SYMPTOM

Focal neurologic deficits

A focal neurologic deficit is a change in movement, feeling, vision, speech, or coordination affecting a specific body area.

WHAT IT FEELS LIKE
Weakness, numbness, or trouble speaking, seeing, or moving

WHERE IT IS FELT
One side, one limb, the face, vision, or speech

MOST COMMON CAUSES
Migraine aura, compressed nerves, Bell's palsy

WHEN IT IS URGENT
Sudden new weakness, numbness, speech trouble, or vision loss

USUALLY LASTS
Minutes to ongoing, based on the underlying cause

SEE A DOCTOR IF
Longstanding, unchanged symptoms recur or affect daily activities

Overview

A focal neurologic deficit is a problem with a specific function controlled by the nervous system. It may affect one side of your face, one arm or leg, part of your vision, speech, balance, or coordination.

"Focal" means limited to a particular function or body area. "Neurologic" means related to the brain, spinal cord, or nerves. A deficit is a loss or reduction of function, such as weakness rather than muscle pain.

There are many possible causes. Some are temporary or related to a compressed nerve or migraine. Others, especially stroke and transient ischemic attack, require emergency assessment. A transient ischemic attack, or TIA, is a brief interruption of blood flow to the brain.

The timing matters. A deficit that starts suddenly is treated differently from a mild, stable symptom that has been present for weeks.

What it may feel or look like

The symptoms depend on which part of the nervous system is affected. You or someone with you may notice:

Some neurologic symptoms add sensations rather than reduce function. Examples include tingling, flashing lights, or jerking movements. These can occur with migraine, nerve irritation, or a seizure.

General tiredness, widespread pain, and feeling faint are not usually focal deficits by themselves. However, they can occur at the same time as a focal symptom.

- Weakness or loss of movement in one arm, leg, or side
- One side of the face drooping
- Numbness or reduced feeling in a defined area
- Slurred speech or difficulty finding or understanding words
- Loss of vision, double vision, or a missing area of vision
- New clumsiness, poor coordination, or difficulty walking
- Trouble swallowing

Common causes

Common or usually non-emergency causes

A compressed or injured peripheral nerve can cause numbness, tingling, or weakness in the area supplied by that nerve. For example, pressure on a nerve at the wrist may affect part of the hand. These symptoms often relate to posture, repeated movement, injury, or swelling.

A migraine aura can cause temporary visual changes, tingling, numbness, or speech difficulty. Symptoms often develop over several minutes and may move from one area to another. An aura may happen before a headache or without one. A first or unusual episode still needs prompt assessment because it can resemble a TIA or stroke.

Bell's palsy causes weakness on one side of the face, often including the forehead and eyelid. Because stroke can also cause facial weakness, new symptoms should not be diagnosed at home.

Less common causes

Other possibilities include multiple sclerosis, inflammation or infection of the nervous system, a brain or spinal cord growth, and weakness following a seizure. Low blood sugar and some medicines or substances can also cause neurologic symptoms, although their effects may be more widespread.

Urgent causes

A stroke can occur when a blood vessel in the brain is blocked or bleeds. A TIA causes stroke-like symptoms that resolve, but it is still a medical emergency because it can warn of a future stroke.

Sudden spinal cord pressure or injury may cause limb weakness or numbness, sometimes with bladder or bowel problems. Serious head or neck injuries can also damage the brain, spinal cord, or blood vessels.

When to seek medical care

Call emergency services now for any new focal neurologic deficit that begins suddenly. This applies even if the symptom is mild or has already gone away.

Emergency warning signs include:

Do not drive yourself. Note when the person was last known to be without symptoms. This timing can affect which stroke treatments may be considered.

Arrange prompt same-day medical advice for a new symptom that developed more gradually, is unexplained, or keeps returning. Book a routine appointment for longstanding, unchanged symptoms in a small area, such as recurring hand tingling linked to certain positions. Seek urgent help instead if weakness, speech trouble, facial drooping, or vision loss appears.

- One side of the face drooping
- New weakness or numbness on one side
- New trouble speaking or understanding speech
- Sudden loss of vision or double vision
- Sudden severe difficulty walking or coordinating movements
- A sudden, unusually severe headache with neurologic symptoms
- Weakness after a seizure or head or neck injury

How the cause is found

A healthcare professional will ask exactly when the symptom began, how quickly it developed, and whether it improved or spread. They may ask about migraine, seizures, injuries, medicines, infections, and conditions that affect the blood vessels or nerves.

A neurologic examination checks strength, sensation, reflexes, vision, speech, coordination,

and walking. Blood pressure and blood glucose are often checked.

Depending on the pattern, tests may include blood tests, an electrocardiogram to assess heart rhythm, or imaging such as a CT or MRI scan. Nerve conduction tests may be used when a peripheral nerve problem is suspected.

Treatment and self-care

Treatment depends on the cause. Stroke care may include treatment to restore blood flow, control bleeding, or prevent another event. Migraine, nerve compression, Bell's palsy, seizures, and inflammatory conditions each require different approaches.

Until a new deficit has been assessed:

For an established peripheral nerve problem, changing positions and reducing repeated pressure may help. For a diagnosed migraine aura, following your existing migraine plan may be appropriate. A new or clearly different episode should not automatically be assumed to have the same cause.

- Do not drive or use dangerous equipment
- Avoid taking aspirin unless a clinician or emergency dispatcher advises it
- Record when symptoms started and how they changed
- Bring an up-to-date medicine list if you attend hospital

What to expect

Recovery depends on what caused the deficit, which function was affected, and how quickly treatment began. Some migraine or nerve symptoms resolve completely. Bell's palsy often improves over time, while stroke recovery may involve rehabilitation for movement, speech, vision, or daily activities.

A symptom disappearing does not prove the cause was harmless. Sudden symptoms that resolve may represent a TIA and still need emergency assessment.

Common questions

Is tingling a focal neurologic deficit?

Tingling in a specific area is a focal neurologic symptom, although it is not always a loss of

function. It commonly comes from pressure on a peripheral nerve. Sudden one-sided tingling accompanied by weakness, speech difficulty, or vision change needs emergency assessment.

Can anxiety cause these symptoms?

Anxiety can cause tingling, shaking, dizziness, or a feeling of weakness. These symptoms are often widespread, but patterns can overlap with neurologic conditions. New focal weakness or loss of function should be medically assessed rather than assumed to be anxiety.

What if the symptoms lasted only a few minutes?

Sudden focal symptoms that disappear can be a TIA. Call emergency services, even if you now feel normal. Assessment is time-sensitive because treatment may reduce the risk of a later stroke.

Does facial weakness always mean stroke?

No. Bell's palsy and other conditions can cause facial weakness. However, it is not always possible to tell the difference without an examination, especially when symptoms are new. Sudden facial drooping should be treated as an emergency.

Sources

- Centers for Disease Control and Prevention. Signs and Symptoms of Stroke
- National Institute for Health and Care Excellence. Stroke and transient ischaemic attack in over 16s: diagnosis and initial management, NG128
- Powers WJ, Rabinstein AA, Ackerson T, et al. Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update . Stroke . 2019;50:e344-e418
- Headache Classification Committee of the International Headache Society. Migraine with aura . International Classification of Headache Disorders, 3rd edition
- National Institute of Neurological Disorders and Stroke. Bell's Palsy