

## DISABILITY AWARENESS: HYDROCEPHALUS

by Mayo Clinic staff

Hydrocephalus is caused by excess fluid buildup in your brain.

Your brain is the consistency of gelatin, and it floats in a bath of cerebrospinal fluid. This fluid also fills large open structures, called ventricles, which lie deep inside your brain. The fluid-filled ventricles help keep the brain buoyant and cushioned.

Cerebrospinal fluid flows through the ventricles by way of interconnecting channels. The fluid eventually flows into spaces around the brain, where it's absorbed into your bloodstream.

Keeping the production, flow and absorption of cerebrospinal fluid in balance is important to maintaining normal pressure inside your skull.

Hydrocephalus results when the flow of cerebrospinal fluid is disrupted — for example, when a channel between ventricles becomes narrowed — or when your body doesn't properly absorb this fluid.

Defective absorption of cerebrospinal fluid causes normal pressure hydrocephalus, seen most often in older people. In normal pressure hydrocephalus, excess fluid enlarges the ventricles but does not increase pressure on the brain. Normal pressure hydrocephalus may be the result of injury or illness, but in many cases the cause is unknown.

The severity of hydrocephalus depends on the age at which the condition develops and the course it follows. If the condition is well advanced at birth, major brain damage and physical disabilities are likely. In less severe cases, with proper treatment, it's possible to have a nearly normal life span and intelligence.

Once known as "water on the brain," hydrocephalus is sometimes present at birth, although it may develop later. About 1 out of 500 children is born with the disorder. The outlook if you have hydrocephalus depends on how quickly the condition is diagnosed and whether any underlying disorders are present.

The signs and symptoms of hydrocephalus vary by age group and disease progression.

In infants, common signs and symptoms of hydrocephalus include: an unusually large head; a rapid increase in the size of the head; a bulging "soft spot" on the top of the head; vomiting; sleepiness; irritability; seizures; eyes fixed downward (sun-

setting of the eyes); developmental delay.

In older children and adults, common signs and symptoms of hydrocephalus include: headache followed by vomiting; nausea; blurred or double vision; eyes fixed downward (sun-setting of the eyes); problems with balance, coordination or gait; sluggishness or lack of energy; slowing or regression of development; memory loss; confusion; urinary incontinence; irritability; changes in personality; impaired performance in school or work.

Hydrocephalus produces different combinations of these signs and symptoms, depending on its cause, which also varies by age. For example, a condition known as normal pressure hydrocephalus, which mainly affects older people, typically starts with difficulty walking. Urinary incontinence often develops, along with a type of dementia marked by slowness of thinking and information processing.

Infants and toddlers require emergency medical care for these signs and symptoms: a high-pitched cry; problems with sucking or feeding; unexplained, recurrent vomiting; exhibiting an unwillingness to bend or move the neck or head; breathing difficulties; seizures.

The following signs and symptoms don't constitute an emergency, but they do warrant a call to your child's doctor: a rapid increase in the size of the head; a bulging "soft spot" on the top of the head; a change in the appearance of the face or eyes; a decreased level of interest or engagement in social interactions.

Older adults need a complete physical and neurological exam if experiencing: walking difficulties; impaired thinking; urinary incontinence.

Premature infants have an increased risk of severe bleeding within the ventricles of the brain (intraventricular hemorrhage), which can lead to hydrocephalus.

Certain problems during pregnancy may increase an infant's risk of developing hydrocephalus, including: an infection within the uterus; problems in fetal development, such as incomplete closure of the spinal column; congenital or developmental defects not apparent at birth also can increase older children's risk of hydrocephalus.

Other factors that increase your risk of hydrocephalus include: lesions or tumors of the brain or spinal cord; central nervous system infections; bleeding in the brain; severe head injury.

<http://www.mayoclinic.com/health/hydrocephalus/DS00393>