Stroke

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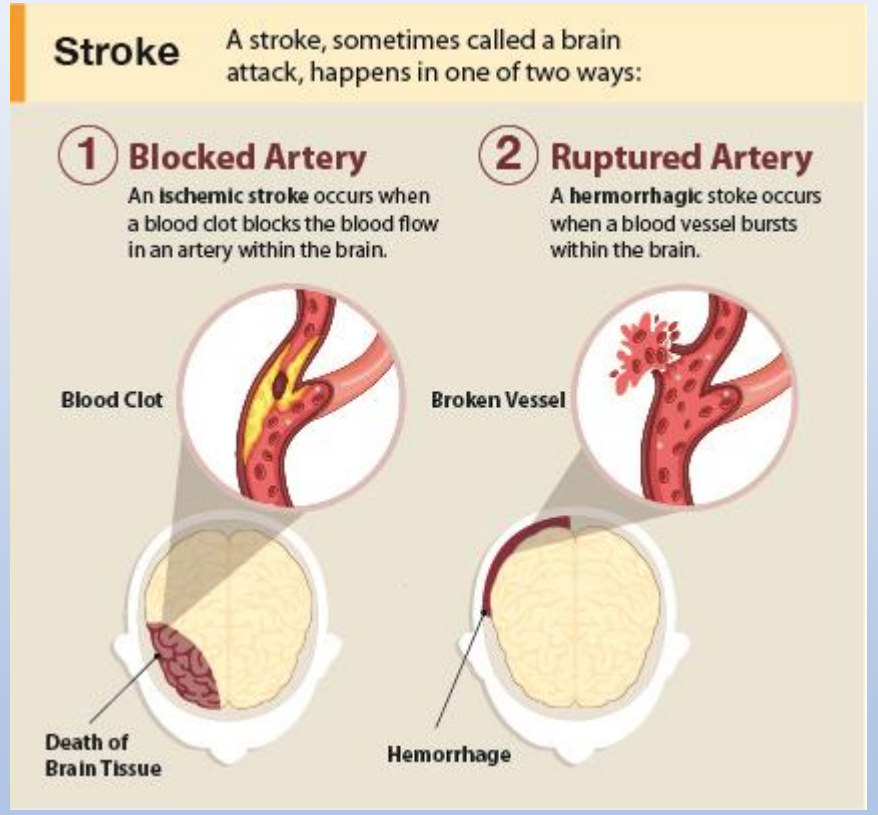
Outline of presentation

- Stroke Definition;
- Types of Stroke;
- Risk Factors;
- F.A.S.T.;
- Diagnosis;
- Physiotherapy;

About Stroke

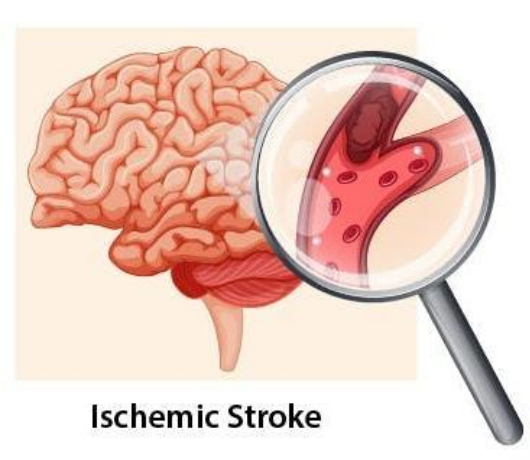
A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or bursts (or ruptures). When that happens, part of the brain cannot get the blood (and oxygen) it needs, so it and brain cells die.



https://www.cdc.gov/stroke/about.htm

Types of Stroke

1. Ischemic Stroke (About 87% of all strokes are ischemic.)



https://www.nhs.uk/conditions/stroke/

2. Hemorrhagic Stroke (About 13% of all strokes are hemorrhagic.)

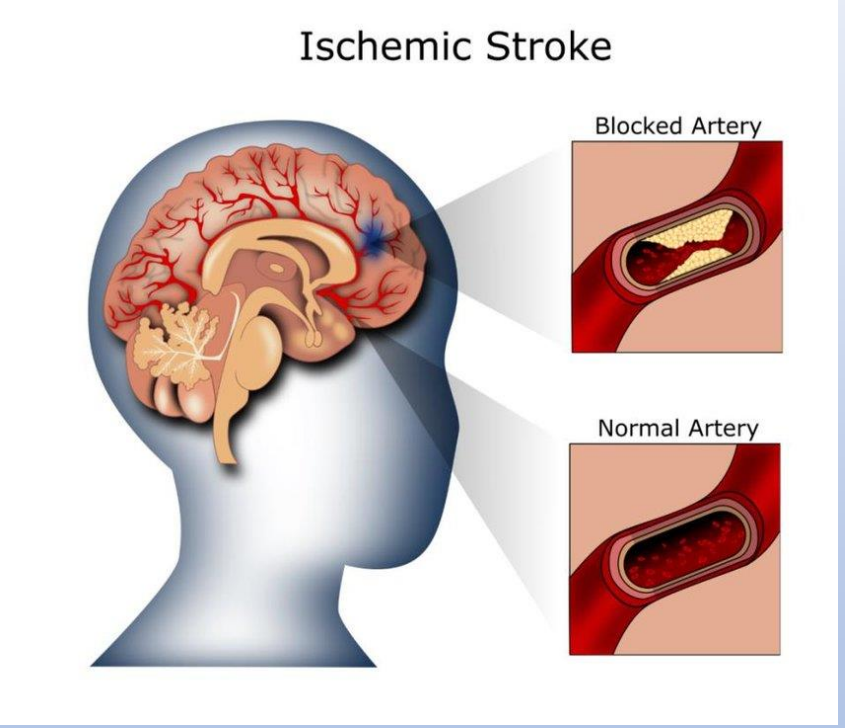
https://www.nhs.uk/conditions/stroke/

3. Transient ischemic attack (TIA or “mini-stroke”)

https://www.nhs.uk/conditions/stroke/

Ischemic Stroke

Ischemic stroke is one of three types of stroke. It is caused by a blockage in an artery that supplies blood to the brain. If circulation isn't restored quickly, brain damage can be permanent. Ischemic stroke is also called brain ischemia and cerebral ischemia. The blockage caused by this stroke reduces the blood flow and oxygen to the brain, leading to damage or death of brain cells. Approximately 87 percent of all strokes are ischemic strokes.



https://www.researchgate.net/figure/Illustration-of-ischemic-stroke_fig1_333439008

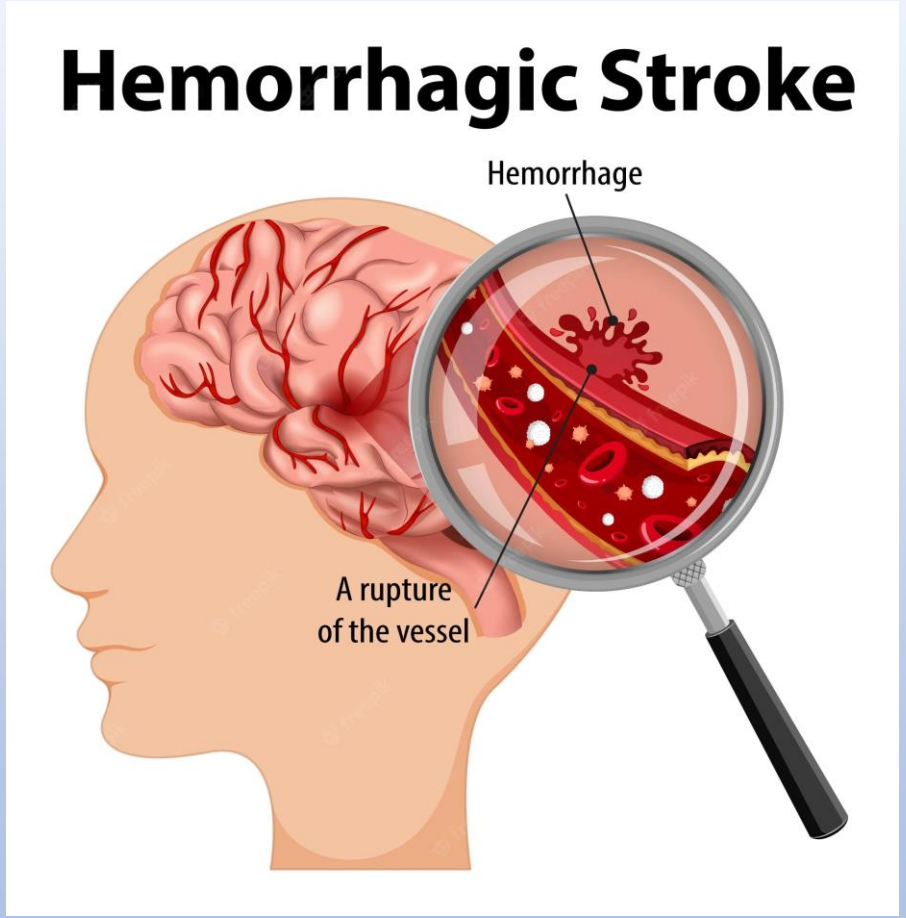
Hemorrhagic Stroke

Hemorrhagic strokes make up about 13 % of stroke cases. They're caused by a weakened vessel that ruptures and bleeds into the surrounding brain. The blood accumulates and compresses the surrounding brain tissue.

The two types of hemorrhagic strokes are intracerebral (within the brain) hemorrhage or subarachnoid hemorrhage.

A hemorrhagic stroke occurs when a weakened blood vessel ruptures. Two types of weakened blood vessels usually cause hemorrhagic stroke:

- Aneurysms;
- arteriovenous malformations.



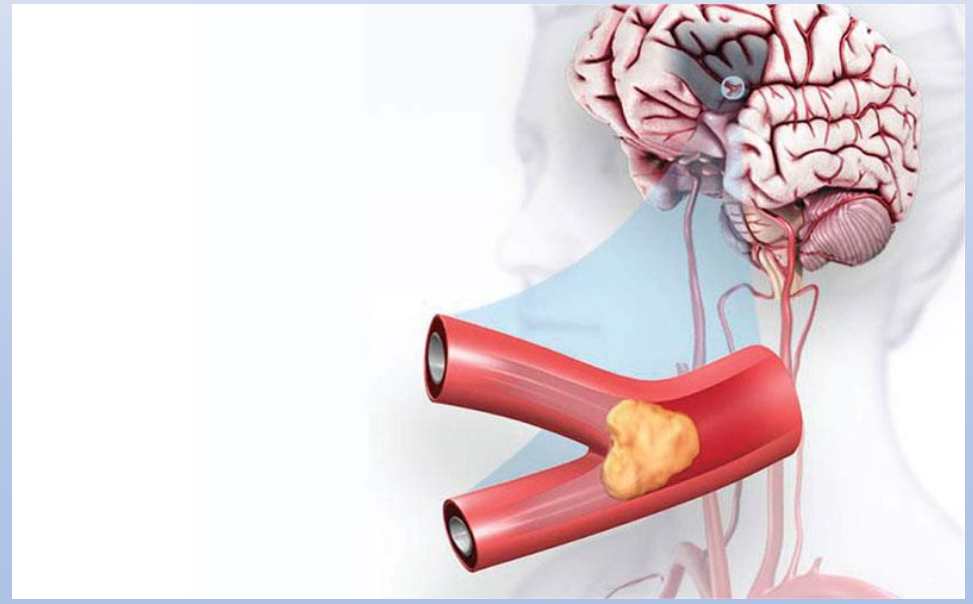
https://www.freepik.com/free-vector/human-with-ischemic-stroke_28767029.htm#query=ischemic%20stroke&position=1&from_view=keyword

Who is at risk for a stroke?

Anyone can have a stroke at any age. But your chance of having a stroke increases if you have certain risk factors. Some risk factors for stroke can be changed or managed, while others can't.

Risk factors for stroke that can be changed, treated, or medically managed:

- High blood pressure;
- Heart disease;
- Diabetes;
- Smoking;
- History of TIAs.

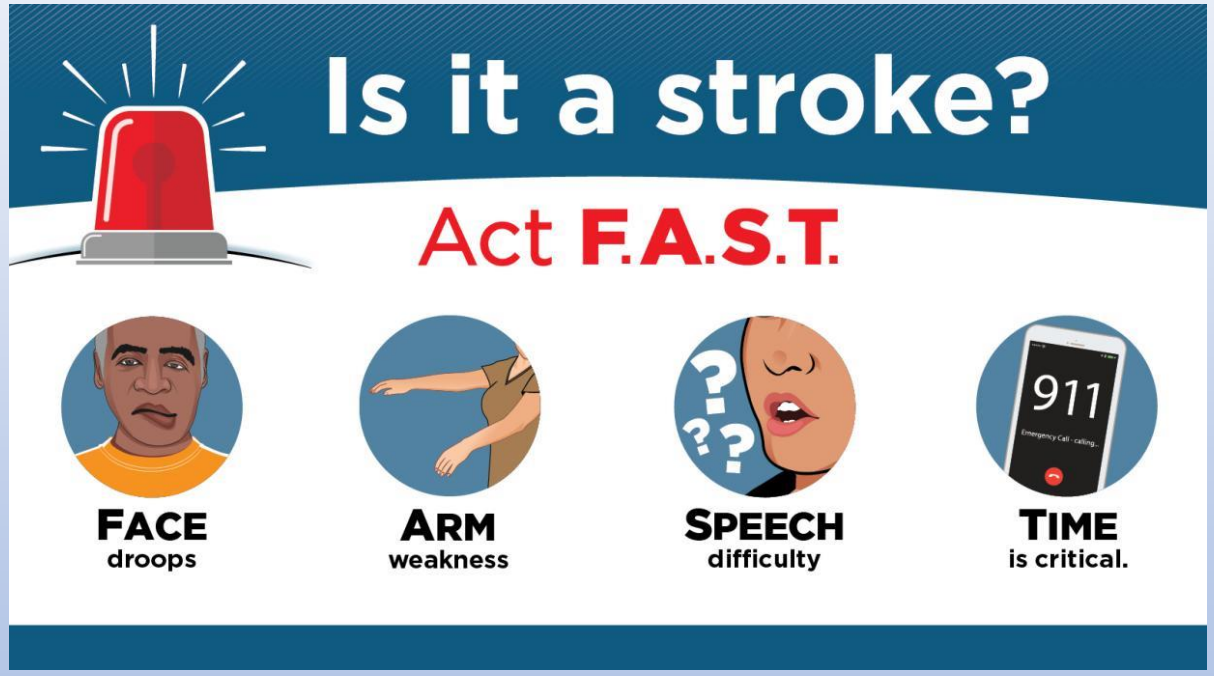


https://www.stroke.org/en/about-stroke/types-of-stroke/ischemic-stroke-clots

Act F.A.S.T.

A person could be having a stroke if they show *any* of these signs:

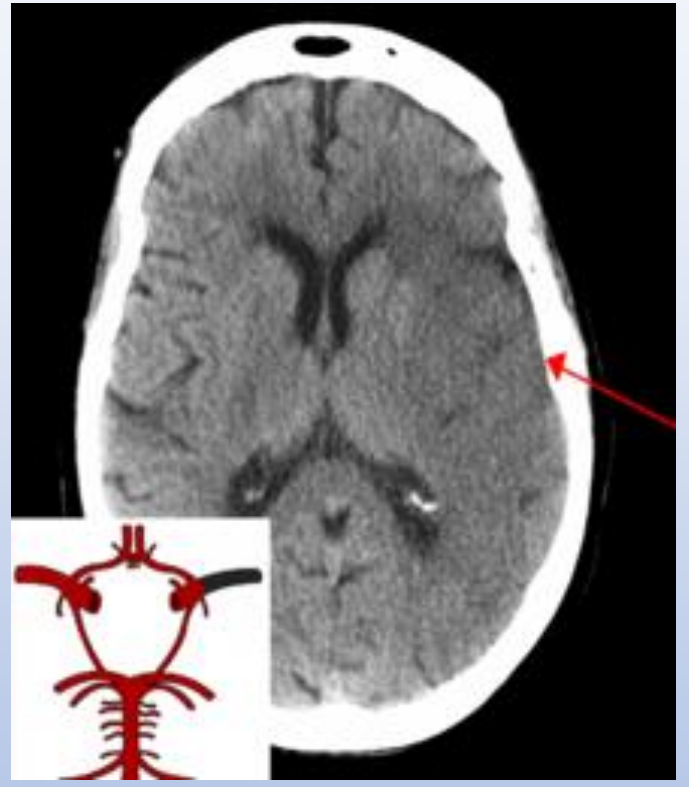
- Face droops on one side.
- Arm weakness. When the person lifts both arms, one arm drifts down.
- Speech difficulty. The person has trouble speaking, or is not making sense when speaking.
- Time is critical.



https://www.mass.gov/service-details/stroke-signs-and-symptoms-act-fast

Diagnosis

Stroke is diagnosed through several techniques: a neurological examination (such as the NIHSS), CT scans (most often without contrast enhancements) or MRI scans, Doppler ultrasound, and arteriography. The diagnosis of stroke itself is clinical, with assistance from the imaging techniques. Imaging techniques also assist in determining the subtypes and cause of stroke. There is yet no commonly used blood test for the stroke diagnosis itself, though blood tests may be of help in finding out the likely cause of stroke. In deceased people, an autopsy of stroke may help establishing the time between stroke onset and death.

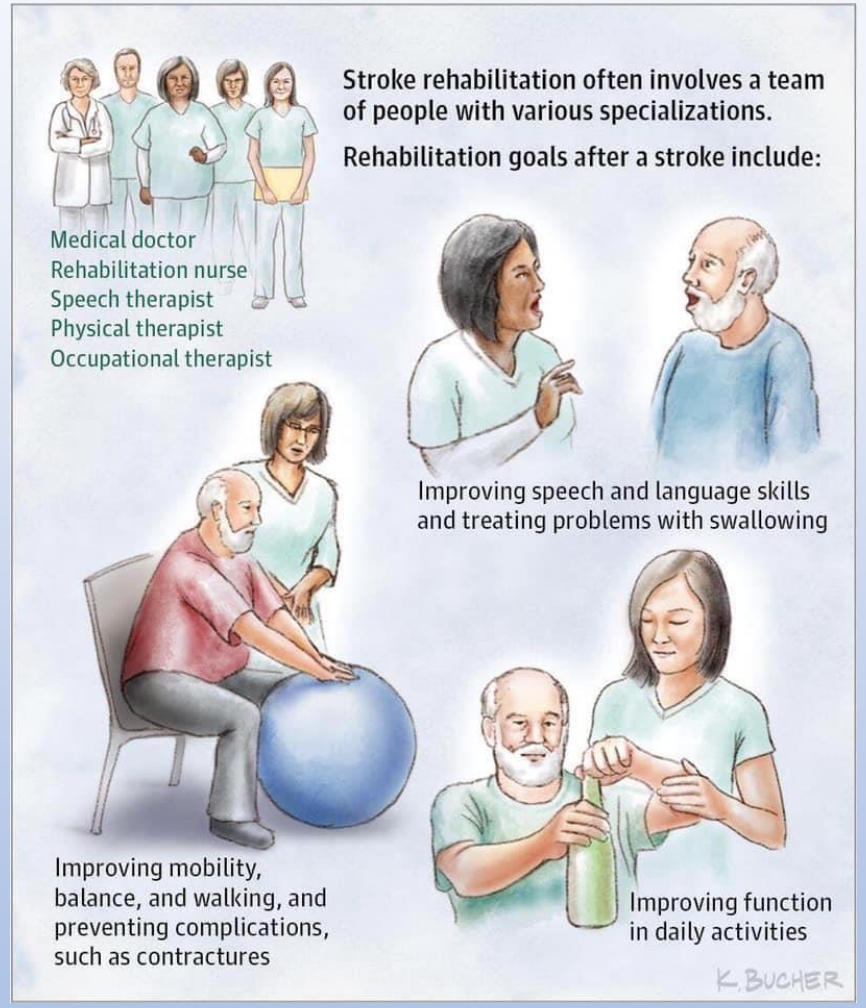


A CT showing early signs of a middle cerebral artery stroke with loss of definition of the gyri and grey white boundary

wikipedia.com

Physiotherapy

From 24 hours after a stroke, physiotherapists begin rehabilitation in short frequent spells, focused on getting out of bed, standing and walking. This repetitive task training helps people regain movement and relearn everyday activities.



https://www.facebook.com/physiotherapytool/photos/a.327481101163001/503734280204348/?paipv=0&eav=AfYVYRTGmUt3gXbNQLzSp4_sUY7msT1ekobAx7glkaWYQeqynEj1WzAv2XXNc61Jm0E&_rdr

NIHSS Scale

Table 1
National Institutes of Health stroke scale score

1a. Level of consciousness	0 = Alert; keenly responsive 1 = Not alert, but arousable by minor stimulation 2 = Not alert; requires repeated stimulation 3 = Unresponsive or responds only with reflex
1b. Level of consciousness questions:	0 = Both answers correct
What is the month? What is your age?	1 = Answers 1 question correctly 2 = Answers 2 questions correctly
1c. Level of consciousness commands:	0 = Performs both tasks correctly
Open and close your eyes Grip and release your hand	1 = Performs 1 task correctly 2 = Performs neither task correctly
2. Best gaze	0 = Normal 1 = Partial gaze palsy 2 = Forced deviation
3. Visual	0 = No visual loss 1 = Partial hemianopia 2 = Complete hemianopia 3 = Bilateral hemianopia
4. Facial palsy	0 = Normal symmetric movements 1 = Minor paralysis 2 = Partial paralysis 3 = Complete paralysis of 1 or both sides
5. Motor arm 5a. Left arm 5b. Right arm	0 = No drift 1 = Drift 2 = Some effort against gravity 3 = No effort against gravity; limb falls 4 = No movement
6. Motor leg 6a. Left leg 6b. Right leg	0 = No drift 1 = Drift 2 = Some effort against gravity 3 = No effort against gravity 4 = No movement
7. Limb ataxia	0 = Absent 1 = Present in 1 limb 2 = Present in 2 limbs
8. Sensory	0 = Normal; no sensory loss 1 = Mild-to-moderate sensory loss 2 = Severe to total sensory loss
9. Best language	0 = No aphasia; normal 1 = Mild to moderate aphasia 2 = Severe aphasia 3 = Mute, global aphasia
10. Dysarthria	0 = Normal 1 = Mild to moderate dysarthria 2 = Severe dysarthria
11. Extinction and inattention	0 = No abnormality 1 = Visual, tactile, auditory, spatial, or personal inattention 2 = Profound hemi-inattention or extinction
Total score = 0–42	

Adapted from National Institutes of Health, National Institute of Neurological Disorders and

https://healthjade.net/nih-stroke-scale/

NIH Stroke Scale short for National Institutes of Health Stroke Scale also called the NIHSS, is used by doctors to measure a patient's neurological deficits by asking the patient to answer questions and to perform several physical and mental tests. The NIH Stroke Scale (NIHSS) is the in-hospital 'gold-standard' for stroke severity grading

NIH Stroke Scale Score	Stroke Severity
0	No stroke symptoms
1-4	Minor stroke
5-15	Moderate stroke
16-20	Moderate to severe stroke
21-42	Severe stroke

https://healthjade.net/nih-stroke-scale/

Dictionary

Risk Factors – czynniki ryzyka

WeakenedVessel – osłabione naczynie

Hemorrhagic – krwotoczny

Ischemic – niedokrwienny

Aneurysm – tętniak

Arteriovenous malformations – malformacje tętniczo – żylne

Arteriography - arteriografia

References

- https://healthjade.net/nih-stroke-scale/
- https://www.stroke.org/en/about-stroke/types-of-stroke/hemorrhagic-strokes-bleeds
- https://www.cedars-sinai.org/health-library/diseases-and-conditions/h/hemorrhagic-stroke.html
- https://medlineplus.gov/transientischemicattack.html
- https://www.cdc.gov/stroke/about.htm
- https://www.stroke.org/en/about-stroke
- https://www.physio-pedia.com/Stroke
- ***„Is it a stroke?”*** Graeme J Hankey and David J Blacker British Medical Journal January 2015