

## **Brain Tumor - Overview** [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 06/2014

**ON THIS PAGE:** You will find some basic information about this disease and the parts of the body it may affect. This is the first page of Cancer.Net's Guide to Brain Tumors. To see other pages, use the menu on the side of your screen. Think of that menu as a roadmap to this full guide.

### **About the brain and central nervous system**

The brain and spinal column make up the central nervous system (CNS), where all vital functions, such as thought, speech, and body movements are controlled. When a tumor grows in the CNS, it can affect a person's thought processes or movements.

A primary brain tumor can be benign, meaning it does not spread, or cancerous, meaning it can spread. Generally, primary brain tumors do not spread outside of the CNS especially in adults. This section describes primary brain tumors, which are those that start in the brain. Secondary brain tumors, also called brain metastases, are much more common than primary tumors. A secondary brain tumor is a cancerous tumor that started in another part of the body, such as the breast, lung, or colon and then spread to the brain. Learn more about cancer that started elsewhere in the body and spread to the brain by reading about that specific [type of cancer](#) [3].

A primary brain tumor is described as low grade or high grade. A low-grade tumor generally grows slowly, but can turn into a high-grade tumor. A high-grade tumor is more likely to grow faster.

### **Anatomy of the brain**

The brain is made up of four main parts: the cerebrum, the cerebellum, the brain stem, and the meninges.

**The cerebrum.** This is the largest part of the brain. It contains two cerebral hemispheres on either side of the brain that each control the opposite side of the body. It is divided into four lobes where specific functions occur:

- The frontal lobe controls reasoning, emotions, problem-solving, expressive speech, and movement

- The parietal lobe controls the sensations of touch, such as pressure, pain, and temperature, and parts of speech, visual-spatial orientation, and calculation
- The temporal lobe controls memory, special senses such as hearing, and the ability to understand spoken or written words
- The occipital lobe controls vision

**The cerebellum.** The cerebellum is located at the back part of the brain below the cerebrum. It is responsible for coordination and balance and controls functions on the same side of the body.

**The brain stem.** This is the portion of the brain that connects to the spinal cord, controls involuntary functions essential for life, such as the beating of the heart and breathing. In addition, messages for all the functions controlled by the cerebrum and cerebellum travel through the brain stem to the connections in the body.

**The meninges.** These are the membranes that surround and protect the brain and spinal cord. There are three meningeal layers, called the dura mater, arachnoid, and pia mater. The cerebrospinal fluid (CSF) is made near the center of the brain, in the lateral ventricles, and circulates around the brain and spinal cord between the arachnoid and pia layers.

View [illustrations of the anatomy of the brain](#) [4].

## Types of brain tumors

There are many types of primary brain tumors, and some cannot be assigned an exact type because taking a sample of the tumor tissue is difficult because of where the tumor is located in the brain. For a complete list of the types of brain tumors and how often they are diagnosed, please refer to the [Central Brain Tumor Registry of the United States](#) [5]. This section covers brain tumors diagnosed in adults; Learn about [brain tumors in children](#) [6]. For practical purposes, this section's coverage is divided into gliomas and non-glioma types of tumors in adults.

### Gliomas

As a group, a glioma is one of the most common types of brain tumor. A glioma is a tumor that grows from a glial cell, which is a supportive cell in the brain. There are two main types of supportive cells: astrocytes and oligodendrocytes. Most gliomas are called either astrocytoma or oligodendroglioma, or a mix of both. A glioma is given a grade, which is a measure of how much the tumor appears like normal brain tissue. A higher grade is usually more likely to grow quickly.

Types of gliomas include:

**Astrocytoma.** Astrocytoma is the most common type of glioma and begins in cells called astrocytes in the cerebrum or cerebellum. There are four grades of astrocytoma.

- Grade I or pilocytic astrocytoma is a slow-growing tumor that is most often benign and rarely spreads into nearby tissue. It is more common in children. About 2% of all brain tumors are grade I astrocytomas.
- Grade II or low-grade diffuse astrocytoma is a slow-growing tumor that can often spread into

nearby tissue and can become a higher grade. This type makes up about 3% of all brain tumors.

- Grade III or anaplastic astrocytoma is a cancerous tumor that can quickly grow and spread to nearby tissues. About 2% of all brain tumors are grade III astrocytomas.
- Grade IV or glioblastoma is a very aggressive form of astrocytoma that makes up about 16% of all brain tumors.

Learn about [astrocytoma in children](#) [7].

**Oligodendroglioma.** Oligodendroglioma is a tumor that develops from cells called oligodendrocytes. These cells are responsible for making myelin, a substance that surrounds the nerves and is rich in protein and fatty substances called lipids. Oligodendrogliomas make up about 2% of primary brain tumors and are subclassified as either oligodendroglioma, which is considered low grade, or anaplastic oligodendroglioma.

**Mixed gliomas.** A mixed tumor is made up of more than one of the glial cell types and makes up about 1% of primary brain tumors.

**Ependymomas.** Ependymomas commonly begin in the passageways in the brain where CSF is made and stored, called the ependymal, and make up about 2% of primary brain tumors. Learn about [ependymoma in children](#) [8].

**Brain stem glioma.** A brain stem glioma begins in the glial cells in the brain stem. Learn about [brain stem glioma in children](#) [9].

## Non-glioma tumors

The following section covers non-glioma tumors, which are tumors that arise from cells in the brain that are not glial or supportive tissue. Types of non-glioma tumors include:

**Meningioma.** Meningioma is the most common primary brain tumor, making up about 35% of all primary brain tumors. It begins in the meninges and is most often noncancerous. Meningioma can cause serious symptoms if it grows and presses on the brain or spinal cord or grows into the brain tissue. Learn more about [meningioma](#) [10].

**Pineal gland and pituitary gland tumors [11].** About 14% of all brain tumors are located in the pineal gland and pituitary gland.

**Primary CNS lymphoma.** This is a form of [lymphoma](#) [12]. Lymphoma is a cancer that begins in the lymphatic system. Primary CNS lymphoma starts in the brain and can spread to the spinal fluid and eyes. It makes up about 2% of all brain tumors.

**Medulloblastoma.** Medulloblastoma begins in granular cells in the cerebellum. It is most common in children and is usually cancerous, often spreading throughout the CNS. Medulloblastomas make up about 2% of all brain tumors. Similar tumors can start in other parts of the brain, frequently in the pineal gland region, and are called primitive neuroectodermal tumors (PNET). Learn about [medulloblastoma in children](#) [13].

**Craniopharyngioma.** Craniopharyngioma is a benign tumor that begins near the pituitary gland located near the base of the brain. These tumors are rare, making up less than 1% of all brain tumors. Learn about [craniopharyngioma in children](#) [14].

**Acoustic schwannoma.** Acoustic schwannoma, also called acoustic neuroma or vestibular schwannoma, is a rare tumor that begins in the vestibular nerve, which is a nerve in the inner ear that helps control balance and is typically noncancerous.

## Looking for More of an Overview?

If you would like additional introductory information, explore these related items. Please note these links take you to other sections on Cancer.Net:

- [ASCO Answers Fact Sheet](#) [15]: Read a one-page fact sheet (available as a PDF) that offers an easy-to-print introduction to this type of tumor.
- [Cancer.Net Patient Education Video](#) [16]: View a short video led by an ASCO expert in this type of tumor that provides basic information and areas of research.

*To continue reading this guide, use the menu on the side of your screen to select another section.*

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### Links:

- [1] <http://www.cancer.net/cancer-types/brain-tumor/overview>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/cancer-types>
- [4] <http://www.cancer.net/node/18564>
- [5] <http://www.cbtrus.org/>
- [6] <http://www.cancer.net/node/18660>
- [7] <http://www.cancer.net/node/18488>
- [8] <http://www.cancer.net/node/18769>
- [9] <http://www.cancer.net/node/18548>
- [10] <http://www.cancer.net/node/19266>
- [11] <http://www.cancer.net/node/19536>
- [12] <http://www.cancer.net/node/19207>
- [13] <http://www.cancer.net/node/19237>
- [14] <http://www.cancer.net/node/18716>
- [15] [http://www.cancer.net/sites/cancer.net/files/asco\\_answers\\_brain.pdf](http://www.cancer.net/sites/cancer.net/files/asco_answers_brain.pdf)
- [16] <http://www.cancer.net/node/27391>