

Nervous System

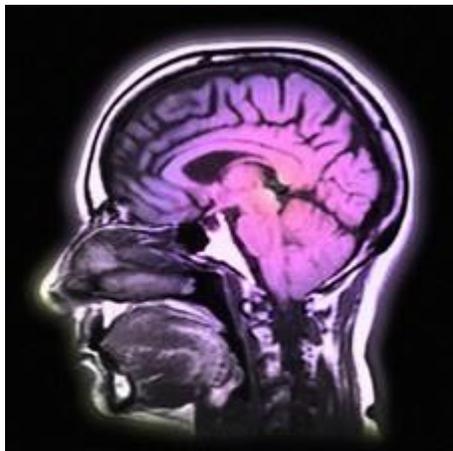
Nervous system terms

Cephal/o	Head	Cephalgia (a headache)
Encephal/o	Inside the head (brain)	Encephalitis (inflammation of the brain) Anencephalic (born without a brain)
Mening/o	Membranes surrounding the brain and spinal cord	Meningitis (inflammation of the membranes)
Myel/o	Spinal cord	Myelogram (X-ray of the spinal cord)
Neur/o	Nerve	Neuroma (tumor) Neuritis (inflammation)
Dys	Difficult, painful, abnormal	Dyslexia (difficulty reading)
-cele	Hernia, abnormal protrusion of structure out of normal anatomical position	Meningomyelocele (protrusion of membranes and spinal cord)
-pathy	Disease, abnormality	Encephalopathy (disease of the brain) Neuropathy (disease of the nerves)

-plasia	Development, formation, growth	Aplasia (no development) Hyperplasia (over development)
-plegia	Paralysis	Hemiplegia (paralysis of one side of the body) Quadriplegia (paralysis of all four limbs)

Nervous System Diseases

Multiple Sclerosis – Literally, “many hardenings,” MS is a disease of unknown cause that manifests as multiple hard plaques of degeneration of the insulating layer of nerve fibers in the central nervous system. The loss of insulation allows “short circuiting” of nerve impulses. Depending upon where the degeneration occurs, patients may suffer paralysis, sensory disturbances or blindness.



Cerebrovascular accident (CVA) – the fancy name for a “stroke”. A blood vessel in the brain may burst causing internal bleeding. Or, a clot may arise in a brain blood vessel (a thrombus), or arise elsewhere (embolus) and travel to get stuck in a brain vessel which then deprives brain tissue of oxygen. Depending upon the area of the brain involved, the patient may suffer paralysis, loss of speech or loss of vision.

Transient Ischemic Attack (TIA) – “Ischemia” was introduced previously in the circulatory diseases module referring to the heart. It literally means “not quite enough blood”. A short period of insufficient blood supply to the brain can have the same signs and symptoms as a stroke such as weakness in an arm, a partial loss of vision, but the problem lasts less than 24 hours. People who get TIA’s are at increased risk of having a stroke in the future.

Epilepsy – a Greek word for “seizure.” Convulsions is another term used.

Seizures may have many causes and not all seizures are epilepsy. High fevers in young children may trigger seizures which are short in duration, easily controlled and, typically, have no permanent aftereffects. Epilepsy is a specific condition which may occur at any age, seizures are more intense, longer lasting in duration, and recur with some frequency. The condition may be controlled with medication, or if unresponsive to drugs, may require surgery.

Aphasia – loss of speech. The speech centers are located on the left side of the brain in a majority of people. If someone suffers a “stroke” (cerebrovascular accident-CVA), or traumatic brain injury, and it involves the left side of the brain, they may suffer speech impediments that vary over a spectrum of problems from difficulty in finding the right word, speaking slowly and with difficulty, or complete loss of speech. Actually, there are two speech centers. Injury described above involves the motor speech area, the area of the brain that produces language by integrating thoughts of speech with the movements of the larynx, lips and tongue. There is a second speech area, the receptive or sensory area, that enables us to understand speech. Injury to the latter results in still fluent speech, but the individual does not understand what they are hearing.

Nervous System Procedures



Neurologist – a physician specializing in diseases of the brain, spinal cord and nerves. He/she may refer a patient to a neurosurgeon. Neurologists do not do surgery.

Lumbar (spinal) puncture or tap (LP) – introducing a needle between the lower bony vertebrae of our spinal column allows a physician to sample the fluid, cerebrospinal fluid (CSF), surrounding the brain and spinal cord. Lab tests on the

fluid are used for diagnostic purposes such as presence of bacteria in meningitis, special proteins in multiple sclerosis, or blood cells.

Brain scan – introducing a radioactive element into the blood can image possible tumors in the brain. The radioactive dose is very low and detectable only with special, very sensitive instruments that are much more sophisticated than the old Geiger counters.

Electroencephalography (EEG) – Wow, what a mouthful, but take it apart. Starting **at the end of the word: an image (in this case a written recording) of the brain's** electrical activity. EEGs are used to diagnose different types of seizure disorders such as epilepsy, brain tumors, and are used in sleep research to identify stages of sleep.

Computed tomography (CT) – a specialized X-ray machine that takes multiple images of a body area from different angles and has a computer that integrates **the multiple images into “slices” of the body. The resolution is much better than** standard X-rays and there is better differentiation of types of tissue (bone, air, solid organ).

Magnetic Resonance Imaging (MRI) – **Although the image produces the “slices”** through the body seen by CT (see above), **no X-rays are involved. The patient's** body is placed in a strong magnetic field. Radio pulses affect the resonance or **“spin” of atoms in the tissues.** A computer analyzes this information to show subtle differences in tissue molecular structure producing very high resolution and better differentiation of soft tissue, such as a tumor within the liver.