

## Hydrocephalus Types

Hydrocephalus is a medical condition characterized by an abnormal buildup and accumulation of cerebrospinal fluid (CSF) that can lead to ventricular dilation and increased intracranial pressure. There are 2 main types of hydrocephalus: communicating and noncommunicating. A notable variant of traditional hydrocephalus is normal pressure hydrocephalus (NPH). Sometimes brain atrophy can lead to the appearance of increased CSF and enlarged ventricles. This is known as hydrocephalus ex vacuo.



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### Characteristics

#### Cerebrospinal Fluid Accumulation

[Up-arrow Brain-spine-fluid](#)

Hydrocephalus (meaning "water brain") occurs when cerebrospinal fluid (CSF) accumulates within the ventricular system of the brain and spinal cord. It may cause an increased in intracranial pressures (ICP) but not necessarily.

### Types

#### Communicating Hydrocephalus

[Communicating Hydras-in-head](#)

Communicating hydrocephalus describes hydrocephalus that is caused by decreased CSF absorption at subarachnoid granulations or increased CSF production from the choroid plexus. Etiologies of decreased CSF absorption include scarring from infections (e.g. meningitis), subarachnoid hemorrhage, or neoplasms. Etiologies of increased CSF production include choroid plexus disease (e.g. papilloma, carcinoma).

#### Noncommunicating Hydrocephalus

[Nun-communicating Hydras-in-head](#)

Noncommunicating hydrocephalus describes hydrocephalus that is caused by some type of obstruction in the ventricular system (i.e. the ventricular system does NOT communicate with the venous sinuses). This obstruction can have multiple etiologies. Examples include mass effect from tumors or cysts, as well as congenital or acquired stenosis of the aqueduct of Sylvius.

### Variants

#### Normal Pressure Hydrocephalus

[Normal Pressure Hydra-in-head](#)

Normal pressure hydrocephalus (NPH) is primarily a disorder of the elderly. This condition is characterized by episodic elevation of CSF pressure, hence subarachnoid space volume is not affected. Characteristic symptoms include urinary incontinence, cognitive dysfunction, and gait apraxia (motor planning deficit leading to magnetic or shuffling gait). These characteristic symptoms are caused by the distortion of corona radiata fibers by the enlarged ventricles. CSF drainage via lumbar puncture or shunt placement can reverse these symptoms, hence normal pressure hydrocephalus is considered a reversible cause of cognitive dysfunction. For more information, please refer to the Picmonic on Normal Pressure Hydrocephalus.

## Hydrocephalus Ex Vacuo

### Hydras-in-head X-vacuum

Hydrocephalus ex vacuo is a medical condition characterized by an increase in the volume of CSF and enlargement of cerebral ventricles on imaging, but does not represent true hydrocephalus. This condition is usually caused by brain volume loss and neuronal atrophy seen in conditions like Alzheimer's disease, Huntington's disease, frontotemporal dementia, and advanced HIV/AIDS. It is important to note that these patients do not develop the typical triad of apraxia, dementia, and urinary incontinence. Intracranial pressure usually remains normal.