Heritage, African, South Asian
- History of Stroke or TIA

These risk factors **can be** controlled:

Risk Factor	**What can be done …**
High blood pressure (BP)  	Check BP regularly. BP should be less than 140/90 or less than 130/80 if you have diabetes. If BP is consistently above these numbers, follow up with the health care team. When to check BP: • At least two hours after eating • After emptying bladder and bowel • One hour after drinking coffee or smoking • Thirty minutes after exercise • After resting for five minutes How to take BP: • Without talking or moving • Seated position • Feet flat on the floor • Arm supported with middle of cuff at heart level

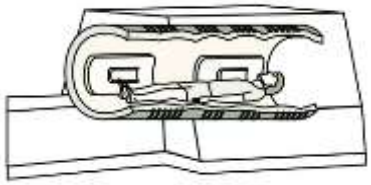
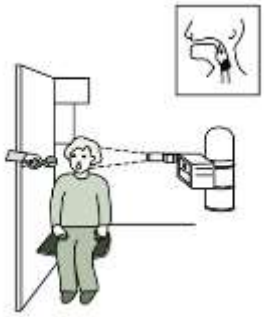
Risk Factor	What can be done …
Tobacco or vape product use 	Quit tobacco or vape products to reduce plaque build-up in arteries and prevent blood clotting. Ask for help to develop a plan to quit. Contact Smokers' Helpline: 1-866-797-0000 or www.smokershelpline.ca
Excessive alcohol 	Reduce alcohol intake. Do not exceed two standard drinks per week. A standard drink means: • Beer, cider, cooler, pre-mixed drinks: 341 mL • Wine: 142 mL • Spirits: 43 mL
High cholesterol 	Aim for an LDL cholesterol level less than 1.8.
Diabetes 	Keep blood sugars within the normal range of 5 – 7 mmoL. Get blood sugar checked every 3 months. Aim for a Hemoglobin A1C of less than 7%.

Risk factor	What can be done …
Unhealthy Food Choices 	Make healthy food choices to decrease stroke risk.
Inactivity 	Slowly re-introduce physical activity as advised by the health care team. At least 30 minutes of exercise daily can reduce stroke risk.
Stress 	Identify stressors, be active, make time to relax and laugh often. Seek support.
Atrial Fibrillation (AFib) 	An irregular heartbeat causes blood clots to form in the heart, travel to the brain and cause stroke. Medication (anticoagulant) may be started to prevent blood clots from forming in the heart. Take medication as directed.

Possible Tests after Stroke

Test	Purpose
Blood tests 	Checks: • cholesterol • blood sugar
Carotid Doppler 	Checks: • blood flow to brain • plaque build up narrowing neck arteries
Electrocardiogram (ECG/EKG) 	Records hearts' electrical activity.
Holter Monitor 	Records heart rhythms over 24 - 48 hour period checking for abnormal rhythms.

Test	Purpose
Echocardiograms (ECHO) 	Checks: • structure and function of the heart • if a heart condition is causing blood clots in the heart
ECHO Bubble Study	Checks if there is a hole in the wall of the heart
Transesophageal (TEE) Echocardiogram	Checks if heart is producing blood clots by inserting a tube into the esophagus.
Computerized Tomography (CT scan)  	X-ray picture of the brain. Checks: • type of stroke • affected brain area
CT Angiography (CTA)	Checks brain artery blood flow to find blockages.

Test	Purpose
Magnetic Resonance Imaging (MRI)  **MR Angiography (MRA)**	Checks affected brain areas. Checks brain artery blood flow to find blockages.
Videofluoroscopic study of swallowing (VFFS) **Modified Barium Study (MBS)** **Flexible Endoscopic Evaluation of Swallow (FEES)** 	Checks how food or drink is swallowed and if it enters the lungs (aspiration).
Electroencephalogram (EEG)	Records brainwaves to check for seizure activity.

Stroke Treatments

A stroke that is caused by a blockage of blood flow to the brain is called an ischemic stroke. The health care team may suggest treatments such as:

- **Thrombolysis** – IV medication to help dissolve the blockage. Some patients are not eligible to receive thrombolysis because of medical conditions or medicines taken.

- **Thrombectomy** – a procedure to remove the blood clot.

A CTA (computed tomography angiogram) will be done to look at blood vessels and flow in the brain to determine if the patient can receive a thrombectomy.

Thrombolysis for Ischemic Stroke

A stroke that is caused by a blockage of blood flow to the brain is called an ischemic stroke.

One treatment for ischemic stroke is thrombolysis. This IV medication helps to dissolve the blockage. The earlier the medication is given the more likely it is to be effective.

The doctor will determine if this is an option based on medical history, medications, when symptoms started and CT test results.

The doctor will discuss the benefits and risks of the treatment. Talk to the health care team if there are questions about thrombolysis or other treatments for stroke.

Endovascular Thrombectomy (EVT)

A stroke that is caused by a blockage of blood flow to the brain is called an ischemic stroke.

One treatment for ischemic stroke is EVT a procedure to remove the blockage. Also called clot retrieval. The earlier the procedure is done the more likely it will be effective.

The doctor will determine if this is an option based on medical history, when symptoms started and CT and CTA test results.

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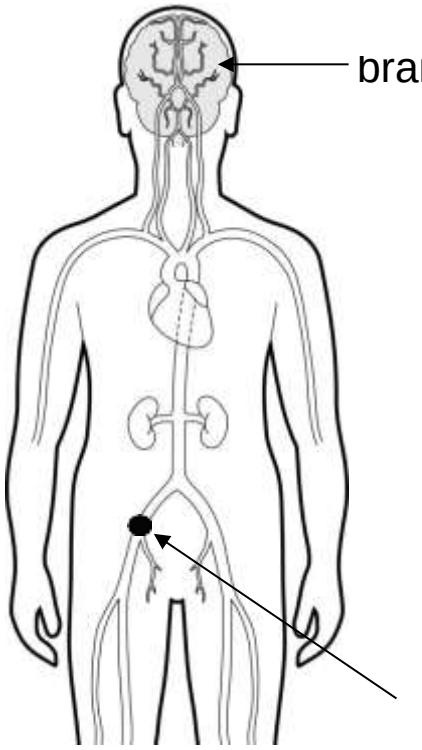
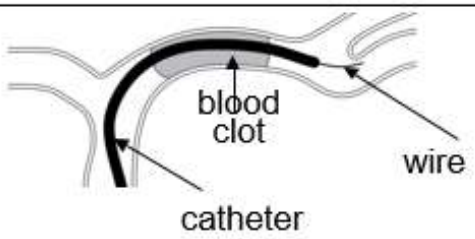
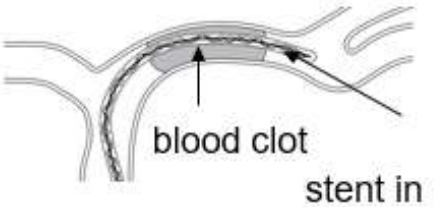
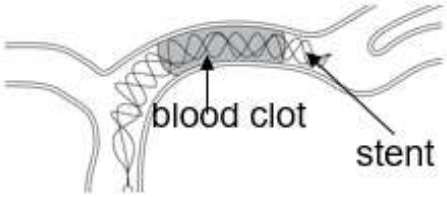
How is thrombectomy done?



A small tube is inserted in the femoral artery

	A wire and catheter are inserted through the tube and passed through the artery to the clot.
	The wire is removed and a stent is inserted through the clot.
	The stent expands through the clot and both are removed.

Preparing for the thrombectomy

- Transfer to another hospital that does the procedure may be required.
- The doctor doing the procedure will answer questions, ask for consent, and direct family where to wait.

During the Procedure

- The health care team will provide support and monitoring.
- A urinary catheter will be placed and the hair removed from the groin area.
- IV medication will be provided to help with comfort.
- Procedure takes 1 to 2 hours.
- A small bandage will be placed on the puncture site at the end of the procedure.

After the Procedure

- Close monitoring will be provided.
- Family can visit.
- Doctor will provide an update.
- It is important to lie flat and keep the affected leg straight for **4 to 6 hours.**
- Some movement is permitted:
    - turn from side to side with help
    - wiggle toes
    - bend the leg that was **NOT** used for the procedure
    - have the head of their bed raised slightly
- Groin area will be monitored for bleeding and swelling.
- Legs and feet will be monitored for circulation.
- An intravenous (IV) will provide fluids.
- Once it is safe to swallow, drinking fluids is encouraged to help flush x-ray contrast from body.
- When stable, patient will be transferred to the stroke unit.
- Transfer back to the local stroke centre will take place within 24 to 48 hours after the procedure.

Talk to the health care team if there are any questions.

Stroke Prevention Clinic

You have been referred to the Stroke Prevention Clinic because you may have had a stroke or a transient ischemic attack (TIA). It is important that you are seen in this clinic for early assessment and treatment.

Your appointment at the Stroke Prevention Clinic

- You will be called with your appointment details.
- Ensure your contact information is updated.
- You may have tests done prior to your appointment.

What to bring to your appointment?

• Someone to accompany you
• Medications in original containers
• Health card

What to expect?

• Plan to be at the clinic for 1 to 3 hours.
• You will meet with a stroke prevention specialist.
• You may have tests, treatments or be referred to another specialist.
• The clinic will send a report to your family doctor.

What to do in the meantime?

• Do not drive until cleared by your family doctor or the specialist.
• Take medications as prescribed.
• If you have signs or symptoms of a stroke, call 911 right away.

The Health Care Team

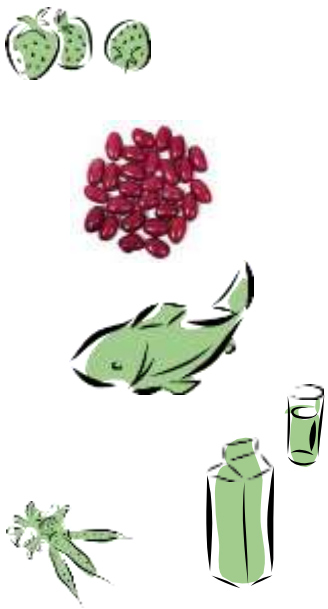
The health care team will teach about:

- what has happened
- risk factors for stroke and how to manage them
- what treatment and care is needed
- medications
- what to expect in the recovery journey

Team Member	How they help
Patient and care partners	○ take an active role in care ○ share questions and concerns
Doctors/ Advanced Practice Nurses	○ organize medical care ○ provide health teaching
Registered Nurse/ Registered Practical Nurse	○ assist with daily care and health teaching
Dietitian/ Dietetic Assistant	○ assess and manage nutritional needs
Occupational Therapist/ Occupational Therapy Assistant	○ support independence in daily activities ○ assist with special equipment
Physiotherapist/ Physiotherapist Assistant	○ support daily physical activity ○ Improve mobility and balance
Pharmacist	○ review and answer questions about medications
Social Worker	○ provide coping strategies and support
Speech-Language Pathologist/ Communications Disorder Assistant	○ make recommendations for swallowing problems ○ assist with communication needs
Ontario Health at Home	○ arranges services in the community
Chaplain/Spiritual Care	○ provide spiritual guidance and support
Stroke Peer Visitor	○ provides emotional support, education and connections to the community
Therapeutic Recreationist	○ support leisure needs and goals
Discharge Planner/Navigator	○ support discharge planning

Make Healthy Food Choices

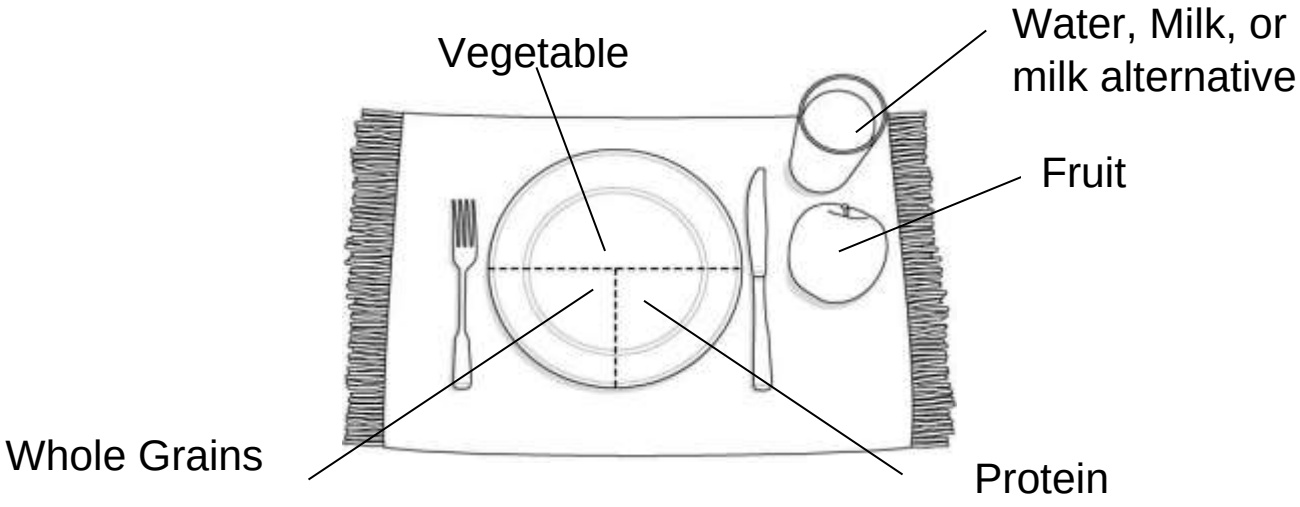
- Eat mostly plant-based foods **daily** such as:
  - vegetables and fruit
  - legumes
  - unsalted nuts, nut butters and seeds
  - whole grains
- Eat fish a few times/week
- Choose white meat. Limit red meat. Avoid processed or cured meats
- Include low fat dairy products
- Limit cheese to portions the size of thumb
- Include healthy oils (olive or canola)
- Limit sweets to once/week
- Choose water over soft drinks and juice



Examples of healthy servings

Divide plate into 4 equal parts:

- Fill ½ of plate with vegetables
- Fill ¼ of plate with whole grains or starchy vegetables
- Fill ¼ of plate with protein foods
- Have a glass of water, milk or milk alternative and a piece of fruit to complete meals



Fibre

- Adults should get 25 to 38 grams each day
- To increase fibre include whole grains, fruits and vegetables

Salt (Sodium)

Adults should have less than 2000 milligrams (mg) /day

Nutrition Facts Table

Nutrition Facts	
Per 250 mL (1cup)	
Amount	% Daily Value
Calories 110	
Fat 1 g	2%
Saturated 0.5 g + Trans 0 g	3%
Cholesterol 10 mg	
Sodium 770 mg	29%
Carbohydrate 22 g	7%
Fibre 4 g	16%
Sugars 6 g	
Protein 3 g	

Sodium content of food is found on the Nutrition Facts food labels.

To control the sodium, choose unprocessed and homemade foods and use herbs, spices and lemon juice.

Stroke Medications

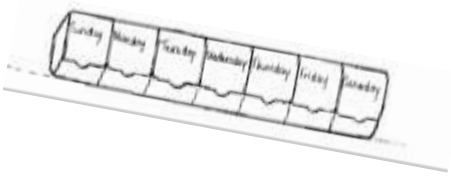
When you have had a stroke, medications will help lower your risk of having another stroke. You may need medications to:

- Prevent blood clots
- Lower blood pressure
- Lower cholesterol
- Manage diabetes
- Help heart beat more slowly and strongly

Medications have needed effects and possible side effects. Ask the health care team any questions about the medications.

Tips:

- Understand your medications:
  - **why** you are taking them
  - **how and when** to take them
  - **potential** side effects
- **Do not stop** taking medication without checking with your health care team
- Keep an updated list of your medications with you
- Pill organizers can be helpful



- Check with your health care team before taking:
  - over-the-counter medication
  - supplements
  - herbal treatments
- Do not share medications
- Use the same pharmacy
- Do not mix alcohol or drugs and medications

Recovery after Stroke

A stroke is an injury to the brain. The effects of stroke can be physical, mental or emotional. Recovery after stroke depends on how much of and what parts of the brain were damaged.

The uninjured brain can learn to take over some of the functions of the injured area. This re-learning process takes time, energy and repetition.

Depending on the effects of stroke, people may require rehabilitation therapy and this can occur in hospital, in outpatients or in community.

Everybody recovers from stroke differently in their own time.

Changes in Thinking, Behaviour, and Mood after Stroke

A stroke can change the way a person thinks, behaves, and feels. The changes depend on:

- type and severity of stroke
- injured area of the brain
- when stroke happened

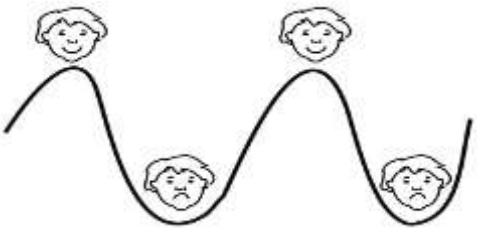
Common Changes	Tips
Decreased attention or concentration	• Reduce distractions • Talk slowly
Confusion or difficulty remembering	• Write information down • Keep a routine
Poor judgement or impulsive behaviour	• Supervise tasks • Encourage slowing down
Mismatch of feelings and expressed emotions	• Ask what emotion is being expressed

Mood changes are a normal reaction after stroke. Up to half of all people who have had a stroke will have some degree of depression. It can happen right after the stroke or weeks later. Symptoms vary from mild to severe.

Common Changes	What You May See
Lack of motivation or interest	• Appetite and weight changes • Headaches, chronic pain, upset stomach • Feeling worthless • Worry or fear • Withdrawing from people/events • Trouble sleeping
Anger, frustration or irritability	
Anxiety	
Depression	

- If you are concerned, tell the health care team right away and ask what supports are available.
- Visit www.ontario.cmha.ca or www.marchofdimes.ca.

Each person is unique.



You are not alone in how you feel.

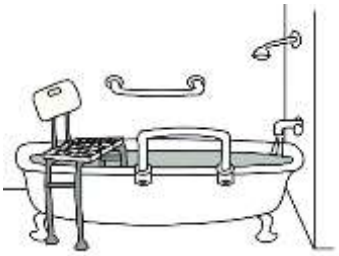
The health care team is here to support you.

Falls Prevention

A person who has had a stroke can be at higher risk for falls due to:

- poor balance
- decreased strength
- reduced vision or hearing

Preventing Falls

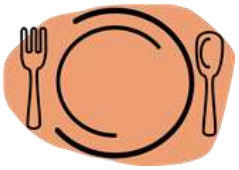


Bathroom

- Have help nearby and use:
  - non-slip surfaces in the tub
  - grab bars by the toilet and bath
  - raised toilet seat
  - shower seat

In and outside the house

- Reduce clutter, get rid of scatter mats
- Have good lighting
- Store items in easy-to-reach locations and heavy items in lower cupboards
- Get out of bed or chair slowly
- Have handrails on both sides of stairs
- Lead up with strong leg and down with weak leg



Eat health meals

- Avoid skipping meals – nutritious meals help maintain strength

Keep fit

- Do some activity every day to build up strength
- If medication causes dizziness or sleepiness, adjust activities

Use safety aids

- Wear glasses and hearing aids
- Wear comfortable shoes that provide good support
- Talk to health care team about using an aid for walking

Fatigue after Stroke

Post-stroke fatigue is a sense of intense tiredness that does not get better with sleep that may be noticed after discharge. Fatigue is one of the most common effects of a stroke and can range from mild to severe. Recovering from stroke takes a lot of energy.

Tips to manage fatigue:

- Allow plenty of time for tasks
- Take breaks
- Don’t overdo it, you may feel exhausted the next day
- Take rests
- Maintain some level of exercise
- Make healthy food choices

The health care team can answer questions.

Relationships, Intimacy, and Sexuality

After a stroke, sexual relationships and intimacy can be affected by:

- fatigue, depression, fear
- sensory changes
- motor weakness
- difficulty communicating
- changes related to obtaining an erection or vaginal dryness

People must decide when they are ready to return to having sex.

Speak with the health care team with questions about intimacy.

Driving after Stroke

A stroke can affect concentration, attention, quick judgment, vision and endurance that affects safe driving. In Ontario, your doctor may report to the Ministry of Transportation (MTO) that you have had a stroke affecting your ability to drive. You will receive a letter from the MTO with notice of whether or not your license has been suspended.

The rules in Ontario are:

- no driving for at least one month after your stroke
- doctor **must** assess readiness to drive after 30 days
- after 30 days, the health care team will re-assess ability to return to driving

It is illegal to drive with a suspended license.

Return to Work and Financial Supports

The effects of your stroke may affect you at work. Speak to the health care team about returning to work safely.

Things to review:

- medical clearance for work
- return to work plan
- financial assistance

Contact your work as there may be services that can help. You may be eligible for financial support from your work or the government. This paperwork is best completed **before** discharge.

Planning for Discharge

When you are leaving the hospital, make sure you ask about:

Question	Who to ask
1. What follow-up appointments, tests or procedures do I have?	Nurse or Doctor
2. What equipment or assistive aids do I need at home?	Physiotherapist or Occupational Therapist
3. What should I know about my medications?	Nurse or Pharmacist
4. When do I need to visit my family physician?	Nurse or Doctor
5. What exercises do I need to do at home?	Physiotherapist
6. What are my goals that I need to work on at home?	Physiotherapist, Occupational Therapists Speech Language Pathologist Nurse
7. Do I need to arrange to have someone to help me when I get home?	Social Worker

Community Stroke Resources

If you have questions or need further help after discharge, please call:

Ontario Health at Home: Waterloo Wellington

1-888-883-3313 ext. 7407

Monday – Friday 8:30 - 8:30

Ontario Health at Home: Hamilton, Niagara, Haldimand, Brant and Burlington

1-800-810-0000 ext. 1500

Monday – Friday 8:30 – 8:30

March of Dimes Canada After Stroke Support Line:

1-888-540-6666

Monday to Friday 8:30 – 4:30

Images used are from ParticiPics – a free, searchable database of pictographic images developed by the Aphasia Institute, https://www.aphasia.ca/participics